The Alternative Futures Project at the University of Illinois

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Number 3   March, 1973

The People of the United States have come to the aid of
several persons involved in the Alternative Futures Project.
A grant from the National Science Foundation's Special Projects
in Graduate Education program for research on "Social Cyber-
netics and Computer-based Communications Media" has provided
support to five people: Stuart Umpleby, graduate student in
communications; Valarie Lamont, graduate student in political
science; George Carter, senior in electrical engineering;
James Gilfillan, senior in psychology; and Deborah Melchi,
junior in sociology.

With this support we have continued our research on the
possibilities that computer-based communications media may offer
for citizen participation in community planning.

More specific objectives are 1) to further develop existing
programs on the PLATO teaching computer system; 2) to develop
new programs; 3) to study the PLATO system as a dependent
variable, the development of which has been influenced by various
interest groups; 4) to study the PLATO system as an independent
variable which will have an impact on the Champaign-Urbana
community.

Some of our accomplishments to date include the following:

1. Data Gathering: Considerable information on the
Champaign-Urbana area has been located and organized in files.
The files include information on the community's history,
statistics, civic organizations, industry, and governmental
units. The data will be used in programs on the computer.

2. A Data-Bank Program: "Cities" provides basic information
on Champaign-Urbana. The program is divided into four general
areas: Organizations, People, Maps, and Statistics. Partici-
pants obtain information by making a series of selections
beginning at the general and going towards the specific.

3. Conferencing Programs: "Discuss", a program similar
to Murray Turoff's "Discussion" program, allows users to
communicate between terminals by sequentially storing message
inputs in computer memory and then permitting retrieval of
the message by the users. "Delphi Conferencing" is a more
structured version of the "Discuss" program and is similar to
Murray Turoff's "Delphi Conferencing". Messages must be

designated as "proposals", "comments", "facts", or "numeric estimates". Provisions are made to allow participants to vote on these items regarding their importance, desirability or feasibility.

4. Urban Planning: The "Land Use" program provides background information to guide people in setting up a Neighborhood Development Program. It specifies HUD guidelines, suggests how citizens can provide input, and lists benefits relocated persons are entitled to, etc.

5. Handbook: In order to assist others in starting a computer-based communications system, we have begun to assemble a handbook stating, among other things, the criteria we used in selecting information to be put into programs.

INTERDISCIPLINARY RESEARCH

by Gerald Salancik and Valarie Lamont

For the past year we have been working on a project concerned with identifying interdisciplinary opportunities for research on emerging social problems. A) The study is being carried out in three phases:

1. Identify current interdisciplinary projects and personnel on this campus involved in interdisciplinary research.
2. Refine the initial inventory of research and identify trends in interdisciplinary contributions to various social problem areas.
3. Refine the assessment of research contributions by having representatives from various social science disciplines judge the ways in which their disciplines and related disciplines will contribute to the solution or understanding of some outstanding social problems.

B) From the completion of the first two phases of this study, certain issues have been identified:

1) Should the university be involved in interdisciplinary research? And the related question -- the definition of interdisciplinary research, i.e., the distinction between interdisciplinary and multidisciplinary research and the dimensions of such research.
2. Who should be involved in interdisciplinary research?
3. How involved is involved?
4. Organizational problems and issues.

The final report on this study is not yet completed; however, if you would like a copy when it becomes available, send requests to

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BIOLOGICAL COMPUTER LABORATORY

During the past year we have been exchanging ideas with a uniquely skilled group of people in the Biological Computer Laboratory, which is part of the Department of Electrical Engineering at the University of Illinois in Champaign-Urbana.

The Biological Computer Laboratory (BCL) was established January 1, 1958, under the directorship of Professor Heinz Von Foerster who holds joint appointments with the Departments of Electrical Engineering and Biophysics. Over the past 15 years the staff has included, among other, the late W. Ross Ashby, Gotthard Gunther, Lars Löfgren, and Gordon Pask.

The basic idea behind the laboratory is that cognitive processes are interpreted as computations. Thus the purpose of BCL is to explore the principles of computation in living organisms, to establish the structural and functional organization of such "biological computers", and to utilize this knowledge in the design and construction of cognitive systems, inductive inference machines, etc.

The BCL monographs span a variety of areas: cognition, combinatorics, computation, epistemology, information theory, motor activity, network theory, physiology, psychology, and numerical analysis.

One of our chief interests in BCL is to become more familiar with the laboratory's extensive literature in theoretical cybernetics. This literature makes clear the ability of cybernetic theories to deal with large complex systems such as societies. We hope to apply this point of view in building a theory of social systems which will be useful in creating alternative futures.

Below is a bibliography of BCL publications concerned with the epistemology, theory, and behavior of large systems with strongly interacting parts.

Epistemological and Logical Foundations

1. "Recognition of Order and Evolutionary Systems" (Löfgren BCL #147).

2. "An Axiomatic Explanation of Complete Self-Reproduction" (Löfgren, BCL #155).

3. "Cybernetic Ontology and Transjunctional Operations" (Gunther, BCL #68).

4. "Computing in the Semantic Domain" (Von Foerster, BCL #196).

5. "Logical Structure of Environment and Its Internal Representation" (Von Foerster, BCL #96).

6. "Responsibilities of Competence" (Von Foerster, BCL #223).

7. "Perception of the Future and the Future of Perception" (Von Foerster, BCL #198).

Systems and Information Theory

1. "Every Good Regulator of a System Must Be a Model of that System" (Ashby and Conant, BCL #202).

2. "On Temporal Characteristics of Behavior in Certain Complex Systems" (Ashby and Walker, BCL #127).

3. A Study of a Family of Complex Systems - An Approach to the Investigation of Organisms' Behavior (Walker, BCL TR #5).

4. "Connectance of Large Dynamic (Cybernetic) Systems: Critical Values for Stability" (Gardner and Ashby, BCL #194).

5. "Information Processing in Everyday Human Activity" (Ashby, BCL #151).

6. "Information Flows Within Coordinated Systems" (Ashby, BCL #203)

7. "Some Consequences of Bremermann's Limit for Information Processing Systems" (Ashby, BCL #170).

8. "On Self-Organizing Systems and Their Environments" (Von Foerster, BCL #33).

Social Systems and Communication

1. "Cybernetics of Taxation: The Optimization of Economic Participation" (Peterson and Von Foerster, BCL #215).

2. "Doomsday: Friday, 13 November, A.D. 2026" (Von Foerster, BCL #35).

3. "Technology: What Will It Mean To Librarians?" (Von Foerster, BCL #219).

4. "To Uncover; To Deduce; To Conclude" (Weston, BCL #201).

5. "Information Theory and Consumer Action" (Umpleby, BCL #221).

Copies of the articles and/or a complete list of BCL publications can be obtained from

> Prof. Heinz Von Foerster
> 216 EERL
> University of Illinois
> Urbana, Illinois 61801

HIERARCHICAL CYBERNETICS

Some particularly promising research for social science is being conducted by Dr. Philip Owen, visiting Research Assistant Professor at the Institute of Communications at the University of Illinois.

Dr. Owen is using a special mathematical version of cybernetics to develop a theory which accounts for hierarchical

complexity and increases in organization in a social system.
Two recent papers in this area are:

1. "The Contribution of Hierarchical Information Structures to Cybernetic Ontology" in which Dr. Owen develops a rigorous mathematical theory to account for quantities of organization in a structure, both between two or more hierarchical levels and within the same hierarchical level.

2. "A Hierarchical Information Analysis of the Order of Words". This paper attempts to account for the structure of such complex human activities as communication through language.

Copies of these papers can be obtained from Dr. Owen at the Institute of Communications Research, 1207 West Oregon, Urbana, Illinois 61801.

IS GREATER CITIZEN PARTICIPATION IN PLANNING POSSIBLE AND DESIRABLE?

by Stuart A. Umpleby

Abstract: A review of present research suggests that significant alterations in democratic forms of government are possible in coming decades due to new communications technologies. Increasing citizen participation in planning is considered desirable due to the growth of planning in a democratic society, the need to restore a psychological balance between available information and decision making opportunities, the need for common forums in a society fractionated by multiple communication channels, and the potential for improving the responsiveness of government to the public at large. The advocates of citizen feedback hold a position distinct from the views of establishment social scientists, technocratic planners and radical community activists.

THE DESIGN OF SOCIETIES: INFORMATION PROCESSING IN SOCIAL SYSTEMS

by Stuart A. Umpleby

Abstract: A science of the universe should encompass social phenomena as well as physical and biological phenomena. It is further assumed that a formal science of complex, information processing systems would be useful in social problem solving. In order to understand how the social sciences can be combined with the physical and biological sciences, it is suggested to return to the basic constituents of the universe--matter, energy and information. One reason why a

formal theory of social systems is so necessary at the present
time is that contemporary social science, because it lacks a
clear conception of the range of variability possible in
channel capacity, is poorly prepared to shed light on the
probable implications of the new communications technologies.
Brief examples of how these technologies may transform world
society are given in the context of politics, economics and
education.

This paper was prepared for the Third World Future Research
Conference held in Bucharest, Romania, September 3-10, 1972.

HOW WE PAY FOR TELEVISION

The effect of financing television (and radio) programming
by commercial advertising is to levy a doubly regressive sales
tax on the public which is collected by business. There are
two regressive operations involved.

First, advertising can be thought of as a hidden sales
tax because it is collected through the prices of consumer
goods. It is misleading to assume that television programming
is free or that business corporations pay for television.
Whatever expenses corporations incur due to advertising are
passed on to consumers in the prices of products. A regressive
tax is any tax that is a greater burden to lower income people
than higher income people. Economists are in agreement that
a sales tax is a regressive tax.

Second, the "advertising sales tax" is not applied to all
consumer products. Luxury items such as fur coats, Cadillacs,
diamonds, and yachts are rarely if ever advertised on television.
Because television reaches a mass audience, the advertising
which pays for the programs must sell goods in a price range
the average person can afford. The result is many advertise-
ments for toothpaste, soap, aspirin, and low or medium priced
cars. Thus the public ultimately pays for television programming
through the consumer products it buys, but not all products,
only those used by a very large number of people.

Going one step further, it can be noted that this doubly
regressive tax pays not only for programming but also for
the cost of producing the commercials. That is, if television
programs were paid for by revenue from the federal income tax,
or a tax on receiving sets, all of the equipment, talent, and
money now used to write, direct, and produce commercials could
be used to improve the main programming. If one assumes that
commercials now take up 10% of air time and that minute-for-
minute commercials are twice as expensive to produce as the
programming itself, then switching to the income tax, or a tax
on sets as a method of financing would yield a 20% increase in
revenue available to improve the quality of programming.

What would be lost would be the stimulus to economic activity that this advertising provides. What would be gained would be lower consumer prices, an end to at least part of the pollution of the symbolic environment, and perhaps some reduction in anxiety about bad breath, body odor, and sagging girdles.

EARTHWORM II TELLS WHAT'S HAPPENING

If you have ever wondered what the annual report of a Center for the Practice of Democratic Institutions might look like, this may be it. This publication contains 52 yellow pages on what is happening with the counter-culture in Champaign-Urbana. It is an index and description of alternative community activities in the area. Sample items are the Dream Museum, Neighborhood Youth Design Depot, Housewives Interested in Pollution Solutions (HIPS), Free Prairie Communications, Inc., Art Co-op, Metamorphosis Restaurant, Tenants Union, a list of nature trips, and an inventory of political groups.

In less than five years the counter-culture in Champaign-Urbana has organized a viable alternative community. This society within a society includes food stores, appliance repair shops, craft shops, legal aid, health services, women's groups, a community council, community publications and even a rudimentary tax structure.All the groups listed in the Earthworm are characterized by 1) collective decision-making, 2) non or low profit economics, 3) commitment to "humanitarian motivation for existence", and 4) payment of community tax or performance of some community service. Copies are available for 50¢ (plus 14¢ for mailing costs) from Earthworm, Box 2315, Station A, Champaign, Illinois 61820 USA.

ALTERNATIVE ALUMNI ASSOCIATIONS

Depressed by the activities of your university's alumni association? Judging from the following letter to the Editor appearing in The Daily Illini, you're not alone. But read on to see what you can do about it:

To the Editor:

Judging from the lead paragraph in your recent story on the University of Illinois Alumni Association, the organization is having trouble appealing to recent graduates. I am not surprised.

The December issue of the Alumni News has an article about the nominees for president and vice president of the association. Both are corporation presidents. There is also an article on football and an interview with Chancellor