

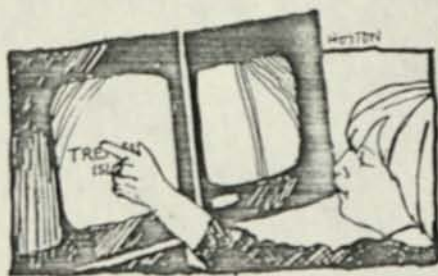
Open Collective Memory Systems

During the late 1960s, as networks of alternative human service agencies and groups working for social change developed in America, three levels of information-processing need became apparent.

In dealing with staff, clients, and community, a typical organization needed easily-accessible and continuously-updated information about a great variety of persons, activities, informational and other resources, etc. Within each network of groups of some particular sort, the same need was experienced; often the network's evolution depended vitally upon its satisfying this need, as did the local work of each group. Finally, as networks multiplied and their works developed, the same need appeared among them as a collectivity: how could the whole be accessed to itself?

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Primitive answers to these needs appeared in the filing-systems of local agencies, in networking newsletters, and in such ventures of inter-network accessing as the many Peoples' Yellow Pages. But other answers were being explored. In 1971, Project One, the first modern



"warehouse community," came together in San Francisco. In its huge, converted warehouse, fifty groups, covering the change-spectrum from prison reform, to community media, to artists and video-freaks, to a free school, to legal aid, were hived together, bringing the many currents of information and work they represented into an intense interplay. It was a partial answer to the problem and potential of accessing the whole to itself, but promising enough so that the warehouse community form was explored in many cities through the mid-1970s.

It was fitting, then, that in the very basement of Project One, a small group of technological visionaries were at work on tools which promised new powers to meet such informational needs (and quite a variety of others). The men and women of Resource One were no razzle-dazzle crew, but a bunch of pragmatic kids at play with a cumbersome, antiquated XDS-940 computer scrounged from a friendly corporation. Intent on turning cybernetic technology to direct community service and guided by clear political insights rare in the cybernetic field, by 1974 they had developed a system called Community Memory, as remarkable and luminous in its implications as it was simple and funky in its first field test.

Like any tool, computers are no wiser than their users' intentions, and we have hardly begun to explore what uses we might make of them. Most people's experience with them is still limited to having had information about themselves or their activities processed by higher authorities. It takes a leap of imagination for a small service-agency or change-group even to grasp that the information-processing power so recently employed only at high cost by governmental agencies, retail chains, etc., has quite suddenly become accessible, in compact and

relatively cheap form, and might be used to better handle many of its routine needs, from file storage and resource library to addressing mailings.

But the uses of Community Memory proved to be of a higher, more social nature, evident even in the first, elemental experiment. To the central processor ("computer") in Resource One, phone lines connected three peripheral terminals placed in public locations (stores, a library). The terminals included a keyboard and a print-out, which anyone could use to enter information into or retrieve from a common data base. At first attendants helped people to become familiar with the system. Soon this function was taken over by the local communities of users, and by the system's own instructional programs. What may well have been the world's first prototype of a free-standing public information utility went into operation for a year.

One dimension of cybernetic systems is their hardware; recent advances have made available cheap, dependable, "smart" peripheral equipment which make more extensive, "networked" versions of Community Memory radically more practical. But the heart of any system is its software, and Community Memory's programming made it much more than the computerized bulletin-board that its funky data-base made it seem at first glance. Community Memory's program was interactional. It welcomed the user, helped teach her or him how to use the physical equipment, how to search for data, how to enter it. In particular, Community Memory was programmed to allow and to teach the user to create the very categories by which information was ordered, stored, and made visible (accessible) to other users. This principle was essential to the political character of Community Memory, making it a fully free and democratic utility.

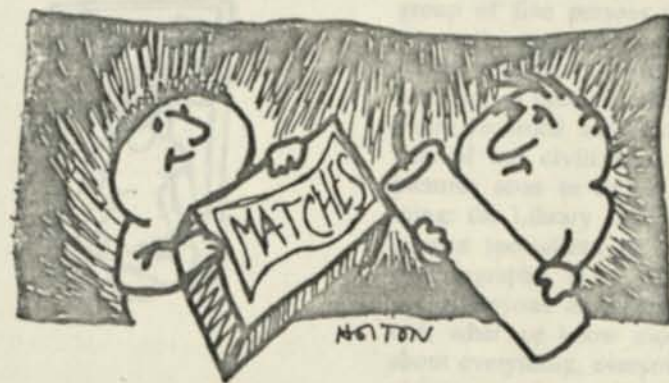
Though the first field trial of Community Memory was tiny, serving at most 150 users a day, the simplest sorts of uses that larger open public information systems can serve were evident from the beginning. Goods, services and other resources were offered for sale or exchange, in a medium more flexible and immediate than the newspaper want-ads. But a truly open system holds richer possibilities. Musicians looking for practice-partners or others to form groups found each other, ride-pools and study-groups organized themselves. Poems and political sermons were entered in the data-pool, with new categories announced for those who wished to pursue them. Commentaries on these and commentaries on commentaries began to accumulate and be read and shared-in by special audiences. All of this

in a public, self-organized and freely evolving version of the nominally more sophisticated experiments in computer teleconferencing on specific topics being then undertaken by various governmental and private agencies.

Every cybernetic system has a political character, not merely in the uses to which it is put but intrinsic in the very hardware and software which enable its uses. Computers of yore were massive, expensive, usable only by large, high-budget (bureaucratic) agencies with battalions of specialized technicians. Quite suddenly this condition has reversed, computer power becoming rapidly public. But the science-and-art of programming as developed in conjunction with the early hardware and uses, remains unchanged in its political character and still dominates the scene. The programs most people encounter (even in TV game sets, let alone in commercial or governmental hands) lead them through pre-determined routines or deliver pre-packaged data, originated or otherwise controlled by central sources or powers. In general they have no control over the way data from or about them are acquired and used, nor any way to alter or enrich the very programs themselves. In all this, several species of powerlessness are perpetuated; such programming is perhaps most useful as a tool reinforcing authoritarian systems, unless it is balanced with programming of a different sort.

run. It was a fully democratic, fully decentralized information system. Power to put information in public reach and to draw on information was available to anyone, regardless of their financial, organizational or social status. No central authority provided the information, edited it, censored it, determined who could know what, or certified what was true. *No central authority or agency mediated people's direct communication and transactions with each other.*

To put it so is to say that fully open information systems are potent tools of anarchy — not of mindless muddle, but of delicate and complex self-organizing processes which might quite transform society. The alternative is familiar in all our past experiences with "broadcast" media, electronic and other. Through books, journalism, radio, TV, school, messages are broadcast from a few to many; most citizens without special means cannot make any information or message, besides a want-ad, visible to many others. Information is power, and the distribution of "broadcast power" has pretty much followed the distribution of economic/political power in our society; what may be said in public is always subject to strong constraints, even in left-wing journals. All this is not simply *pro-forma* authoritarian stuff; it is also the very glue that holds our present culture together. Should we come to depend significantly on communications media



By contrast, the programming of Community Memory was radically free and radically interactional. Future public memory systems may well be "convivial" in the fullest sense, teaching their users to maintain and repair them, and offering further human and other resources for this through their data-banks. But Community Memory's social/political character was evident in the trial

which enable people to make directly accessible to each other the full range of what they have to communicate, freely and democratically, to broad publics and to quite specialized "minipublics" and self-organizing groups — we should expect many of our political, educational, cultural, etc. processes to be quite transformed.

This is putting the prospect at its grand-

est. But the pressure, the desire for direct, unmediated intercourse is a potent force in our society now. Such "grassroots" phenomena as yard-sales and fleamarket papers, "food conspiracies," the sexual want-ads, community learning-exchanges and free universities, the "encounter" movement, neighborhood clinics and citizen political participation testify to it in various ways — boding a transformation deeper and more complex than the participatory democracy which is its political face. Meanwhile, were adequately open terminals made available in each small neighborhood of a city, all the (non-contact) informational transactions of each of the nine activities above — not to mention car pools, child-care connections, service exchanges, housing and jobs, the rest of the classified section, and lord knows what else — could proceed much more effectively and directly. Even this alone would justify the project, given that the price for such a generally-accessible public information utility would be on the order of \$100 per citizen to establish, and \$30/person annually thereafter.

The more profound and transformative uses of such a utility are too rich to explore properly here. I have sketched scenarios for (electoral) politics and for education elsewhere.*

Another example unfolds as we consider the regulation of the human services. At present providers of education, therapy, medicine, social and legal services, etc., are largely certified and regulated by interlocks of centralized governmental and proprietary-professional agencies. The intent is to protect the consumer and make practices effective. The result, as this century's history of health shows most clearly, in America is as much to define and guarantee monopolies of narrow practice that benefit special classes, inhibit free development and progress, and serve consumers at times injuriously.

But the ultimate judgement of a practitioner's practice lies not with the state, nor with a jury of professional peers alone, but rather first and mainly in the flesh of life, in the actual experience of the particular people he or she affects. For each teacher, doctor, plumber, whatnot, a rich "file" of information on and evaluation of his or her practice exists in the community — scattered in privatized experience, at present no more methodically

accessible than your friend's advice about her wonderful yoga teacher. Yet the same technology that can make it easier to locate a compatible teacher (or to be your own) can serve as readily to record your evaluation of his or her teaching, making it as accessible as the Teachers' Association evaluation for other prospective students to consider. This technology could record and index, for the benefit of others, your summary of the many individual opinions about another teacher; and to record his or her rebuttal of some vicious negative opinion. (Such information processes have in fact been explored most clearly so far, in the human services, through projects in course/teacher evaluation, which have proven responsible and useful, and suggest models for analogous consumer empowerment in other services.)

A public information utility used methodically in this fashion would quite transform the modes of regulation of human service practices, as well as the modes of consumer information, choice and interaction, and consumer/practitioner relationship.*

Of course anarchy is also chaos; in an open, unregulated information system (as in any other) the problem of wrong, misleading and malicious information arises. The yoga teacher or political candidate with his or her public file swollen with lying pseudonymous tales by a jealous competitor is only the first spectre to



by now remarked upon so often and to so little effect that it is hard to recognize how fast they are coming about.

*Another aspect of such a participant-democratic information system has been modeled in a primitive way already through the magazine *Prevention*. High feedback participation among its million readers has enabled it in effect to conduct large-scale empirical research into certain nutritional, medical, etc. questions, collectively through its constituency, at times directly in response to their interests, and feed back the summarized reports. A public information utility would make such processes radically more efficient and practical, and decentralize the power to initiate them.

suggest that a public information utility might equally portend prodigious possibilities of misuse. But so it is for every tool, the ill potential in proportion to the good; in this case it is fairer to recognize this "power to the people" brand of cybernetics, even with its darker potentials, as a counterpoise to the still overwhelmingly dominant modes of cybernetic employment, whose totalitarian potentials for invasions of privacy and control of the citizenry by the State have been

All this is not to dodge the question of poison (mis-information, etc.) in the data-pool. The issue is of how (or whether) a self-organizing system can keep itself healthy; it is the issue of democratic society, for which democratic information-systems are a fundamental tool. In the case of a genuinely open public information utility, new customs and perhaps sanctions for making information responsible would need to develop. Present laws governing communication would need transformation to accommodate radically expanded communicative facilities and processes. The issues involved are profound. Models are being proposed, (they have their flaws), and discussion continues in specialized journals. The point here is that these issues are no more profound, nor less, than the positive and transformative potentials which open through these technologies.

Indeed even the more modest explorations of collective memories mentioned below should be understood now in this fuller context. We have presently the technological capacity to place, in each group of five persons in America, one terminal connecting them not only with all the mundanely useful or controversial information sketched above, but with the entire recorded and recordable information of our civilization (in print, with pictures soon to follow.) That's everything: the Library of Congress, 100,000 current specialized journals, everyone's autobiography, every aspect of the day's doings anyone anywhere sees fit to record, what we know about the past and about everything, everyone's dreams and visions, needs, availabilities. Nor does this static description begin to convey the expanded possibilities of social interaction which open through such a system.

We essentially have the hardware capability already. The initial programming of the system, to make its universe of in-fed information usefully accessible to the citizenry's further self-organizing activities, could likely be developed to this scale of complexity while hardware production geared up, were imagination and resources turned to the task — to judge by the achievements of the few workers in the field so far. The bill for America,

*In "Technology and Social Reconstruction," in *Ecology: Crisis and New Vision*, (Sherrill, ed.; John Knox Press, 1974) and in my book *On Learning and Social Change* (Random House, 1972), and in *EDUTOPIA*, excerpted in *Schoolworlds '76* (Bigelow, ed.; McCutchan Publishing Co., Berkeley, 1976.)

f.o.b. five years from now, would be approximately half a year's military budget to put the entire system in operation on a national scale, and perhaps a quarter as much annually thereafter.

That's all it would cost, folks; it's surely the greatest technological bargain of our time. We have the capacity, the empty tool, within our grasp. This potential is an historical event of the deepest order come upon us quite suddenly — no more than dreamed of when I was a boy, made real only this year. The technology, the abstract but quite real capability, are here before we have even begun to grasp what they mean and what we might use



them for, beyond doing our customary things more effectively. Yet what Radio Shack's 4,000 outlets are now so cheerily pushing, with their \$599 personal computer special, is not only the usual blind wheel of (private) corporate profit, but the tools which, wisely used, could enable a radical step in the collectivization of consciousness and the democratization of relationships — both being key processes of human (cultural) evolution, which a full community memory would extend.

Of course our main problems have less to do with lack of information than with not knowing what information to use or how to use it. No machines will get us wisdom, though they may facilitate our contact with wise advisors. For many, adrift or swamped in information overload, the prospect of access to more seems numbing. But we do depend on data, and might as well manage it with good tools. With or without the grandiose context above, any network of community groups that deals with much information and depends on communicative interactions has reason now to be interested in creating its own smaller open collective memory, until a public one comes along to use.

Readers interested in network theory may appreciate the potency of a tool — a network of "smart" terminals — that is isomorphic to the system it serves, and

the observation that a network of change-agents/agencies is in effect a decentralized conversation of self-directed learners, which profits by facilitation with appropriate tools. Indeed we should expect a network's use of a communal memory to further decentralize it (as well as bring its many elements into "closer" interplay), since many of the administrative and communicative functions which lead networks to have centers could be handled through whole-network processes.

As for the practical uses to which a network of groups — like the more than forty diverse service agencies of the San Diego Community Congress, or the scattered neighborhood health clinics of a city, or the widely-dispersed headquarters of ecological activist alliances — might put their own collective memory, these begin with the collectivization of the routine "in-house" uses to which individual groups can put their own small computers. The virtues of uniform, efficient accounting and payroll programs, of well-ordered and continually-updateable data inventories, apply to change-agencies as much as to big business. The mailing-lists, funding sources, rosters of people with special skills, flow-charts of where to refer whom for what, lists of other agencies and their activities, and other routine masses of data on which operations depend can be more effectively organized with computer systems.

But the fuller force of even this routine reorganization appears only as the memories of individual groups are linked into a common memory and utility. Whole-network coordination of book-keeping and fundraising efforts becomes possible, without loss of "local" control; sub-networks gain access to easy sharing and summary of data for collective projects. Having a shared bank of information and resources to draw on does more than simply greatly extend the resources known to any single group. It relieves each group of the constant necessity to be tracking down information, people, etc., already known elsewhere, and frees it to more effectively maintain and develop its own unduplicated contributions to the common memory. A real-time, collectively-maintained network "calendar" becomes possible, announcing (with cues to the appropriate audiences) not only all scheduled events of interest within the network — each group's doings, meetings large and small, special events, days to file for IRS status — but the running status of such works-in-progress as legislative bills, negotiations with civic agencies, and court cases and their implications, as well as bulletins of any sort.

All this is only the simplest, most

rudimentary form of collective empowerment through well-organized sharing of information that a live-time collective memory makes possible for a network of groups. It is similar enough to the uses of computer-networks by retail chains, law enforcement agencies, etc., to perhaps raise confusion about its political character. But the tool itself is neutral, and can as well be used for one purpose as another. The ability to keep track of a whole system's interaction patterns is no less valuable to a network of health clinics concerned with epidemiology and assessment of service-needs and impacts than it is to the telephone company, and the luxuries of computer teleconferencing which RAND *et. al.* are exploring now can as well be used by a network of appropriate technology groups discussing the applications of a new solar cell for months, or by a network of social action groups coordinating strategy and demands during an intense week, in a continental discussion on view everywhere.

Yet a truly open memory system makes possible much deeper forms of collective empowerment than the examples so far suggest. Their key is the political character of the system's program. It is necessary to state the principle firmly, both to clarify the confusion above and to enable us to distinguish the other sorts of collective memory-systems which networks might explore from true Community Memories, fully open as democratic information systems. The principle is that any member of the community is free to contribute and draw upon information, and free to name, describe and address it as s/he will.* This principle seems quite natural and unremarkable when we think of a network of groups in cooperation, or a good conversation. Its political force, and the socially-solvent character of open memory systems, become clearer when



*And, more fully, free also to enter new sub-programs in the system's programming. The ways in which information can be responsibly erased from a community memory are too complex to discuss here.

we consider their application first within individual groups, and then as interfacing tools between groups and their social environments.

If access to terminal(s) is adequate, the "internal" uses to which a single group or organization can put a memory program are limited mainly by how much information its members are willing to share freely, and by how intensely they pursue their "information processing" through it. In a clinic, diagnostic and treatment procedures could be made as accessible to nurses and paramedics as to doctors. All the administrative functions of a community education exchange could be handled through teachers and learners actively using such a program. Its use by a traditional college would shrivel the administrative structure to reasonable scale. Were more information about how-to-do and who-to-see-for-what freely available, almost any organization would become more democratic, and more fully a collective endeavor, since it is precisely the limited access to and control of such routine vital data which establishes much of the typically-hierarchical power structure of even good-willed organizations. In such ways, by democratizing information, truly open systems tend to dissolve customary social distinctions and certain conditions of authority, opening the way to their self-organizing reconstitution. The prospects of truer collectivity appear most dramatically, for individual groups, in their governance, their ways of making decisions. For example, full access to details about the budget's planning and current negotiations with the city over job cutbacks is available to each staff member, and if the agency's memory itself has served as the running, open forum of debate and strategy, the staff that meets together may be more prepared and inclined to reach collective consensus.

All these examples of "democratizing empowerment" apply as well to networks of groups as to groups. But the most exciting and uncertain potentials of such open memory systems lie not even in such "in-house" uses, but rather in their employment as *public utilities* to interface groups and networks with the fuller communities whom their practices involve. The neighborhood clinic might well use its terminals to make the doctors' knowledge available not only to the nurse but to the "patient, and use them in more ways besides to become a resource and encouragement for his or her own self-directed treatment and learning about health. Were its terminals fully open, they might well accumulate well-indexed nutritional information from a community more interested in this subject than the clinic's doctors, of interest to health-seekers and

medics alike. The open terminals of a school or learning-exchange would accumulate evaluations of specific teachers and courses, to guide both student and teacher and whoever holds the purse-strings, and evaluations of the student's work by non-school sources chosen by the student, equal with the school's judgment and his/her own account. In a fuller system open to conversation the distinctions among "teacher" and "student" would quite dissolve as ideas and positions were debated in an anarchic community of learning.



Similar possibilities appear for almost any other social service or change group/network. Creative use of an open memory in the larger community can help to dissolve the distinction between the informed/qualified specialist and the helpless, dumb layperson, the activist and the audience. It can open the categories of information-providers, and transform the group's (network's) function to being the facilitator of a community learning process. As a fully-public forum for feedback and judgments by the whole community affected, it offers a more direct and radical accountability than service agencies are accustomed to facing, and both encourages and facilitates detailed client-responsiveness, as well as participation by the affected community in the decision-making of the organization itself. In all such ways and more, the active use of open memory systems in public interface promises to be, quite in itself, socially transformational.

All this is speculation, but scarcely science-fiction, being barely in advance of its time. The original Community Memory experiment was dismantled at the end of 1974. Even as its designers retired to develop hardware and software more suited to the task, other groups in Vancouver, Boston, New Hampshire were organizing

field-tests of kindred computer-networking systems (though perhaps none so purely insistent on the full freedom of a public information utility). It is likely that the first use of a collective computerized memory by a network of community-based human service agencies of social action groups will occur by 1980. "Community Memory" is now a trademark of the Community Memory Project which is continuing to develop a new version of the computerized community information exchange. The Community Memory Project anticipates that one node (ten to twenty terminals plus a central computer) will be running as a public utility in a local neighborhood in a S.F. bay area community in 1979.* Should it seem promising, many more will follow in short order, for the technology will be widely available.

Many different ways of programming network, internal, and public-interface uses will be explored. Most will be organized as less-than-fully-open systems, less to avoid the positively subversive potentials of open systems than to avoid all the "negative" problems of mis-information, accountability, etc., with which any open system must deal. Yet these problems must be embraced, as part of pursuing those potentials. The truth is that no one knows what we might do with the new tools we have developed; the powers and dangers they offer remain to be explored. Each network that experiments with collective memory, each commercial information utility designed by Bell Telephone or IBM, faces a choice: to perpetuate the social forms and political culture of the past by re-creating media in which the power to receive, provide and control information and communication is hierarchical, or to enable the exploration of new forms and ways, through democratizing this power.

Of all groups in our society, networks concerned with democratic participation and social transformation ought perhaps to be the most sensitive about the political character of the collective memory programs they (and other elements of society) will use. It is not too early — indeed, it may already be too late — to insist that any system described as a "community memory" or "public information utility" embody, for the community of its users, the full principles of open access and unmediated interaction that marked the original Community Memory experiment, for the sake of the democratizing potentials that they open.

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A TYRANNICAL DESIGN:

Reflections on a ``Post-Newtonian'' Networking Model

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The growing dialogue about what ``networks'' and ``networking'' are, mean, and might be good for has been extended by a recent paper by Jose Arguelles, a leading figure in transpersonal psychology. In ``THE INVISIBLE UNIVERSITY: Reflections on Networking as a Post-Newtonian Educational Model'' (Maren, 1978), Arguelles offers a model to answer these questions, based on his interpretation of the educational networking example provided by the Union for Experimenting Colleges and Universities (UECU). X His paper offers also, if read it correctly, a lucid and unsettling perspective on how some such interpretations are formed, and on the politics of our choice of ``networking'' models.

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Though his paper has some lovely flights of perception and idea, the key to Arguelles' model lies in his definition of networking as ``communication by sets of centrally-coordinated associations.'' From this he develops a X

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of networking \leftrightarrow a simple one which seems to him characteristic of networks in general \leftrightarrow comprising a central point with lines of communication radiating in all directions to and from the periphery. (Fig. 1). Arguelles finds this mandala pleasing, in part because it is so like the mandala of self-directed learning, which features the learner at the center of a universe of information and resources with which s/he may connect. (Fig. 2). He sees in this a necessary harmony of the universe, of a sort we are always seeking and depend upon; and heartened by this, he applies his networking mandala to the design of an embryonic ideal global university.

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His university is ``invisible'' in the sense that its operations are dispersed in the community; but its organization and management are all too visible. Here, he says, ``the conceptual model is clear: a centrally located nerve center with radially extending lines of direct communication to

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peripheral centers, which in turn (extend lines to lesser centers)" (Fig. 3). As for management, "the first line of command is a president at the center, with an immediate staff organized as a second..." By the time we reach the fifth level of command, the managers of the peripheral (regional) network centers, we have reached the persons "responsible for on-the-line...dissemination of the philosophy and ideas related to networking, and monitoring of all levels of conversation back to the inner circle of command." Here, the mandala he esteems has turned into a nest of concentric circles, though it also seems to resemble the organizational structure of the Pentagon. (Fig. 4).

.PP Well. Other models and mandalas for social design may be as "natural" in the universe as Arguelles thinks this one is, and are surely at work in our society now. Indeed, many semi-formal organizations (of anti-nuclear activists, solar energy researchers, ham radio enthusiasts, and so on) are called

.u1 networks precisely because they are strongly intraconnected yet have no central structures or centralized processes of decision-making, control, mediation, or communication. Examples of totally decentralized networks are rare, or rather small, because even newsletter and conference planning involve forms of centralized facilitation. But centralized facilitation may be used simply to enable a network's decentralized base to communicate with itself, (1) rather than to receive instructions from a center of command. And some networks have not a single center of influence, but many independent subcenters themselves linked into a non-hierarchical network. There is thus not one, but a spectrum of models for networks, involving different degrees and uses of centralization; and the one Arguelles chooses may be less natural than convenient.

Where's the footnote?

.PP Arguelles seems on sounder ground with his person-centered learning mandala (Fig.2), perhaps because it's the only one yet proposed to describe the personal end of the emerging paradigm of self-directed learning that many of UECU's member schools are exploring. I too use this mandala in my work with another school exploring this paradigm. Campus-Free College (CFC) uses a central administrative/evaluative group to validate the work of a decentralized network of learner/facilitator teams; and at present its mandalas for learner and for institution are identical with each other, and with Arguelles', at least in this context.

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.PP But there is a choice about how to develop the institutional mandala, the social form, from this early seed stage. CFC's present small central staff of administrators and learning-certifiers might expand to service zillions of learning-cooperations in the field, like a single vast pumpkin-vine (Fig.5). Or CFC might spread instead like a strawberry plant, establishing connected-but-autonomous runner, which in time could become full peers. (Fig. 6). CFC might develop as a network of central service/legitimizing groups -- each only as large as necessary to be viable and useful to a local net of learners and small enough to be a humane cooperative -- supported first to autonomy in each state, and then in turn down to the most local level.

.PP Such an institution -- for I am describing a quite general social form -- is of a deeply different character than the hierarchical forms with which we are familiar and which Arguelles reinvents in the name of the New Age. Save in a historical light, its mandala has no central point, and its governance no central focus or representative. Nor can it even be portrayed in a two-dimensional, bounded circle, save misleadingly. Its truer space is at least the surface of a sphere, whereon it is inscribed in an endless intertwining of connections among points each splendid, and no one preferred.(Fig.7).

.PP Seen thus, the institutional mandala of this educational network is no longer identical to the isolated ("person-centered") mandala of the autonomous learner which Arguelles cites. Instead it is identical to a fuller mandala portraying the learner in a world of learners -- which too displays us as inhabiting the unbounded centerless surface of a sphere, densely interconnected in our learning (as we are, to whom each the world seems only a horizoned circle with us at the center, owing to the smallness of our vision.) Such a connection of the personal and social mandalas satisfies my deep sense of cosmos much as the connection Arguelles makes satisfies his; perhaps it is as graceful, or necessary.

.PP In quoting him as I do, I may make Arguelles seem a sort of proto-Fascist; and I apologize, for mixed in with this line of social theory I have singled out are other images and perceptions, which pay more heed to the vital potentials of decentralization. In introducing his "invisible university" Arguelles even says that "all the different sets of relations comprising a learning-program can be envisioned as information fields (based in persons) intersecting with other information fields, continually creating new sets of association and relationship."

.PP From this statement one might well derive more decentralized organizational mandalas and processes, like those of Figures 6 and 7. But Arguelles instead ignores the freer options for development and management that open from this view, and reverts to his bulls-eye image of centralized control.

.PP The trouble, then, with Arguelles' social model is that one sort of thing is mixed in with quite another, and the confusion not sorted out. Worse, the confusion is mystified. Arguelles does not even mention it (or notice it?). He does not speak as if there were options for development among which one were to be preferred. Nor does he explore the social meaning of the form he prescribes -- which, in the way he phrases it, seems scarcely distinguishable from the Soviet Politbureau.

.PP Arguelles is speaking explicitly for human unfolding, richness and liberation; his model's contradictions seem innocent. Yet the location of this model -- in time, in society, in myth -- is crucial. Here is the context, as he sees it:

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.IP In 1964 UECU first emerged...<as> the unconscious expression of a collective need to respond to vast and dramatic changes...throughout the social/cultural spectrum. It most specifically addressed itself to...higher education, for as education goes, so goes society. <For its purposes> it developed the concept of networking: the invisible university...<I>his model...has remained virtually an

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in-house phenomenon. <Now> UECU has entered a highly critical stage...going from the unconscious to the conscious. Its leadership role as the

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model of the invisible university must now become visible... the idea of educational networking must <now> take its place <as an influence in> the evolutionary thrust of humanity."

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Sensitized by my own past -- for the first networks I helped to organize, during the 1960's, were the very fiber and organizational form of the New Left -- I tend to read his introduction to his model as if it were the self-appraisal and strategic-policy statement of a small "revolutionary vanguard" party. It's not the crusading tone but its megalomaniac nuance that dismays me. But the hell of it is, I think Arguelles is right, or at least in the ballpark. There

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is something brewing among us, some potential emergent social (and other) paradigm which many of us are trying to anticipate and urge into flesh to relieve the present contorted tension. New models of form and process

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are being formulated, put to field-experiment, advanced to

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avant-garde

legislators. The people, the groups, the interests, who formulate them now do seem to have some chance of helping shape the future, and it is important to take the next steps. It is in this context, and with the above introduction, that Arguelles proceeds to define networking and its mandala, proposing a party line and strategy which may, indeed, prevail.

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So why does Arguelles interpret the implications of UECU's important example as he does? And what sector of current ideology does his interpretation represent? As for the first, he would seem to be a sitting duck for biographical interpretation (with all its fallacies). For he is now the leading popular authority on...mandalas, which he has deeply explored and cherished, and the lovely book

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Mandala

which he co-authored has helped many of us to appreciate the importance of the center of Oneness from which complexity unfolds.

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Knowing what it is to be bound by the particular lens I have so laboriously fashioned, I imagine Arguelles bound similarly, and am not surprised as his seeing his favorite form

reflected in the world around him, or at his seeing it as the key to all. He has studied deeply one avenue, one key to the Mystery from which all is reformed; and the vision he has derived marks both his social and cognitive models of networking. To

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entropy

, represented in the progressive fragmenting of the university educational model into unrelating individuals and isolated ideas, he counterposes

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syntropy

, "the tendency of biological energy...toward greater association, cooperativeness, awareness and communication." Syntropy is the evolutionary process embodying the Cosmic Will, which we envision with Mandala's aid, and which is represented here by the educational-networking model of UECU as Arguelles introduces and construes it. His vision is de Chardinian, bound for a global consciousness (where will the center be located?) of higher purpose and continuing self-transcending glory -- or so I read his notes here, for I too love such visions, and what he implies is quite holistic and fine in its way.

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In short, I estimate that Arguelles' view of the facts and possibilities of networking has been derived less from field-study than from the influence of a strong, definite ideology which has both conceptual and religious dimensions. Before I interpret this as more than his private matter or problem, I confess my own openness to this critique. In my case, aside from a mathematician's superstition that two dimensions aren't enough to do the job, I have also the superstition -- religious, political -- that the One is unnameable, and that every picture with it as the Center must thus have no image in the center at all, representing us so arrayed and related that the Center is everywhere consciously, as it is in truth. From this follows the anarchist networker's utopia, in which the center of authority -- and equally of cybernetic control proper to such a system -- is everywhere, in ever-changing cooperations appropriate to each occasion. And from this follows also as concrete a program of first steps toward educational reform as one might care to follow.

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But this affirmation is a digression from my conclusion here, which is to stop picking on Arguelles and to say instead that he is not, save in being a unique person, a special case. Rather, with his interpretation, he is among the leading representatives of a general sector and potential. Though he speaks here as an educator, his social and conceptual base is more the "human potential" movement, to whose transpersonal and meditative dimensions he has contributed significantly.

used better word

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The themes of current "human potential" culture and ideology play throughout his reflections, from his adoption of the original ~~Rogersian~~ model of "person-centered", innocent of social embedment, to the characteristic incautious conclusion that only an individual's own choices determine the nature of his or her reality. All in all, then, one must take his paper seriously in its own terms -- if not quite as a formal proposal for the human potential movement's educational-administrative policy, then at least as a serious essay to see what conclusions about social forms in (and beyond) education might fit with that movement's "humanistic" ideas and ideals.

→ Carl Rogers model of the

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It is this last that makes Arguelles' reflections and mine more than just a quibble of theory between two isolated persons. Rather the necessity to explore and to define the principles of networking is strong upon us, for concrete social reasons. The present forms of networks are still poorly understood, yet they are vital to much of our personal and social development. Their further

evolution promises at least more flexible and democratic modes of relation and support. And it may promise more, for networks seem the only real contender on the stage where genuinely new forms may emerge to transcend the old.

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This futurecasting is brought to earth as the change-cascade triggered in the 1960's proceeds, and the "human potential movement" grows from quaint Esalen mania to hip California fad to franchise cultural operations expanding nationwide, buoyant with the energy of genuine wonders engaged, incomplete in their interpretation but bidding rapidly to influence the language of the 1980 national elections. On the highest levels, the evolving ideologies of "human potential" are now beginning to be translated into legislative policy toward the human services (education, health, etc.) and such ideas of networking and social form as evolve with them will have increasing influence. On the "grassroots" level, almost the entire body of the "human potential" movement is a sprawling, expanding network of networks. It does have some prominent nodes of one kind and another, but so far it presents a fair model of decentralized process in operation. This is perhaps due to the movement's having evolved after networking became the dominant organizing mode of the time. Now as consciousness about networking itself continues to develop, the people and groups of this movement are prime candidates for, and in true need of, perspectives and principles to apply to what they are doing. Whatever the interpretations of "humanistic" social forms they adopt, their movement will form a massive and potent force to further these in society.

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It seems a gloomy prospect to suggest that Arguelles' centralized, hierarchical model may indeed be widely accepted and adopted through this movement. But it is fair to remark that the naively "person-centered" ideology of this movement -- so admirable in its first Rogerian inspiration, and so bereft of any further deepening or social evolution in the quarter-century since -- has become in some ways a cruel cultural joke, attacked with some justice as the fount of the "New Narcissism" and the "Me Decade". As for the schools, brief or enduring, in which "human potential" is now taught, they are so often organized in benignly authoritarian form around a central charismatic figure, and so often sought out by learners for this quality, that one must wonder how deeply the "person-centeredness" is connected with this -- and whether people might seek their own social completion differently, had they not bought such simple illusions of their being complete already.

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Such influences predispose this movement as a whole, and individuals within it, to accept and advance the social form that Arguelles advocates -- not only in education, but throughout society. There are other influences within this movement, of course, and other potentials for its social development. Many spiritual and group-therapeutic experiences, many concepts of the body, its energies, and their care, can equally be interpreted to imply and demand democratic rather than authoritarian social forms for their completion; and many networking and learning practices within the human potential movement can be understood similarly. But such interpretations have been inhibited within this movement and not forthcoming from without. The movement is likely to be a regressive influence on the politics of the 1980's, unless an alternate vision comes to inform its choice of social models and styles.

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The generation of a conversation that can inform these choices is a vital agenda not simply within this movement, but throughout society, for the spirit of Networking is now widespread in the land. There is no field of social or personal change-activity in which the further development of networking forms is not potentiated, and in most it is proceeding. In high-level science, organic agriculture, ecological politics, domestic counter-insurgency, the self-help movement, what-all, in each instance the same choices for the further social evolution of networking -- crudely speaking, the choices between democratic and authoritarian potentials -- open again, for beneath its surface variety our culture is integral in its problems and potentials. Besides being one and indivisible, the conversation which can inform these choices is itself the product of a learning-network, whose character may be reflected again in the re-creation of society that it influences.

On the Definition of "Community-Based" Human Service

A "community-based" human service institution ~~exists~~ functions mainly to serve the needs of its immediate community, rather than "foreign" needs; and to serve those with the most need rather than the most ability to get or pay for ~~it~~^{service}. It serves needs as defined mainly by those who experience them rather than by "higher"^(or "impartial") authorities; and serves them in ways whose appropriateness and quality ~~is~~^{are} evaluated mainly by those who experience this service rather than those who supply it or whose profession is to evaluate it.^(AS) Part of its function is to enable members of its immediate community to serve each other, it recruits and trains ~~community people~~^{these} to staff and administer its operations, coming increasingly to depend upon them for this; and also works to educate and to support community people to perform as much of its service as directly among themselves (rather than through it) as ^{is} possible. Its financing and other supports ~~are~~^{are} controlled, to a significant extent, by the community ^{it serves,} and come increasingly to be provided directly by or through ~~the~~ community. It works actively to help the people it might serve learn how to use and to influence its service. It is formally open and informally responsive to participation, by the people it serves, at every level of decision-making involved in its service, from the way individual clients are dealt with to staffing, evaluation, finance, program and long-range policy decisions; and it invites this participation actively.

These ten criteria are intimately related, indeed they spring from a common functional-philosophic root. "Community-based" is an adequate adjective to describe them together, but it does not quite capture the essence of the root, and ~~it~~ fails to suggest the maximal ideal which might guide our imaginations and evaluations. What is ~~missing~~ missing above is any reference to the kind of internal

workings (structures, processes) which are appropriate for such institutions of service. The common thrust of the^{se} criteria ~~is~~ is to give people their share of power in and control over the decisions and processes which determine their experience, and this might well (and harmoniously) also be adopted as the principle governing the internal organization of human service. Each of the ten criteria above might then be easily adapted, with only slight rephrasing, to describe and judge the ~~internal~~ ~~workings~~ internal qualities desirable in a community service institution/organization. This gives twenty criteria in all; the simplest term ~~is~~ for a human service (institution) described by them together is probably "democratic".

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from "Technology and Social Reconstruction" in On Learning and Social Change (Random House 1972), M. Rossmann

86. Change begins in the mind. Computers, which extend some of our functions of intelligence, are our most marvelous technology, and the one most awesome in its potential for our change. It opens new dimensions both for the collectivization of consciousness and for individuation as well, with radical implications for our distant evolution and our immediate politics. By computer technology we extend intelligent consciousness in an outered form which can be operated on and deliberately transformed by all the gathered skills and knowledge of our persons and culture. More nearly than our attempt to reconstruct our genetic heritage of aggression, our evolution of computers displays us as the species *Homo Proteus*.
87. Some of my friends have formed an electronics/design company leading toward the goal of marketing a home computer bank, tied to large central facilities, for the price of a new car. Others have worked on first-generation bootstrapping programs designed for self-learning the skills of using computers as creative extensions.
- In your home, the extension of a system that can connect you vividly with anyone and that gives you free access to all mankind's recorded knowledge, visual and aural, all records of all work in progress; all the day's news and the opinions of any who care to offer one, in summary or total detail; all the programmable knowledge-processes of our civilization; all everyone wants to share of his or her Story—in short, universal immediate access to all of our culture's information, the fundamental basis for both collectivization of consciousness and the full potentials of individuation. And with and beyond this, the empowerment of personal and group consciousness by the enormous multiplication of their lower ("mechanical") powers. Only the poetry of science fiction has attempted to survey the consequences; and it has been most notably deficient in attending to politics and sex.
88. What will you do with your extension when you get it, how will you play? Learn to build a solar generator, order the parts, and ask someone to show you how to solder? Get a weekly grocery list keyed to the cheapest solutions for your nutrition and taste that tells you what to buy where when? Complete its integration into your house so that it turns off unused lights and regulates the entire house metabolism in accord with satellite weather observation? Work with five somewhere others to make and spread a videotape on government pollution, drawing on public input of muckracking videotapers who go out fresh each day in every city to follow leads? Have available to your isolated commune most of the culture's light technological resources? Research chemicals and their precautions and compute the ideal time for simultaneous demolition of Doggy Diners by a hundred highways?
89. Think fast. Given your socioeconomic class and habits, by 1984 you'll be linked into a first-generation system with these capacities. How timid, naive, and unimaginative our uses will be at first! But go to the poets, they know.
- Computers make possible a technology of vivid, direct person-to-person communication and universal information access, *assisted* rather than regulated by semi-centralized agencies which operate to refine its fidelity and connectivity and to extend the depth of its memory and low reasoning powers. The tendency of their free use is to render communication utterly decentralized and move our culture toward type β forms.
- Consider the re-formation of our systems of learning through such a technology. Lacking adequate positive icons—a flock of crows will scarcely do for Golem learning—its depth is best expressed negatively. *All material need for the present centralized structures of education—power, physical plant, department and discipline, management, whatever—would vanish*, and with it the restrictive power to enforce them. Even within our present disgusting customs, Martha could start study at the age of seven or forty-seven, via her home terminal and under the tutelage of Chemist X (who would probably bill her), and in her time and way qualify through company knowledge tests and his endorsement for employment with Dow Chemical, meanwhile practicing Tai Chi on Wednesdays with a master in Arizona. Damn! What will become of the classroom, the administration, professionalism, fund-raising, face-saving and the uniform curriculum? What would they do with all those empty buildings?
- We should see instead a wild flowering of depth experiment in the forms and processes of small-group interaction, which forms the social foundation of learning. For the foundation of material limitation on which the present authoritarian and fragmenting character of our educational system depends will largely disappear.
90. All this describes equally the transformation of our systems of politics and governance. For the first time, a full popular democracy becomes possible. Hitherto our technological limitations in the handling of distance and of social information made democracy necessarily *representative* in any group of people too large to be spoken to with the unaided voice. From this hierarchical imperative follows the centralization of democracy and its present universal organization in forms of soft authoritarian control.
- High computer/communication technology makes possible the abolition of representative government and the institution of simple, direct popular-demo-*

cratic government: the full realization of the classic process in which a problem is recognized, the people become informed through study, conference, debate, and then decide what to do.

A partial outline: By an open "signaling" process, problems of a local or broad scope are called to formal attention—you can tune in to a running "straw vote" program which registers what the citizenry is concerned with, and can record your own concerns, perhaps keying them to be noted by special interest-groups. You decide to take responsibility for helping to make a particular decision. You decide how much time/energy you want to put in on this one, for starters, and compute a learning program that will fill this best—perhaps drawing advice from the public market of political-decision-learning programmers. At the console, you read, see, and talk with whomever you wish, expert or study group, and extend or deepen your search if you choose. When you are ready to decide, you register your vote. When enough register, a final date is set; as it arrives the votes may be seen announcing themselves; after that the process of implementation begins.

By 1984, America could govern itself by a system of totally decentralized authority and semi-centralized agency, in which every person who wanted to share directly in any given public decision would be totally enfranchised and enabled to do so—a system of maximal political self-determination.

- 91. What the actual evolution of small-and-large-group governance will be, given such a free-access system to grow with, we can only speculate. The system is rapidly coming into existence, as computers learn to read and generate programs directing the hooking-

together of their memory banks and operations²³ in the early stages of evolution toward fully conscious, self-directed life, and as blind and greedy economic processes contrive to fit our fingers to their keys. Surely the struggle central to the system's human use—and to human life itself—will be around the repressive regulation of this intelligence, the authoritarian control of its access and use. In this struggle, freedom leads us toward full symbiosis with Golem as he matures; I think that repression leads to death at his hands, and ours within them.

The demystification of technology, the propagation of knowledge and means for its use at the popular level—all ripely inherent in free use of computer technology—are essential strategies of struggle against repressive centralized power and are ~~the~~ key to the democratization of technological society.

²³ Notice the shape of computer mind that evolves: it is a highly decentralized array of intelligences, each with unique capacities, all linked to complement each other—very β , so to speak.

AT fields considered in relation to each other. The total learning-conversation of AT is thus decentralized in (time,) space, social class, activity-nature, subject and dimension. Nor is the task of facilitating it bounded, since this conversation, to proceed healthily, must be constantly open to new focii and inputs in space, social class, subject, etc.

An educational technology appropriate to facilitating such a conversation must involve both social and material technologies of communication. In "A Communications Network for Change in Higher Education" (1968; see appendix A) I discuss a primitive model, field-tested in yet another context; and suggest some functional criteria for its appropriateness. More recent developments in hard and soft communications technology have enabled sophistications of great potential power in this model. They were modestly field-tested in the Community Memory project conducted by Resource One, Inc. in San Francisco in 1973, and carried on since by Loving Grace Cybernetics in Berkeley.

"Community Memory: A Public Information Network" (appendix B) provides a brief abstract of that project; "Some Indications for Community Memory" (appendix C) discusses some political and social consequences of such an open information/learning system. The former discussion is too particular, and the latter too general, adequately to indicate this model's appropriateness to NCAT's concerns. But they are useful background to the particular application to NCAT's task which I sketch below; and also for the proposition which follows it: that NCAT should see Community Memory/Mind not only as a tool for its own task, but as an important appropriate technology to extend in the broader community, per NCAT's original mandate.

B. CM in abstract

In brief, Community Memory/Mind consists of centralized cybernetic facilities; decentralized peripheral computer terminals; networks of learner-users; software (computer programs) appropriate to an open-access user-determined and -maintained

information system; gate-keepers and other system-tenders, including specialized maintenance resources; appropriate social software (lore, customs and organizations of cooperation); and a funding source. CM is simultaneously a social and a material technology, in each aspect "appropriate" and thus harmonious in the coordination of the two.

CM's central facility includes a computer of sufficient power and adequate memory. To it are connected by low-cost easy-access means a number of peripheral terminals, inexpensive, durable and easy to (learn to) use. Though intended for self-directed use and maintenance, the terminals will need instructional and repair resource people, at least in the beginning. Free (undirected) use of the terminals is available to people of one or many networks, and/or the general public. CM's software (programming) is designed to help the user learn both how to use/repair CM's hardware, and how to use/repair/extend the software itself, in a "bootstrapping" process.

CM is an open information system: its initial or "seed" programming enables its users to enter any information, to arrange and manipulate stored information at will, and to retrieve information freely. Unlike printed media, which together constitute an analogous system, CM can operate in real time, facilitating live conversations of learning among its users. CM is also a free system, in the sense that though its gatekeepers may initially "seed" its memory with information and categories, its users can and must create the categories they need, and supply the ongoing conversation of its use.

The possibilities are quite general, as are their social ramifications. Simple interchange and categorical accumulation of information can support the work of existing networks, facilitate the self-identification of nascent networks, catalyze the formation of new networks of users, and deepen interaction amongst networks. CM opens to a great variety of possible interpersonal and small-group interactions, limited only by users' abilities to specify the categories of information entered and sought.

As the content of real-time memory and the complexity of interactions grow rich, "secondary gatekeepers" concerned with structuring, critiquing, or disseminating particular kinds of information, or with organizing particular sorts of cooperation, may be expected to invent and learn their roles. Appropriate cooperations, customs and lore may also be expected to develop among local communities of CM users, to support their use of the system itself. (These too may be "seeded" by the system's initial organizers and gatekeepers; the nature of "appropriate" seeding is an important question.)

Capital funding for the initial hardware and its gatekeepers, and for significant later increases in CM's capacity, might come from any source. Peripheral equipment costs are already within the reach of user cooperatives; and preliminary study suggests that the ongoing operating cost of the system could readily be underwritten by a low use fee.

C. An NCAT-CM system

An application of Community Memory/Mind to NCAT's mission is feasible already. It might begin with the selection of one AT field (e.g. solar energy) to receive special emphasis, on the basis of its immediate amenability to CM facilitation; and the selection of one locale, distinguished by the density and variety of AT resources and opportunities for their deployment, in which to field a special concentration of organizers concerned with the interface of AT and the community.*

Prototype central cybernetic facilities would cost \$50-100,000, plus programming by the CM system's designers. An "800" phone number/WATS line would connect the peripherals at first, though the select locale might be chosen also to enable exploration of more sophisticated and flexible connection via TV cable-systems and satellite

*CM's usefulnesses within AT fields and networks, between them, and in local community interface all need testing at the highest use-levels practical; these priorities are in conflict, given the limited resources of a pilot model, but this arrangement may minimize their conflict.

note: the possibility of a second "public" screen on each terminal or even a third if there were a way to get around the watts line restrictions

8.

relay. Peripheral terminals specifically designed for CM now cost \$1500 and the cost is dropping. Twenty terminals would be fielded, each assigned to a field organizer. CM should be only a tool for the organizers; gatekeeping would be a major function but not the dominant one in their work. A short training program (several days) would confirm them in the system's use and their gatekeeping function.

The system's memory would be initially seeded by NCAT, after a short training program. One major function of NCAT is librarianship, and the "library" of AT will need to be committed to computer storage and access in due (and short) time anyway. This project might well begin already, in the context of a system-experiment designed to maximize this "library's" eventual usefulness; and the costs of computerizing the information now being accumulated at NCAT should be borne by the library as a normal expense. Special priority would be given to accessing material from the selected field.

Each field organizer would make a terminal accessible in an appropriate way; some relatively minor costs might be involved. S/he would summarize ongoing identification of and contact with local AT workers and (potential) users, to help access them to each other and to more distant CM participants; and, after introducing willing ones to the terminal, would invite their own participation in accessing themselves, their works, their knowledge, their problems, and their questions, and in using its offered information for their needs. Special attention would be paid to facilitating conversations related to the selected field.

What would happen next would be determined by the participants. A householder seeking help or special materials for building a solar heater might find them immediately through CM, or enter a plea in the right category and be called by someone in response the next day. His technical respondent, encountering a special problem, might in turn view a diagram or videotape of solution entered in response that night by someone on the opposite coast -- perhaps a solar engineer browsing idly through the "immediate needs" categories as a break from studying the current summary of diverse applications of some high-tech insulation -- itself prepared by an aquaculture

enthusiast elsewhere who wised to save others his trouble in sorting the scattered literature into coherence -- or commissioned by some State's Office of Energy after its simple monitoring program, extended through CM, recognized an unusual volume of industrial queries which might be related usefully to the uses of that material.

There are the simplest scenarios; beyond them there is no telling, nor necessary limit, for the system is inherently open to creative play. The system's processes are quite simple, and its material technology and support is presently feasible. The main limiting factors involve the necessity for certain "critical masses" of users and stored information, which may be quite small; ease of use, which is improving; accessibility; and the technology of connection between center and peripherals, presently adequate but pregnant with radical improvement.

The question of accessibility is critical. The system of twenty peripherals and associated supports sketched above is a minimal prototype, capable of connecting perhaps four hundred using groups and individuals each day. Individually-user-programmed computer printouts (on microfilm) and mailings from the central facility could readily supplement this to provide a (weekly or monthly) individualized "magazine" of data, relevant papers, news, queries, etc. to literally everyone identified as a participant in AT networks (save those purely of users).

D. An AT-CM system

As peripheral access is improved, the system's potential efficacy increases exponentially; as the system's "mass" grows, its benefit/cost ratio does the same. Fifteen thousand terminals would be sufficient to place one in every group working with AT, every college, and every community population unit of 25,000 throughout America.

Their cost together with adequate "central" cybernetics (see below) would be some \$10,000,000 at present; it is expected that this figure will be reduced fivefold

in the next few years as hardware evolves. I can't say the same about the phone bill, but \$5,000,000 more would capitalize a major exploration of the radical amplification of CM's potentials made possible by satellite relay and the integration of peripheral processors with community cable systems. Training costs for users associated with situated terminals would be perhaps \$1,000,000. A year of competent gate-keeping at the public-access terminals would be the major expense, perhaps \$20,000,000; as the initial gate-keepers' function would be to organize local users into gate-keeping cooperations, this is a capital rather than a running expense. I consider the question of maintenance separately below.

This is to say: a minimal prototype NCAT-CM program would cost under \$200,000; a full program would cost \$40,000,000 to establish and a small fraction of this per year to continue. On this scale the system would, quite simply, put the entire national community of AT networks and workers in direct, immediate contact with each other and with the entire accumulated inheritance and real-time state of AT work; and put almost every potential AT user within at most a short ride of the same contact. It is impertinent to suggest that all the potential functions of NCAT itself might be subsumed and satisfied through such a system. But surely the price of such a program is cheap, considering its potential for radically facilitating the entirety of the learning-conversation which AT constitutes.

E. (Inter-)national CM

On this scale we begin to recognize CM's potential as an appropriate technology society-wide, rather than for NCAT itself. If not swamped by AT use, the 150,000 daily transactions possible at the 8,000 public terminals would be open to the entire universe of non-AT uses; and the general social phenomena of use and interplay sketched in appendix C would begin their broad development.

Once local self-gatekeeping communities of users are established and trained,

the costs of multiplying system access reduce essentially to the cost of additional peripheral terminals and processors, greater "central" processing capacities, and connections between these. In a few years the cost of a terminal and mini-processor may approximate the cost of the standard video receiver necessary for information's display, establishing the pair as a basic household appliance. "Central" processor capabilities will improve and their relative costs drop; these will be small anyway in comparison with the total costs of peripherals. The phone system may serve for connection, but the standard \$5/month connection fee which suffices to underwrite the extension of local cable TV systems suggests that the prospect of CM service for the same price might motivate their near-universal urban extension, which would make possible flexible "upstream" or feedback control over more central processors by downstream users.

The prototype local system for a national CM involves 1,000 peripherals connected to a local central. It is instructive to calculate the cost-per-peripheral of a local system with full capabilities, on the basis of current costs and, in parenthesis, estimates, of what can be available in five to ten years in the quantities required. Peripheral hardware with video display and full entry capability will cost \$1000 (\$300?) with print-out capabilities available for another \$500 (\$200?). Cable connection to local central will cost \$50-100 to establish from scratch with full up/downstream capability. The cost of the central unit depends mainly on memory capacity; a capacity equivalent to 20,000 300-page books will cost \$500 (\$100?) per peripheral. Capacities for satellite relay will cost \$50 p.p. and enable immediate interlock with any similarly-equipped local system and thus with the total resources of all.

By eliminating the need for the massive "central" facilities implied earlier, this arrangement reduces costs and time-sharing delays. Also, and of great importance, it advances the politics of democratic participation which underly the entire notion of "appropriate", by eliminating massive concentrations of equipment, personnel and

power, and ensuring that operation and control of the entire CM system be vested in reasonably-small, local, autonomous cooperations of users. Note that these local systems can be established one at a time and independently through local initiatives.

In short, and assuming five users per terminal, for initial, amortizable costs of \$500 per citizen (\$150 in a few years, in current dollars) and for a fraction of this in ongoing costs, America will be able to wire itself into a full Community Memory/Mind system -- accessing to each person, fully and in real-time capability, essentially all the information our society and its persons deem recordable. (On this scale the seed cost of initially accessing the total present recorded information of our society is negligible, less than 5% of the total costs.) It is difficult to describe adequately the potentials of this capability; they extend from a national fleamarket through reconstruction of the entire educational system to deep revolution in our mode of governance. Appendix D, an excerpt from "Technology and Social Reconstruction", extends the images of potential begun in appendix C.

F. Cybernetics as AT

I sketch this grand scenario to emphasize these basic points: that cyberneticized electronic communication can be an appropriate technology, both social and material, of prime importance; and that NCAT properly should involve itself in facilitating the use of CM (or an analogous system) in society, independent of NCAT's possible "inner" use of CM (though this use would serve powerfully as a prototype of social adoption).

We are not accustomed to thinking of computers as an appropriate technology, in the same class as passive heat storage systems. Indeed, they have not until now been "appropriate", requiring large capital investment, being difficult of access and complicated to use, reinforcing the concentration of power, etc.

Think on the meta-level. What have we to fear, if the holistic health scene develops along the lines of our present habits?

Holistic health practitioners will be doctors again, an elite and isolated class. We shall again surrender ourselves to their definitions of our nature and mysteries, grow dependent upon their competencies and undermine our own. (The acupuncturist's mumbojumbo is no better than the surgeon's.)

Though the emotional/mental aspect be integrated with the physical, and though the emphasis be on preventative health rather than disease's remedy, the client will still be conceived and serviced as a private being, at most enmeshed in family -- perhaps more sensitive to the larger circumstances that influence him/her to disease, but neither treated as nor feeling responsible for changing them for the sake of health.

The routine and special benefits of holistic health praxes will be concentrated in an elite defined by class, age, and culture, and of course race. Many services are intensive and will be costly; the affluent will get them. The culturally au courant will be most receptive; old, poor and minority peoples may be reluctant to entertain new ways. The governmental role is crucial and will likely be retrograde. For if preventative/holistic methods are in fact more "cost-efficient", the entire present medical industry will face a vital competition; and the quarter of the population (more soon) who are dependent on the government to pay their health costs may find themselves, through the industry's influence on what the government will pay for, in effect imprisoned in the most backwards wards of an obsolete system.

Random important notions:

1. The present drift of medicine's "socialization" ^{through "national health care"} is madness. It leaves the medical governance and fate of the American people squarely in the hands of the traditional system at its most entrenched. The kinds of treatment, the styles of delivery that the government will commit to pay for are unreformed, the opportunities for excess of profit and alienation richer. An industrial hegemony in the field of health is being enacted into state law as a monopoly -- and hardly anyone notices it's happening, what with all the good intentions about getting the citizenry a bit of overdue protection for not too many billions.

The most we can hope for at present from the disorganized welter of alternative/holistic health practitioners is that they will scramble, through such specialist organizations as they can muster, for fragments of the action -- medicare acupuncture. It's too much to expect them to influence the law to provide for a healthier system of health care.

Nor are more than the rudiments of one visible yet. We are rather in a situation where alternatives are being explored. Howsoever America's socialization of health comes about, it will exert great influence on how much energy is available to explore what sorts (if any) of alternatives. The question then is: in what ways can government regulate its role as the authorizer and fiscal provider of health care, so as to encourage explorations of alternatives and recognize and respond to their fruits?

Any projects of theory or practice bearing on this question are important. Models legitimizing particular unorthodox disciplines on government payment schedules are uninteresting if this be their only virtue. Larger bites on the question are necessary. I suspect their basic common denominator may be this:

they will enable the health care consumer to choose among an unbounded variety of approaches, make him/her the ultimate judge of what is appropriate, and empower him/her to authorize payment for it.

The crudest model of this is a kind of unrestricted "medical voucher" system -- not an open checkbook, but personal allotments at once substantive and meager enough to make the individual's responsibility for cost-efficiency meaningful. Less primitive systems might involve provisions ("bonuses"?) for collective care actions; "gateway" conditions of health-self-governance and consumer-rights education; and so on. But this is a conversation in itself.

2. Whatever becomes of this wave of health action, it will be a long process, and children will be the basic ground of its investment. Projects in children's health education are a prime priority. Those which teach children new ways of health, and demonstrate ways to ^{involve} new (kinds of) people in this teaching, are good. Those which help children learn, not dependence on a new health technology, but changed attitudes about health and about personal responsibility for its quest, which will serve them while technologies change, are better.

3. In general, anything which explores the de-industrialization and de-professionalization (and de-mystification) of health care is worth encouraging. Much of alternative/holistic health is as subject to industrialization, professionalism, and mystification as is traditional medicine, along the same model and for the same reasons. The system of health itself is dis-eased; there is no point in recreating the same sickness in a new body. We should be wary of projects whose clients come away with that

same old feeling of having seen the nice doctor, come away no more empowered to manage their own health. We should favor those which lead their clients to engage with the unused resources of their beings, their surroundings, their friends and their communities. We should favor those . . . which define health and treatment as integral activities of everyday life, rather than as source material for institutionalization; and those which erase rather than reaffirm the distinction between healer and healed.

4. Any system that permits (depends upon) some people to profit from the misery and vital needs of others is unjust in the first place, and doubly so because in such systems people's needs then become at the mercy of profit's considerations. The pharmaceutical corporations, their reckless technologism, and their influence on medical practice and philosophy provide a stark example. It takes a subtler exegesis to make this more than simplistic invective: any project which involves (neo-)medical practitioners in making much more than a median American income is somehow rotten at its core, however otherwise admirable it be. But I think it's so. It is certainly the grossest way of identifying the non-medical (un-healthy?) interests influencing treatment, relations and roles. And it's certainly a gross fact that many of even the most holistic practitioners expect as "natural" income levels which from other perspectives define them as economic parasites. Must a truly holistic health movement then concern itself with the health of the economic ecology it functions within? I see no way around it, if we're going for the deep vision of what 'holistic' means.

To ask that sponsored projects involve equitable rather than market salaries may seem a stiff standard -- perhaps a quixotic one, since many worthy projects might be unstaffable

by those with easy bites on bigger slices of pie. All the more reason, then, to support as exemplary those projects and people who will consider different economic philosophies an integral and personal part of their practice. All this is not simply an economic/cost-efficiency question, but a spiritual one. The spirit of Health, of Medicine, itself is perhaps being reshaped, perhaps not. What one first thinks about, re doctors, is that they make even more money than lawyers: a telling feature of the healer's present image in our culture. It is not simply a neutral rephrasing of the healer's traditional status and power in his/her culture, but an entanglement of this with a system of raw economic inequity, compromising all relationships of healing. The spirit of non-profit healing survives in relative purity within a number of religious traditions. What's of more interest here is that there are (I believe) quite a number of younger (and by now older) secular practitioners who might find the motto "health not for private profit" compatible and attractive, were social recognition and legitimation of it more available.

4. A more pragmatic reason to predict the availability of a large pool of health practitioners who will be content to make an ordinary living from their work can be found in the current economic/employment situation. In addition to traditionally disadvantaged populations, the pool could most logically be drawn from among the increasing population of college-trained, service-oriented, "hip"-cultured younger adults who now glut the urban service markets and will continue to pile up...

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FROM
"SOME INDICATIONS
FOR COMMUNITY MEMORY"

they will make; nor any way to provide for these, except by making the flexibility and useability of the tool as great as possible.

In this again we must recognize the contrast to the present dominant approach to information systems. From pocket calculators on up, the tendency is to design hard- and soft-ware which meets traditional needs better, or which is meant for new special needs that the designers anticipate. The planning process which satisfies needs is centralized and hierarchical, benevolently efficient -- but it cannot make provision for, and may indeed actually foreclose, the uses that cannot be anticipated, especially those invented in free play.

5.

In an open information system, we can expect both play and necessity to give rise to new orders of information and new forms of social relation.

To take a simple example; in the Bay Area there have been developing a wide variety of new healing practices to augment traditional medicine. Acupuncturists, polarity therapists and psychic healers would use the system to advertise their services -- entering information not only about their availability and prices, but also about the nature of their practices. Call this "first order" information. For the first time an organized public process of related first order information from patients will become possible: for the patient who feels he has been harmed, or has benefitted, from a certain practice or practitioner will have both motivation and the means to make his view available to others seeking aid. The "evaluative and policing" function will begin to escape the monopoly of medical societies and governmental agencies, and be performed directly in democratic interchange.

But whose views can you trust, in a system that doesn't tell you what to think about the information it carries? So second-order information and informants will begin to accumulate. The woman with a pain in her back, hesitating between the advertisements of osteopath and surgeon, may be able to find entries discussing the therapeutic alternatives, inserted by med students or disinterested do-gooders. The doctor whose treatment has been trashed will enter in public his rebuttal of the complaining patient's accusation; the patient will add his own address for the benefit of anyone who find out more about the incident; the back-sufferer who has scanned all the relevant listings to determine which healers have the highest current ratio of client satisfaction to dissatisfaction will insert and date this information; the county medical society will enter its recommendations also.

In such sophistications, we can recognize the kind of "natural" democratic information process that presently occurs as we sort around through our friends' experiences and prejudices, the Yellow Pages, and the library for advice about treatment. But its extent and efficiency will be greatly augmented. The vigor and diversity of criticism of information will increase, and new functions and roles of criticism will appear. In each area of information exchange -- used car sales, vacation advice, religious proselytizing -- we can expect to see a variety of informal "gatekeeping" functions to emerge, and people affiliating with the system as shepherds and artists to serve them.

6.

What's in this for computer freaks, and why should they be the ones to design and develop such a system?

Precisely, I think, the joy of seeing a beloved toy given to everyone to play with. They have been concerned with technology not for its most narrowly visible utility, nor for the sake of the profit to be derived from defining and controlling its uses, but out of the sheer wonder of invention, discovery and play. It is appropriate they be the midwives of a public system designed to embody this spirit, of free, unregulated, and creative exploration.

Indeed, it may well be that this spirit will not come to be realized in a public computer utility system unless its prototype design is determined by such amateurs; for there are many reasons to expect commercial utility development to be less community-oriented, user-responsive and -involving, and flexible. (The expected limitations can be foreseen in grim detail from the two imperatives which will be honored in standard commercial design: the system itself will be highly profitable to make and run, and thus costly to use and unjustly selective in its corresponding choice of users; and its operation will be limited in ways which protect, as much as possible, the present concentrations of economic and other power affected by the information it is designed to carry.)

But this wanders from computer freaks, the boys (alas!) with their toys. As people interchanging hardware and information, announcing computer courses and so on, they would be users of the system on the same basis as other citizens. But they might have a special task and pleasure. Community Information offers the richest potential of full technological conviviality of anything on the horizon now. A full system would offer the user instruction on how to maintain, repair, modify and understand the hardware, and even more the software. It would teach the user how to use it.

This is a simple and dynamite proposition, with the most sophisticated implications for programming and programmers. The first level has been foreseen in the initial tests of Community Memory: the machine says, "These are the categories of information I carry, this is how you call them up, how you enter material; please don't hit my keys too hard." But the higher levels have been anticipated only by the programmed injunction, "Touch me!", by which the machine, as an experienced lover, greets the virgin.

Not simply how to handle information, but how to think about handling it, how to feels about using it -- these are the potentials that open. We shall have a system with awesome potentials for use and play. How can the machine help the user learn to make the most of them? This suggests learning programs of a kind and sophistication that have nowhere yet to be explored, a true challenge.

For it is not a known kind of learning which is to be taught, established routines of access and use; but rather the creative exploration and mastery of unknown potentials -- both of the technological system itself, and of the individual identities and human community with which it grows in intimate interface. In this respect what the system's programmers will be responsible for facilitating is not the narrow learning of "how to use the computer terminal", but the ultimate act of learning about learning itself -- providing perhaps the deepest dimension of that Community Information which empowers democratically.

Of course the system should be designed so that this teaching and learning can develop, again, in a democratic community interaction via the computerized prosthesis. But the seed the system's designers plant will help to determine what grows in the fertile soil.

Michael Rossman

Conclusion of appendix B:

There is a growing field of amateur computer activity around the newly-available microprocessor chips. To encourage the use of this device in that milieu we have included what we call "hexagram display" (which) allows debugging of machine-language programs by users who have no familiarity with or even tolerance for conventional editing and debugging programs.

..... The initiative for a design philosophy more in accord with the human ecology will have to come from us, and not from those in positions of economic or managerial control. Convivial designs are not good for maximizing the wealth of individuals. The point of putting such heresy into operation is to allow our efforts to maximize the wealth of society in a rational and humanistic context. I believe that it can and must be done.

f.o.b. five years from now, would be approximately half a year's military budget to put the entire system in operation on a national scale, and perhaps a quarter as much annually thereafter.

That's all it would cost, folks; it's surely the greatest technological bargain of our time. We have the capacity, the empty tool, within our grasp. This potential is an historical event of the deepest order come upon us quite suddenly — no more than dreamed of when I was a boy, made real only this year. The technology, the abstract but quite real capability, are here before we have even begun to grasp what they mean and what we might use



them for, beyond doing our customary things more effectively. Yet what Radio Shack's 4,000 outlets are now so cheerily pushing, with their \$599 personal computer special, is not only the usual blind wheel of (private) corporate profit, but the tools which, wisely used, could enable a radical step in the collectivization of consciousness and the democratization of relationships — both being key processes of human (cultural) evolution, which a full community memory would extend.

Of course our main problems have less to do with lack of information than with not knowing what information to use or how to use it. No machines will get us wisdom, though they may facilitate our contact with wise advisors. For many, adrift or swamped in information overload, the prospect of access to more seems numbing. But we do depend on data, and might as well manage it with good tools. With or without the grandiose context above, any network of community groups that deals with much information and depends on communicative interactions has reason now to be interested in creating its own smaller open collective memory, until a public one comes along to use.

Readers interested in network theory may appreciate the poeicy of a tool — a network of "smart" terminals — that is isomorphic to the system it serves, and

the observation that a network of change-agents/agencies is in effect a decentralized conversation of self-directed learners, which profits by facilitation with appropriate tools. Indeed we should expect a network's use of a communal memory to further decentralize it (as well as bring its many elements into "closer" interplay), since many of the administrative and communicative functions which lead networks to have centers could be handled through whole-network processes.

As for the practical uses to which a network of groups — like the more than forty diverse service agencies of the San Diego Community Congress, or the scattered neighborhood health clinics of a city, or the widely-dispersed headquarters of ecological activist alliances — might put their own collective memory, these begin with the collectivization of the routine "in-house" uses to which individual groups can put their own small computers. The virtues of uniform, efficient accounting and payroll programs, of well-ordered and continually-updateable data inventories, apply to change-agencies as much as to big business. The mailing-lists, funding sources, rosters of people with special skills, flow-charts of where to refer whom for what, lists of other agencies and their activities, and other routine masses of data on which operations depend can be more effectively organized with computer systems.

But the fuller force of even this routine reorganization appears only as the memories of individual groups are linked into a common memory and utility. Whole-network coordination of book-keeping and fundraising efforts becomes possible, without loss of "local" control; sub-networks gain access to easy sharing and summary of data for collective projects. Having a shared bank of information and resources to draw on does more than simply greatly extend the resources known to any single group. It relieves each group of the constant necessity to be tracking down information, people, etc., already known elsewhere, and frees it to more effectively maintain and develop its own unduplicated contributions to the common memory. A real-time, collectively-maintained network "calendar" becomes possible, announcing (with cues to the appropriate audiences) not only all scheduled events of interest within the network — each group's doings, meetings large and small, special events, days to file for IRS status — but the running status of such works-in-progress as legislative bills, negotiations with civic agencies, and court cases and their implications, as well as bulletins of any sort.

All this is only the simplest, most

rudimentary form of collective empowerment through well-organized sharing of information that a live-time collective memory makes possible for a network of groups. It is similar enough to the uses of computer-networks by retail chains, law enforcement agencies, etc., to perhaps raise confusion about its political character. But the tool itself is neutral, and can as well be used for one purpose as another. The ability to keep track of a whole system's interaction patterns is no less valuable to a network of health clinics concerned with epidemiology and assessment of service-needs and impacts than it is to the telephone company, and the luxuries of computer teleconferencing which RAND *et. al.* are exploring now can as well be used by a network of appropriate technology groups discussing the applications of a new solar cell for months, or by a network of social action groups coordinating strategy and demands during an intense week, in a continental discussion on view everywhere.

Yet a truly open memory system makes possible much deeper forms of collective empowerment than the examples so far suggest. Their key is the political character of the system's program. It is necessary to state the principle firmly, both to clarify the confusion above and to enable us to distinguish the other sorts of collective memory-systems which networks might explore from true Community Memories, fully open as democratic information systems. The principle is that any member of the community is free to contribute and draw upon information, and free to name, describe and address it as s/he will.* This principle seems quite natural and unremarkable when we think of a network of groups in cooperation, or a good conversation. Its political force, and the socially-solvent character of open memory systems, become clearer when



*And, more fully, free also to enter new sub-programs in the system's programming. The ways in which information can be responsibly erased from a community memory are too complex to discuss here.

we consider their application first within individual groups, and then as interfacing tools between groups and their social environments.

If access to terminal(s) is adequate, the "internal" uses to which a single group or organization can put a memory program are limited mainly by how much information its members are willing to share freely, and by how intensely they pursue their "information processing" through it. In a clinic, diagnostic and treatment procedures could be made as accessible to nurses and paramedics as to doctors. All the administrative functions of a community education exchange could be handled through teachers and learners actively using such a program. Its use by a traditional college would shrivel the administrative structure to reasonable scale. Were more information about how-to-do and who-to-see-for-what freely available, almost any organization would become more democratic, and more fully a collective endeavor, since it is precisely the limited access to and control of such routine vital data which establishes much of the typically-hierarchical power structure of even good-willed organizations. In such ways, by democratizing information, truly open systems tend to dissolve customary social distinctions and certain conditions of authority, opening the way to their self-organizing reconstitution. The prospects of truer collectivity appear most dramatically, for individual groups, in their governance, their ways of making decisions. For example, full access to details about the budget's planning and current negotiations with the city over job cutbacks is available to each staff member, and if the agency's memory itself has served as the running, open forum of debate and strategy, the staff that meets together may be more prepared and inclined to reach collective consensus.

All these examples of "democratizing empowerment" apply as well to networks of groups as to groups. But the most exciting and uncertain potentials of such open memory systems lie not even in such "in-house" uses, but rather in their employment as public utilities to interface groups and networks with the fuller communities whom their practices involve. The neighborhood clinic might well use its terminals to make the doctors' knowledge available not only to the nurse but to the "patient, and use them in more ways besides to become a resource and encouragement for his or her own self-directed treatment and learning about health. Were its terminals fully open, they might well accumulate well-indexed nutritional information from a community more interested in this subject than the clinic's doctors, of interest to health-seekers and

medics alike. The open terminals of a school or learning-exchange would accumulate evaluations of specific teachers and courses, to guide both student and teacher and whoever holds the purse-strings; and evaluations of the student's work by non-school sources chosen by the student, equal with the school's judgment and his/her own account. In a fuller system open to conversation the distinctions among "teacher" and "student" would quite dissolve as ideas and positions were debated in an anarchic community of learning.



Similar possibilities appear for almost any other social service or change group/network. Creative use of an open memory in the larger community can help to dissolve the distinction between the informed/qualified specialist and the helpless, dumb layperson, the activist and the audience. It can open the categories of information-providers, and transform the group's (network's) function to being the facilitator of a community learning process. As a fully-public forum for feedback and judgments by the whole community affected, it offers a more direct and radical accountability than service agencies are accustomed to facing, and both encourages and facilitates detailed client-responsiveness, as well as participation by the affected community in the decision-making of the organization itself. In all such ways and more, the active use of open memory systems in public interface promises to be, quite in itself, socially transformational.

All this is speculation, but scarcely science-fiction, being barely in advance of its time. The original Community Memory experiment was dismantled at the end of 1974. Even as its designers retired to develop hardware and software more suited to the task, other groups in Vancouver, Boston, New Hampshire were organizing

field-tests of kindred computer-networking systems (though perhaps none so purely insistent on the full freedom of a public information utility). It is likely that the first use of a collective computerized memory by a network of community-based human service agencies of social action groups will occur by 1980. "Community Memory" is now a trademark of the Community Memory Project which is continuing to develop a new version of the computerized community information exchange. The Community Memory Project anticipates that one node (ten to twenty terminals plus a central computer) will be running as a public utility in a local neighborhood in a S.F. bay area community in 1979.* Should it seem promising, many more will follow in short order, for the technology will be widely available.

Many different ways of programming network, internal, and public-interface uses will be explored. Most will be organized as less-than-fully-open systems, less to avoid the positively subversive potentials of open systems than to avoid all the "negative" problems of mis-information, accountability, etc., with which any open system must deal. Yet these problems must be embraced, as part of pursuing those potentials. The truth is that no one knows what we might do with the new tools we have developed; the powers and dangers they offer remain to be explored. Each network that experiments with collective memory, each commercial information utility designed by Bell Telephone or IBM, faces a choice: to perpetuate the social forms and political culture of the past by re-creating media in which the power to receive, provide and control information and communication is hierarchical, or to enable the exploration of new forms and ways, through democratizing this power.

Of all groups in our society, networks concerned with democratic participation and social transformation ought perhaps to be the most sensitive about the political character of the collective memory programs they (and other elements of society) will use. It is not too early — indeed, it may already be too late — to insist that any system described as a "community memory" or "public information utility" embody, for the community of its users, the full principles of open access and unmediated interaction that marked the original Community Memory experiment, for the sake of the democratizing potentials that they open.

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CAUTIONARY REFLECTIONS ON THE ADVENT OF HOLISTIC HEALTH

I

The agent of a large corporation's foundation calls me up. The foundation's looking into holistic health to see if funding there is worth their while. The agent is just beginning, she doesn't know what to look for yet. John Vasconcellos, an au courant legislator, has suggested she talk with me. We make an appointment. When I hang up I wonder what the devil John had in mind. I don't really know much detail about what's happening in the field. All I can offer her is an attempt to think from scratch, simple-mindedly, and a bit suspiciously about what's going on in general, and perhaps a reminder about what visions compete to define what is of value.

So what's going on? A major field of human activity and relation is being redefined (perhaps). A core element of culture, and a core institution, is changing (confusedly). One of our economic society's main industries, growing out of control in cancerous iatrogeny, encounters a dialectic of alternatives and opposition, and adapts to absorb them. The core issue of freedom, of the power people have to control their own lives cooperatively, is here engaged in a vast, obscure struggle, on a ground seemingly far from politics.

These social, cultural, economic and political faces of the holistic health movement are only half what is at issue. Through them health is so intertwined in our other affairs that to change our ways of handling health requires change in most other aspects of our lives, private and public. No decision about health -- even about what projects or investigations are exemplary enough to fund -- is about health alone, then. Rather it is about what kinds of lives and society are worth furthering now, and ^{should} be made in the light of our deepest values, both democratic and

spiritual. For just as the broadest questions of public policy and good are engaged on this ground, so in health, or in a renewed striving for it, the troubled spirit and spirits of a spiritually troubled society and age strive for reconnection.

I put it this way because there's an urgency and import to the holistic health action which needs to be honored and kept in mind, beneath the avalanches of actual detail. I don't know how a funding agency can relate usefully to this ^{spiritual} dimension (except perhaps to not be appalled at running into what seem to be religious fanatics),

Nor do I see anything useful to do about this other (equivalent?) description of the heart of the matter, except perhaps to recognize it:

In our time new forms and conceptions of consciousness, of human nature, of material reality, and of the interaction of consciousness with matter are struggling simultaneously to emerge. The recognition is spreading (perhaps prematurely) that these emergences are coordinated in their nature as well as their timing, and that we are involved in some "paradigm shift" of consciousness and culture which will, if we survive, fundamentally alter our understandings of ourselves and the world, and alter what we are and do in it. This is the message from the current frontier work in physics, psychology, and anthropology (for starters). (Holistic) health then is only one of many fields through which is being worked a change literally beyond our comprehension yet. But it is a vital field, if only for this reason: that of all areas of human experience, "holistic" health is presently the one in which these new conceptions of human nature, consciousness and reality are being most intensively explored. It is also the area most immediately pregnant with practical and

symbolic consequences from the embodiment of these new conceptions.

This perspective, though abstract, may actually offer some guidance to choosing what small real efforts are worth furthering.

(Some people believe that a particular new "image of (hu)man" is emerging, and that much of its essential detail and nature is already recognizable. If so, then ventures should be judged by whether they make it more visible and accessible, embody it more distinctly, and otherwise operate in accord with it. Others see several archetypes contending; in this light any strategy of furtherance is a political strategy, and it is essential to identify the interests and values involved.

I think this way, but I also think the matter's more subtle. New vision indeed seems dawning, but I believe what we make of it, its meaning, is precariously our own creation and responsibility. The overwhelming attitude now is to take the new image as pre-ordained, implicit in the stuff of human being and world, instructing us about its nature ^(and our own) as we discover it. Just so, with this attitude we innocently saw the evolutionary mechanism of 'survival of the fittest' in terms of competition and domination, rather than in the terms of interdependence to which we are now coming, and which lead us to recognize our first take as no divine revelation but rather a projection of the dominant social values of that time. The process of interpretation of the presently dawning 'new image of man' will be at least as subjective and projective; and there may be much that conscious choice can do about the shaping of that image as it emerges.

On that the government will pay for, in effect imposed in the most backwards ways of an obsolete system.

Think on the meta-level. What ~~have~~ we to fear, if the holistic health scene develops along the lines of our present habits?

Holistic health practitioners will be doctors again, an elite and isolated class. We shall again surrender ourselves to their definitions of our nature and mysteries, grow dependent upon their competencies and undermine our own. (The acupuncturist's mumbojumbo is no better than the surgeon's.)

Though the emotional/mental aspect be integrated with the physical, and though the emphasis be on preventative health rather than disease's remedy, the client will still be conceived and serviced as a private being, at most enmeshed in family -- perhaps more sensitive to the larger circumstances that influence him/her to disease, but neither treated as nor feeling responsible for changing them for the sake of health.

The routine and special benefits of holistic health praxes will be concentrated in an elite defined by class, age, and culture, and of course race. Many services are intensive and will be costly; the affluent will get them. The culturally au courant will be most receptive; old, poor and minority peoples may be reluctant to entertain new ways. The governmental role is crucial and will likely be retrograde. For if preventative/holistic methods are in fact more "cost-efficient", the entire present medical industry will face a vital competition; and the quarter of the population (more soon) who are dependent on the government to pay their health costs may find themselves, through the industry's influence on what the government will pay for, in effect imprisoned in the most backwards wards of an obsolete system.

Random important notions:

1. The present drift of medicine's "socialization" ^{through "national health care"} is madness. It leaves the medical governance and fate of the American people squarely in the hands of the traditional system at its most entrenched. The kinds of treatment, the styles of delivery that the government will commit to pay for are unreformed, the opportunities for excess of profit and alienation richer. An industrial hegemony in the field of health is being enacted into state law as a monopoly -- and hardly anyone notices it's happening, what with all the good intentions about getting the citizenry a bit of overdue protection for not too many billions.

The most we can hope for at present from the disorganized welter of alternative/holistic health practitioners is that they will scramble, through such specialist organizations as they can muster, for fragments of the action -- medicare acupuncture. It's too much to expect them to influence the law to provide for a healthier system of health care.

Nor are more than the rudiments of one visible yet. We are rather in a situation where alternatives are being explored. Howsoever America's socialization of health comes about, it will exert great influence on how much energy is available to explore what sorts (if any) of alternatives. The question then is: in what ways can government regulate its role as the authorizer and fiscal provider of health care, so as to encourage explorations of alternatives and recognize and respond to their fruits?

Any projects of theory or practice bearing on this question are important. Models legitimizing particular unorthodox disciplines on government payment schedules are uninteresting if this be their only virtue. Larger bites on the question are necessary. I suspect their basic common denominator may be this:

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The crudest model of this is a kind of unrestricted "medical voucher" system -- not an open checkbook, but personal allotments at once substantive and meager enough to make the individual's responsibility for cost-efficiency meaningful. Less primitive systems might involve provisions ("bonuses"?) for collective care actions; "gateway" conditions of health-self-governance and consumer-rights education; and so on. But this is a conversation in itself.

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4. Any system that permits (depends upon) some people to profit from the misery and vital needs of others is unjust in the first place, and doubly so because in such systems people's needs then become at the mercy of profit's considerations. The pharmaceutical corporations, their reckless technologism, and their influence on medical practice and philosophy provide a stark example. It takes a subtler exegesis to make this more than simplistic invective: any project which involves (neo-)medical practitioners in making much more than a median American income is somehow rotten at its core, however otherwise admirable it be. But I think it's so. It is certainly the grossest way of identifying the non-medical (un-healthy?) interests influencing treatment, relations and roles. And it's certainly a gross fact that many of even the most holistic practitioners expect as "natural" income levels which from other perspectives define them as economic parasites. Must a truly holistic health movement then concern itself with the health of the economic ecology it functions within? I see no way around it, if we're going for the deep vision of what 'holistic' means.

To ask that sponsored projects involve equitable rather than market salaries may seem a stiff standard -- perhaps a quixotic one, since many worthy projects might be unstaffable

by those with easy bites on bigger slices of pie. All the more reason, then, to support as exemplary those projects and people who will consider different economic philosophies an integral and personal part of their practice. All this is not simply an economic/cost-efficiency question, but a spiritual one. The spirit of Health, of Medicine, itself is perhaps being reshaped, perhaps not. What one first thinks about, re doctors, is that they make even more money than lawyers: a telling feature of the healer's present image in our culture. It is not simply a neutral rephrasing of the healer's traditional status and power in his/her culture, but an entanglement of this with a system of raw economic inequity, compromising all relationships of healing. The spirit of non-profit healing survives in relative purity within a number of religious traditions. What's of more interest here is that there are (I believe) quite a number of younger (and by now older) secular practitioners who might find the motto "health not for private profit" compatible and attractive, were social recognition and legitimation of it more available.

4. A more pragmatic reason to predict the availability of a large pool of health practitioners who will be content to make an ordinary living from their work can be found in the current economic/employment situation. In addition to traditionally disadvantaged populations, the pool could most logically be drawn from among the increasing population of college-trained, service-oriented, "hip"-cultured younger adults who now glut the urban service markets and will continue to pile up...

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APPROPRIATE LEARNING TECHNOLOGIES FOR APPROPRIATE TECHNOLOGY'S LEARNING

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Subject: Appropriate educational technology and programs for NCAT

Submitted: 1 May 1977

Appendices: (A) "A Communications Network for Change in Higher Education"; (B) "Community Memory: A Public Information Network", and "The Tom Swift Terminal: A 'Convivial' Cybernetic Device" (excerpt); (C) "Some Indications for Community Memory"; (D) "Technology and Social Reconstruction" (excerpt); (E) material from Coburn-Free College; (F) cost-estimate sketch of pilot NCAT-CFC degree program; (G) excerpts from the Community Congress training program proposal; and (H) "On the Definition of 'Community-Based' Services".

APPROPRIATE LEARNING TECHNOLOGIES FOR APPROPRIATE TECHNOLOGY'S LEARNING

Abstract

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I. Rationale

1 "Appropriate social technology" is defined and its relation to NCAT sketched. NCAT is seen as an educational mission, needing appropriate educational tools. Two sorts are described below.

II. Community Memory/Mind (CM)

- 4 A. AT's development proceeds through a decentralized learning-conversation, which needs appropriate communications technology.
- 5 B. A model of a cybernetized information system, CM, is sketched.
- 7 C. A pilot model for NCAT's use of CM is sketched, with use scenarios.
- 9 D. The expansion of this model to facilitate national AT learning is sketched.
- 10 E. CM's further development as a general public utility is indicated and cost-estimated.
- 12 F. Cybernetics is described as a field of appropriate technology which should be furthered as such by NCAT.
- 14 G. An unused network of resources for this is considered.

III. Self-Directed Learning (SDL)

- 16 A. The nature and content of SDL as appropriate social technology are sketched, along with NCAT's interest in the matter.
- 18 B. An example of a SDL network facilitating a network of self-directed learners (CFC) is sketched.
- 19 C. The purposes and nature of a degree program for AT workers and educators are discussed. A pilot NCAT-CFC degree program for NCAT's field organizers is sketched and cost-estimated.
- 23 D. More general approaches to the problem of educating and credentialing people involved with AT are considered, along with three relevant models.

Appendices: (A) "A Communications Network for Change in Higher Education"; (B) "Community Memory: A Public Information Network", and "The Tom Swift Terminal: A 'Convivial' Cybernetic Device" (excerpt); (C) "Some Indications for Community Memory"; (D) "Technology and Social Reconstruction" (excerpt); (E) material from Campus-Free College; (F) cost-estimate sketch of pilot NCAT-CFC degree program; (G) excerpts from the Community Congress training program proposal; and (H) "On the Definition of 'Community-Based' Services".

will depend significantly upon their answers. Were the social mandate explicit and deliberate, NCAT would also be concerned with introducing appropriate social technologies of peer education, community decision-making, etc., in pure form determined by hardware.

But there are reasons less peripheral or utopian for NCAT to concern itself with

APPROPRIATE LEARNING TECHNOLOGIES FOR APPROPRIATE TECHNOLOGY'S LEARNING

of whether an hierarchical or a collective organization of the central staff, or some hybrid.

A speculative study for the National Center for Appropriate Technology

tion, NCAT intends to relate to, and to relate, various networks of technological researchers and developers, commu

I. RATIONALE

For the purpose of engineering a broad experiment in technological education.

An organization concerned with the development and dissemination of appropriate technology should consider this fundamental question: What technologies are appropriate to its purposes? Material technologies are to be deployed in society; but the very action of their deployment both involves and (re-)creates social technologies. The organization itself, its training and outreach processes, and the modes of interaction/co-operation it helps engender among and between the "producers" and "consumers" of appropriate technology, are each examples of such co-ordinate social technologies. Nor are these technologies determined a priori. Rather we have as many, and as fundamental, choices about their nature as we have about our material technologies.

There is no philosophical reason, but only a habit of thought and some practical political problems, to keep NCAT's mandate from explicitly including the development of "appropriate" social technologies and their deployment among the disadvantaged. This mandate is implicit in any case, due to the inescapable co-ordination noted above. In plain terms, NCAT must be concerned with such questions as, "Will introducing solar heaters in the barrio involve the generation of a new sub-class of service professionals, or rather an increase in mutually-educative skills and conditions?" and "How, through its social style of introducing them, will NCAT influence this choice?"; for the social consequence of solar heaters, and even the mere numbers of heaters deployed,

will depend significantly upon their answers. Were the social mandate explicit and deliberate, NCAT would also be concerned with introducing appropriate social technologies of peer education, community decision-making, etc., in pure forms unadorned by hardware.

But there are reasons less peripheral or utopian for NCAT to concern itself with social technologies. They begin at NCAT's national office, perhaps with the question of whether an hierarchical or a collective organization of the central staff, or some hybrid of these modes, would best advance NCAT's purposes. Beyond its central organization, NCAT intends to relate to, and to relate, various networks of technological researchers and developers, community resources and organizers, and official bodies, for the purpose of engineering a broad experiment in technological education. Networks themselves are a social technology, increasingly important in our time; they are only now being recognized as such, and their nature and potentials are not well understood. In relating to them, and relating them to each other, NCAT will be engaging action research on this subject, and developing appropriate (or inappropriate) social technologies for this purpose. The same may be said of NCAT's mission of technological education in the broader community.

What social technologies are appropriate for NCAT's purposes, internally, with networks, and in the community? Perhaps the traditional ones will serve. But if not, it seems right to take the criteria which define "appropriate" material technology and apply them to social technology. An appropriate technology is low-cost, producible with local materials, amenable to user maintenance and repair. Its production and employment conserve and recycle scarce resources, minimize damage to (or enhance) the environment and the ecology, and contribute to local self-sufficiency and productive employment. It is energy-efficient, and does more with less in other ways as well. Its use is regulated by the user, meets the user's needs, if possible promotes the user's health in other ways as well, and promotes social harmony and cooperative endeavour.

Each criterion may be interpreted in social terms. It's worth noting that when read each in reverse, they describe many (most?) of our present major social technologies, including education, government, and those connected with the deployment of the dominant material technology. This harmony between "inappropriate" technology and its supporting social technologies is neither accidental nor merely aesthetic -- it is functional, and suggests that there are functional reasons for seeking to further the development of appropriate technology through "appropriate social technologies" as defined above. An old harmony, once broken, must be replaced by a new.

My argument is abstract but the problem is not. Networks themselves are an appropriate social technology by many of the criteria above; and to observe that the development and deployment of appropriate technology, and education about it, has so far been largely accomplished through networks, is to recognize a new harmony emerging in practice (or perhaps an ancient one recreated). This is the situation in which NCAT now organizes its efforts as a central agency charged with facilitating a decentralized process, as a new voice in the band. NCAT may well find appropriate social technologies essential to the functional success of its interactions with networks, as well as to its broader purpose.

I don't think the emerging "appropriate" harmony is more than tentative yet; but surely the prospect of NCAT's work striking an irrelevant note or a discord should be considered and avoided. For example, the people of the networks NCAT intends to coordinate may well appreciate being approached by people familiar with the processes and spirit of networking. Indeed, it may be difficult to approach many of them in any other way.

Overall, I see NCAT's mission as educational, and NCAT as a non-traditional institution of education. The main provinces of learning are (at least) threefold; innovators are learning to develop appropriate technology, the disadvantaged are learning to use it, and NCAT's staff and operations are learning how to facilitate

these learnings and the relations of their learners. From this perspective, much of the past decade's ferment in pre- and post-secondary education is relevant to NCAT's mission, which should be conducted at least in light of the strong critiques of traditional educational processes which have recently accumulated. (It should be noted that NCAT's target population, the disadvantaged, are the people whom these processes most fail.)

More pointedly, much of the thrust of recent educational innovation has gone towards the development of "appropriate" educational technologies, in the sense above. There are a number of field-tested models of appropriate educational technology which may well be appropriate to NCAT's mission -- enough so that this mission could perhaps be organized entirely in their terms. To propose this in detail is a large mission in itself, and beyond my present scope. Instead I consider below two such appropriate educational technologies which NCAT might find immediately useful.

II. COMMUNITY MEMORY/COMMUNITY MIND

A. Sub-rationale

NCAT's task is to facilitate a multiply-decentralized conversation of learning. The networks of people and groups involved are themselves decentralized, both geographically and in their functional and social organizations. Each given AT field, such as solar energy, is itself a decentralized enterprise, involving overlapping but distinct networks of pure research, development, dissemination/deployment, and use. Each such dimension of effort proceeds by a massive, various and complex conversation of learning involving reports and feedback, queries and requests for aid, rituals of summary and planning, and more personal species of contact and interaction. Nor are these dimensions of effort independent or isolated: instead their learning-conversations are improved the more they become accessible to and interactive with each other. The same is true of the learning-conversations of the several present

AT fields considered in relation to each other. The total learning-conversation of AT is thus decentralized in (time,) space, social class, activity-nature, subject and dimension. Nor is the task of facilitating it bounded, since this conversation, to proceed healthily, must be constantly open to new focii and inputs in space, social class, subject, etc.

An educational technology appropriate to facilitating such a conversation must involve both social and material technologies of communication. In "A Communications Network for Change in Higher Education" (1968; see appendix A) I discuss a primitive model, field-tested in yet another context; and suggest some functional criteria for its appropriateness. More recent developments in hard and soft communications technology have enabled sophistications of great potential power in this model. They were modestly field-tested in the Community Memory project conducted by Resource One, Inc. in San Francisco in 1973, and carried on since by Loving Grace Cybernetics in Berkeley.

"Community Memory: A Public Information Network" (appendix B) provides a brief abstract of that project; "Some Indications for Community Memory" (appendix C) discusses some political and social consequences of such an open information/learning system. The former discussion is too particular, and the latter too general, adequately to indicate this model's appropriateness to NCAT's concerns. But they are useful background to the particular application to NCAT's task which I sketch below; and also for the proposition which follows it: that NCAT should see Community Memory/Mind not only as a tool for its own task, but as an important appropriate technology to extend in the broader community, per NCAT's original mandate.

B. CM in abstract

In brief, Community Memory/Mind consists of centralized cybernetic facilities; decentralized peripheral computer terminals; networks of learner-users; software (computer programs) appropriate to an open-access user-determined and -maintained

information system; gate-keepers and other system-tenders, including specialized maintenance resources; appropriate social software (lore, customs and organizations of cooperation); and a funding source. CM is simultaneously a social and a material technology, in each aspect "appropriate" and thus harmonious in the coordination of the two.

CM's central facility includes a computer of sufficient power and adequate memory. To it are connected by low-cost easy-access means a number of peripheral terminals, inexpensive, durable and easy to (learn to) use. Though intended for self-directed use and maintenance, the terminals will need instructional and repair resource people, at least in the beginning. Free (undirected) use of the terminals is available to people of one or many networks, and/or the general public. CM's software (programming) is designed to help the user learn both how to use/repair CM's hardware, and how to use/repair/extend the software itself, in a "bootstrapping" process.

CM is an open information system: its initial or "seed" programming enables its users to enter any information, to arrange and manipulate stored information at will, and to retrieve information freely. Unlike printed media, which together constitute an analogous system, CM can operate in real time, facilitating live conversations of learning among its users. CM is also a free system, in the sense that though its gatekeepers may initially "seed" its memory with information and categories, its users can and must create the categories they need, and supply the ongoing conversation of its use.

The possibilities are quite general, as are their social ramifications. Simple interchange and categorical accumulation of information can support the work of existing networks, facilitate the self-identification of nascent networks, catalyze the formation of new networks of users, and deepen interaction amongst networks. CM opens to a great variety of possible interpersonal and small-group interactions, limited only by users' abilities to specify the categories of information entered and sought.

As the content of real-time memory and the complexity of interactions grow rich, "secondary gatekeepers" concerned with structuring, critiquing, or disseminating particular kinds of information, or with organizing particular sorts of cooperation, may be expected to invent and learn their roles. Appropriate cooperations, customs and lore may also be expected to develop among local communities of CM users, to support their use of the system itself. (These too may be "seeded" by the system's initial organizers and gatekeepers; the nature of "appropriate" seeding is an important question.)

Capital funding for the initial hardware and its gatekeepers, and for significant later increases in CM's capacity, might come from any source. Peripheral-equipment costs are already within the reach of user cooperatives; and preliminary study suggests that the ongoing operating cost of the system could readily be underwritten by a low use fee.

C. An NCAT-CM system

An application of Community Memory/Mind to NCAT's mission is feasible already. It might begin with the selection of one AT field (e.g. solar energy) to receive special emphasis, on the basis of its immediate amenability to CM facilitation; and the selection of one locale, distinguished by the density and variety of AT resources and opportunities for their deployment, in which to field a special concentration of organizers concerned with the interface of AT and the community.*

Prototype central cybernetic facilities would cost \$50-100,000, plus programming by the CM system's designers. An "800" phone number/WATS line would connect the peripherals at first, though the select locale might be chosen also to enable exploration of more sophisticated and flexible connection via TV cable-systems and satellite

*CM's usefulnesses within AT fields and networks, between them, and in local community interface all need testing at the highest use-levels practical; these priorities are in conflict, given the limited resources of a pilot model, but this arrangement may minimize their conflict.

note: the possibility of a second "public" screen at each terminal or even a third if there were a way to get around the wait line restrictions.

8.

relay. Peripheral terminals specifically designed for CM now cost \$1500 and the cost is dropping. Twenty terminals would be fielded, each assigned to a field organizer. CM should be only a tool for the organizers; gatekeeping would be a major function but not the dominant one in their work. A short training program (several days) would confirm them in the system's use and their gatekeeping function.

The system's memory would be initially seeded by NCAT, after a short training program. One major function of NCAT is librarianship, and the "library" of AT will need to be committed to computer storage and access in due (and short) time anyway. This project might well begin already, in the context of a system-experiment designed to maximize this "library's" eventual usefulness; and the costs of computerizing the information now being accumulated at NCAT should be borne by the library as a normal expense. Special priority would be given to accessing material from the selected field.

Each field organizer would make a terminal accessible in an appropriate way; some relatively minor costs might be involved. S/he would summarize ongoing identification of and contact with local AT workers and (potential) users, to help access them to each other and to more distant CM participants; and, after introducing willing ones to the terminal, would invite their own participation in accessing themselves, their works, their knowledge, their problems, and their questions, and in using its offered information for their needs. Special attention would be paid to facilitating conversations related to the selected field.

What would happen next would be determined by the participants. A householder seeking help or special materials for building a solar heater might find them immediately through CM, or enter a plea in the right category and be called by someone in response the next day. His technical respondent, encountering a special problem, might in turn view a diagram or videotape of solution entered in response that night by someone on the opposite coast -- perhaps a solar engineer browsing idly through the "immediate needs" categories as a break from studying the current summary of diverse applications of some high-tech insulation -- itself prepared by an aquaculture

enthusiast elsewhere who wished to save others his trouble in sorting the scattered literature into coherence -- or commissioned by some State's Office of Energy after its simple monitoring program, extended through CM, recognized an unusual volume of industrial queries which might be related usefully to the uses of that material.

There are the simplest scenarios; beyond them there is no telling, nor necessary limit, for the system is inherently open to creative play. The system's processes are quite simple, and its material technology and support is presently feasible. The main limiting factors involve the necessity for certain "critical masses" of users and stored information, which may be quite small; ease of use, which is improving; accessibility; and the technology of connection between center and peripherals, presently adequate but pregnant with radical improvement.

The question of accessibility is critical. The system of twenty peripherals and associated supports sketched above is a minimal prototype, capable of connecting perhaps four hundred using groups and individuals each day. Individually-user-programmed computer printouts (on microfilm) and mailings from the central facility could readily supplement this to provide a (weekly or monthly) individualized "magazine" of data, relevant papers, news, queries, etc. to literally everyone identified as a participant in AT networks (save those purely of users).

D. An AT-CM system

As peripheral access is improved, the system's potential efficacy increases exponentially; as the system's "mass" grows, its benefit/cost ratio does the same. Fifteen thousand terminals would be sufficient to place one in every group working with AT, every college, and every community population unit of 25,000 throughout America.

Their cost together with adequate "central" cybernetics (see below) would be some \$10,000,000 at present; it is expected that this figure will be reduced fivefold

in the next few years as hardware evolves. I can't say the same about the phone bill, but \$5,000,000 more would capitalize a major exploration of the radical amplification of CM's potentials made possible by satellite relay and the integration of peripheral processors with community cable systems. Training costs for users associated with situated terminals would be perhaps \$1,000,000. A year of competent gate-keeping at the public-access terminals would be the major expense, perhaps \$20,000,000; as the initial gate-keepers' function would be to organize local users into gate-keeping cooperations, this is a capital rather than a running expense. I consider the question of maintenance separately below.

This is to say: a minimal prototype NCAT-CM program would cost under \$200,000; a full program would cost \$40,000,000 to establish and a small fraction of this per year to continue. On this scale the system would, quite simply, put the entire national community of AT networks and workers in direct, immediate contact with each other and with the entire accumulated inheritance and real-time state of AT work; and put almost every potential AT user within at most a short ride of the same contact. It is impertinent to suggest that all the potential functions of NCAT itself might be subsumed and satisfied through such a system. But surely the price of such a program is cheap, considering its potential for radically facilitating the entirety of the learning-conversation which AT constitutes.

E. (Inter-)national CM

On this scale we begin to recognize CM's potential as an appropriate technology society-wide, rather than for NCAT itself. If not swamped by AT use, the 150,000 daily transactions possible at the 8,000 public terminals would be open to the entire universe of non-AT uses; and the general social phenomena of use and interplay sketched in appendix C would begin their broad development.

Once local self-gatekeeping communities of users are established and trained,

the costs of multiplying system access reduce essentially to the cost of additional peripheral terminals and processors, greater "central" processing capacities, and connections between these. In a few years the cost of a terminal and mini-processor may approximate the cost of the standard video receiver necessary for information's display, establishing the ^{duo} pair as a basic household appliance. "Central" processor capabilities will improve and their relative costs drop; these will be small anyway in comparison with the total costs of peripherals. The phone system may serve for connection, but the standard \$5/month connection fee which suffices to underwrite the extension of local cable TV systems suggests that the prospect of CM service for the same price might motivate their near-universal urban extension, which would make possible flexible "upstream" or feedback control over more central processors by downstream users.

The prototype local system for a national CM involves 1,000 peripherals ^{✓ off-line ceiling} connected to a local central. It is instructive to calculate the cost-per-peripheral of a local system with full capabilities, on the basis of current costs and, in parenthesis, estimates, of what can be available in five to ten years in the quantities required. Peripheral hardware with video display and full entry capability will cost \$1000 (\$300?) with print-out capabilities available for another \$500 (\$200?). Cable connection to local central will cost \$50-100 to establish from scratch with full up/downstream capability. The cost of the central unit depends mainly on memory capacity; a capacity equivalent to 20,000 300-page books will cost \$500 (\$100?) per peripheral. Capacities for satellite relay will cost \$50 p.p. and enable immediate interlock with any similarly-equipped local system and thus with the total resources of all.

By eliminating the need for the massive "central" facilities implied earlier, this arrangement reduces costs and time-sharing delays. Also, and of great importance, it advances the politics of democratic participation which underly the entire notion of "appropriate", by eliminating massive concentrations of equipment, personnel and

power, and ensuring that operation and control of the entire CM system be vested in reasonably-small, local, autonomous cooperations of users. Note that these local systems can be established one at a time and independently through local initiatives.

In short, and assuming five users per terminal, for initial, amortizable costs of \$500 per citizen (\$150 in a few years, in current dollars) and for a fraction of this in ongoing costs, America will be able to wire itself into a full Community Memory/Mind system -- accessing to each person, fully and in real-time capability, essentially all the information our society and its persons deem recordable. (On this scale the seed cost of initially accessing the total present recorded information of our society is negligible, less than 5% of the total costs.) It is difficult to describe adequately the potentials of this capability; they extend from a national fleamarket through reconstruction of the entire educational system to deep revolution in our mode of governance. Appendix D, an excerpt from "Technology and Social Reconstruction", extends the images of potential begun in appendix C.

F. Cybernetics as AT

I sketch this grand scenario to emphasize these basic points: that cyberneticized electronic communication can be an appropriate technology, both social and material, of prime importance; and that NCAT properly should involve itself in facilitating the use of CM (or an analogous system) in society, independent of NCAT's possible "inner" use of CM (though this use would serve powerfully as a prototype of social adoption).

We are not accustomed to thinking of computers as an appropriate technology, in the same class as passive heat storage systems. Indeed, they have not until now been "appropriate", requiring large capital investment, being difficult of access and complicated to use, reinforcing the concentration of power, etc.

The hardware and computer software end of this problem has been changing with amazing rapidity. What has scarcely yet begun to change is the habit of thought and attitude which assumes that computers are a powerful mystery properly suited to the mysterious uses of the powerful; and which continues to imagine and implement their design, deployment, software and uses in "inappropriate" terms.

This habit is an artifact of culture, and it is noteworthy that the few first experiments to seriously explore alternative "appropriate" possibilities for cybernetic use have come from and in response to the needs of people of the alternative ("counter-")culture -- who are also responsible for the spread of those clustered values which have made possible the present conception of AT in America, and whose Luddite fear of high technology has only recently abated sufficiently to permit such programs as CM to be seriously conceived.

The "appropriatization" of cybernetic technology has scarcely begun; and this project should be a high priority for NCAT. For cybernetics, by all serious accounts, is the most powerful and socially-pregnant technology yet developed by Western society; and it's just plain stupid to leave its development and evolution to the blind mercy of the dominant forces and customs of society.

(A note about the "appropriateness" of computers. Of the twelve points defining "appropriate" earlier, the only sticky one concerns production with local materials and labor, which must be fudged some in the case of high technology. The fudge may be forgiven in this case, for the costs of centralized production of sophisticated hardware are becoming remarkably relatively cheap, and scarce-resource-conservation efficiency is approaching the miraculous. As for the overall appropriateness of a full CM system, it can be crudely calculated in terms of energy balance, etc., by comparing the present total yearly cost of information-handling in our society with the running costs of a CM system, which would be significantly less and enable significantly more. Such a computation may be possible even for the minimal NCAT-CM initial experiment sketched above. This computation would be one

basic element in the design of an appropriate evaluation process for the NCAT-CM experiment -- a topic whose importance can merely be noted here.)

G. Developing neglected resources

These issues take immediate and pragmatic form when we consider the question of the technical maintenance of a CM system, of any scale. The rapid spread and evolution of cybernetic technology, and the slowness of hierarchical social response in exploring its uses and providing for associated learning, have recently produced a specialized educational anarchy -- a national network of "computer freaks", self-directed and cooperative explorers of the cybernetic medium, their work unmediated by centralized controls and matrixed in a strong emergent culture and esprit d'corps. Sprung from the ground of electronic engineering, the scope of their effort has so far been sharply circumscribed, confining itself largely to the exploration of hardware and the simpler, neutral "gaming" potentials of software.

Considered as AT, computers and their freaks have been uniquely isolated from connection and mutual influence with other AT fields and workers. As much as to the present dominant "inappropriate" conception and forms of cybernetic effort, this is due to the isolation of the freaks from "alternative" culture and its acculturation processes -- in turn supported by their collective self-image, and not yet undermined by active gestures of recognition and need from the rest of the alternative culture, AT networks, etc.

Current conservative estimates of the computer freak network place its numbers at 50,000, rising near-exponentially. A classic decentralized learning-conversation in the sense above, this network is also an unused technological resource of prime importance. It is, so to speak, a collective adolescent, beginning to explore who/what it is but not yet engaging what it can do and be in society. Offered an opportunity to be of use, the response from individuals and the collective network might

be considerable -- not only from interest in the overt purposes of the project(s) to be facilitated and the play of facilitating them, but also because they would be remedying the isolation of their beloved cybernetic toys, and themselves with them, from a broader appreciation and integration in society.

The computer freak network could readily volunteer the local "maintenance personnel" necessary for the 20 terminals of a prototype NCAT-CM system, operating in liason with NCAT field organizers; and soon will be capable of the support (backup with a sane human) necessary to a full AT-CM system (some funding would be necessary on this scale).

They would likely take on also a significant share of local gatekeeping functions, including user initiation. To emplace them thus would in effect create an autonomous corps/network of learners involved in "appropriate" ways of interfacing cybernetic technology with the various needs and potentials of the other ATs and their using communities. This function alone would be sufficient to justify NCAT's initiation of a CM project.

energy bill. It should be within NCAT's mandate to further the development of specific material technologies appropriate to enabling democratic learning processes; and to conduct its overall work in the field of AT in ways which contribute to the formation and efficacy of SBL groups in society. (From this perspective cyberneticized communications/Community Kind, as sketched in (ii) above and its appendices, takes meaning as the most potent material technology at hand to enable SBL processes; but not the only one.)

To describe SBL as a social technology, in other than vague metaphorical terms, has only recently become possible. The past decade's educational ferment has been largely concerned with developing alternatives to authority-centered educational processes and structures. In this process people have been learning that mere "freedom" is not enough. There must also be active systems of support, from conceptual to fiscal, to underwrite effective self-directed learning, whether of individuals or of groups. These systems in sum constitute an emerging appropriate technology.

III. SELF-DIRECTED LEARNING

A. Sub-rationale

Self-directed learning (SDL) is an "appropriate" social technology, in the sense of (I) above, for individuals, groups, and larger social ensembles. If NCAT's internal needs and external missions are essentially to facilitate learning, as I believe they may be construed, then the key social and political question of NCAT's operation and impact is whether the learning involved will be self-directed ("autonomous", "participatory", "client-centered", "democratic") or authority-centered ("externally-directed", "bureaucratic-authoritarian", etc.).

NCAT's mandate may not apply explicitly to appropriate social technologies unadorned by hardware. *But surely the function of an NCAT embraces more than simply helping America to meet its energy bill. It should be within NCAT's mandate to further the development of specific material technologies appropriate to enabling democratic learning processes; and to conduct its overall work in the field of AT in ways which contribute to the formation and efficacy of SDL groups in society. (From this perspective cyberneticized communications/Community Mind, as sketched in (II) above and its appendices, takes meaning as the most potent material technology at hand to enable SDL processes; but not the only one.)

To describe SDL as a social technology, in other than vague metaphorical terms, has only recently become possible. The past decade's educational ferment has been largely concerned with developing alternatives to authority-centered educational processes and structures. In this process people have been learning that mere "freedom" is not enough. There must also be active systems of support, from conceptual to fiscal, to underwrite effective self-directed learning, whether of individuals or of groups. These systems in sum constitute an emerging appropriate technology.

In particular, a variety of paradigms for SDL and its facilitation have recently been developed, codified, disseminated and employed in pilot applications. They describe the roles, structures and processes involved in determining needs, intents and goals of learning; in assessing and developing resources; and in planning, carrying out and evaluating learning; and they prescribe useful versions of these. They are meant as tools both for individuals and groups who would engage learning, and for those who would facilitate this engagement (who are, in this respect, again learners.) They apply to every level of learning, from personal growth and specialization through small-group interaction/decision-making/problem-solving to community organizing and the development of "appropriate" human services. Though to my knowledge they have nowhere yet been thus described together, their variety and mutual relation are such as to qualify them not as a grab-bag collection of paradigms and techniques, but as a coherent and comprehensive emergent social technology. I will not go into the principles and spirit which underlie this technology, except to say that they are analogous to and compatible with those embodied in "appropriate" technology as a whole.

The narrowly "educational" development of SDL technology has proceeded largely through experiments within existing educational institutions and in the process of developing alternatives to them. SDL paradigms are finding increasing employment in classroom learning, from the earliest grades ("open" education) through graduate study, and in the development of programs of "adult"/"ongoing" education. Broadly speaking, the entire field of larger "educational alternatives" -- from free schools and community learning-exchanges through "external" degree programs to the variety of new "free-standing" credentialing institutions -- depends essentially on SDL technology at present. In all these respects SDL uses, still partial and rudimentary, are training people in and providing models for their use and further development in the larger society. And not only SDL techniques, but their "technicians" and institutions based upon them, are gaining social recognition and accreditation.

broadly applicable.

The relevance of all this to NCAT's concerns is immediate and many-leveled. NCAT's central staff form a learning-group. NCAT's field organizers will form another, concerned with learning to facilitate learning, of this certain sort. For, from people developing AT to the disadvantaged adopting it, the learning-processes involved are desired to be, and often must be, self-directed. NCAT should be concerned with providing people and groups with appropriate paradigms and social tools, as well as with more tangible supports, to do this learning better. This concern reaches back into the educational system, where NCAT's interests extend from how children are introduced to scientific/technological experience, through the education of future "consumers" of AT, to the higher education of competent researchers, innovators and deployers of AT.

With respect to almost every aspect of its purpose, then, NCAT has reason to acquaint itself with and avail itself of appropriate SDL technologies -- both for its "own" uses, and to help bring SDL and its developers/users into contact with AT and its developers/users. Of the many possible projects which follow from this, I sketch one below.

B. Campus-Free College

Among the various SDL-based institutional models with which I am familiar Campus-Free College (CFC) is presently the one most fully conceived and systematically structured in SDL terms. Dating from 1971 and awarded candidacy status by its regional accrediting association in 1976, CFC offers no conventional "subject" instruction. It functions rather as a support system and validating mechanism for SDL learning and learners. CFC is a network serving a network, supported by central facilitation. To the network of learners and their small groups, CFC offers SDL paradigms for learning and for validating learning, and the chance to direct the evolution of their own paradigms. To the network of learning-facilitators and their groups it offers the same. The offered paradigms of process are fairly well designed, defined, and broadly applicable.

Their detail is irrelevant here, though a fuller sketch of CFC's institutional process appears in appendix E. The point is rather to see CFC as a present model, simultaneously exemplary and functional, which might be turned to NCAT's own, and AT's general, uses. Other experimenting educational institutions might well host/support the uses suggested below, and NCAT might usefully invite them to this. It might also seriously consider the question of itself initiating "appropriate"/SDL educational institutions concerned with AT.

C. An NCAT-CFC pilot program *(design program!)*

NCAT will be fielding community organizers whose work will be to learn about AT, community organizing, and networking, and to learn how to facilitate these. I envision a pilot program which would involve field organizers voluntarily in a simultaneous degree program with some institution like CFC. The degrees might be A.A., B.A. or M.A. as appropriate. Their subjects might individually, and legitimately, be in various fields of education, ecology, social welfare and/or technology.

These and more are involved in the emerging vocation of appropriate technological education -- which has been developing in conjunction with the development of AT in much the same fashion, and for much the same reasons, that a vocation of holistic health education has been emerging in conjunction with developments in holistic ("appropriate") health practices. The development of ATE as a vocation has to date, in this country, proceeded largely through the persons and industries of the "counter-culture", and is still essentially unformalized, unrecognized and unsupported in the larger society. It lags well behind even the rudimentary development of the parallel vocation in health. Yet it is important and perhaps essential to the overall development and embedment of AT in society; for ATE is concerned with facilitating not only the exploration and adoption of AT, but also the development of the attitudes and capacities which underwrite these.

A degree program for NCAT's field organizers would have three dimensions of purpose.

One is concerned with the degree itself, a tool of vocational and social advancement which some organizers may well want and choose to pursue independently in conjunction with their NCAT work. But NCAT should see degrees for the learning in this work also as tools to establish and accredit the vocation of ATE itself. Besides signifying formal training of service professionals, degrees can be useful in establishing and enabling a corps of qualified and credentialed teachers to pursue ATE work and organizing, in educational institutions and outside them.

The second dimension concerns the process and purpose of the organizers' learning. Mutual involvement in a SDL learning-program conceived as such offers the organizers, together with relating NCAT staff, a way to organize a more formal, thorough and effective support-group for their work, in its cognitive, emotional and operational aspects alike. It offers them also an independent cooperation of self-interest -- a base from which to relate in dialectic with their roles as NCAT staff and with the NCAT staff, and a ground from which to pursue activities which will be largely self-directed.

The serious and disciplined use of SDL paradigms, individual and cooperative, which a degree program should involve would enable organizers better to understand and deal with the problems of their learning/work. Even the first steps, which in the CFC format would involve them actively in defining their own needs of learning and ways to satisfy these, work to this end. But not only technical and functional learning are to be considered here.

Instead there is some danger that NCAT, if it follows the present dominant model of ("innappropriate"-) technological education, or even the model prevalent in AT circles, will conceive too narrowly the education its field organizers are involved in and need. It is enough here to say that the organizers will have unique strengths and needs, and particular (and possibly not-well-understood) reasons for engaging this unusual internship; and will experience a variety of non-technical problems and needs as they do their work. The SDL paradigms of CFC and similar institutions can

enable these to be dealt with as complementary aspects of their technical learning.

It is presently believed that such integrated programs of learning enable people to be better at their work; but there is a reason beyond cost-efficiency for NCAT to favor them. One main theme of AT is the rediscovery, reclamation and reintegration of the "human" dimension of the technological. On all counts, moral and practical, it seems appropriate for NCAT to attempt to provide, at each juncture of influence, models of this integration, to aid the broad program of resocializing technology.

The third dimension extends this modeling function. It is appropriate for NCAT to provide and to further through its own working models ways in which people involved with AT can better organize and accomplish their learning, and credential it socially to amplify its usefulness. An NCAT-CFC intern degree program would be more than an abstract model for analogous programs in AT development and education. The field organizers involved would themselves make the model and the possibilities which it implements visible to other AT-involved people with whom they interact, in the natural course of their interactions. It is clear that this function could be purposefully and systematically developed further (see C below).

To suggest a precise and detailed form for a pilot NCAT-CFC intern degree program is inappropriate here, if only because in consequence of its self-directed nature such a program must be developed principally by the people involved. There undoubtedly are persons knowledgeable about ATE who should be used as resources for program planning and field organizer/intern training; but some may well and should be included among the interns themselves. Still some general parameters for such a program can be given from the perspective of CFC or an equivalent SDL-facilitating agency.

The program might include from six to twenty interns. Continuous local contact with SDL facilitators would be appropriate, but one-to-one facilitating relationships might be possible over larger distances depending on the interns involved. (Like Antioch, University Without Walls and International College, CFC has facilitators in many regions of the nation; it has also, besides somewhat more fully and explicitly

developed SDL paradigms, explicit and routine provision for local learner-initiated additions to its facilitator network.) The degree programs might be organized to run for a common duration, one to two years; or on more individual bases.

In either case, explicit time and support for participants' learning would need to be organized as part of or as complementary to their NCAT field work. In addition to tending the ongoing process of their SDL, they would periodically need time and energy free to deepen it and to document it accountably. Mutual involvement in the learning program, as well as the simple performance of their jobs, could usefully be facilitated by bi- or tri-monthly collective "retreats" -- in Butte if the program is national, on- or near-site if local -- to discuss systematically their work, learning and problems, aided by NCAT staff and one or more of the local SDL-facilitators brought in for these occasions. (In a second-stage NCAT-CFC model, in which first-generation interns and facilitators would serve as resources for local groups/networks of ATE interns, provision should be made for bringing all the local facilitators themselves together periodically.)

Program participants should be strongly self-motivated and self-directing. This is somewhat implied already in their selection as field organizers; but if an NCAT-CFC program is developed it might be well to base the selection of field organizers in part upon their ability and readiness to use the program (and its fruit) successfully. Many other factors bear upon organizer selection, including the need to provide avenues whereby the disadvantaged may train themselves to their own advantage. But there seems now to be a class of people who already have been functioning as pre- or para-professional AT educators, with regard to both material and social technologies, and who seem a major and a natural resource for the job and the vocational learning program simultaneously.

Such a program would involve two kinds of costs, besides the participants' travel and time: payment for facilitative interactions, and for the maintenance and processes of an accountable validating institution. Either or both might/should be

met through NCAT's funds -- for example, CFC facilitators would be providing substantive consultation to the organizers on an individual basis; or CFC or another school might contract directly with NCAT to develop the program and support and validate its accomplishment. With CFC or any other school of at least "candidacy status", there are also available federal funds for students, which NCAT may be in a fortunate position to help obtain. Special funding by grant from federal or private agencies concerned with education and/or technology might also be possible. (Work/Study Money!)

A tentative sketch of curriculum and costs for a pilot NCAT-CFC master's degree program appears as appendix F.

D. Towards an AT-SDL system

Campus-Free College is not yet large enough to support more than a pilot program of the sort above and perhaps several similar local ventures. But such process-paradigms as CFC exemplifies, for facilitating and credentialing the self-directed learning-work of individuals, groups and networks, have no necessary limits to their adoption and application. At present I know of only three other institutions -- University Without Walls, Union Graduate School, and International College -- which might be able properly to host a degree program for geographically-scattered organizers-interns (or others concerned with AT). But recent ferment in higher education has formed or left many local institutions potentially open to SDL study/degree programs in AT-related fields, and some so engaged.

One broad task of NCAT's field organizers should be to assess and summarize the educational resources open to AT-involved people in their locales, and to make this information available to all potentially concerned. This survey would include listings of all institutions sponsoring AT-related studies or receptive to hosting and credentialing these. (A comparable survey for the field of holistic health in the San Francisco Bay Area is being currently undertaken by the Berkeley Holistic Health Center.) It might well extend beyond, to begin to describe the more general

complex of AT-learning-resources available in each locale. These include persons and groups engaged in research, development, deployment, use, funding and regulation; repositories of knowledge and of materials; etc. One imagines a "Whole AT Catalogue" for each region, periodically updated.

But here we are, back at SDL networks again. The task of assembling and accessing such a general resource-inventory, and keeping it up to date, is precisely the task of the NCAT-CM system proposed in 11.C. above, or rather one use for this tool. This task is already sufficiently complex and extensive that to do it properly (let alone to arrange a user-centered evaluation component) will require tools more sophisticated than a xerox machine and a phone, though perhaps cruder than CM at first. Either way, it is important to recognize that in this task the organizers will be acting again as facilitators of an SDL process and network. In this their goal should be to organize themselves out of the job, by helping to develop ways and customs by which the people who are, tend, and use AT resources can access themselves to each other. An office with open-access resource files that organizes periodic publications may be a first step, but still preserves a "bottleneck" in the flow which the freer and more powerful processes of CM could eliminate.

Another dimension of approach to the problem of connecting AT workers with educational resources is suggested by a training program proposed by the Community Congress of San Diego, a cooperation of thirty community-based human service agencies. The program involves selected agency staff in interⁿships as "Educational Coordinators", learning together to assess the educational needs of their agencies' staffs, to connect staff with appropriate resources, to effectively advocate the addressing of unmet needs by educational institutions, and to initiate the development of relevant educational programs themselves or through their agencies.

The program's goals are quite sophisticated. As SDL technology it extends the discussion above essentially, by providing for active user-organized roles in creating educational resources. Its sponsors' estimate of the program as "a

comprehensive and replicable self-help model for ... workers and their organizations to use in identifying and meeting their own educational needs" is near enough the mark for their proposal to be read point-by-point, with "AT" substituted for "human service", as a guide to the situation, problems and potentials NCAT organizers may encounter in the field; and as an appropriate approach to dealing with them. From this paper's perspective this is scarcely surprising, since the proposal concerns a network of network-agencies dealing with client and resource networks, and committed to appropriate/SDL processes. Some excerpts from the full proposal appear as appendix G. (Appendix H, "On the definition of 'community-based' ...", suggests a set of criteria for judging the "appropriateness" of AT service agencies, educational and other.)

Finally, complementary approaches to the education of AT workers are implicit in the discussion of CFC above. The CFC format is permeable: NCAT organizers might themselves identify competent local SDL facilitators and initiate their CFC credentialing and subsequent roles in local AT learning-programs, or stimulate local AT people to do so, thus extending useful processes and resources under the CFC umbrella. Save for the question of degrees, there is no need for them to do this under the umbrella of CFC or any other school; and many local needs for learning's facilitation would not fit well in degree programs anyway.

The overall thrust of these final suggestions is towards creating a class of educators specifically concerned with facilitating SDL in AT networks, and NCAT might in its longer-range planning choose to treat this problem directly by inciting and supporting the format^o_A of a network of local community-based institutions of AT education. The overall CFC paradigm might serve well to organize this venture's beginning phases, not under a joint NCAT-CFC rubric but under NCAT's alone, or better yet independently. Such a decentralized "College of Appropriate Technology" could follow CFC's process of winning accreditation, though its operations would no more resemble those of traditional colleges. The eventual nature and scope of its "products"

of persons and knowledge cannot be readily foreseen, for we are still early in the process of exploring the major paradigm shifts in technology ("appropriate"), education ("self-directed") and social service ("community-based") upon which these will depend.

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On the Definition of "Community-Based" Human Service

A "community-based" human service institution ~~exists~~ functions mainly to serve the needs of its immediate community, rather than "foreign" needs; and to serve those with the most need rather than the most ability to get or pay for ~~it~~^{service}. It serves needs as defined mainly by those who experience them rather than by "higher" ^(or "impartial") authorities; and serves them in ways whose appropriateness and quality ~~is~~^{are} evaluated mainly by those who experience this service rather than those who supply it of whose profession is to evaluate it. ^(as) Part of its function is to enable members of its immediate community to serve each other, it recruits and trains ~~community people~~^{them} to staff and administer its operations, coming increasingly to depend upon them for this; and also works to educate and to support community people to perform as much of its service as directly among themselves (rather than through it) as ^{is} possible. Its financing and other supports ~~are~~^{are} controlled, to a significant extent, by the community ^{it serves,} and come increasingly to be provided directly by or through ~~the~~ community. It works actively to help the people it might serve learn how to use and to influence its service. It is formally open and informally responsive to participation, by the people it serves, at every level of decision-making involved in its service, from the way individual clients are dealt with to staffing, evaluation, finance, program and long-range policy decisions; and it invites this participation actively.

These ten criteria are intimately related, indeed they spring from a common functional-philosophic root. "Community-based" is an adequate adjective to describe them together, but it does not quite capture the essence of the root, and ~~it~~ fails to suggest the maximal ideal which might guide our imaginations and evaluations. What is ~~clearly~~ missing above is any reference to the kind of internal

workings (structures, processes) which are appropriate for such institutions of service. The common thrust of the^{se} criteria ~~are~~ is to give people their share of power in and control over the decisions and processes which determine their experience, and this might well (and harmoniously) also be adopted as the principle governing the internal organization of human service. Each of the ten criteria above might then be easily adapted, with only slight rephrasing, to describe and judge the ~~internal~~ ~~qualities~~ ~~desireable~~ ~~in~~ ~~a~~ ~~community~~ ~~service~~ ~~institution/organization~~. This gives twenty criteria in all; the simplest term ~~is~~ ~~probably~~ ~~"democratic"~~ for a human service (institution) described by them together is probably "democratic".

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About Networks: I

How do I mean "network" here? As a particular kind of social organization of human activity. How many other (kinds of) current uses of the concept are there? What do they have to do with one another?

What makes "networks" different from other social organizations? I associate these ideas with them: geographical dispersion (decentralization) of their constituent members/groups ("nodes"); the independence of each node's activity from control by other nodes ("local autonomy"); the dependence of each node upon the others for support, whether "moral" (spiritual), conceptual, functional or resourceful ("mutual support"); the existential equality of the nodes as self-governing members of a collectivity ("peership"); and common purpose, in the sense either that the nodes are all engaged in (defined by?) the same activity, or that they are engaged in related/complementary activities which together constitute an integral (if not necessarily complete) activity. To this must be added self-consciousness, perhaps of two sorts: passive, in which the nodes recognize that they constitute a network, and active, in which they engage actions predicated on this recognition. In some networks there are processes of mutual accountability among the nodes, but this seems to be a special condition.

With the living networks I know, I associate a second cluster of ideas. They are meta-stable, constantly in processes of growth (however measured) and disintegration. This meta-stability has several levels. There is a significant/high turnover in the roster of nodes, accomplished by functions (rituals) of entrance and, more ^u frequently, of exit. A typical node's "life" in a network has charac-

teristic phases and durations, amounting to a life-cycle whose nature is connected with the activity defining the node/network. Within this, if the nodes are groups, an individual ^{person} has a typical "network life-cycle". (There are always exceptions. Are there characteristic kinds of exceptions, and if so what role do they play in network dynamics?) Finally, the network itself has a life-cycle, which may be sui generis or may be strongly influenced by the nature of its defining activity (and the interaction/"life-cycle" of the larger society).

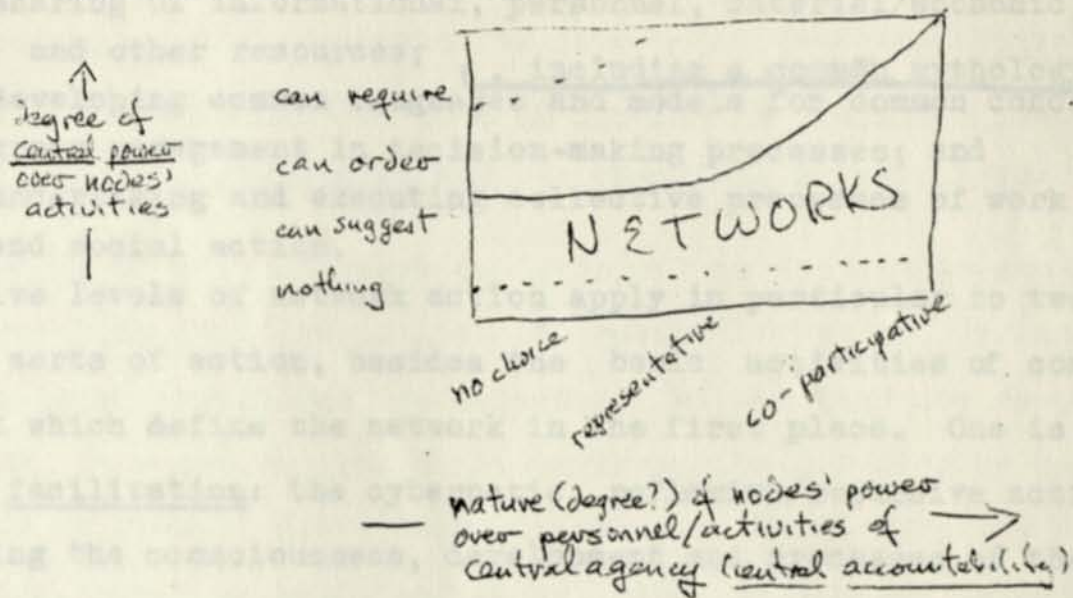
As these two idea-clusters suggest a view of networks as organizations/organisms with life-cycles, a third cluster concerns their (life-)processes -- how relations amongst their cells are accomplished. From above, these relations seem to be of consciousness, of support, and of accountability -- a hierarchy, to be sure, but is it sufficient to describe the broad field of intra-network relations? As for how network relations are accomplished, it seems to be by two broad processes: communication, and decision-making, with the first requisite for the second. (Are there others?) And perhaps networks can be usefully categorized/analyzed/tended in terms of their patterns and technologies of communications and decision-making. (See below.)

The first two clusters of ideas above do not serve to distinguish networks from many other species of social organization. If "decentralization" is redefined to mean that the nodes' primary activities are pursued separately, with less of more physical separation -- as I think it must be, though it may then be redundant with local autonomy: -- then these two clusters also describe universities, the McDonald's franchise chain, the SWP, and so on. Organizations which are so describeable but which I do not think of as networks seem to be distinguished by these features: (1) They generally have a class structure among the nodes, though superior nodes may not be able directly to control inferior nodes. (2) The nodes depend

significantly on some (material/financial) form of central support.

(3) The nodes are subject to active guidance from some central agency (central guidance)

But dependence on a central agency isn't a sufficient criterion to distinguish networks, for some networks have (and many might well use more sophisticated) central agencies. Another pair of criteria, co-related, concern (4) the extent of central power and (5) its (central) accountability to the nodes, as in this graph:



Classless, then, should be added to the first cluster above, or more accurately non-hierarchical class structure. And the special condition of accountability becomes a general condition in this sense: that a network can have a centralized agency with the power to support or otherwise influence nodes' activities only to the extent that the nodes (directly) control the central agency, else the network is not a network but a center-oriented form. The sharper criterion that suggests itself is that nodes must individually have at least as much power over the center as it has over them, which inasmuch as the network's center is itself a node may be summarized as autonomous interdependence. With these applications, the first cluster of ideas may constitute a sufficient definition of networks.

Defined in this generality, networks would seem to be equivalent to the social mechanisms of a genuinely democratic-participatory society. It is this spirit, I believe, which creates them now as such and pleases us in them, and which gives the underlying sense and purpose to our efforts to understand them and make them work better.

(4)

II.

Returning to actively self-conscious networks, with which most current network theory is concerned, these engage in an (overlapping) hierarchyⁿ of actions predicated in, and in turn developing, their self-consciousness:

- 1 - communication between individual nodes, and to or among the collectivity of nodes as such;
- 2 - sharing of informational, personnel, material/economic and other resources; including a common mythology;
- 3 - developing common languages and models for common concerns;
- 4 - group engagement in decision-making processes; and
- 5 - undertaking and executing collective processes of work and social action.

These five levels of network action apply in particular to two special sorts of action, besides the basic activities of common interest which define the network in the first place. One is network facilitation: the cybernetic, reflexive/recursive activity of tending the consciousness, development and processes of the network itself as a social organization/entity. The other, again overlapping, involves the generation of new concerns, beginning with the primordial one of network self-consciousness and facilitation, but leading outward to expand/refine the sphere of shared basic work and direct the network's evolution as a social agency.

Traditional organizations/institutions govern themselves or are governed in ways ranging from representative democracy to hierarchical systems-management. Network facilitation, as a whole process, is itself the mode of governance of networks. At this early stage of networks' development and evolution, and perhaps intrinsically, their governance consists mainly in the first three levels indicated above. In this balance, their governance is more nearly a cybernetic species of governance, as contrasted with the terms of political governance (decision-and-execution, levels 4-5 above) we are accus-

tomed to conceive for organizations and society. Yet these first three levels equally bear analysis in political terms, both because (to sum them crudely) information-processing is pre-requisite to and largely determines decision-making, and in their own right as embodying structures and processes of power and decision-making susceptible to ordinary political analysis. Likewise the last two levels represent the completion of cybernetic process. Network facilitation/governance can only be understood through a full fusion of (at least) cybernetic and political perspectives.

The networks of most interest to (some of) us are self-organizing, self-regulating, self-governing. To speak of them so, as isolated systems, is an impossible (anti-)ideal. Rather they are responsive organisms, interactive with their environments and in many ways regulated by these. Still there is sense to these terms "self-organizing, etc." -- political sense, cybernetic sense -- which applies at each of the five levels. For a network to be self-governing, formal actions need not be engaged on levels 4-5 (decision and group action). Indeed, networks which form (as contrasted with those that are formed) are marked by a pure anarchy of self-governance in the early stages of levels 1-3, which extend informally through the last two levels. Equally, these early stages embody, in cybernetic terms, a condition in which the system's regulator is identical to the system itself -- a primitive (primordial) state of grace towards which more-developed networks must (as I intend a separate line of analysis to show) tend in their evolution as fully self-governing forms.

The formal political character of a network is given in formal actions at levels 4-5. These cannot, I imagine, be more fully collective than are the actions at levels 1-3, and may well be

less so, for a variety of reasons intrinsic to decision-making as a political process in the real world (these would bear further taxonomy and description.) The informal political character is more basic, more complex and shrouded. It inheres largely in the texture of the semi- and informal relations and interactions amongst the persons and groups of the network. By the nature of networks as defined above, these ^{have} ^ "naturally" the character of autonomous self-governance; but as they are embodied on the five levels of action above they are biased away from this character, and towards the character of centrally-governed ^(authoritarian) systems, in a degree corresponding roughly (I believe analysis will show) to the extent to which a network's functional processes develop to resemble those of traditional ^{hierarchical} institutional forms. ¶ From an ideal perspective of self-governance, such a development represents both a psychological and a functional retrogression to precedent cultural states and forms. But this is not, except in terminal cases transforming a network predominantly into another form, a static retrogression. Rather it involves a dynamic contradiction, between the social spirit inherent in real networks' genesis and potentials, which continues to regenerate itself; and the spirit against which the democratic impulse struggles in our time, which regenerates itself in every level and arena not consciously and successfully contested. We should expect to recognize this tension, and resultant dynamics, in the operation of every more-than-embryonic network.

A case in point is the rich network of networks loosely known as the human potential movement (HPM). The HPM's constituent networks have (mostly) been developing as self-governing/self-facilitating enterprises for decades. The HPM has coalesced as a meta-network only during the seventies, from 1977 on commencing both formal

action and informal self-facilitation on the fourth and fifth
at the highest social levels.
levels above. This late development, examined in my book-in-pro-
gress Dysfunction at the Junction, is of major importance to our
whole society; and though the HPM is too rich as a case-study
of network evolution to go into here, one detail bears extraction.
By the time the HPM began actively to identify and develop itself
as a meta-network, there had already been developed to guide it
a core of ideology (stage 3) nominally integrating the networks'
various perspectives. This development, which anticipated and
relatively foreclosed the "natural" level 3 development, came
about in large part because "broadcast" media (one-way processes
of mass communication) were employed from the start to dominate
collective activity on levels 1-3 -- as they had come to be employed,
though in lesser degree and thoroughness, increasingly in the
ongoing development of individual networks.

This process deserves further study. What the HPM's example(s)
suggest is this: ("natural" or "spontaneous") networks are at first
essentially informal and anarchic-democratic. Even the first papers
defining their common ground and character appear as representations
of emergent collective consciousness; and the first conferences at
which their people and nodes encounter and interact have likewise
more this social character of collective self-realization than the
functional character to which they are usually ostensibly dedicated.
But as networks continue to develop, to grow self-conscious and

elsewhere, involves at least the destruction of conventional
and other information-sharing media, along with the development of
self-organizing-developmental theory and practice; it can be done
even without electronic media, and more powerfully with their aid.
It best these functional governing groups operate somewhat as

self-facilitative, they adopt powerful new media through which to accomplish the activities 1-5 above. Or, more often, they adopt old media. ¶ Conferences become more organized along habitual lines as learning-environments/processes; from an open court of diversifying input in the early stages, repeating lists of dependable/approved featured speakers/teachers/entertainers are refined and established (the processes of their approval are perhaps more often than not principally economic); this diverse "teaching machine" refines itself to instruct more people more effectively; these three processes repeat for other educational forms (workshops, training, etc.) of face-to-face interaction in the network. The same "centralizing" (socializing) developments proceed for the print medium. The initial informal circulation of letters and papers extends in time to journal and book publication; at each stage the variety of information is either well-summarized or (more often) significantly reduced, and in either case ^{is} given more-powerful and less-responsive influence through the very nature of "broadcast" media. ¶ The result, or the accompaniment or cause, is in practice the development of a semi-formal functional governing group for the network, embracing a relatively-small number of authorities recognized in certain terms (not all public, as lecturers/authors/practicioners, there being other managerial roles of networking to fill) and exerting a powerful influence over its own further enlargement and development. (The alternative, to specify some elements here which must be further developed elsewhere, involves at least the reconstruction of conferencing and other information-sharing media, along lines of specifically self-organizing-developmental theory and practice; it can be done even without electronic media, and more powerfully with their aid.)

¶ At best these "functional governing groups" operate somewhat as

representative bodies (in cybernetic terms, as semi-adequate governors), in proportion both as they include persons/groups consciously dedicated to this task (as, "open-minded" impresarios and institutions), and as "grassroot" processes operate effectively within the network to bring new persons/perspectives/information to prominence independently of the semi-formal governing group -- enlarging it by popular election, so to speak. At worst, and perhaps in direct proportion to the extent to which face/face and indirect information (etc.) transactions become organized through and dominated by such "centralizing" groups and "broadcast" media, the network's governance becomes no longer participant-democratic but increasingly authoritarian (an "authoritarianism" of a kind which we scarcely yet are able to distinguish from the socialization processes of our culture itself.)

1 The "grassroot" processes referred to above consist largely in the primordial decentralized activities of collective anarchic self-consciousness (levels 1-5) which develop the network initially, and persist as its underlying stratum of vitality. In workaday terms, it appears that the most powerful move to counteract the centralizing influence of (dependence upon) broadcast media is explicitly to facilitate decentralized/non-hierarchical/anarchic interaction and information-sharing. It appears also that this move will be relatively impotent if it is confined to the "superficial"/mechanical levels 1-2, and does not involve people of the network deeply and collectively in developing common language, models and myths on a non-broadcast basis. This is to say that self-governing networking is crucially a collective act of poetry.

As for the HPM, considered as a meta-network, its evolution in the terms above is not gradual, but began relatively suddenly with conferences and publications establishing a public definition. These and the associated functional governing group had a long developmental history within/among the constituent networks. Here the most important factor of this history is that it prepared them already with broadcast status and mechanisms to command and direct public attention in the combined public of the networks, and beyond it, pre-empting a "more-organic" development of the meta-network's myth, etc. (The networks selected for encoding in the governing-myth of the HPM-as-such were more limited than they might well have been.) An essential factor of their efficacy and dominance lay in the fact that they had achieved "trans-network" identity by being adopted (willingly, and often aggressively) as subjects for the broadcast media of popular culture/entertainment. From one angle this gave them a considerable social leverage for declaring themselves harbingers and poets-laureate of the New Age. From another, given the ideological congruity of their teachings with those of the dominant order (examined in BJ, also in New Age Blues), and the processes involved in the attainment of their media power, this makes their development as an agency of meta-network development seem equally a case study in the governance of networks by exterior/contextual forces.

(Historical pedagogic memoir, concerning analogous system)

Input from Michael Rossman ~~and~~, member of 8211

Reflections on entering EIES-space: I (Historical)

During the late 1960s I was involved in ^{a nameless network which formed} the national infrastructure of the student-initiated higher educational reform movement. One line of our work concerned the development ~~of~~ and networking of "free university"/learning-exchange forms. Another, intertwined and convergent, concerned conferencing. ^{around the country, involving?} In the course of ~~organizing~~ organizing fifty conferences, ~~of~~ up to 3,000 people, we came slowly to understand them as group learning-environments and -experiences; and collectively evolved a set of perspectives and methods that ~~took us far~~ ^{well} beyond the stereotyped ~~and~~ and educationally-dysfunctional conference forms which we had inherited as the past's wisdom (and to which ~~the~~ the ~~conferences~~ conferences of the ~~1970s~~ 1970s retrogressed almost without exception, so far as I saw.)

Our conference pedagogy included ^{conferencing;} detailed attention to group rituals and ritual structures, ^{(, and to the "informal" (intimate) functions of} provision for the fact that we experience conferences in our bodies, and for the private "centering" functions which ground participation in intense group interaction; expanded spectra and changed priorities of learning-modes; ~~and~~ the evolution of new facilitative modes and roles; and so on. Its overall purpose and promise was "to enable more effective use (learning) of the full human resources gathered in conference"; and our bias was strongly toward participant-democratic educational and administrative forms and processes. This extended to a whole-system perspective, as we explored ways to involve participants in self-selection and conference-pre-planning, and to make the forms ~~of~~

of conferences flexibly responsive to change by their participants in real time -- in short, to organize conferences as collective self-organizing learning experiences. (Purists will note that we were clear about tending the meta-roles necessary to such an anarchy.)

All this sounds grand. In practice our work was as modest and funky as any real exploration; but its lines were indeed clear and exciting, and evolved until the ^{national} Great Reversal of 1970-72 ~~which~~ ^{(collective} ~~the movement~~ shattered the economic and spiritual base for our work, leaving us isolated in odd corners of the land, our collective learnings largely unrecorded. || One primitive (pedagogic) technique we developed bears mention as a face-to-face precursor of the overall EIES conference/school (as our small, long-scattered floating college of R-and-D may as a precursor planning-group of such forms.) We called it "The Facilitator". It evolved ^{as part of} ~~from~~ the games pedagogy recorded in my mss. LEARNING GAMES (and is more detailed there, as well as in available source papers); and as a straight response to the following problem: Given a mass of diverse people (~~of~~ thousands) come together to interact/learn, how can they be helped ~~to~~ ^{to} ~~to~~ form useful learning groups?

The obvious (incomplete) answer is, "Help them generate for themselves and share information about what they have to teach/share and what they want to learn/accomplish; and help them organize their time/engagements accordingly." In practice the Facilitator involved a semi-private protocol/process called Interview, and ~~and~~ a group process called Sorting. Interview was a time-constrained reciprocal pair interview process ~~it~~ with paradigmatic question-format and record, ^{in which} ~~which~~ people paired off and led each other for half an hour through a meditation/disclosure based

simple (e.g., on a learning-paradigm "what do I have to teach/want to learn?" "what ~~xxxxxx~~ goals/problems/resources?" "what is my state/expectation?") and summarized the information on ~~xxx~~ cards. Even for the self-generation of knowledge and information, the influence of *such* ~~fx~~ intimate interaction is worth remarking; the social bonding processes of Interview also ~~xxxxxx~~ ^{influenced} significantly the ^{subsequent} processes of group formation and "informal" interaction.

In Sorting the carded information was correlated and distributed. Computer h/s-ware was younger then, and ~~we~~ ^{were} unskilled to boot; the times we tried to integrate electronic sorting technologies kept us up all night and produced slower and less ~~creative~~ [#] information processing than we could do "by hand". Punchcards (etc.) with fixed/branching categories could even then have been used to more advantage than we ~~did~~ tried. But one critical feature of such intended self-organizing interaction systems is that participants be fully free to generate the very categories of their ~~xxxxxx~~ identification and organization; and no h/s-ware systems then available could cope with this, or indeed (so far as we knew) were being developed with this political intent.

A deeper reason why we found ~~xx~~ (contemporary) computer facilitation unsatisfying lay in the fact that Sorting was not simply "an information sorting process", but a major community ritual. Even when ~~we~~ ^{the} conference-organizers huddled late in the ~~xxxxxx~~ hotel ballroom trying to punch in the lists, conference participants kept coming to watch and help; and when we made Sorting not a central-facilitative ritual but a fully collective act, we embodied a realm of communal play and creativity which no analytic language I know can fully describe. Great message-boards were set up ^{on which} people came to study others' cards and ^{to} post their own. ^{They} rearranged cards into ~~xxxxxx~~ constellations; formed ~~xx~~ discussions, ~~xxxxxx~~ ^{small groups, larger ones,} dissolved and reformed them in evolving

~~xxx~~ alliances and groups as they interacted as the boards; stood back at cut-off time to study the whole and plan; and entered into (facilitated) interaction to sort out priorities and schedules.

From one angle ^{this} Sorting was just a funky group bulletin-board ^{process;} from another, the ~~R~~ whole Facilitator was a rather straightforward and ~~fix~~ efficient process for generating an "instant free university", whose ^{radically diverse} "classes" could convene ~~xxxxxxxxxxxxxxxxxxxx~~ on the first night. But such descriptions fault the cultural and psychosocial dimensions. Begun in the morning, the Facilitator engaged each participant in the conference directly, in intimate reflection and interaction, leading outward to public use ^{and group engagement;} by afternoon this progressive mobilization was collectively completed as ~~all~~ all who wished among the entire learning-community shared and accomplished the task of structuring their entire subsequent society (and governing their own ~~xxx~~ productive economy and polity; which notion includes the subsequent activities ^{of} self-structuring the resultant learning-groups, and higher orders of dynamic self-control of the conference.)

All in all, at best, it was an integral Facilitation, from inside the self to the whole, ~~xxx~~ exercised as a major initiatory group ritual progressing organically for a whole day; and it produced a quiet, solid, remarkable group high and learning-ambiance. To be so necessarily-present, so freely self-definitive, and so fully ~~xx~~ a participant in organizing the whole is an experience which we rarely have in mass contexts (even of such short durations). It is a political experience, a moral and spiritual experience, and bears discussion in these terms; but their fruit, for our purposes, was pedagogic: an ambiance and grounded energies for learning. The learning-groups and interactions which ensued were vitalized by people's senses of empowerment, ^{self/mutual} connection, clarity and responsibility, and ~~more~~ more sharply, the group learning-modes

which they then adopted were biased away from (to put it briefly) authoritarian modes and towards the participant-democratic, even without explicit facilitation toward this end: for people fashioned them fresh from an intense immersion ^{and acculturation} in inner/outer self-organizing processes, which prepared an actively autonomous psychology of further engagement.

All this is history and theory. We thought the Facilitator ^{PROCESS} helped produce some whizzer events, but popular taste ^{sponsorship of or} for participation in such experiments went into an eclipse before we could start a fad, and we never did rigorous studies. ^{Enter} Entering this great blind continental room/conference called EIES, this history echoes in me; I feel oddly at home. ^{wane this taste} Now as the 1970s ~~XXXXXX~~ seems re-emergent in new arenas and ways, in some regards advanced, in others perhaps not so. From my first glances at the system, rosters, some conference outputs, it seems a technologized analogue of ~~XXX~~ the conferencing-mode ~~XXXX~~ we attempted through the Facilitator. (If EIES's process includes analogues to the other elements of our conference pedagogy mentioned above, I have yet to encounter or recognize them.) Equally it seems a species of continental free university, a precise and empowered replica/extension/magnification of the original (1965-8) free u model (considered in ~~XXXXXX~~ my book On Learning and Social Change ⁽¹⁹⁷²⁾ and much other source literature; ^{the (de-)} ~~the (de-)~~ evolutions of this model since may bear relating to EIES-like systems' futures), which should be recalled not only as a process-institution for facilitating the formation of self-structuring learning groups, but also as an active base ~~of~~ and generator of functional actions, from artistic to political, in the community. Or rather it seems a cross between the two, strung out in time and space with some new resources and perhaps lacking others: another essay in (ultimately-unsatisfactory) centralized facilitation of a decentralized self-organizing learning conver-

sation. Had our higher-ed-reform floating college had access to EIES, we no doubt would have ~~formed~~ organized a rich set of conferences to continue and concretize our working conversation, likely it would have helped us to persist together. continental in ~~xxx~~ scope and so fragile in its precious contacts; As it was, my primitive sketch of the EIES-like cybernetized system we needed -- ~~xxxxxx~~ advanced first as a prospectus for CHANGE MAGAZINE, ~~xxxx~~ until a change of editors put it on the road as the leading popular mag of ed reform, educational with politics quite unlike ours -- appears as "A Communications Network for Change(-Agents) in Higher Education (1968)" in OLSC (and in Journal of Community Communications 1:1, 1976.) This is not to boast, but to confess a certain fullness of feeling. It is to help testify that the vision and dreaming here advanced in EIES is a collective production and property, borne ~~from~~ from ~~many~~ and borne on by many in many quarters, slowly shaped and developing -- informed by a certain quite specific politics, the diverse and evolving expression of a spirit of self-determination brooding in our time; and also, in the most technical and wizardly sense, a boot-strapping operation, generating the tools to facilitate its own (learning-)processes.

So I see it, on eve of entrance into this next chamber of the mystery, preparing at least one substantive entry before ~~info~~ info-overload make me all systems crash. Besides its historical point, I include such detail about the Facilitator because its model ^{and} practice suggest certain elements of learning-process, certain social textures and functions and values, whose ~~xxx~~ analogues I hope to recognize in ~~the~~ ~~xxxxxx~~ EIES ^{is operation,} ~~system~~ or, failing that, to call to attention as worth further development -- a project in which I would welcome cooperation, as well as a place to conduct usefully.

publicizing /o Janel Al Human Svcs
(June '78)

During the late 1960s, as networks of alternative human service agencies and groups working for social change developed in America, three levels of information-processing need became ^{apparent.}

~~clear. We may call them "nodal", "(intra-)network", and "inter-network". Individual groups ("nodes") like free~~

~~groups~~ In dealing with staff, clients, ^{and} community, ~~was~~ a typical organization needed easily-accessible and continuously-updated information about a great variety of persons, activities, informational and other resources, etc. Within each network of groups of some particular sort, the same need was experienced; and often the network's evolution depended ~~on~~ vitally upon its satisfaction, as did the ^{local} work of each group. Finally, as networks multiplied and their works developed, the same need appeared among them as a collectivity: how could the whole be accessed to itself?

Primitive answers to these needs appeared in the filing-systems of local agencies, in networking newsletters, and in such ventures of inter-network accessing as the many Peoples' Yellow Pages. But other answers were being explored. In 1971 Project One, the first modern "warehouse community", came together in San Francisco. In its huge converted warehouse fifty groups, covering the change-spectrum from prison reform and community media through artists and videofreaks to a free school ~~and many other organizing and service groups~~ and legal aid, were hived together, bringing the many currents of information and work they represented into an intense interplay. It was a partial answer to the problem and potential of accessing the whole to itself, but promising enough so that the warehouse community form was explored in many cities through the mid-~~1970s~~ 1970s.

It was fitting, then, that in the very basement of Project

One, ~~fix the information~~ a small group of technological visionaries were at work on ~~information~~ tools which promised new powers to meet ~~these~~ ^{such} informational needs (and quite a variety of others.) The men and women of Resource One were no razzle-dazzle crew, but a bunch of pragmatic kids at play with a cumbersome, antiquated XDS-940 computer ~~scrounged~~ scrounged from a friendly corporation. Intent on turning cybernetic technology to direct community service and guided by clear ~~political~~ ^{developed a} political insights rare in the cybernetic field, by 1974 they had ~~developed a~~ ^{developed a} system called Community Memory, as remarkable and luminous in its implications as it was simple and funky in its first field test.

Like any tool, computers are no wiser than their users' intentions; and we have hardly begun to explore what uses we might make of them. ^{Since} Most people's experience with them ^{is still} limited to having had information about themselves or their activities processed by ~~computers~~ ^{higher authorities,} it takes a ~~leap~~ leap of imagination ~~even~~ for a ~~typical~~ small service-agency or change-group ~~to~~ even to grasp that the information-processing power so recently employed only at high cost by governmental agencies, retail chains, etc., has quite suddenly become accessible to ~~many~~ it, in compact and relatively cheap form, and might be used to better handle many of its routine information-processing needs, from file storage and resource library to addressing mailings.

But the uses of Community Memory are of a higher, more social order. The experiment was elemental. To the central processor ("computer") in Resource One, phone lines connected three peripheral terminals ~~located~~ in highly-public locations in the San Francisco Bay Area.

proved to be

But the uses of Community Memory ~~was~~ of a higher, more social nature, ~~was~~ even in the first, elemental experiment. To the central processor ("computer") in Resource One, phone lines connected three peripheral terminals placed in public locations (stores, a library). ~~mm~~ The terminals included a keyboard and a print-out, ~~which anyone could use to~~ enter information into or retrieve it from a common data base. At first attendants helped people become familiar with the system. ~~was~~ Soon this function was taken over by the local communities of users, and by the system's own instructional programs; and what may well have been the world's first prototype of a free-standing public information utility went into operation for a year.

One dimension of cybernetic systems is their hardware; and ~~mm~~ recent advances *in technology* have made available cheap, dependable, "smart" peripheral equipment which make more extensive, *"networked"* versions of Community Memory radically more ~~practical~~ practical. But the heart of any system is its software; and Community Memory's ~~was~~ *Community Memory's* programming made it much more than the computerized bulletin-board that its funky data-base made it seem at first glance. *Community Memory's* program was interactional. It welcomed the user, helped teach him or her how to use the physical equipment, how to search for data, how to enter it. In particular, ~~it~~ *Community Memory* was programmed to allow and to teach the user to create the very categories by which information was ordered, stored, and made visible (accessible) to other users. This principle was essential to the political character of Community Memory, making it a fully free and democratic utility.

Though this ~~the~~ *Community Memory* first field trial of CM was tiny, ~~was~~ *serving* at most 150 users a day, the ~~simplest~~ simplest sorts of uses that larger

~~open public memory~~
~~community memory~~

(4)

systems ~~can~~ ^{can} serve were evident from the beginning. Goods, services and other resources were offered for sale or exchange, in a medium more flexible and immediate than the newspaper want-ads. But ~~the system's designers had not foreclosed~~ the richer possibilities. ~~a truly open system holds~~ Musicians looking for practice-partners or others to form groups found each other, ride-pools and study-groups organized themselves. Poems and political sermons were entered in the data-pool, with new categories announced for those who wished to pursue them; and commentaries on these and commentaries on commentaries began to accumulate and be read and shared-in by special ~~audiences~~ ^{audiences} -- in a public, self-organized and freely evolving version of the nominally more-sophisticated experiments in computer teleconferencing on specific topics being then undertaken by various governmental and private agencies.

Every cybernetic system has a political character, not merely in the uses to which it is put but intrinsic in the very hardware and software which enable its uses. Computers of yore were massive, expensive, useable only by large, high-budget (bureaucratic) agencies with ~~battalions~~ ^{battalions} of specialized technicians. Quite suddenly this condition has reversed, computer power becoming rapidly public. But the science-and-art of programming ^{as} developed ~~among~~ in conjunction with the early hardware and uses remains unchanged in its political character and still ~~largely~~ dominates the scene. The programs most people encounter -- even in TV game sets, let alone in commercial or governmental hands -- ~~are~~ ^{lead} them through pre-determined routines or deliver pre-packaged data, originated or otherwise controlled by central sources or powers; and in general give them no control over the way data from or about them ~~is~~ ^{are} acquired and used, nor any way to alter or ~~enrich~~ enrich the very programs themselves. In all this, several species of powerlessness are perpetuated; such programming is perhaps most useful as a tool

reinforcing authoritarian systems, unless it be balanced with programming of a different sort.

By contrast the programming of Community Memory ^{was} radically free and radically interactional. ~~Community memories~~ Future ~~ones~~ may ~~well~~ be "convivial" in the fullest sense, teaching their users to maintain and repair them, and ~~supplying~~ ^{offering} further human and other resources for this through ~~the~~ ^{their} data-banks. But ~~the~~ ^{CM's deep} social/political character was evident in the trial run. It was a fully democratic ^(fully decentralized) information system ~~activity~~. Power to put information in public reach and to draw on information was ~~fully~~ available to anyone, ~~with~~ regardless of their ~~status~~ financial, organizational or social status. No central authority provided the information, edited it, censored it, determined who could ~~see~~ ^{or certified what was true.} know what, no central authority or agency mediated people's direct ~~xxxxx~~ communication and transactions with each other.

(and such fully open information systems are

To put it so is to say that Community Memory ^{is} ~~is~~ ^{potent} ~~tools~~ of anarchy -- not of mindless muddle, but of delicate and complex self-organizing processes which might quite transform society. ~~(though not unaided)~~ The alternative is familiar in all our past experience with "broadcast" media, electronic and other. Through books, journalism, radio, TV, school, messages are broadcast from a few to many; nor can most citizens without special means make any information or message, besides a want-ad, visible to many others. Information is power, and the distribution of "broadcast power" has pretty much ~~been~~ ^{followed} the distribution of economic/political power in our society; what may be said in public is always subject to strong constraints, ~~xx~~ ⁱⁿ even left-wing journalists ~~xxxxxx~~. All this is not simply pro-forma authoritarian stuff; it is also the very glue that holds our present culture together, Should we come to depend significantly on communications

media which enable people to make ^{directly} accessible to each other -- freely and democratically, to broad publics and to quite specialized "minipublics" and self-organizing groups -- the full range of what they have to ~~announce and say to each other,~~ ^{communicate,} we should expect many of our political, educational, cultural, etc. processes to be quite transformed.

This is putting the prospect at its grandest. But the pressure, the desire for direct, unmediated intercourse is a ~~strong~~ potent force in our society now. Such varied "grassroots" phenomena as yard-sales and fleamarket papers, ^{"food conspiracies",} the sexual want-ads, community learning-exchanges and free universities, the "encounter" movement, neighborhood clinics and citizen political participation testify to it in various ways -- boding a transformation ~~more~~ deeper and more complex than the participatory democracy which is its political face. Meanwhile, were ^{a adequately-open} ~~we~~ terminals of an adequate ^{system} ~~community memory~~ made available in each ^{small} neighborhood of a city, all the (non-contact) informational transactions of each of the nine activities above -- not to mention car pools, child-care connections, service exchanges, housing and jobs and the rest of the classified section, and lord knows what else -- could proceed much more effectively and directly. Even this alone would justify the project, given that the price for such a generally-accessible public information utility would be ^{on the order of} ~~approximately~~ \$100 per citizen to establish, and \$30/person annually ^{thereafter.}

The more profound and transformative uses of ~~community~~ ^{such a utility} memory are too rich to explore properly here. I have sketched scenarios for (electoral) politics and for education elsewhere*.

* In "Technology and Social Reconstruction", in Ecology: Crisis and New Vision, (Sherrill, ed.; John Knox Press, 1974) and in my book On Learning and Social Change (Random House, 1972); and in EDUTOPIA, excerpted in Schoolworlds '76 (Bigelow, ed.; McCutchan Publishing Co., Berkeley, 1976.)

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Another example unfolds as we consider the regulation of the human services. At present providers of ~~human~~ ^{local} services as education, therapy, medicine, social ~~welfare~~ ^{and} legal service, etc., are largely certified and regulated by interlocks of centralized governmental and proprietary-professional agencies. The intent is to protect the consumer and make practices effective; the result, as this century's history of health ^{shows the most clearly,} in America ~~is~~ ^{as much} ~~is~~ ^{narrow} ~~is~~ ^{care} to define and guarantee monopolies of practice that benefit special classes, inhibit free development and progress, and serve consumers at times injuriously. But the ultimate judgement of a practitioner's practices lies not with the State, nor with a jury of professional peers alone, but rather ~~is~~ first and mainly in the flesh of life, in the actual ~~experience~~ ^{experience} of the particular people s/he affects. ~~impracticable~~ For each teacher, doctor, plumber, whatnot, a rich "file" of information on and evaluation of his or her practice exists in the community -- ^{at present} scattered in privatized experience, ~~no~~ ^{no} more methodically accessible than your friend's advice about her ~~own~~ ^{wonderful} yoga teacher. ~~But~~ ^{yet} the same technology that can make it easier to locate a compatible teacher (or to be your own) can serve as readily to record your ~~evaluation~~ ^{evaluation} of his teaching, ^{making it} ~~as~~ ^{as} accessible as the Teachers' Association evaluation for other prospective students to consider; and to record and index, for the benefit of others, your summary of the many individual opinions about another teacher; and to record ~~his~~ ^{his} rebuttal ~~by him~~ ^{of} ~~about~~ ^{some} vicious negative opinion.

(Such information processes have in fact been explored most clearly so far, in the human services, through projects in course/teacher evaluation, which have proven responsible and useful, and suggest models for analogous consumer empowerment in other services.)

A public information utility used methodically in this fashion would quite transform the modes of regulation of ~~the~~ human service practices, as well as the modes of consumer information, ~~and~~ choice and interaction, and consumer/practitioner relationship.*

Of course anarchy is also chaos; and in an open, unregulated information system (as in any other) the ~~quarantined~~ problem of wrong, misleading and malicious informations arises. The yoga teacher or political candidate with her ~~community~~^{public} memory file swollen with lying pseudonymous tales by a jealous competitor is only the first specter to suggest that a public information utility might equally portend prodigious possibilities of misuse. But so it is for every tool, the ill potential in proportion to the good; and in this case it is fairer to recognize this "power to the people" brand of cybernetics, even with its darker potentials, as a counterpoise to the still-overwhelmingly-dominant modes of cybernetic employment, whose totalitarian potentials for invasions of privacy and control of the citizenry by the State have been by now remarked upon so often and to so little

* Another aspect of such a participant-democratic information system has been modeled in a ~~more~~ primitive way ~~is~~ already through the magazine Prevention ~~has~~ High feedback participation among its million readers has ~~enabled it~~ (to in effect) conduct large-scale empirical research ~~into certain nutritional, medical, etc. questions, collectively through its constituency, at times directly in response to their interests, and feed back the summarized reports.~~ A public information utility would make such processes radically more efficient and practical.

effect that it is hard to recognize how fast they are coming about.

All this is not to dodge the question of ^(poison C) mis-information, etc.) etc. ~~the person~~ in the data-pool [of Community Memory]. The issue is ~~rather~~ of how (or whether) a self-organizing system can keep

itself healthy; it is the issue of democratic society, for which democratic information-systems are a fundamental tool. In ^{the case of a} ~~experiments~~ genuinely open public information utility, new customs and perhaps sanctions for making information

responsible would need to develop; and present laws governing communication would need transformation to accommodate radically expanded communicative facilities and processes. ~~Model~~. The issues involved are profound. Models are being proposed, they have their flaws, discussion continues in specialized journals. The point here is that these issues are no more profound, nor less, than the positive and transformative potentials which open through these technologies, and which ~~models~~ are essential ~~now to explore~~

Indeed even the more modest explorations of ^{collective memories} ~~Community Memory~~ mentioned below should be understood now in this fuller context. We have presently the technological capacity to place, in each group of five persons in America, one terminal connecting them not only with all the mundanely useful or controversial information sketched above, but with the entire recorded and recordable information of our civilization (in print, with pictures soon to follow.) That's everything: ~~the~~ ^{current} Library of Congress, 100,000 specialized journals, everyone's autobiography, every aspect of the day's doings anyone anywhere sees fit to record, what we know about the past and about everything, everyone's dreams and visions, needs, availabilities. ~~We~~ ~~have~~ essentially have the hardware capability already. The initial programming

Not does this sub description begin to convey the expanded possibilities of social interaction which open through such a system?

of the system, to make its universe of in-fed information usefully accessible to the citizenry's further self-organizing activities, could likely be developed to this scale of complexity while hardware production geared up, were imagination and resources turned to the task -- to judge by the achievements of the few workers in the field so far. The bill for America, f.o.b. five years from now, would be approximately half a year's military budget to put the entire system in operation on a national scale, and perhaps a quarter as much annually thereafter.

That's all it would cost, folks; it's surely the greatest technological bargain of our time. We have the capacity, the ~~potential~~ ^{This potential} ~~within our grasp. It is an historical event of the~~ ^{deepest order} ~~portending a leap of human (cultural) evolution involving radical collectivization of consciousness~~

empty tool, within our grasp. This potential is an historical event, ^{to} come upon us quite suddenly -- no more than dreamed of when I was a boy, made real only this year. The technology, the abstract but quite real capability, are here before we have even begun to grasp what they mean and what we might use them for, beyond doing our customary things more effectively. Yet what Radio Shack's 4,000 outlets are now so cheerily pushing, ~~with~~ ^{with} ~~their~~ their \$599 personal computer special, is not only the usual blind wheel of (private) corporate profit, but the tools which, wisely used, could enable a radical step in the collectivization of consciousness and the democratization of relationships -- both being key processes of human (cultural) evolution, which a full Community Memory would extend.

Of course our ~~main~~ main problems have less to do with lack of information than with not knowing what information to use or how to use it; and no machines will get us wisdom, though they may facilitate our contact with wise advisors. For many,

~~for~~
 As ~~is~~ the practical uses to which a network of groups -- like
 the forty diverse service agencies of the San Diego Community
 Congress, or the scattered neighborhood health clinics of a city,
 or the widely-dispersed headquarters of ecological activist
 alliances -- might put their own community memory, these begin
 with the collectivization of ~~xxx~~ the routine "in-house" uses to
 which individual groups can put their own small computers. The
 virtues of uniform, efficient accounting and payroll programs,
 of well-ordered and continually-updateable data inventories, apply
 to change-agencies as much as to big business; and the mailing-lists,
 funding sources, rosters of people with special skills, flow-charts
 of where to refer whom for what, lists of other agencies and their
~~xxxxxxxx~~ activities, and other routine masses of data on which
 operations depend can be more effectively organized with computer
 systems. I But the fuller force of even this routine re-organization
 appears only as the memories of ~~xxxx~~ individual groups are linked
 into a common memory and utility. Whole-network coordination of
 bookkeeping and fundraising efforts becomes possible, without loss
 of "local" control; sub-networks gain access to easy sharing and
 summary of data for collective projects. Having a shared bank of
 information and resources to draw on does more than simply
 greatly extend the resources known to any single group -- it
 relieves each group of the constant necessity to be tracking
 down information, people, etc., already known elsewhere; and frees
 it to more effectively maintain ~~xxxxxxxx~~ and develop its own
 unduplicated ~~xxxxxxxx~~ contributions to the common memory. A real-time,
 collectively-maintained network "calendar" becomes possible,
 announcing (with cues to the appropriate audiences) not only all
 scheduled events of interest within the network -- each group's
 doings, meetings large and small, special events, days to file

for renewal of ^{IRS} status -- but the running status of ^{such} works-in-progress as legislative bills, negotiations with civic agencies, and court cases and their implications, as well as bulletins of any sort and all.

Collective empowerment through well-organized sharing of information

All this is only the simplest, most rudimentary form of collective empowerment through well-organized sharing of information that a community memory makes possible for a network of groups. It is similar enough to the uses of computer-networks by retail chains, law enforcement agencies, etc., to perhaps raise confusion about its political character. But the tool itself is neutral, and can as well be used for one purpose as another. The ability to keep track of a whole system's interaction patterns is no less valuable to a network of health clinics concerned with epidemiology and assessment of service-needs and impacts than it is to the telephone company; and the luxuries of ~~computer~~ computer teleconferencing which RAND et. al. are exploring now can as well be used by a network of appropriate technology groups discussing the applications of a new solar cell for months, or ~~by a network~~ by a network of social action groups coordinating strategy and demands during an intense week, in a continental discussion on view everywhere.

Truly open memory systems

Yet a true community memory makes possible much deeper forms of collective empowerment than these examples so far suggest. Their key is the political character of the system's program; and it is necessary to state the principle firmly, both to clarify the confusion above and to enable us to distinguish the other sorts of collective memory-systems which networks might explore

open and

from true community memories, fully democratic information systems. The principle is that any member of the community is free to contribute and draw upon information, and free to name, describe and address it as s/he will.* This principle

And, more fully, free also to enter ~~new~~ new sub-programs in the system's programming. The ways in which information can be responsibly erased from a community memory are too complex to discuss here.

seems quite natural and unremarkable when we think of a network of groups in cooperation, or a good conversation. Its political force, and the socially-solvent character of ~~community memory systems~~ ^{open} technology ~~(hardware and software both)~~, becomes clearer when we consider ~~its~~ application first within individual groups, as an interfacing tool and then/between groups and their social environments.

If access to terminal(s) is adequate, the/uses to which a single group or organization can put a true community memory program are limited mainly by how much information ~~they~~ its members are willing to share freely, and by how intensely they pursue their "information processing" through it. In a clinic, ~~diagnostic and treatment~~ diagnostic and treatment procedures could be made as accessible to nurses and paramedics as to doctors. ~~All~~ All the administrative functions of a community education exchange could be handled through teachers and learners actively using such a program; and its use by a traditional college would shrivel the administrative structure to reasonable scale. Were more information about how to do and who to see for what freely available, almost any organization would become more democratic, and more fully a collective endeavor, since it is ^{the limits of} precisely access to and control of such routine vital data which establishes much

of the typically-hierarchical power~~xxx~~ structure of ~~xx~~ even good-willed organizations. In such ways, by democratizing information, ~~xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx~~ truly open systems tend to dissolve customary social distinctions and ~~xxx~~ certain conditions of authority, opening the way to their self-organizing reconstitution. The prospects of truer collectivity appear most dramatically, for individual groups, in their governance, their ways of making decisions. ^{E.g.,} If full access to details about the budget's planning and the current negotiations with the city over job cutbacks ~~xxx~~ ^{is} available to each least staff member, and if the agency's ~~xxxx~~ memory itself has served as the running, open forum of debate and strategy, the staff that meets together may ~~might~~ be more prepared and inclined to reach collective consensus.

All these examples of "democratizing empowerment" apply as well to networks of groups as to groups. But the most exciting and uncertain potentials of such open memory systems lie not even in such "in-house" uses, but rather in their employment as public utilities to interface groups and networks with the fuller communities ~~xxxxxxxxxxxx~~ whom their practices involve. The neighborhood clinic might well use its terminals to make the doctors' knowledge available not only to the nurse but to the "patient", and use them in more ways besides to ~~xxxxxxxxxxxx~~ ^{and encouragement} become a resource/for his or her ~~xxxxxxxxxxxx~~ own self-directed treatment and learning about health. Were its terminals fully open, they might well accumulate ^a well-indexed nutritional information from ~~the~~ community more interested in this subject than the clinic's doctors, of interest to health-seekers and medica alike. The open terminals of a school or learning-exchange would accumulate evaluations of specific teachers and courses, to guide both student and teacher and whoever holds the purse-strings; and evaluations of the

student's work by non-school sources chosen by the student, equal with the school's judgement and his/her own account. In a fuller system open to conversation ~~xxxxxxxxxxxx~~ the distinctions among "teacher" and ~~xx~~ "student" would quite dissolve as ideas and positions were debated in an anarchic community of learning.

Similar possibilities appear ~~when~~ for almost any other social service or change group/network. ~~xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx~~
~~xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx~~ Creative use of ^{an open} a true community }
memory in the larger community can help to dissolve the ~~xxxxxxxxxx~~ distinction between the informed/qualified specialist and the helpless dumb layperson, the activist and the audience. It can open the categories of information-providers, and transform the ~~group~~ group's (network's) function to being the facilitator of a community learning process. ~~xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx~~ As a fully-public ^{feedback and} forum for/judgements by the whole community affected, it offers a more direct and radical accountability than service agencies are accustomed to face.; and both encourages and facilitates detailed client-responsiveness, as well as participation by the affected community in the decision-making of the organization itself. In all such ways and more, the active use of true community memory systems in public interface promises to be, quite in itself, socially transformational.

All this is speculation, but scarcely science-fiction, being ~~more~~ barely in advance of its time. The original Community Memory experiment was dismantled at the end of 1974, ~~when~~ Even as its designers retired to develop hardware and software more suited to the task, other groups in Vancouver, Boston, New Hampshire were organizing field-tests of kindred computer-networking systems (though none perhaps so purely insistent on the full freedom of a public information utility). It is likely that the first use of a collective computerized memory by a network of community-based human service agencies of social action groups will occur by 1980.

Should ~~they~~ it seem promising, many more will follow in short ~~order~~ order, for the technology will be widely available. Many different ways of programming network, internal, and public-interface uses will be explored. Most will not be organized as open information systems in one way or another, less to ~~avoid~~ avoid the positively subversive consequences of such systems than to avoid all the "negative" problems of mis-information, accountability, etc., which any ~~community~~ public memory must deal with.

Michael Posner

Many different ways of programming network, internal, and public-interface uses will be explored. Most will be organized as less-than-fully-open systems, less to avoid the positively subversive ~~XXXXXXXXXXXX~~ potentials of open systems than to avoid all the "negative" problems of mis-information, accountability, etc., ~~with~~ with which any open system must deal. Yet these problems must be embraced, as part of pursuing those potentials. The truth is that no one knows what we might do with the new tools we have developed; the powers and dangers they offer remain to be explored, ~~and~~ Each network that experiments with collective memory, each commercial information utility designed by Bell Telephone or IBM, faces a choice: to perpetuate the social forms and political culture of the past by re-creating media in which the power to receive, provide and control information and communication is hierarchical, or to enable the exploration of new forms and ways, through democratizing this power. Of all groups in our society, networks concerned with democratic participation and social transformation ought perhaps to be the most sensitive about the political character of the ~~XXXXXXXXXXXX~~ collective memory programs they (and other ~~XXXXXX~~ elements of society) will use. It is not too early ~~to~~ -- indeed, it may already be too late -- to insist that any system described as a "community memory" or "public information" utility" embody, for the community of its users, the full principles of open access and unmediated interaction that marked the original Community Memory experiment, for the sake of the democratizing potentials that they open.

Michael Rossman

July 1962

"We asked those who affirmed the importance of off-campus political (Civil Rights) activity why ... the principle reason given ... was its informative value in providing an understanding of the political process, rather than the duties of citizenship or the necessity for accepting responsibility for social problems." (From ~~XXXXXXXXXXXX~~ a study of Berkeley students ~~XXXXXXXXXXXXXXXXXXXX~~, 1964.)

In that year, America's first disruptive university sit-in occurred, climaxing Berkeley's Free Speech Movement. The country's first free university was formed during FSM, and conducted its first classes in that sit-in. (There are now 200 free universities.)

"In all of their efforts at continuing self-education, these young radicals consciously sought to define some new form of learning in which relevance and theory, action and reflection, could be combined." (Kenneth Keniston, in his new study of committed anti-war radicals.)

We are part of a movement of cultural change whose first aspect seemed "merely" political. Yet even at its most purely political, our movement has been involved with and shaped by our deep dissatisfaction ~~XXXXXXXXXXXXXXXXXXXX~~ with our education ^{and} with all the culture's other institutions.) In part, the political movement has been our search for new ways of learning; and most of the directions our search has taken so far are rooted in this.

.....

We experiment in creating learning environments: arenas in which people change ~~XX~~ their ~~XXXXXXXXXX~~ behavior and nature. This is the trademark of our newness, we are a generation of experimental educators.

Some examples, from the wide spectrum of our beginnings. Kids doing drama, politics, seminars, are beginning to freely, casually adapt the sensitivity games -- like T-grouping and mirror exercises -- to their needs. In the unpublic Haight-Ashbury and her sister communities everywhere, new modalities of urban friendship and love develop. Every sit-in is a harvest of decision and change. In the free us and experimental colleges, knowledge starts to don new habits.

What all our ventures have in common is that they involve the creation of an open space, somewhat freed from outside expectations of what is to be learned and how. (In these examples, the open spaces are: a newly discovered game, the ~~XXXXXXXXXXXX~~ psychological territory generated by a new social base, a space of ~~XX~~ existential/psychic freedom outside the law, and an institutional form whose properties have yet to be uncovered.) Within such open spaces, we begin to change and build in response to our needs -- as we can not within the closed social and psychological spaces of our own culture, which is why we're leaving.

.....

The free university (or experimental college) is a social form, newly developing. What are its characteristic principles?

	free university	multiversity
Institutional principles:	decentralization	centralization (at best baronial)
	participatory democracy	hierarchical bureaucratic authority
	facilitation of innovation	dominance by the past
	transience, change	permanence
	encounter	isolation
Moral (?) principles:	freedom	control
	community (maybe)	alienation
	commitment (not yet)	sanctioned violence
	<u>caritas</u> (" ")	

An educational institution is cut from whole cloth. Such principles -- plus natural laws of logistics, and a human nature in some respects historically given -- determine the style and structure of both teaching and administration, and even reflect and shape the conception of Knowledge with which the institution deals.

The free university is our fledgling institutional experiment at shifting from one set of principles to another; other experiments are possible. At stake are deep changes of style and structure, on both the personal and institutional levels, of fundamental human activities: leading, caring for, knowing. In those casual, disorganized, sometimes-angry free U staff meetings and town meetings, some pretty heavy stuff is coming down into the real world, timidly.

.....

The free university ~~xxx~~ must be viewed, not only as an emerging institutional form, but as a new institutional agent of institutional change. A fixed ~~xxxxxx~~ university/free-university symbiosis -- either as social forms, or in the specific pairs that are normal -- is impossible, because the university is the central institution of the culture for whose change the free U evolves. One ~~xxxxxx~~ consequence of the viability of the free university is change in the university: so even the fixed relationship of simple competition is not possible.

The free university acts as an agent of change upon the university in a variety of ways. Most subtly, it changes the balance of change-forces within the larger institution, and thus the course of ~~xx~~ her change, by taking in much of her available change-energies: in the form of ~~xxxxxxxxxxxx~~ students anxious for involvement, experimenting faculty, and kids who want to ~~xxx~~ do educational reform. The conversation-of-change within the larger institution itself is impoverished by the absence of their styles.

But this conversation is enriched by the products of this experiment ~~xxx~~ with a new form. The free university isn't safe enough to be called a safety valve. Experience ~~xxxxx~~ with it generates the desire for new subjects and styles of learning, and many developments -- the draft-threat, Columbia, unwillingness to abandon the old ship -- combine to translate this into political pressure within the university.

And so the free university acts as an agent of change more directly. Unprecedented numbers of students file for ~~xxxxxxxxxxxx~~ special individual study seminars under friendly professors, for free U courses. The pressure causes initiation of special slots for experimental courses and professor-approved seminars, even in lower division. A course in dance/therapy runs successfully twice in the free U, is taken over into the university's new department of Applied Behavioral Sciences. Mildly adventurous professors take the freedom of free U classes back into their square rooms, move towards ^{gradeless} a dorm-class program, fighting cumbersome departmental structures.

Considered as ~~xxxx~~ an agent of institutional change, clearly a free university must have a uniquely flexible structure, ~~x~~ able to change and respond, in this age of sudden shifts of knowledge and university policy and political consciousness. Hence, as an institutional change-agent, as well as in its own right as an institution, the free university ~~has~~ ^(will have) a characteristic free style.

.....

The content of today's free university is indifferently modern, ~~xxxxxxxx~~ ^{(no matter} ~~xx~~ what dimension you slice across. Its subject matter is largely the politics, the arts, and the psychologies of our newness -- ~~xxxx~~ ^{categorize} the courses in the catalogue. But this modernity is part facade, new paint on old wood: for it is connected ~~xxxx~~ with conceiving knowledge largely in subject-matter terms. (SDS ~~xxxx~~ shares this shortness of vision, much more strongly in the case of its Radical Education Project and conferences. ~~x~~ And in general our scenes of heavy political conflict, like Berkeley, have not generated sustained educational innovation.)

In the dimension of style, the free university's content is bastard: part new, part old. Administrative decisions are breezy or concensual, often inefficient and awkward, but more fun and human than bureaucratic. But in the way that courses are conceived, and ~~xxx~~ even often taught, the style's mostly familiar, drawn unreflectively or helplessly from the Academy and its conditioning. Centralized leadership patterns are allowed to crystallize, in courses with narrow ~~x~~ cognitive organization which convene for artificial university periods. At their best, free university courses are beautifully and strongly innovative, in directions which quite reverse this grim description. But right now such healthy growth only flourishes, and does not dominate, in the open landscape of the free university.

.....

Some random observations:

(*) San Francisco State's Experimental College (E.C.) furnishes the best example I know of a free U ~~xxxxxxxx~~ deliberately conceived as an agent of institutional change; it's been somewhat successful in this regard, but only

on a short-term basis. The E.C. has ^{also} been extraordinarily flexible as an organization: its structure and governance have changed radically four times in three years, and it has grown in strength with each change.

(*) At Urbana, Illinois the energy which might have made a free U has chosen to turn inward on the university itself, flowering in an educational reform movement of some 500 active workers, sparked by the most sophisticated campus organizing I've seen. Will they create an example of a second direction for us to take in trying to implement our principles in an educational institution, an alternative to the free university? They are beginning to organize around a more abstract and powerful social form than the free U: a process form, using cybernetic principles to check on the texture and health of the process of change. But is any few form powerful enough to survive within the deadening husk of the university?

(*) Many free U's ~~exist~~ exist and define themselves in sharp ~~ideological~~ ideological polarization to mainstream universities, ~~and~~ and will not even sneak use of their chairs. Others, more usually called experimental colleges, are so dutiful and well-behaved and suppliant for credit that they almost qualify as university basements. But there's strong argument for a free ~~university~~ university defining itself and appearing neither in nor out of the system, refusing to be banged, ^{or to trigger polarization.} Those who participate and those who watch will ^{then} have ambiguous expectations, and in such open personal and social space there is some freedom to grow and build.

(*) Free universities also seem to grow stronger and remain healthier if they ~~actively~~ actively conceive themselves as laboratories of experiment, and put some energy into understanding the results, setting up, conducting, and learning from new ones.

(*) One characteristic of the free university internally is change-by-example, perhaps even more strongly than change-by-decision. Externally also, it functions as a change-agent more by generating examples, than by trying to exert pressure or control decisions.

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Section titles, if you must chop it up that way:

- The free U originates in the political Movement's deep concern with education.
- The free U is one of many open spaces of learning we're creating.
- The free U as a social form with principles.
- The free U as an agent of institutional change.
- The counterrevolutionary qualities of the free U.
- Some nicer qualities of free U's.

You might add on anything you feel compatible: the style of this is pretty indiscriminate. I call also to your attention The American Scholar, Vol. 36 No. 4, Autumn 1967, pp. 598-600, wherein (as of now two years ago) I give my impression of ~~some~~ some of the directions I think radical educational change, of the sort which the free U's nourish, will take. I'm sure you could

they are meaningful to people and education).

So stood the situation, the development of this branch of social experiment, after the first phase of spread-of-example: in 1970: a network of some 200 nodes, new ones appearing more often than old ones failing and many maintaining, just starting to recognize itself as a network through conferences and studies. (Note that ~~total~~ enrollment of 100-200,000 makes it significant educational phenomenon.)

What has happened since then? Two lines of exploration. One concerned with that network itself. Presently about the same size, somewhat reduced in fact: not moribund but steady-state-stable, in many places and ways well-established. Pretty minimally knit together as a network (though good resources of information and contact about how to organize free u's are available, can be cited), by an established but sketchy system of conferences, coverage in Edcentric and New Schools Exchange, etc, regional clearinghouses -- no, not so rudimentary, rather a modest knitting together. Much variety, no real unity of vision and principles: the various nodes would not be comfortable under a tighter or ideological umbrella together. Is this failure of a chance to consolidate a major possible breakthrough in educational systems, or the mark of what is still, after a decade, a live arena of experiment and evolution in forms and governance of education?

That brings me to the second line, I put it dryly: what has happened to the model, the original model? The original impulse has evolved now in several distinct directions, perhaps proving its initial fruitfulness. The free U's that have remained campus centers have tended somewhat to become holding-grounds where students discontented with routine campus fare can play without disturbing the larger structure; the original characteristics of being supportive of and associated with student political/social activity, and of generating new course contents or processes that pushed official education to respond, have faded with, respectively, the renewed privatism of students and the response of hipper campus departments (which was to skin an 'acceptable' cream of innovation and integrate it in special courses, and shut out the rest).

The free U's that have rooted in community have had freer, if harder, courses. Their curricula and associated activities have

evolved to integrate more trade and non-academic skills, to include more varieties of (nonacademic) people as learning resources, and in some places to involve community people not usually reached by educational institutions. University for Man, which I wrote about in "emo...", is a good example, and has also a campus root, so it is an example of the evolution towards community; and in its current grant-assisted program it is starting six learning-exchanges in small (3-5,000) Kansas towns -- defining the current limit of one line of the model's evolution.

The model has evolved in more flexible and less institutional ways also. In many cities there have been tried, and here and there are still, decentralized adult tutoring networks, and craft-skills exchange networks (which are a generalization of learning-skills networks).

But the one line of evolution which intrigues and pisses me off, and which began my current muse on the subject, is the non-free free universities/learning exchanges. Represented in the Bay Area by Heliotrope, Open Education Exchange, and some now one I forget the name of. The first appeared some 4 or 5 years ago by now, they sure have defined an ecological niche. Heliotrope connects teachers with learners by distributing monthly some 40,000 newsprint catalogues of offerings of short courses (almost all artsy-craftsy-cultural-personalpsychological, a few practical, little controversial or social), and collecting the registration fees. About 130 courses are advertised, the mean fee is probably 20 for 4 meetings, maybe 8 people is the average and 1/2-2/3 of the classes actually go -- and Heliotrope, which is a very small bunch of people, takes half. That is some 60,000 a year -- hm, and printing does cost some. I really must find out how many people run each enterprise; from my previous take on the business I'd gotten the sense that someone was making a lot of bucks on the deal, and it ain't the teachers that I know; but it may not be so, and it's worth while figuring out which. From one point of view, an educational system that takes 100/student to administer 600 enrollment for a year is relatively low-profile. Still there is a complex tension around the original ideal of 'free', which many places do maintain...

I won't be able to work on this for some months, but if you have interest in some angle let me know.

Oh - there is yet another line to the evolution of the 'free U' model, which relates it again to orthodox institutional education (in a different way than the present campus-based free U's do, or rather in a way which has grown out of their relation.) Since about 1970 the model of 'external degree programs' has been spreading: University Without Walls now has some 40 branches affiliated with particular colleges, and Campus-Free College has a degree-granting network/program which is unaffiliated (I mentioned it in 'emo..'); there are also more private kinds of ventures, like the campusless International Tutorial College (name not right; based in IA), and more-or-less external degree programs spawned by particular colleges.

What they all have in common is this: like the original free U model, they enable students to design their own learning -programs and organize or discover their own learning activities and groups; and ~~knitknack~~ greatly enlarge the variety of teachers, activities and purposes of higher education. Unlike the original free U's, they also a) have organized means of helping students generate their own programs and learning-skills; b) conceive studenthood in terms of coherent extended program rather than piecemeal courses; c) charge tuition; and d) grant degrees -- thus providing the society's official seal of approval upon self-directed higher education. In some ways this betrays the original free U spirit, which held that learning should flourish free of credentializing processes; in other ways it represents a social fulfillment of that spirit. One other difference is important: the original free U was organized around learning-groups, a loose association of groups; but external degree programs, like orthodox colleges, are organized around the activities and interests of individuals, with even less collective engagement. In this present limitation, much of the more interesting potential of the form is inhibited; but nothing in the nature of ext.deg. programs prevents groups from designing collective learning-programs and degrees, and such are beginning to be proposed. Overall, though e.d. programs have largely been spawned by ambitious cooperations of teachers and administrators, rather than students, they can be seen as more complete and mature developments of the ~~the~~ primitive free U model; and are themselves in an early state of evolution.

b2) demand and aid the student's evaluation of her learning;

some skills and perspectives of learning ^{which} we had gathered during this time. The rural place, our lazy pace, the shared rituals of food and cleanup, and our leaderless group process all made us feel like an extended family at summer camp. But also we are a floating college of educational research, and these procedures reflected what we have learned through the years about conferences as learning-environments, and ^{about} how to bring our energy to focus. On the third day we were ready to begin a series of intensive reports and critiques of the main educational projects we're involved in now -- which served, overall, as somewhat a summary of our state of the art.

Sue Maes and Doris Herman talked about the University of Man, which is in healthy shape. Now seven years old, and still preserving the principles of free learning exchange, it has grown beyond its initial dependence on the campus to root itself solidly in town. Each term now it enrolls about 2,500 of Manhattan's 30,000 citizens, along with another 1,500 students from Kansas State, in a rich curriculum of no-fee, non-credit courses heavy in arts and human services. UFM's courses are slanted increasingly to the needs of townspeople, and have spun off many community enterprises, including a cooperative grocery and community gardens. It is this, more than UFM's functioning as a midwest reference center for other free universities, that has brought it the two-year grant from the Fund for the Improvement of Post-Secondary Education, to extend its model into six rural communities of 2,000 to 5,000 people. If the project works, it will show a way to organize self-directed learning activities among many people now poorly served by the less-flexible operations of university extensions and adult education programs -- a way, moreover, which

Abstract to take?

brings communities to recognize and use their own educational resources.

But what we talked about more was the difficulty involved in transplanting^a delicate organizing co-operation, grown like a fern in its own location, to other sites -- the problems of training a new generation of leadership, and of reproducing the nourishing humus of culture that has built up, year by year, in Manhattan. Sue, who has been with UFM from its start, feels committed to stay on as its "director" through the first year of the seeding project. Still she is ripe for change, having been nourished by her UFM work more than she knows now beneath its pressures, and some of us counseled a fallow period soon, to let new growth rise.

Mark Cheren reported on Campus-Free College, another model with major implications, also at a crucial transition phase. As an individualized "external degree" process, CFC differs from University Without Walls not only in its independence from local college affiliation, but also in its efforts to develop ways to facilitate people's transition into self-directed modes of learning. CFC involves a decentralized network of Program Advisors, who help learners develop skills as well as programs; a guidance process to help them assess and contract with available resources; backup training and liason for the P.A.s; and a complex process of overview and evaluation, involving the learner actively with several levels of CFC structure and outside expertise.

Overall, CFC represents perhaps the minimal responsible model for a decentralized institutionalizable process which both helps learners learn to use the rich resources of their selves and the environment, and credentials their accomplishment. Among non-publicly-funded alternatives it is also the least expensive, current costs running \$1000 per year. Field testing of the model with small numbers (20-50) of learners has

gone on for four years, supported partly by grants from the Lilly Endowment and the Sacham Fund of New Haven. Already licensed to grant A.A., B.A. and M.A. degrees, CFC is now moving with its network of ~~200~~ Program Advisors to recruit enough learners for financial independence, and to underwrite the ~~final~~ push for full accreditation, which begins this fall.

If it succeeds, we shall have at loose in America a fully-developed alternative to the present process of institutionalized education -- one based squarely in voluntary contractual cooperations and personal assumptions of responsibility; and much more individualized and flexible than the university or even the free university models. Will it flourish? There is no harm in dreaming about people's potential and will, or in believing in these. Gearing for the crucial planting-push for this long-tended seed, Mark and the few others who work at CFC's core are in the grip of a holy passion; we could not talk to him of rest, but only of how new kinds of students might be brought in, and how we might function as P.A.'s.

Phil Werdell has thrown his energy in with Mark and CFC this summer, on a busman's holiday from two years as a planner and teacher with the College for Human Services in New York. Begun as the Women's Talent Corp in 1969, by 1972 CHS was a paradigm institution for paraprofessional development, granting an A.A. degree -- for a two-year program with internship in newly-created job lines in civic agencies -- to a strong minority student body mostly without highschool diplomas, and mostly former clients of service agencies. Then money and vocational advancement froze, though the A.A. ^{candidates} at work were often more competent than their professional supervisors. Facing the contradiction, CHS regeared to become a Master's program.

add re SDX!

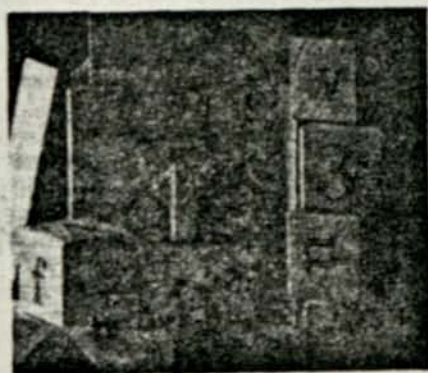
update?

Saturday Review of
EDUCATION

Note: the topics of this paper are dealt with in more detail in On Learning and Social Change (Vintage 1972, \$2.45)

How We Learn Today in America

By Michael Rossman



The counterculture lives and grows, says one of its leading visionaries, Michael Rossman, thirty-one, veteran activist, former "traveling organizer of educational change," who lives in Berkeley, cultivating his garden; who, from time to time, writes, as so many who practice the open life-styles do not. His recollections of the Movement in the Sixties appeared last year in *The Wedding Within the War**. This month his new book, "transcending the totalitarian classroom," is published as *On Learning and Social Change*†. He calls his writing here a "set of notes," which are by declaration speculative, metaphoric, often metaphysical, always personal. They deal with what he perceives to be the arising system of mass higher education—the "alternative system."

How nice and quiet the college campuses have become. "The students have gone back to class"—i.e., back to the buttoned-down minds and slack apathy of the Fifties and back to conventional electoral politics, à la the early Sixties. That's the official line now, part of a general cultural urge to turn the clock back and deny all the strangeness that opened in the past decade. I sat with a man who makes policy for a major magazine about education. "The student revolts of the late Sixties were a fad," he told me. "They're over now; reform is proceeding." I wondered at the gap between our perceptions. For what has changed in the colleges, other than the consciousness of those they process?

It is now eight years since the Free Speech Movement at Berkeley announced active student discontent with the educational system. No major institutional change has followed at the University of California. The most significant event has been conversion from a semester to a quarter system, "for more efficient utilization of the physical plant" in accordance with the state's Master Plan.

True, throughout the university there has been some general liberalization, a loosening of the constraints that were designed long ago to keep students going through their paces. Electives are freer, pass/fail grading is spreading, certain interdisciplinary studies are encouraged, some community work is accredited, thesis requirements are easing, and so on. All such changes are valuable, of course, but, taken together, they amount to only a new body style on the same old infernal combustion engine. They are not responses to the realization that something is wrong with the machine at its core.

Here at Berkeley the distributions and practices of power—from the university's regents, whose corporate interlock owns half of the state, down to the professors in the classroom—remain essentially unchanged. Admittedly, a few more black faces dot the campus. The class sequences and general milieu, however, are still designed to machine the young to fit slots in an economic order that maintains domestic poverty and international imperialism. There are, across the country, a few genuinely innovative schools and a handful of embattled experimental programs. But overall, in the 2,500 colleges, nothing basic has changed, even if they let the kids make love in the dorms in peace.

If the students seem now to be "just sitting around in their classes," it is not because what would move them to protest has been answered. I think they are stunned by a historical realization. The writing is clear on the class-

room wall; it reads: *mene mene tekel upharsin*. During the Sixties our culture split at many seams. We grew radically conscious of sexism, capitalism, imperialism, racism, the psychedellic/spiritual domain, the body and authentic experience, and more. From each of these perspectives the university was judged and found wanting. To integrate any of these insights into people's lives and the social fabric would have been a major project. Taken together, they were like ten clouts on the head, not only because of the magnitude of their consequences but because, concatenated, they woke in our imaginations the live image of quite a different sort of human society. It is in that light that all is judged now in the deepest reaches where people attach their affections and energy.

During these first years of the Seventies the change in us that we call the Movement has seemed scattered, confused, dormant—leading many commentators to venture wishful nonsense about how it is over, dead, or harmlessly absorbed back into the mainstream culture. I think they have been misled by an accident of rhythm, a phase in our growth. What opened in the Sixties stunned us; we stepped back to grasp its implications and also to digest the first experiments, and failures, in making that comprehensive vision real in our lives. Now, outside the mainstream institutions and the media, it can be seen that we are moving on. If the students are sitting in class as of yore, it's because, though the message is in their minds and on the walls, the walls don't come tumbling down. Institutions are built of concrete, and people are still trying to use them with old notions of "efficiency." Institutions change over so much more slowly than the living beings within them. What to do, what to do? The students are aching for viable options. Aren't we all?

Higher education, as presently institutionalized, serves to create new knowledge, to transfer certain information and skills, and to impart certain kinds of social and cognitive conditioning. It is organized to serve these functions in the interest of the established structures and relationships of power (however one describes them). And it serves them in ways largely irrelevant or inimical to the learning needs of free people in a just society. In the Sixties the conditioning in the schools began to be challenged and rejected by the young as cramping human potential and leading to death. The function of information transfer continues to undergo revolution by technology, from paperbacks to "the tube." Though the schools still seem intact as a social form, they have already begun to

evanesce; from upper class to lower, kids grow frantic to disengage at earlier ages.

Three years ago there were three applications for each of the million-and-a-half slots in the national freshman class, and all the state master plans were busily projecting booming enrollments until the Millennium. Today there is *less than one* application, on the average, for each slot. Isn't that amazing? True, it has something to do with the bust of the baby boom, the inflation-recession, the spread of procedures to minimize multiple applications. But who's kidding who? The mystification of higher education has been broken decisively. Insofar as whites still take it seriously, they are coming to follow the lead of the blacks and other minorities—conceiving the colleges, not in terms of the old, broad, liberal promises, but, more narrowly, as vocational training-and-certification machines to be endured while being used for specific ends. For our broad education as citizens, and for most of our functional learning, we now look elsewhere. The lesson that may be learned by looking at the lives of "adults" has finally penetrated. Higher education is like grammar school: Most of what you learn soon evaporates; only its social conditioning endures. Rejecting that, we turn en masse and fumblingly to what we learn when we are no longer constrained by the processes and expectations of an inadequate system.

I think the outlines of what will replace the present version of higher education are already visible. What the last fifteen years have been about—the awakening of social consciousness among the young and its development through politics into counterculture and toward new community—is the growth of a new process of mass, on-going "higher" education. What follows is a set of notes on the "alternative system." They are mostly about its present structure and the process of its curriculum. It is too early to speculate much about new institutions, except about the principles they must embody; and, because these notes describe the alternative system where it operates most strongly, they scant the complex ways in which it involves and affects practically everyone in America. But I hope they will enable the alternative system to be recognized as such, as a system of education.

The Alternate Network

The alternative system is largely decentralized. It has no institutional form in the sense we understand that concept. It is not a single establishment doing predictable business, in fixed modes, endlessly duplicated. Rather, to map its workings, we have

to understand it as a network that is diverse, mobile, and evolving.

The network includes the many sorts of groups that have organized to connect people directly with the learning and learning action they now feel they need: free clinics, free schools, underground papers and radio stations, crisis centers, free universities and student-run experimental colleges, media collectives (from video to posters), minority liberation groups, anti-war and military resistance groups, tutorials, yoga/meditation/aikido/"growth" centers, ecology and consumer-action groups, and so on. Each of these categories currently includes between 200 and 800 nodes. Each node consists of a group of ten to a hundred people, their energies focused on work that involves the lives of many others. (Thus even this "countercultural" fraction of the alternate system may be seen to involve numbers of "teachers" and "students" on the same order as the official system.)

The common denominator is change—the learning of new ways. Thus each node is intense with the energies of transformation, and each person is impelled toward change from within and without. Many do change; that the average serious stay in a single node is around eighteen months is evidence of this. Thus many nodes have similar life-spans dispersing to pass their functions on to others while their people move on to new learning. Unlike conventional organizations, these are transient, disposable: They fit like thin clothes on the lives of the people within them.

How can one make a catalogue for such a college? At any rate, we are trying. *The People's Yellow Pages* in Boston lists hundreds of local organized learning resources. Similar directories flourish now in thirty cities, and a dozen efforts at ongoing national directories of sectors of the network have begun since *Vocations for Social Change*, on the West Coast, undertook the first one.

The proceedings of such a dispersed network can be coordinated by no hierarchical bureaucracy, but only by and in response to the changing lives of those affected. So, as an educational system, the network's silhouette is strange, lacking the usual administrative monkey on its back. Administration is absorbed into process. Yet new "trans-institutional" forms that coordinate parts of the network are already evolving. Their present prototype is the literal hive of activity called Project One in San Francisco, where some seventy different community-service-and-action groups generated during the Sixties now swirl together in the open space of a rebuilt warehouse. The process of linking parts of the network

together has barely begun, and the Seventies will bring a rash of experiments in this area.

Compared with the established system, the educational process in this alternative system is both more individualized and more collectivized, and also more concerned with persons. It is involved not so centrally with books, much less with writing, and only rarely with temporary accumulations of sheer data. Its mode is primarily oral. It depends on ephemeral media. Its tempo is both quicker and slower than that of the school, proceeding as fast as—and no faster than—people can accommodate their changes. All such differences of style make the alternative system difficult to recognize and to take seriously as a competitor.

The condition of the faculty is just as different, and not only in the sense that "nonprofessional resources" are valued equally with "professional." Despite the present glut of gurus, if you ask those whose work makes these nodes, "What do you do?" very few will say, "I teach" (though most will confess this in some sense if you press them). Knowledge comes from practice, through the practitioner; increasingly, our instruction comes from people engaged in work in the world. The specialist role of Teacher as we have conceived it is fading; *teaching* will remain—everyone's birthright, used more flexibly and integrated into the action of life.

There are other sorts of nodes and nexuses in this learning net. At one extreme, even the institutionalized system of education may be seen as a subnet of the alternative system, at least insofar as it begins to absorb, reflect, and reinforce the latter's curriculum and process. The alternative system is not a static institution but a process of ongoing *self-directed* education; and, in this sense, the universities, like the culture's other resources, are integral to it in the degree to which they are deliberately used by its learners.

At the other extreme, even less traditionally institutional than the 10,000 small, autonomous, organized nodes mentioned above, are the ten times as many nameless nodes. These are small groups of people drawn into interaction less by work than by other broad processes of life. Their prototype now is the commune, rural or urban, which is by its nature an intense laboratory of education and re-education; but even the sketchiest friendship rings have a function in the alternative system.

Such learning groups resemble what Kurt Vonnegut calls *karasses*, fortunate combinations of people brought together for significant experience by some working that is deeper than random. Vonnegut's description is not

simply poetic: It grasps at aspects of our experience whose effects are perhaps only now growing powerful enough to demand naming. Increasingly our context is defined by mobility and change: One American in six moves every year, and the "alternative students" move much more often and go through many more personal changes.

The small group is the essential vehicle and unit of learning and of life-support (beyond the merely physical). We have seen, to our distress, how the forces at play in our culture are tearing apart the old, small-group forms of family, work, and friendship. Now other forms are evolving to replace them. The welter of interaction that sorts out at the moment into *karass*, commune, and network must be seen as neither random nor conventional but rather as an attempt—many attempts—at new modes of organizing human energy into groups in order to cope with a world of flux.

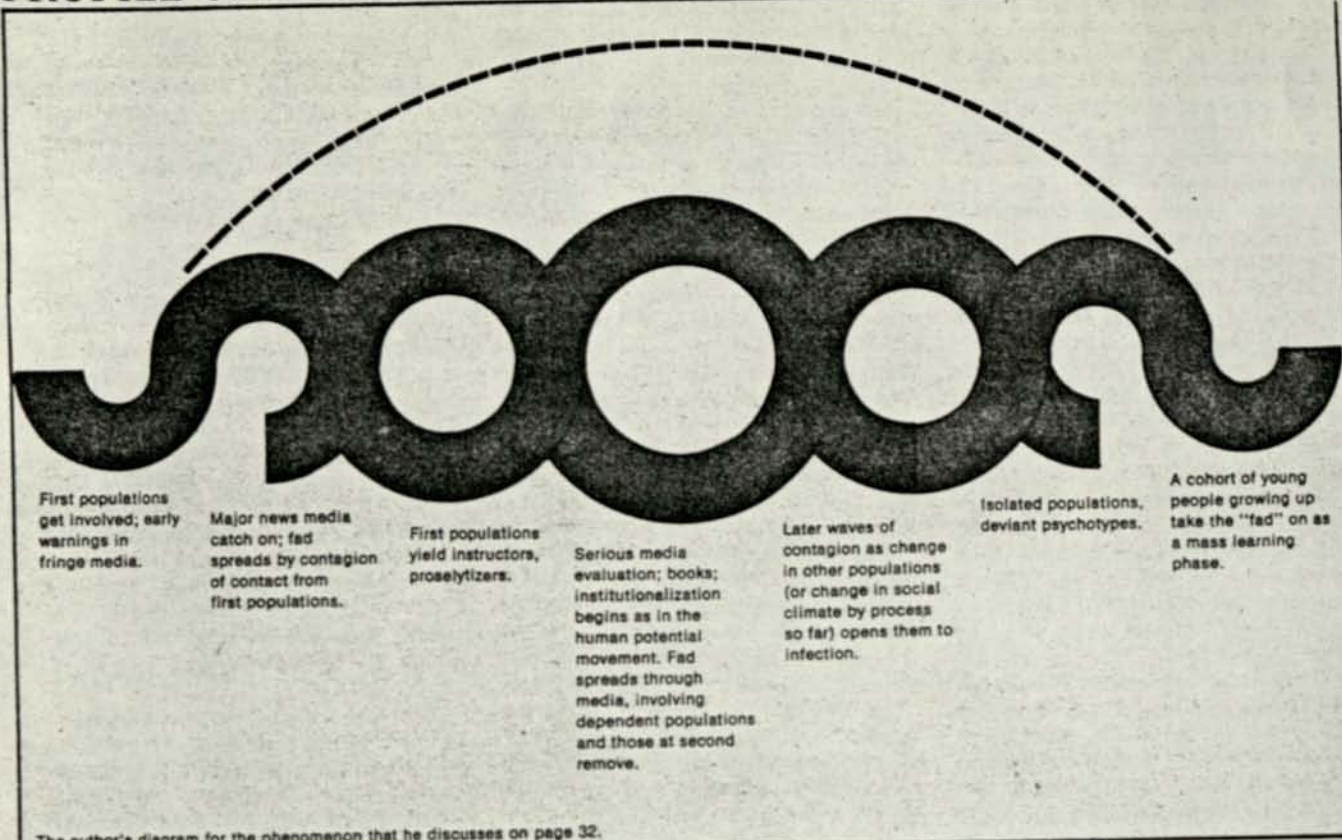
Seeing this net of meta-stable eddies in the general swirl as the ground of an educational process, the difference between its basic learning group and the basic group of the institutionalized system (the class) is striking.

A class consists of people with minimal mutual commitment come together by inorganic schedule and program rather than common life purpose; joined for brief, isolated meetings on a fixed schedule in a longer arbitrary time; encountering one another in only one of their many dimensions, in an authority-centered society with fixed roles; dominated by a punishment/reward framework of motivation; acquiring a specialized splinter of knowledge already prepared; and, beyond this, training in data processing and social conditioning.

In free-learning groups, from communes to more organized nodes, people joined by common interest and mutual design choose to commit themselves to come together extensively and intensively over an open-ended period. They meet each other on as many of their human levels as they can, in a democratic peer society that generates its own norms and internal motivations, to learn and to create the general and particular life knowledge needed.

I may seem to be describing this alternative educational system much too loosely, for at the level of *karass* and commune and somewhat at the level of the organized nodes, it merges indistinguishably with the other processes of everyday life. But that is precisely the point! Institutions of mass (higher) education are a recent cultural innovation. Why should we have assumed that the form in which they dressed the function of extended citizen learn-

PROFILE OF A LEARNING FAD



ing was immortal? As the function of *teacher* becomes despecialized, so (from our perspective) the process of education becomes deinstitutionalized and is freed to be reconfigured with the "other" processes of our integral lives—perhaps in forms hard to recognize.

But forms there will be, for, actually, talk about "institutions" versus "deinstitutionalization" is nonsense, as is the argument about "structure" versus "nonstructure." There is no nonstructure; even chaos has within it the form of whatever consciousness persists through it. If an institution is the shape in which a basic human need is serviced in society, then what I am so sketchily describing as a process-system is an institution in an early stage of evolution. But it takes an understanding different from that provided by the current standard model of "institution" to recognize in this swirl of motion a first model of the higher institutional form appropriate to our changing age.

The Process of the Curriculum

More important than the present structure of the alternative system is the process of its curriculum. The matter of fads is central. People talk of these synchronous surges of group consciousness as the magazine man did to me of student protest—as if a fad were merely some shift of fashion, dictated by commercial or irrational impulse, that leaves no more trace than a dress tried on. As if the "Dylan fad"

and the "psychedelic fad" were like a new washday detergent and left the consumer just as susceptible to "reprogramming." Likewise, quite intelligent men viewed the "McLuhan fad" of the mid-Sixties as (at best) merely another interesting set of notions, to be filed away with the rest. If hippie visionaries went off muttering about how electronic media link us into unified consciousness, few paid them any serious mind, or wondered aloud about the consequences of new extensions of man and new awareness of them. The system of our alternative education has many components and is highly decentralized; it is not bounded by geography. What makes it visible and integral is its diverse curriculum, which is made manifest in fad through media.

At present the main topics, as I read them, are the psycho-spiritual domain and the building of family. But the curriculum keeps changing. One year we study institutional racism; the next, singing, dancing, and freaking out. One year it is power analysis and foreign policy; the next, the psychedelic experience; the next, sexism, sisterhood, and the reconstruction of the *macho* ego. What is remarkable, besides the diversity of the topics, is how we focus on them one or two at a time, and one after another, in methodical sequence. And more: How our major shifts of attention occur in regular periods, averaging roughly two years.

People still dismiss this wandering

of our interest as a series of transient fads (as if that explained anything!). Rather, I think, the motion we *will* in the face of our circumstances compels us to learn many things; and as we are increasingly linked by our media into a collective consciousness, we tend increasingly to learn them together. The ambience becomes rich with a subject; for a time its resonances play in the talk of all our friends; then something else is in the air. (The virtues of *immersion* and *saturation* are well known for language learning and hold for many other subjects.)

Individual learning has natural rhythms and periods, which are distorted within our institutions but may be clearly observed outside them. Roughly speaking, the phase of opening to significant new knowledge takes some six months, and the phase of integrating it into consciousness takes another eighteen. Nor can one learn intensely in more than a few ways at a time. That these limits, phases, and periods are reflected with increasing strength in the collective operations of our attention—as may be seen by examining in detail the progress of any major fad—is evidence that our interaction through media is slowly but massively synchronizing our changes, both personal and social.

The nature of the system of education now developing is so new that we have neither terms nor concepts to describe it adequately. Here are some

notes about a few of the processes that go on within it:

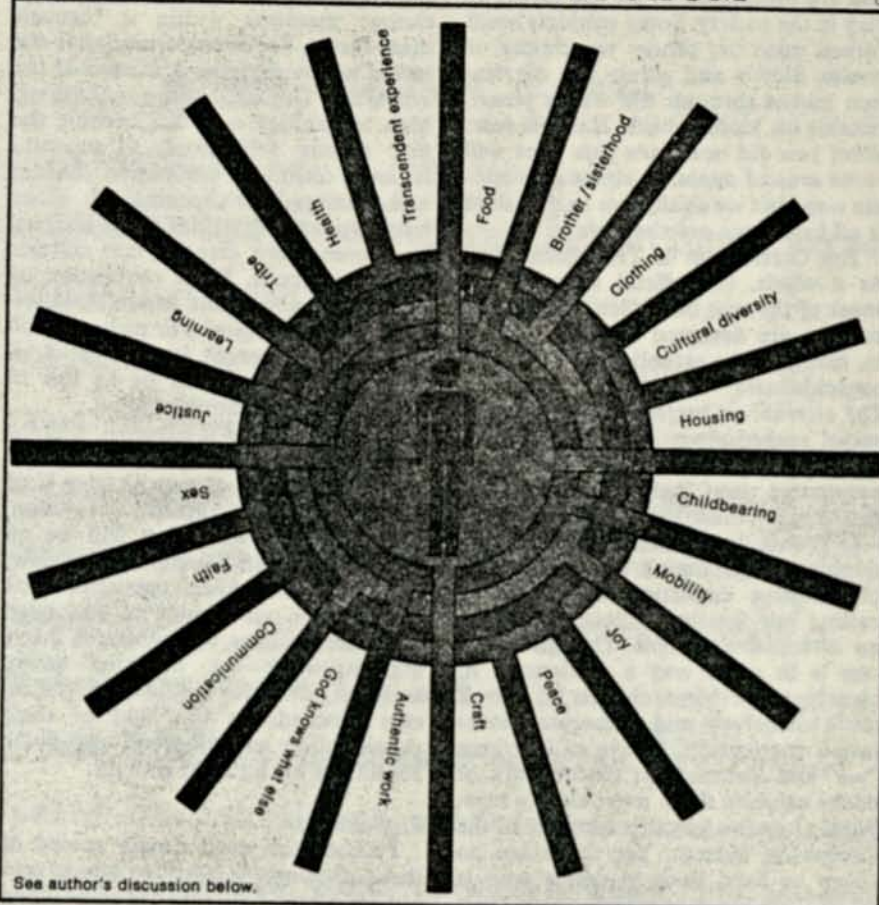
- Do you only imagine you heard a collective gasp as Jack Ruby rushed up to Oswald? What has been dwelling in you since that day we watched in awe earth-rise over the moon's turning limb? Though a million turned out at Cambodia time, we took the knowledge of Kent State like a bullet in the brain and all that fall and winter were depressed, in twenty million private agonies from east to west.

- Trashing has been too simply dismissed as the fadwork of a stupid and irresponsible minority. It was a serious study in our school, and it illustrates the potential for learning-theater opened by up-to-date audiovisual equipment. For we were all Weathermen and -women. The trashers and the Weatherpeople represented a part of each of us, however unconfessed, a serious part burning with rage and frustration, and also a part that thoughtfully considered the usefulness of violence—against property, and perhaps even persons—as a tactic of social change. In effect we extended pseudopods in experiment. Magnified (and distorted) through the media, such actions represented us to ourselves. We watched and learned. Windows broke, buildings burned, the FBI "Most Wanted" lists went up; we saw and judged the effects on the social environment. It took two years, the "Manhattan townhouse" and University of Wisconsin tragedies, and Kent State and Jackson State, for us to make up our minds nationwide. The experiment was not abandoned but tabled.

- Among other effects, grass and acid tend to open their users to sensory experience and to a sense of integration within the natural order. Several years after the mass impact of psychedelic experience, fads concerning the body and ecology grew manifest. Counterculturalists did not create these fads: food freaks and Rachel Carson had been around a long time. The mass contagions began only when a large part of the body politic became susceptible through changed consciousness.

Our study of reconnecting to our bodies and regaining control of them soon developed three main themes: What we eat to be healthy, how we tend our bodies, how we service our health. In this subsector of curriculum the range of media involved in our learning becomes clear: macrobiotic columns in underground papers and garden plots in city and on farm; paperbacks on yoga and free-university courses in dance therapy; medic teams at demonstrations and now 200 free clinics. The range of instructors is also different from the official system's,

THE WHEEL OF THE CURRICULUM



embracing indiscriminately doctor and bread-baking neighbor in a milieu in which specialism is breaking down. Such dispersed, massive "action-study" of the body now begins to lead into another wave of learning, this time about the forbidden domain of psychic powers. (Thus our curriculum does have its organic course sequences.)

Of course, the alternative process is not as monotypical and synchronous as I have pictured it. It has a more healthy complexity, but I have described it this way to emphasize the features that make it visible as systematic process. At any given time it may be understood in terms of a mosaic of subpopulations—defined by the intersecting meshes of social class, subculture, and age—within each of which mass learning proceeds with its distinct curriculum in this faddish manner. And within each, as in college, not everyone concentrates on even the most important things at the same time, and any given topic is entered deeply only by some.

Though each approaches its studies from a special perspective, these subpopulations do not learn independently. Orderly processes relate their learning. An impression of some of the forces at work can be had from the sketch on page 31.

Stone thrown in a pond. A learning fad spreads outward from first impact

in concentric ripples, their momentum borne by the media of our interaction. With time and social distance they grow weaker, become more subject to interference from other ripples; but eventually everyone is affected, at least subliminally. Everyone is involved in this school if only in reaction to what others are learning. Suburban housewives separating their garbage and demonstrating against busing, black Muslims marketing natural bread: The waves of learning cross traditional boundaries of culture and politics.

What makes the alternative system radically different from all past processes of human learning is this aspect of mass synchronization—collective consciousness, independent of distance, brought about through new technologies. What makes it less, and more, than simply the general, routine process of learning in America is what makes it visible as a college of change: its curriculum.

For there is deep order indeed in the curriculum's meandering diversity. Picture the human being, surrounded by the comprehensive wheel of our needs in a society (see diagram above). The curriculum of alternatives moves within this wheel, focusing on subject after subject as the years go by. Its perambulations follow developmental logics, as in the sequence "psychedelics/body/paranormal," for example,

and are modulated by all the forces at play in the society. Some subjects seem forced upon us; others we choose or create. Slowly and surely the curriculum moves through the whole wheel, passing on, looping back. *Have no fear. What you did not learn this time will come around again, in some appropriate way. And we shall have to deal with it all before we are through.*

The Curriculum is Transformation. As a whole, the official schools, and most of the rest of life learning in our culture, are designed to, and function to, maintain the established realities of consciousness, behavior, and power. *The alternative system is precisely the social embodiment of the process of changing these established realities. It penetrates most institutions now and has roots within every individual.*

It is this distinction between maintaining and changing the realities of our human condition that justifies calling our floating college of change an *alternative system*. Though everyone is in some way a student in it, clearly some have chosen to enroll more intensively and deliberately in its broad curriculum. I have called them "we" and assume that the network of nodes exhibits them most clearly now. Surely it is the functional center of the alternative system. Yet there are no sharp or fixed lines to define who is involved in building a new order. Most of the lines drawn in the Sixties are blurring as change proceeds.

Need I say that the change is not random? It occurs in the light of visions dimly grasped but widely and powerfully felt about what we might do with who we are and what we have in light of the potentials and real limits revealed by our time. The curriculum passes from topic to topic as those visions inspire attempts to transform particular aspects of our lives and eventually to transform the entire society in a comprehensive and integral image. *We are now in urgent need of a still higher order of curriculum, one through which we may learn to reconcile and integrate the many partial changes going on in diversity and some apparent contradiction.*

The media of this alternative system—from information bearing to person sharing—are each now changing, and each may change quite radically as it continues to evolve. What will remain constant is what is pursued through each medium: change in human reality in the light of integral vision (a vision that is itself evolving). And though, if our species survives, we may look forward to some period of cultural stability after the period of whirl we are still early into, this "stability" may be of a higher order: a fixed balance of relation, not to the momentary forms of

our culture, but to the process of change manifest within it through these forms. *For Transformation is the naked and underlying condition of the universe.* Through being geared to high technology ours has become the first society deliberately to generate its own continual qualitative change; and the radical opening of other human potentials brings our consciousness even more directly into contact with this truth. What conception of education, and what institutionalization, is appropriate? For now, the college that is eternal is the school of change, which teaches us to live in harmony with Transformation.

I know, all this is ethereal, a flight of metaphysical fancy. And yet, a fundamental change of metaphysics is at the heart of our culture's revolution, and ultimately education will be reformed from this ground up. For now, note that the fixed opposites that characterize our version of education—teacher/student, school/world, learning/play/work—are breaking down, and that education's reinstitutionalization proceeds in the light of their reconception as both fluid and polar aspects of an integral activity.

Prefiguration

Perhaps the most deeply rooted of these divisions is between young and old. Its power structure has come down through history unchanged, grounded in the fact that the younger were largely dependent on the older for their learning. Now our condition changes. Margaret Mead calls it "prefigurative" learning—the process of older learning from younger basic lessons in adaptation to changing conditions of material and human reality.

The first traces of mass prefigurative learning have been visible for some time as fads of fashion and superficial attitudes that spread upward agewise from the young. (The simpering, cruel worship of Youth that preceded the time when youth turned weird may be viewed as an early attempt to adjust to prefiguration, albeit one distorted to caricature by the profit economy.) Recently, prefigurative fads have grown more substantive and frequent. Youth protest against the war catalyzed the shift of public consciousness that convinced Johnson not to run again. Overall, there is scarcely a topic of change on the adult mind that was not put there by younger people. From teen-aged city council members to George McGovern—who two years ago was at best a moderate liberal on all but foreign policy—we see the rise of politicians who depend on the vast energy and social consciousness of a youth constituency.

We are in for the age-democratization of society in general, and of education

in particular. Already institutions of *postfigurative* learning have started to function "in reverse" as liberal professors learn new style and content from their students and kids turn on their families. Every wave of immigrants has learned in part from its children to adapt to a new culture. But we are all immigrants of Time now, arriving daily on the strange shores of the future; and the prefigurative capacities of the traditional family are as inadequate for our naturalization as are the configurative processes of the nuclear couple. Deeply different sorts of institutions must arise to incorporate these tendencies in new balance. (The first, undifferentiated stages of their evolution may already be visible.)

Of all the forces that now induce institutional mutation, prefiguration is perhaps the most strange and basic, more so even than technology. Condensing it through ritual into social form—which is what institutionalization is about—will be like constructing magnetic pinch bottles to contain thermonuclear reaction, demanding a different order of technology to harness elemental energies.

Any social form actually embodying prefigurative processes must be subject to constant transformation, as its conception in the minds of older people changes by learning from the experience of the younger. Thus its stability as form, as institution, must be maintained on a higher level than we are accustomed to as a continuity-influx. As we pass from the metal walls of the internal combustion engine to the magnetic walls of the fusion generator, dense flux of matter rarified one more degree to organize unfolding energy, so the structure of prefigurative institutions will be rarified—into process, or into something for which we have as yet no name.

I am as unsatisfied as you are with this metaphor. But I feel bound to offer my awkward premonitions, because the processes of prefigurative learning are by definition at the heart of the alternative system.

In our alternative system, as in the other, the process as much as the content is being taught and learned. For each of us in some way, and together, it is the process of becoming new people, larger than the limits that we were taught bound us; and thus of creating an unknown and just society, and ultimately refiguring our way in the cosmos. This process is our Movement, kick as you will against my lumping all of its warring hydra heads together. It now extends from where we probe for reconnection to ancient fire in flesh and brain, to our attempts to restructure institutionalized power. And it goes on. □

(Historical pedagogic memoir, concerning analogous system)

Input from Michael Rossman ~~and~~, member of 821:

Reflections on entering EIES-space: I (Historical)

During the late 1960s I was involved in ^(a nameless network which formed) the national infrastructure of the student-initiated higher educational reform movement. One line of our work concerned the development ~~of~~ and networking of "free university"/learning-exchange forms. Another, intertwined and convergent, concerned conferencing. ^{around the country, involving?} In the course of ~~examining~~ organizing fifty conferences, ~~of~~ up to 3,000 people, we came slowly to understand them as group learning-environments and -experiences; and collectively evolved a set of perspectives and methods that ~~examined~~ ^{well} took us ~~far~~ beyond the stereotyped ~~examined~~ and educationally-dysfunctional conference forms which we had inherited as the past's wisdom (and to which ~~examined~~ the ~~examined~~ conferences of the ~~examined~~ 1970s retrogressed almost without exception, so far as I saw.)

Our conference pedagogy included ^{conferencing;} detailed attention to group rituals and ritual structures, ^{and to the "informal" (intimate) functions of} provision for the fact that we experience conferences in our bodies, and for the private "centering" functions which ground participation in intense group interaction; expanded spectra and changed priorities of learning-modes; ~~examined~~ the evolution of new facilitative modes and roles; and so on. Its overall purpose and promise was "to enable more effective use (learning) of the full human resources gathered in conference"; and our bias was strongly toward participant-democratic educational and administrative forms and processes. This extended to a whole-system perspective, as we explored ways to involve participants in self-selection and conference-pre-planning, and to make the forms

of conferences flexibly responsive to change by their participants in real time -- in short, to organize conferences as collective self-organizing learning experiences. (Purists will note that we were clear about tending the meta-roles necessary to such an anarchy.)

All this sounds grand. In practice our work was as modest and funky as any real exploration; but its lines were indeed clear and exciting, and evolved until the ^{national} Great Reversal of 1970-72 ~~ended~~ ^{collective} ~~shattered~~ shattered the economic and spiritual base for our work, leaving us isolated in odd corners of the land, our collective learnings largely unrecorded. || One primitive (pedagogic) technique we developed bears mention as a face-to-face precursor of the overall EIES conference/school (as our small, long-scattered floating college of R-and-D may as a precursor planning-group of such forms.) We called it "The Facilitator". It evolved ^{as part of} ~~from~~ the games pedagogy recorded in my mss. LEARNING GAMES (and is more detailed there, as well as in available source papers); and as a straight response to the following problem: Given a mass of diverse people (~~of~~ thousands) come together to interact/learn, how can they be helped ~~organically~~ ^{to} ~~organically~~ form useful learning groups?

The obvious (incomplete) answer is, "Help them generate for themselves and share information about what they have to teach/share and what they want to learn/accomplish; and help them organize their time/engagements accordingly." In practice the Facilitator involved a semi-private protocol/process called Interview, and ~~was~~ a group process called Sorting. Interview was a time-constrained reciprocal pair interview process ~~with~~ with paradigmatic question-format and record, ^{in which} ~~which~~ ~~people~~ people paired off and led each other for half an hour through a meditation/disclosure based

simple (e.g., on a learning-paradigm "what do I have to teach/want to learn?" "what ~~xxxxxx~~ goals/problems/resources?" "what is my state/expectation?") and summarized the information on ~~xxx~~ cards. Even for the self-generation of knowledge and information, the influence of *such* intimate interaction is worth remarking; the social bonding processes of Interview also ~~xxxxxx~~ ^{influenced} significantly the ^{subsequent} processes of group formation and "informal" interaction.

In Sorting the carded information was correlated and distributed. Computer h/s-ware was younger then, and we ^{were} unskilled to boot; the times we tried to integrate electronic sorting technologies kept us up all night and produced slower and less creative information processing than we could do "by hand". Punchcards (etc.) with fixed/branching categories could even then have been used to more advantage than we ~~did~~ tried. But one critical feature of such intended self-organizing interaction systems is that participants be fully free to generate the very categories of their ~~xxxxxx~~ identification and organization; and no h/s-ware systems then available could cope with this, or indeed (so far as we knew) were being developed with this political intent.

A deeper reason why we found ~~xx~~ (contemporary) computer facilitation unsatisfying lay in the fact that Sorting was not simply "an information sorting process", but a major community ritual. Even when ~~we~~ ^{the} conference-organizers huddled late in the ~~xxxxxx~~ hotel ballroom trying to punch in the lists, conference participants kept coming to watch and help; and when we made Sorting not a central-facilitative ritual but a fully collective act, we embodied a realm of communal play and creativity which no analytic language I know can fully describe. Great message-boards were set up, ^{on which} people came to study others' cards and ^{to} post their own. ^{They} rearranged ^{the} cards into ~~xxxxxx~~ constellations; formed ~~xx~~ discussions, ~~xxxxxx~~ ^{small groups, larger ones,} dissolved and reformed them in evening

which they then adopted were biased away from (to put it briefly) authoritarian modes and towards the participant-democratic, even without explicit facilitation toward this end: for people fashioned them fresh from an intense immersion ^{and acculturation} in inner/outer self-organizing processes, which prepared an actively autonomous psychology of further engagement.

All this is history and theory. We thought the Facilitator ^{process} helped produce some whizzer events, but popular taste ^{sponsorship of or} for participation in such experiments went into an eclipse before we could start a fad, and we never did rigorous studies. ^{process} Entering this great blind continental room/conference called EIES, this history echoes in me; I feel oddly at home. Now as the 1970s ^{wane this taste} ~~seems~~ re-emergent in new arenas and ways, in some regards advanced, in others perhaps not so. From my first glances at the system, rosters, some conference outputs, it seems a technologized analogue of ~~xxx~~ the conferencing-mode ~~xxxx~~ we attempted through the Facilitator. (If EIES's process includes analogues to the other elements of our conference pedagogy mentioned above, I have yet to encounter or recognize them.) Equally it seems a species of continental free university, a precise and empowered replica/extension/magnification of the original (1965-8) free u model (considered in ~~xxxxxx~~ my book On Learning and Social Change ⁽¹⁹⁷²⁾ and much other source literature; ^{the (de-)} ~~evolutions~~ of this model since may bear relating to EIES-like systems' futures), which should be recalled not only as a process-institution for facilitating the formation of self-structuring learning groups, but also as an active base ~~of~~ and generator of functional actions, from artistic to political, in the community. Or rather it seems a cross between the two, strung out in time and space with some new resources and perhaps lacking others: another essay in (ultimately-unsatisfactory) centralized facilitation of a decentralized self-organizing learning conver-

(5)

sation. Had our higher-ed-reform floating college had access to EIES, we no doubt would have ~~formed~~ organized a rich set of conferences to continue and concretize our working conversation, likely it would have helped us to persist together. continental in ~~xxx~~ scope and so fragile in its precious contacts; As it was, my primitive sketch of the ^{EIES-like} cybernetized system we needed advanced first as a ~~prospectus~~ prospectus for CHANGE MAGAZINE, ~~xxxx~~ until a change of editors put ~~it~~ on the road as the leading popular mag of ed reform, ^{educational} with politics quite unlike ours -- appears as "A Communications Network for Change(-Agents) in Higher Education ^{(1968)"} in OLSC (and in Journal of Community Communications 1:1, 1976.) This is not to boast, but to confess a certain fullness of feeling. It is to ^{help} testify that the vision and dreaming here advanced in EIES is a collective production and property, born ~~from~~ from ~~many~~ and borne on by many in many quarters, slowly shaped and developing -- informed by a certain quite specific politics, the diverse and evolving expression of a spirit of self-determination brooding in our time; and also, in the most technical and wizardly sense, a boot-strapping operation, generating the tools to facilitate its own (learning-)processes.

So I see it, on eve of entrance into this next chamber of the mystery, preparing at least one substantive entry before ~~info~~ info-overload make me all systems crash. Besides its historical point, I include such detail about the Facilitator because its model ^{and} practice suggest certain elements of learning-process, certain social textures and functions and values, whose ~~xxx~~ analogues I hope to recognize in ~~the~~ ~~xxxxxxx~~ ^{EIES's operation,} ~~ES's~~ or, failing that, to call to attention as worth further development -- a project in which I would welcome cooperation, as well as a place to conduct usefully.

About Networks: I

How do I mean "network" here? As a particular kind of social organization of human activity. How many other (kinds of) current uses of the concept are there? What do they have to do with one another?

What makes "networks" different from other social organizations? I associate these ideas with them: geographical dispersion (decentralization) of their constituent members/groups ("nodes"); the independence of each node's activity from control by other nodes ("local autonomy"); the dependence of each node upon the others for support, whether "moral" (spiritual), conceptual, functional or resourceful ("mutual support"); the existential equality of the nodes as self-governing members of a collectivity ("peership"); and common purpose, in the sense either that the nodes are all engaged in (defined by?) the same activity, or that they are engaged in related/complementary activities which together constitute an integral (if not necessarily complete) activity. To this must be added self-consciousness, perhaps of two sorts:

passive, in which the nodes recognize that they constitute a network, and active, in which they engage actions predicated on this recognition. In some networks there are processes of mutual accountability among the nodes, but this seems to be a special condition.

With the living networks I know, I associate a second cluster of ideas. They are meta-stable, constantly in processes of growth (however measured) and disintegration. This meta-stability has several levels. There is a significant/high turnover in the roster of nodes, accomplished by functions (rituals) of entrance and, more ^u frequently, of exit. A typical node's "life" in a network has charac-

teristic phases and durations, amounting to a life-cycle whose nature is connected with the activity defining the node/network. Within this, if the nodes are groups, an individual ^{person} has a typical "network life-cycle". (There are always exceptions. Are there characteristic kinds of exceptions, and if so what role do they play in network dynamics?) Finally, the network itself has a life-cycle, which may be sui generis or may be strongly influenced by the nature of its defining activity (and the interaction/"life-cycle" of the larger society).

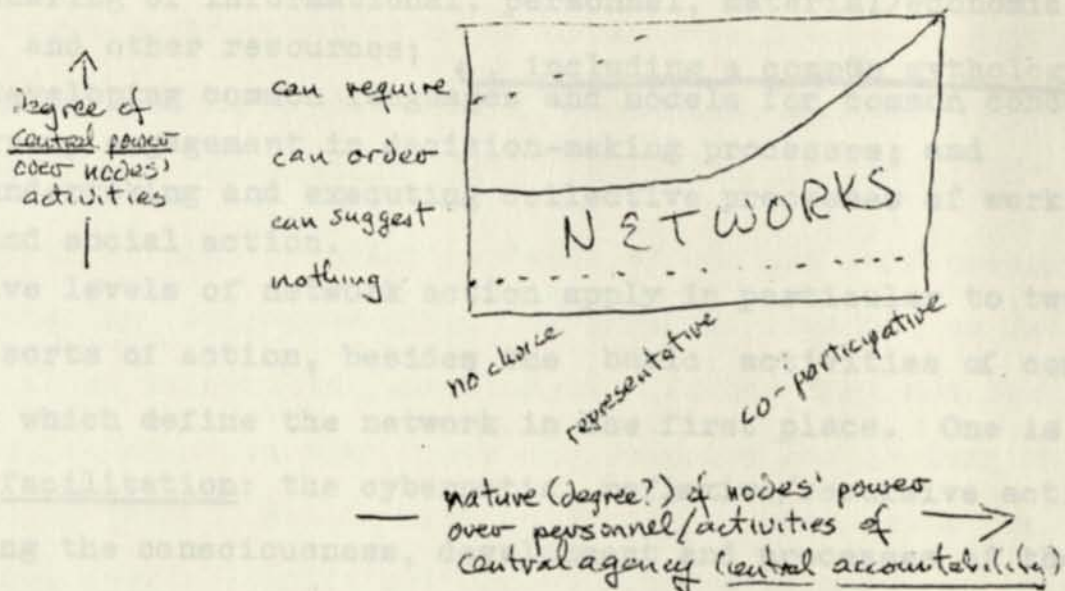
As these two idea-clusters suggest a view of networks as organizations/organisms with life-cycles, a third cluster concerns their (life-)processes -- how relations amongst their cells are accomplished. From above, these relations seem to be of consciousness, of support, and of accountability -- a hierarchy, to be sure, but is it sufficient to describe the broad field of intra-network relations? As for how network relations are accomplished, it seems to be by two broad processes: communication, and decision-making, with the first requisite for the second. (Are there others?) And perhaps networks can be usefully categorized/analyzed/tended in terms of their patterns and technologies of communications and decision-making. (See below.)

The first two clusters of ideas above do not serve to distinguish networks from many other species of social organization. If "decentralization" is redefined to mean that the nodes' primary activities are pursued separately, with less of more physical separation -- as I think it must be, though it may then be redundant with local autonomy; -- then these two clusters also describe universities, the McDonald's franchise chain, the SWP, and so on. Organizations which are so describeable but which I do not think of as networks seem to be distinguished by these features: (1) They generally have a class structure among the nodes, though superior nodes may not be able directly to control inferior nodes. (2) The nodes depend

significantly on some (material/financial) form of central support.

(3) The nodes are subject to active guidance from some central agency (central guidance)

But dependence on a central agency isn't a sufficient criterion to distinguish networks, for some networks have (and many might well use more sophisticated) central agencies. Another pair of criteria, co-related, concern (4) the extent of central power and (5) its (central) accountability to the nodes, as in this graph:



Classless, then, should be added to the first cluster above, or more accurately non-hierarchical class structure. And the special condition of accountability becomes a general condition in this sense: that a network can have a centralized agency with the power to support or otherwise influence nodes' activities only to the extent that the nodes (directly) control the central agency, else the network is not a network but a center-oriented form. The sharper criterion that suggests itself is that nodes must individually have at least as much power over the center as it has over them, which inasmuch as the network's center is itself a node may be summarized as autonomous interdependence. With these applications, the first cluster of ideas may constitute a sufficient definition of networks.

Defined in this generality, networks would seem to be equivalent to the social mechanisms of a genuinely democratic-participatory society. It is this spirit, I believe, which creates them now as such and pleases us in them, and which gives the underlying sense and purpose to our efforts to understand them and make them work better.

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II.

Returning to actively self-conscious networks, with which most current network theory is concerned, these engage in an (overlapping) hierarchy^h of actions predicated in, and in turn developing, their self-consciousness:

- 1 - communication between individual nodes, and to or among the collectivity of nodes as such;
- 2 - sharing of informational, personnel, material/economic and other resources; including a common mythology;
- 3 - developing common languages and models for common concerns;
- 4 - group engagement in decision-making processes; and
- 5 - undertaking and executing collective processes of work and social action.

These five levels of network action apply in particular to two special sorts of action, besides the basic activities of common interest which define the network in the first place. One is network facilitation: the cybernetic, reflexive/recursive activity of tending the consciousness, development and processes of the network itself as a social organization/entity. The other, again overlapping, involves the generation of new concerns, beginning with the primordial one of network self-consciousness and facilitation, but leading outward to expand/refine the sphere of shared basic work and direct the network's evolution as a social agency.

Traditional organizations/institutions govern themselves or are governed in ways ranging from representative democracy to hierarchical systems-management. Network facilitation, as a whole process, is itself the mode of governance of networks. At this early stage of networks' development and evolution, and perhaps intrinsically, their governance consists mainly in the first three levels indicated above. In this balance, their governance is more nearly a cybernetic species of governance, as contrasted with the terms of political governance (decision-and-execution, levels 4-5 above) we are accus-

tomed to conceive for organizations and society. Yet these first three levels equally bear analysis in political terms, both because (to sum them crudely) information-processing is pre-requisite to and largely determines decision-making, and in their own right as embodying structures and processes of power and decision-making susceptible to ordinary political analysis. Likewise the last two levels represent the completion of cybernetic processes. Network facilitation/governance can only be understood through a full fusion of (at least) cybernetic and political perspectives.

The networks of most interest to (some of) us are self-organizing, self-regulating, self-governing. To speak of them so, as isolated systems, is an impossible (anti-)ideal. Rather they are responsive organisms, interactive with their environments and in many ways regulated by these. Still there is sense to these terms "self-organizing, etc." -- political sense, cybernetic sense -- which applies at each of the five levels. For a network to be self-governing, formal actions need not be engaged on levels 4-5 (decision and group action). Indeed, networks which form (as contrasted with those that are formed) are marked by a pure anarchy of self-governance in the early stages of levels 1-3, which extend informally through the last two levels. Equally, these early stages embody, in cybernetic terms, a condition in which the system's regulator is identical to the system itself -- a primitive (primordial) state of grace towards which more-developed networks must (as I intend a separate line of analysis to show) tend in their evolution as fully self-governing forms.

The formal political character of a network is given in formal actions at levels 4-5. These cannot, I imagine, be more fully collective than are the actions at levels 1-3, and may well be

less so, for a variety of reasons intrinsic to decision-making as a political process in the real world (these would bear further taxonomy and description.) The informal political character is more basic, more complex and shrouded. It inheres largely in the texture of the semi- and informal relations and interactions amongst the persons and groups of the network. By the nature of networks as defined above, these ^{have} ^ "naturally" the character of autonomous self-governance; but as they are embodied on the five levels of action above they are biased away from this character, and towards the character of centrally-governed ^(authoritarian) systems, in a degree corresponding roughly (I believe analysis will show) to the extent to which a network's functional processes develop to resemble those of traditional ^{hierarchical} institutional forms. ¶ From an ideal perspective of self-governance, such a development represents both a psychological and a functional retrogression to precedent cultural states and forms. But this is not, except in terminal cases transforming a network predominantly into another form, a static retrogression. Rather it involves a dynamic contradiction, between the social spirit inherent in real networks' genesis and potentials, which continues to regenerate itself; and the spirit against which the democratic impulse struggles in our time, which regenerates itself in every level and arena not consciously and successfully contested. We should expect to recognize this tension, and resultant dynamics, in the operation of every more-than-embryonic network.

A case in point is the rich network of networks loosely known as the human potential movement (HPM). The HPM's constituent networks have (mostly) been developing as self-governing/self-facilitating enterprises for decades. The HPM has coalesced as a meta-network only during the seventies, from 1977 on commencing both formal

action and informal self-facilitation on the fourth and fifth levels above, at the highest social levels. This late development, examined in my book-in-progress Dysfunction at the Junction, is of major importance to our whole society; and though the HPM is too rich as a case-study of network evolution to go into here, one detail bears extraction. By the time the HPM began actively to identify and develop itself as a meta-network, there had already been developed to guide it a core of ideology (stage 3) nominally integrating the networks' various perspectives. This development, which anticipated and relatively foreclosed the "natural" level 3 development, came about in large part because "broadcast" media (one-way processes of mass communication) were employed from the start to dominate collective activity on levels 1-3 -- as they had come to be employed, though in lesser degree and thoroughness, increasingly in the ongoing development of individual networks.

This process deserves further study. What the HPM's example(s) suggest is this: ("natural" or "spontaneous") networks are at first essentially informal and anarchic-democratic. Even the first papers defining their common ground and character appear as representations of emergent collective consciousness; and the first conferences at which their people and nodes encounter and interact have likewise more this social character of collective self-realization than the functional character to which they are usually ostensibly dedicated. But as networks continue to develop, to grow self-conscious and

electronic, involve at least the reconstruction of non-representational and other information-sharing media, along lines of specifically self-organizing-developmental theory and practice; it can be done even without electronic media, and more powerfully with their aid. It is best these functional governing aspects operate somewhat as

self-facilitative, they adopt powerful new media through which to accomplish the activities 1-5 above. Or, more often, they adopt old media. ¶ Conferences become more organized along habitual lines as learning-environments/processes; from an open court of diversifying input in the early stages, repeating lists of dependable/approved featured speakers/teachers/entertainers are refined and established (the processes of their approval are perhaps more often than not principally economic); this diverse "teaching machine" refines itself to instruct more people more effectively; these three processes repeat for other educational forms (workshops, training, etc.) of face-to-face interaction in the network. The same "centralizing" (socializing) developments proceed for the print medium. The initial informal circulation of letters and papers extends in time to journal and book publication; at each stage the variety of information is either well-summarized or (more often) significantly reduced, and in either case ^{is} given more-powerful and less-responsive influence through the very nature of "broadcast" media. ¶ The result, or the accompaniment or cause, is in practice the development of a semi-formal functional governing group for the network, embracing a relatively-small number of authorities recognized in certain terms (not all public, as lecturers/authors/practitioners, there being other managerial roles of networking to fill) and exerting a powerful influence over its own further enlargement and development. (The alternative, to specify some elements here which must be further developed elsewhere, involves at least the reconstruction of conferencing and other information-sharing media, along lines of specifically self-organizing-developmental theory and practice; it can be done even without electronic media, and more powerfully with their aid.)

¶ At best these "functional governing groups" operate somewhat as

representative bodies (in cybernetic terms, as semi-adequate governors), in proportion both as they include persons/groups consciously dedicated to this task (as, "open-minded" impresarios and institutions), and as "grassroot" processes operate effectively within the network to bring new persons/perspectives/information to prominence independently of the semi-formal governing group -- enlarging it by popular election, so to speak. At worst, and perhaps in direct proportion to the extent to which face/face and indirect information (etc.) transactions become organized through and dominated by such "centralizing" groups and "broadcast" media, the network's governance becomes no longer participant-democratic but increasingly authoritarian (an "authoritarianism" of a kind which we scarcely yet are able to distinguish from the socialization processes of our culture itself.)

The "grassroot" processes referred to above consist largely in the primordial decentralized activities of collective anarchic self-consciousness (levels 1-5) which develop the network initially, and persist as its underlying stratum of vitality. In workaday terms, it appears that the most powerful move to counteract the centralizing influence of (dependence upon) broadcast media is explicitly to facilitate decentralized/non-hierarchical/anarchic interaction and information-sharing. It appears also that this move will be relatively impotent if it is confined to the "superficial"/mechanical levels 1-2, and does not involve people of the network deeply and collectively in developing common language, models and myths on a non-broadcast basis. This is to say that self-governing networking is crucially a collective act of poetry.

As for the HPM, considered as a meta-network, its evolution in the terms above is not gradual, but began relatively suddenly with conferences and publications establishing a public definition. These and the associated functional governing group had a long developmental history within/among the constituent networks. Here the most important factor of this history is that it prepared them already with broadcast status and mechanisms to command and direct public attention in the combined public of the networks, and beyond it, pre-empting a "more-organic" development of the meta-network's myth, etc. (The networks selected for encoding in the governing-myth of the HPM-as-such were more limited than they might well have been.) An essential factor of their efficacy and dominance lay in the fact that they had achieved "trans-network" identity by being adopted (willingly, and often ~~aggr~~ aggressively) as subjects for the broadcast media of popular culture/entertainment. From one angle this gave them a considerable social leverage for declaring themselves harbingers and poets-laureate of the New Age. From another, given the ideological congruity of their teachings with those of the dominant order (examined in BJ, also in New Age Blues), and the processes involved in the attainment of their media power, this makes their development as an agency of meta-network development seem equally a case study in the governance of networks by exterior/contextual forces.