Inventions themselves are not revolutions; neither are they the cause of revolutions. Their powers for change lie in the hands of those who have the imagination and insight to see that the new invention has offered them new liberties of action, that old constraints have been removed, that their political will, or their sheer greed, are no longer frustrated, and that they can act in new ways. New social behaviour patterns and new social institutions are created which in turn become the commonplace experience of future generations. (Cherry, 1977, p. 112)

. . . what is required is a kind of guerilla warfare, not to stamp out new media (or old) but to create a parallel consciousness about media — one that gently whispers the debits and credits of any representation and points the way to the 'food.' (Kay, 1991, p. 148)

Abstract: The electronic seminar HUMANIST illustrates how e-mail may foster discussion of basic problems and exchange of information among humanists world-wide, thus aiding research and strengthening the community. With a certain amount of tailoring and editorial care, it has used existing software to support traditional humanistic dialogue — while also solving the problem of information overload, at least temporarily. Through their complaints of "too much mail" members have, however, usefully pointed to our immature understanding of the new medium. Its apparently mixed nature (part conversational, part textual) demands a new paradigm, towards which this essay makes an attempt. Recommendations for the successful management of other such seminars are also given.

Key Words: Humanist: humanists; dialogue; e-mail; electronic mail; computer-mediated communications; networks; Bitnet; media studies.

Introduction
Electronic mail is well on its way to becoming a household term among academic humanists. Its informal, personal, and utilitarian nature may make it seem a marginal topic for scholarly discussion, but like many common things, its use has run ahead of our understanding. It raises much more interesting questions than might be expected. Here I intend to suggest how interesting these questions really are and how important it is for us to think about them. As a concrete example of the possibilities, I will consider HUMANIST, an international electronic "seminar" I founded in May 1987 and edited subsequently for three years. After describing the characteristics of the software used by HUMANIST and its own history and development, I shall speculate briefly on the nature of the electronic medium and what HUMANIST has taught us about it.

By the cultural clock, e-mail is an exceedingly recent phenomenon. As Shapiro and Anderson
note, we have used speech and gestures for some 50,000 years, writing for 5,000, printing for 500, the telephone for 100, but e-mail for less than two decades (1985, p. 11; Rice, 1987, p. 69). Thus it is not surprising that although the sociology and social-psychology of groups constituted by it have been repeatedly studied during this period, our knowledge is still at a very rudimentary level. With the publication in January 1990 of Critical Connections: Communication for the Future by the Office of Technology Assessment, U.S. Congress, computer-mediated communications may be said to have entered the public arena for the first time; the special issue of Scientific American for September 1991, “Communications, Computers and Networks,” shows that public interest has both spread and deepened. The crucial merging of computers with communication networks has made it a public matter, but as Williams, Rice, and Rogers point out, this has happened so recently that we have not had time to grasp its implications (1988, p. 27). Software designers and engineers, attempting to construct systems that solve the teething problems of e-mail, “information overload” in particular, thus may not be equipped to face or even to recognize the more difficult cultural issues. For example, one such system (Information Lens) attempts to solve the problems of overload by employing artificially intelligent “agents” to filter incoming e-mail according to criteria users themselves specify. To the philosophically minded, however, programmable agents raise serious questions by identifying what can be programmed with what we may think. More on this later.

On the practical level, HUMANIST and similar groups have demonstrated that we can certainly take advantage of the new medium for traditional scholarly and academic purposes. Experience with HUMANIST suggests that the new medium, carefully managed, may be just what is needed to foster widespread humanistic discussion and collaboration in a world largely indifferent to its goals. Because e-mail is restricted to verbal expression, it tends to favor those with highly developed rhetorical skills (Spitzer, 1986; Adrianson and Hjelmquist, 1988, pp. 91, 96), and because it is particularly good for lively argument, it serves well the need of scholars to reach consensus. Once humanists overcome the barriers imposed by immature hardware and software, they usually take to the new medium as the proverbial fish to water. There is no question that as humanists we can use e-mail productively as it stands.

We are, however, restless inquirers. The interdependence of form and content in other areas of study teaches us that tools are not neutral. Although tools may begin as external objects, in learning to master their use we internalize them (Ong, 1982, p. 81). Thus they become perceptual agents — “new technologies for thinking,” as Alan Kay calls them (1991, p. 140) — whose characteristics affect how and what we know and do through them. According to the Torontoan scholars Harold Innis, Eric Havelock, Marshall McLuhan, and others, and more recently Walter Ong, “writing restructures consciousness.” Discovering how this happens (e.g. with e-mail) is a formidable task, however, since the new perceptual agent is itself a product of the mind it affects, and that altered mind is what attempts to understand the agent that has changed it. There are two easy and equally false ways to avoid the resulting enigma: either to attribute autonomous power to the agent, as if it could affect us without our cooperation; or to dismiss it as if it itself were of no consequence, arguing in the manner of Samuel Johnson that what is new about e-mail is not important, and what is important is not new. Cherry notes that “The computer, like the telephone, and other radical inventions are seen, at the very first, as ‘adult toys’” (1977, p. 113). Perhaps it is to be expected that early proponents will make the opposite error.

Why bother to tackle this enigma? Most humanists will be content simply to use what is provided and not think much about the means. As computing humanists, however, one of our jobs is precisely to think about the design of systems and make intelligent recommendations, even if we cannot design them ourselves. As technological historians, we should be aware that innovations have repeatedly led to unanticipated consequences with profound social and cultural effects (Kay, 1991, pp. 140-42; Sproull and Kiesler, 1990; Critical Connections, 1990, pp. 8, 181-208). As cultural historians and students of human communication in the widest sense, we should at least be
able to furnish designers with an imaginative grasp of what the new medium might accomplish. As humanists our central job, it could further be argued, is to make certain that the conception of man at the heart of computer-mediated communication systems is not truncated to fit someone else’s Procrustean “world.” The world as shaped by such systems we all may have to live in, so we had better be philosophers while we can.¹¹

With such jobs in mind, I will look back on HUMANIST during my tenure as editor, considering it a three-year exploration of computer-mediated communication that involved a large, self-selected, multicultural and geographically dispersed population of educated people. A controlled experiment was impossible from the beginning, and questionnaires required more labour than was available. Detailed analyses of its automatically recorded proceedings remain to be done and might well yield interesting results. My intentions here are, however, historical and phenomenological, with the aim of deriving a model for the kind of communication HUMANIST represents and a series of recommendations about how the new medium may productively be used.

**Basic Characteristics of the Software**

What is HUMANIST? Technically it is one of many “distribution lists” of e-mail addresses maintained on IBM mainframes by software called ListServ.¹² Although originally designed for the European Academic Research Network (EARN), hence also for Bitnet and its equivalents, ListServ just as easily reaches subscribers on any network with a suitable interconnection or “gateway.”¹³ Essentially, ListServ redistributes mail from any member on a list to everyone else on the same list, either automatically or through a human moderator who monitors or edits submissions and then returns them to ListServ for circulation to the membership.

ListServ lists are sometimes called “discussion groups,” and McLuhan has made the term “global village” almost unavoidable. As I have indicated, I prefer to call HUMANIST an “electronic seminar” (henceforth “e-seminar”) and so invoke the academic metaphor of a large table around which everyone sits for the purpose of argumentation, in the etymological sense of “making bright or clear.”¹⁴ The ideal seminar, whether traditional or electronic, is a kind of long conversation, convened by a single person but conducted by everyone for mutual enlightenment. Its purpose is not so much to convey facts as to further understanding of its subject, to train the minds of its participants, and so to help create a community of scholars. It is a pedagogical structure in which every member is both teacher and student.

HUMANIST has been able to support the ideals of the traditional seminar through the particular kind of electronic environment that ListServ presents. Its characteristics therefore deserve a brief look. The reader should, however, keep in mind the mortality of computing systems and so concentrate not so much on the particular features of the current environment but what we can learn through our interaction with it.

ListServ has two primary functions, active and passive: it distributes mail as described above, and it provides an archival network server from which a member may order files at his or her convenience.¹⁵ A list may stress the passive function by distributing only notices of available files, the active one by ignoring the server, or a mixture. Although primarily known for its lively interchanges, HUMANIST has taken advantage of the file-server to keep items of specialized or more lasting interest.¹⁶ Usage statistics for the file-server are not available, but the frequency of submissions specifically to the server and the comments of users suggest that it is a relatively underutilized facility of HUMANIST. My guess is that the interactive component simply eclipses the passive service.

HUMANIST’s emphasis on the active function of ListServ implies a certain degree of unavoidable activity across the entire membership, even though most members only “listen.” Unlike those in a system which is itself passive, such as an electronic bulletin-board (BBS),¹⁷ members of an active ListServ group like HUMANIST must regularly commit a significant amount of time — one hour each day is not unusual — to sorting, reading, deleting, and occasionally saving e-mail. Such level of commitment is a vote from each reader for the value of the discussions, and it suggests that the
specific comments I have heard about the usefulness of HUMANIST evince a genuine consensus. Disapproval or indifference would be expressed by a significant rate of dropout, which the growth of HUMANIST appears to contradict.14

One of ListServ’s more interesting features may at first seem a defect: it provides no tools for segregating messages, so that everyone receives everything irrespective of subject.15 Thus, in yet another way a ListServ list is unlike many BBs, which furnish some analogue to the spatial divisions of a physical board; it is even less like the BBs’s more sophisticated successor, the “conferencing system,” in which members of the “conference” choose particular topical “sessions.” A fully developed conferencing system is certainly more sophisticated technologically than a ListServ list, but the enforced mingling of topics is a genuine feature of ListServ’s design rather than a fault. It answers to the natural interrelation of subjects in a multi-disciplinary field like humanities computing, and it provides for the kind of discourse characteristic of humanism itself (cf. Heim, 1988).

The danger of information overload remains, however, and eventually must be met somehow. As Malone and others point out, the electronic interest group is itself the most common device for “filtering” information (1989, p. 66; 1987, p. 291). Information Lens, as I remarked earlier, offers a different approach altogether. Based on the assumption that a person’s interests can in principle be well defined — or more radically, that the person him- or herself can be — Lens allows users to externalize their own filtering behaviour by programming robotic “agents” to do it for them. Malone et al. answer the objection that “people may have difficulty knowing what they want and do not want to see until they have seen it” by offering a random selection of messages automatically chosen from some general pool (1987, p. 403; cf. 1989, p. 85). This approach raises some hard questions, however, chiefly because of its apparent relation to “strong AI,” the contentious notion that human intelligence can be algorithmically defined (Penrose, 1989; Dennet, 1989). The substitution of mathematical randomness for consciously unplanned experience is a kind of pragmatic afterthought, but it betrays a simplistic model of the mind. Although incompletely specified, Gordon Thompson’s notion of a “serendipity machine” may be more promising (1979, pp. 43—46). It attempts to reach people’s unnoticed interests by tracking their information-seeking behaviour, then offering them contacts similar to those they have already made. Thus, in common with the randomizer in Lens, Thompson’s machine assumes that people know more than they know they know (Nisbett and Wilson, 1977). It goes beyond Lens by assuming that “unconscious” knowledge influences action, so that behaviour can be used as a means to self-knowledge.

The conventional interest group, such as a ListServ seminar, comes with much less assistance but offers in fact a much greater potential. If well defined and managed, it stimulates thought with an unpredictable flow of conversations on matters beyond any one person’s competence but unified by the overall topic or discipline. How, then, can information overload be handled within the group, given the absence of topical mechanisms? As I will explain later, HUMANIST’s low-tech, labour-intensive solution has been to provide a simple dynamic structure of message-groups — a kind of map — that allows the reader to survey incoming mail and sort through it quickly and easily. ListServ’s virtue of mingled topics has thus successfully been preserved for HUMANIST so far, although continued growth in the volume of proceedings may require some new mechanism.

Another important feature of ListServ is that it implies no charge additional to what users pay for academic e-mail itself. In most places this means that participation in a ListServ seminar is free, but in locations remote from Europe and North America, e-mail may be an expensive privilege. At one time HUMANIST had several members in Australia and New Zealand, for example, but they were forced to resign because of a per-line charge each member there incurred. (Since these resignations, at least at the Australian National University charges have been institutionally covered, however.) Discussion of this problem on HUMANIST clearly demonstrated the inhibiting effect that charges have even on the most responsible members. Suddenly forced to be aware that each word sent to HUMANIST meant charges levied on colleagues ‘down under,’ other members showed
signs of impatience with rambling, serendipitous interchange.

My basic point here is that direct charges exert a kind of control that resembles other forms of external censorship. Such control is highly undesirable because it inhibits the formation of ideas before they can be adequately worked out. Throughout most of its history, HUMANIST has shown that with some editorial presence, self-control is usually all that is needed. On occasion, collegial pressure has been sufficient to bring an objectionable member to his or her senses, or at least to silence, but human nature being what it is, decisive action from the editor — what one member called "the supreme court effect" — has at times been unavoidable. I will return to the role of this "supreme court" later.

The History of Humanist
The founding members of HUMANIST certainly did not come as experts to the experiment and chose ListServ from several alternatives after mature deliberation. ListServ was simply what happened to be available in Toronto when, new to the whole business, I volunteered to set up some form of communications following a spontaneous meeting at the International Conference on Computers and the Humanities in Columbia, South Carolina, April 1987. At this meeting, a group of about two dozen individuals responsible for support of humanities computing at various institutions gathered to discuss their professional concerns. They discovered many in common — especially the lack of proper academic recognition — and with a strong sense of unanimity formed the Special Interest Group for Humanities Computing Resources (SIGHCR), which later won the joint sponsorship of the Association for Computers and the Humanities (ACH) and the Association for Literary and Linguistic Computing (ALLC). HUMANIST was intended to keep this interest group intact. The original HUMANISTS hoped that others like them — non-academic staff, Ph.D.s without academic employment, and untenured faculty — would join and that together they could change the world.

By September of that year, however, tenured faculty, directors of computing centres, and other well established sorts began to join HUMANIST in significant numbers. This was a crisis of identity for the new group, which was planned to be a voice representing a minority to those in power. With good advice from friends, and a very strong intuition that I have never regretted, I decided not to constrain HUMANIST to its original purpose but to let it find its own identity. Had I kept it "on track" it would, I think, have died of exhaustion against the thick, hard, and very cold walls of the institution. Thus HUMANIST's first lesson in the limitations of conscious purpose.

HUMANIST was formed with little knowledge of networks but strong convictions of what a network for humanists should be like. As editor I was convinced that an e-seminar would gain respect and attract thoughtful people only if it were itself to embody what it sought: mindfulness, and love of language, including respect for spelling, grammar, style, and accuracy of expression. The highly interactive nature of the medium determined that examples would be more effective than rules or conventional editing, so I set about to cultivate a distinct editorial "voice" that would indirectly suggest the level of discourse proper to the e-seminar. I was greatly aided in my efforts by an uncommonly able and responsive membership. The time was right for the experiment, the people waiting for the opportunity to engage in it.

Throughout its Canadian tenure, HUMANIST was populated chiefly by people from somewhere else, namely the United States. With a typically Canadian determination to be multicultural and with the help of a vocal British contingent, HUMANIST nevertheless managed to resist the tremendous pull of the American cultural magnet and become a citizen of the world. HUMANIST's first 100 members were from 9 countries; its membership at the time of writing — well over 1000 registrants from about 25 countries (see note 13) — is distributed across all continents except Antarctica. Currently Humanist includes, for example, members in Egypt, Yugoslavia, Singapore, Iceland, and Brazil. Approximately two dozen "members" are research institutes, universities, or other redistribution points, so the actual audience is much larger than the official figures might seem to indicate.

The lingua franca has, for obvious reasons, always been the lingua anglica. At one time a brief
flying at true multilingualism was tried, including some jokes in Danish, but was abandoned. Use of other languages than English has consistently been encouraged, however, and occasionally the odd note in French, German, or Spanish will circulate.

From the beginning admission to HUMANIST was determined by regulated self-selection. No applicant has ever been refused, but unlike many ListServ groups (to which people subscribe themselves), those interested have always had to ask the editor for the privilege. Respect for the group and the medium, rather than objection to the additional barrier, have tended to follow. In the beginning, applicants would often petition me by describing themselves and their fitness to participate; from these fascinating descriptions evolved the so-called “HUMANIST biographies” that have been a regular feature of the seminar since the end of June 1987. Submission of a biography quickly became a requirement for membership, thus another opportunity for self-selection, and an effective means of defining and strengthening the new community. In January 1988 James Coombs (IRIS, Brown) wrote VM/CMS software to allow for convenient searching for particular biographies in the rapidly growing collections. One year later Steve DeRose became editor of the biographies and subsequently organized a team of volunteers and subsequently organized a team of volunteers to fill out, and wrote an ingenious HyperCard stack to search and display the biographies in a number of ways.

The character of HUMANIST formed rapidly. The first statement of purpose (still circulated, essentially unchanged, as part of a larger document) was published within the first week, and the first query for information followed a week later. Before the beginning of the Fall term 1987, when at age 4 months it had just gained its first 100 members, humanists had discussed electronic publication, professional recognition for humanities computing, setting up humanities computing facilities, the conflict of arts and sciences, textual markup, and copyright — all topics of recurrent interest, urgent and difficult to resolve. The first call for conference papers was distributed in mid June, the first intentional joke told at the beginning of July, the first request for an electronic text at the end of August, and (I am happy to say) the first act of editorial censorship not until more than a year later. The tone of discussions tells the tale more immediately, but that is something I cannot describe.

HUMANIST ran unmoderated, distributing its mail automatically piece-by-piece, for the first 6 months. Then, in mid November 1987, it was overwhelmed by a large quantity of electronic junk mail, automatically produced by software reacting to network errors. Junk mail had first shown up within the first week of HUMANIST’s life, one day before the first message from someone outside Toronto was successfully distributed. The major flood in November forced me to step in and become moderator, which at first meant simply “human bulwark against the techno-barbarian deluge.”

The annoyance caused by junk mail may be related to the larger problem of how people react to quantities of e-mail per se. It is interesting to note that complaints of too much mail occurred first in mid June 1987, when the volume was less than 5% of its current level. Such complaints reached a head in early March 1988, when both computers and humans were showing signs of imminent collapse. Several steps were then rapidly taken. The most important was the editor’s decision to group messages roughly by topic and so to reduce the their number — though not their total volume. Digesting software written by Michael Sperberg-McQueen (University of Illinois at Chicago) helped greatly to simplify the clerical work involved in bundling messages.

Together with new conventions for use of the “subject” line of each organized bundle, the resulting digests provided members with the structural map that I referred to earlier. Note that this is a dynamic map, since the editor groups messages each day to reflect the subjects of discussion. No predefined subject categories are imposed, although certain kinds of messages, particularly announcements and queries, are regularly grouped together by genre instead of subject.

The greater level of organization these digests reflect immediately made HUMANIST a more formal instrument and so sparked numerous protests from those who felt that any kind of formality restricted freedom of expression, e.g., by categorizing messages at all. (This is an interesting object of study for research from the early 2000s on how such mail management systems curtail freedom of speech.)

Not only did the new medium — an actual implementation — work — it was so successful that it was adopted by Indexer. In June 1987 the editor declared that the seminar had become a community, and the earliest member became moderator, which at first meant simply “human bulwark against the techno-barbarian deluge.”

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objection, to which I will return.) In any case the result seems to have been to reduce the volume from about 500,000 bytes/month to about 200,000. By Fall 1988, however, the volume of mail had almost returned to previous levels — but curiously without the same sense of crisis.

Note that almost all of those who objected to the high volume in March 1988 did not drop out — as far as can be determined, the rate of growth was not affected (see note 18 above, however). Indeed, complaints of excessive volume have declined almost to zero as the volume itself has continued to increase. Why is this? Certainly, as in the studies surveyed by Hiltz and Turoff, a significant part of the membership has had the opportunity to develop the necessary “screening skills” for dealing with quantities of e-mail, but the marked decline of complaints once digesting was introduced suggests a direct relationship between the undigested nature of the former output and the anxiety of information overload.

Perceptual overload would, of course, be a crippling problem in general if we were not able to be selectively “aware” of our environment. What actually happens to perceptual input is beyond my scope, but obviously we are able to ignore huge quantities thoughtlessly while at the same time not filtering out what is required to stay alive, keep our jobs, and so forth. We seem to succeed by virtue of knowing the unchanging, recurrent, predictable elements of our environment. Before HUMANIST began digesting messages, it provided members with no means of predicting what they were going to see next. It subjected them to what Hiltz and Turoff call information entropy, “whereby incoming messages are not sufficiently organized by topic or content as to be easily recognized as important or as part of the history of communication on a given topic” (1985, p. 882). Digesting, I have suggested, solved the problem of information overload not by reducing the amount or eliminating topics but by providing a conceptual structure or paradigm, variable in its details but familiar overall, to make the daily mail comprehensible.23

We need to think about the notion of a “paradigm” in a more basic sense as well. Why is familiarity apparently so important in the e-seminar, when none of the messages is even remotely threatening or urgent, as might be a note from one’s dean? Deleting a message is, after all, trivially easy — physically, but perhaps not mentally. I would like to suggest that the basic problem here is that we lack a formal understanding of irrelevance as it applies to the medium in question. To quote Heraclitus, “those who seek gold dig up a great deal of earth and find little” (fr. 22). How do we determine what is “dirt” in different media, and how do we react to it?

The diversity of HUMANIST’s community may make for a particularly high degree of irrelevance for any given individual, one suspects. I am arguing, however, that prior to the problem of conceptual organization, there is another caused by assumptions silently carried over from our experience with printed texts. The conversational record of an e-seminar, although it is a kind of text, is fundamentally different. It is mutable and experienced as transitory — (therefore demanding to be acted on), despite our storage and retrieval mechanisms, which in any case are exceedingly primitive. In some ways, of course, the immutable text of books is harder to get to, since e-text can be scanned for keywords, using operators of various sorts. Indeed, electronic searching may be orders of magnitude faster, but only for finding what can reliably be keyed to specific words or collocates. In practice, recall based on words is far too crude an instrument — as Vannevar Bush said, “a stone adze in the hands of a cabinetmaker” (1965, p. 92) — to overcome the sense of impermanence naturally associated with something recorded in a highly changeable medium and reconstituted dynamically on relatively expensive and delicate equipment, and quite possibly hard to get to. With printed text, we know we can get it back any time by turning to the right page; even if we do not know which page that is, we know the text is there — and that with minimal maintenance it will be just as readable by our great-grandchildren. (Who now can read a CPM disk? How certain can we be that anyone will be able to read a CD-ROM in 20 years?) Of course we can print out an electronic text, but the very fact people do just that helps to make my point. Furthermore, going between media is not a transparent process, as any editor who receives contributions electronically will know. The difficulties are slight but often a sufficient impediment.
The anxiety of information overload, then, originates partially in the frustrated desire to preserve the transitory and so points to our need for a model to tell us what e-mail is, what to expect of it, and so how to handle it. This, to my mind, is the central problem — or meta-problem — that HUMANIST illuminates. Members of the seminar themselves suggest this meta-problem in what they have admitted about their uses of its output.

Uses of Humanist

Complete evidence of how people are affected by HUMANIST or what they do with its output is very difficult if not impossible to collect. As in the classroom there is no way of knowing what may come of what is said, and because of redistribution we cannot even know of everyone to whom it is said. We can, however, logically identify four kinds of uses: social, professional, political, and intellectual — although these cannot be separated cleanly. As in any academic gathering, all four levels are intimately interrelated.

In available reports, the significance of HUMANIST is often identified with “networking” in the inclusive sense of relating to a community of like-minded individuals. Relationships among members may seem to have a purely social dimension, but the society or community HUMANIST has helped to form is professional by definition and intellectual by nature. Collegial interchange is consistently given high marks and has been compared to memorable discussions in senior common rooms or, with some nostalgia, to all-night philosophical ramblings in the dormitories of one’s youth. Discussions and arguments on HUMANIST, e.g. over such issues as scanning and encoding of texts, apparently aid research by helping to work out basic problems central to the discipline. We know that this happens through informal “research networks” set up by the most productive scientists, but for the humanities there is no reliable evidence that I am aware of.

Team research and multiple authorship are far more characteristic of the sciences than the humanities, of course, but the ease and speed with which texts can now be shared may change that.

All members seem reasonably clear that HUMANIST is not a serious venue for career advancement except indirectly, by assisting research, occasionally publishing a job announcement, or perhaps by bringing a frequent and persuasive contributor to the attention of others. Contributions to HUMANIST, however good, do not belong on a curriculum vitae. We might be inclined to bemoan this, and to strive for a more official, less peripheral status for the e-seminar (Tombaugh, 1984, p. 142), but this status may well be a blessing in disguise.

Existence on the periphery, however unstable and uncertain, is also privileged and should be treasured. It is far less bound to the relentless demand for productivity, which is based on the pernicious assumption that intellectual activity is strictly analogous to physical labour, particularly in its mechanized form. (An argument against this analogy is eloquently articulated by Josef Pieper.) Peripheral status allows for the “serious play” that seems always to have been at the core of teaching, learning, and discovery, if not at the root of human culture; and which is in my mind one of the most promising characteristics of HUMANIST and other such groups. In this respect HUMANIST apparently answers to a creative need modern academic society rarely satisfies. Furthermore, most journals have become too expensive and competitive a medium for highly tentative or experimental work. HUMANIST has been used occasionally for the working out of experimental ideas, but it is far too early to tell how significant a phenomenon this is.

Academic politics, as I noted earlier, originally motivated the founding of HUMANIST but quickly became a minor concern; in any case, the international context makes most such issues irrelevant. National politics have occasionally surfaced, but such things are rarely of interest to the larger community. In the early history of the group international politics had to be decisively ruled out when provocative and quite silly remarks about the supposed immorality of travel to a certain country threatened the success of an international conference. This and a few subsequent incidents have been serious enough to bring the notion of editorial control or “censorship” under repeated discussion. At one point Milton’s Areopagitica was cited both to argue the case for “unlicensed publishing” in the new medium and to strengthen the point that contributions which
immediately threaten to destroy the group should not be circulated. Remember that HUMANIST throws together people from widely different cultures and with very different customs and assumptions. Peace must sometimes be kept at the expense of “free” speech.39

It might be argued that over and above individual profit, the real usefulness of HUMANIST and its like comes from the fact that they are open channels of communication where nothing remotely similar existed before, never mind the substance of what they communicate. Certainly, their real significance is difficult to determine at this early stage and can hardly be known by calculating a “signal-to-noise” ratio. To put it another way, if the telephone were in question, would it be possible to assess its significance from transcripts of random conversations or testimonies of more vocal users?30 Would the cultural impact of the automobile or railroad be illuminated by studying specific instances of where people travel and what they accomplish for themselves by so doing?31 Would we rightly regard such inventions as worthy of serious attention only if it were shown that users were made more productive thereby? As the anthropologist Jan Vansina has pointed out, it is first necessary to understand the character of a tradition before we begin worrying about the truth value of what it transmits (1985, pp. 82—83, 153).

Towards a Paradigm
The character of HUMANIST’s “tradition” is the inherent nature of e-mail as our technology currently determines it. I have made some observations about the transitoriness of the medium, but now I would like to take a closer look at how HUMANIST has interacted with and exploited it.

Experience confirms what the literature repeatedly insists: that although characteristics of the medium are in themselves found elsewhere, e-mail presents a unique mixture of them and therefore has a unique nature. Over the last three years disgruntled HUMANISTS have been especially helpful in illuminating this uniqueness by their inability to see it.

Within the first few months of its history, complainants sorted themselves into two doctrinally opposed groups. The “radicals” (as I will call them) tended to declare that HUMANIST should provide a totally unrestricted forum for discussion, without any formal structures whatsoever, the “reactionaries” (again my term) that material of insufficiently high quality should be rigorously excluded.32 In essence, both groups appeared to be interpreting e-mail as a variant of a former medium — for the radicals it was oral conversation, gloriously magnified; for the reactionaries, formal publication, wonderfully cheaper and faster — but neither really saw it as something new.33 They tended to see divergent features of the new medium as faults. Some had ideas about how these faults could be repaired; others took them as evidence of irreparable shortcomings, hence the unimportance of the whole enterprise HUMANIST represents.

To critics whose minds are thus polarized an e-seminar like HUMANIST appears an odd mixture of promise and imperfection. In the reactionary vein, it accepts topical groupings and mindful use of language as necessary and proper to keep the e-seminar from disintegrating into prolix stupidity. Similarly, it tolerates the occasional withholding of inflammatory material or cutting short of pointless discussions as nurturing the potential of the medium rather than violating it. In the radical vein, HUMANIST indulges a high degree of apparent irrelevance, wild opinion, and playful wit. From this perspective, irrelevant material is not only to be expected, it is a necessary feature of a properly functioning seminar, especially since we can seldom say what, in a mixed throng, will be irrelevant.

Manfred Kochen speculated in 1978 that “the form of linguistic communication used in computerized conferencing may be neither conversational speech nor formal writing but a new linguistic entity with its own vocabulary, syntax, and pragmatics” (1978, p. 23). I have argued that it is just such a new entity, but until it is well understood, seeing double and speaking in riddles seems to be unavoidable. To talk about a new technology at all, we seem to require such kenning as “iron-horse,” “horseless carriage,” “electric light,” “artificial telephone,” “electronic brain” — indeed, “electronic mail.” I have spoken, for example, about the “editing” of a “seminar” in order to describe a combination of altering text with guiding discussion, this for a “virtual” gathering of
participants who are invisible, mostly otherwise unknown to each other, and often separated by thousands of miles and divergent cultures. Nevertheless, we must take care to remember that the new thing itself is not in fact a mixture, and although it may be used as a replacement for something older, its inherent tendencies push in another direction altogether. In this direction lies the paradigm we seek.

It is quite difficult to distinguish such inherent tendencies from what is merely accidental to the current manifestation or even from a specific application of the tools at hand. The early doctrinal split on HUMANIST between “radicals” and “reactionaries” may help, however. It suggests two broad categories that would seem to hold as long as alphabetic characters are the sole means of interchange: on the one hand, conversational elements; on the other, textual. By “conversation” I mean the dynamic and responsive exchange of words among a group of people, or what Rafaeli identifies as the “interactive” potential of a two-way medium. By “textual” I refer simply to the fact that this conversation takes place and is recorded in alphabetic code.

To the extent that the real book is a living thing, as Milton argues in the Areopagitica, it converses with the responsive reader. The printed or handwritten text, however, is stable in time, while conversation normally vanishes as soon as it is spoken, or if transcribed from ordinary speech, reads very poorly. (Note how it reads.) Electronic discourse shows characteristics of both: it leaves a relatively stable, though potentially mutable record, but its potential for interactivity, the extremely crude mechanisms for recall, and the volumes of it that quickly accumulate give it conversational dynamics. What Ong calls the “psychodynamics of orality” thus seem to appear alongside textual features (1982, chapter 3).

The proceedings of the e-seminar exhibit Ong’s notion, for example, by tending to be redundant and homeostatic, periodically repeating matters formerly discussed and allowing others to vanish from discussion (1982, pp. 39—41, 46). In part repetition can be attributed to new members, who join with some of the same old questions, but in part to members who simply forget — and who, at least on HUMANIST, will occasionally apologize for so doing. In any case, they tend not to check, although this is possible through the logbooks, probably because checking takes too long.35 On HUMANIST two kinds of mechanisms have been developed to supply a more accessible form of external “memory”: lengthy reports summarizing the discussions, and topical notebooks, both kept on the file-server.36 These topical notebooks and others kept privately by members have been used, for example, in research on copyright issues and on desiderata for advanced workstation design. Here is an example not of conversational deficiencies being remedied by a textual supplement, since the conversations go on mostly without reference to the text, but of a bivalent medium allowed to function both conversationally and textually.

Electronic discourse is also more conversational than textual in its frequently agonistic tone37 and in both its empathetic and participatory nature.38 Paradoxically, such tendencies in e-mail appear to originate not from the kind of semiotic richness characteristic of face-to-face conversation, but from precisely its opposite. As Sproull and Kiesler note, “all communications media attenuate to at least some degree the social context cues available in face-to-face conversation” (1986, p. 1496),39 but e-mail is semiotically poorer than most if not all other media.40 The absence of these cues implies freedom from the pre-existing social structures to which they refer, hence a group constituted electronically is free to reform them on a new basis. Conventions of behaviour thus, as on HUMANIST, may become an urgent matter for public discussion to keep the group from disintegrating in the heat of argument.41 The lack of inhibitions that tend to result can be liberating, however, if they are properly channeled.42 Particularly in the international e-seminar, where individuals will tend not to know each other at all, the individual is free to construct an “electronic persona” using the persuasive force of ideas and arguments alone. Who you are is then a matter solely of what you say — until, at least, your name becomes a cue.43

Lack of inhibition is also increased by the tendency in electronic groups for “speakers” to lose quantitative awareness of their “audience.”44 (Although the author of a printed publication is similarly unaware, the conversational element of
the e-seminar makes for different consequences.) A contributor may know that the group has many hundreds of members, but he or she is without the visual and audible reminders continuously given by a physically present crowd. Besides, in the ListServ seminar, the "speaker" literally addresses the group as a single entity (e.g. Humanist) or, curiously, may address the editor by name as if the editor were author of all messages. In another sense as well the boundaries of the audience are indeterminate, as they are for a book, because circulation cannot be controlled. The development of the biographies on HUMANIST might seem to counteract the "disappearance" of the audience, but the biographies are not simultaneously present to the contributor when he or she is speaking and so cannot have the effect of an audience.

The metaphor of gold mining suggests, you will recall, that irrelevance is simply to be accepted as a feature of the activity. Until a member of an e-seminar is trained to delete the proceedings almost as if they were conversation disappearing in the act of being spoken, and to accept irrelevance as a qualified feature of the medium, information overload is likely, as I have suggested. But how do we qualify irrelevance? Experience with HUMANIST suggests that the communal identity, once established, defines it; or in other words, by discovering what the group is willing to talk about, members discover what the group is about. Within the broad scope of communal relevance, however, the gold-mining metaphor ceases to apply when we notice that what is "dirt" to one electronic miner may be gold to the next (Hiltz and Turoff, 1985, p. 683; Shapiro and Anderson, 1985, p. 10). This is, of course, proverbial — one person's meat is another's poison — but it is a radically apt proverb for a diverse community of communicants in which everyone receives what everyone else sends.

Thus there is not one criterion of irrelevance but potentially as many as there are participants in a discussion. Furthermore, since in the cross-topical forum discussions are apt to reveal surprising, serendipitous interconnections, any one member's evaluation is likely to change. In short the whole notion of what is relevant and what irrelevant becomes problematic, and for this reason Hiltz and Turoff declare that "no auto-

Recommendations
From the editor's perspective, HUMANIST has taught us some practical lessons about use of the new medium not just for humanities computing but for humanistic interchange in general. Let me summarize, then, by focussing on four basic issues for editors and members of electronic seminars to consider. I will then conclude this paper with an appeal for what I think the central mission of the medium might be for the humanities.

1. What do we look for in the serious use of an electronic seminar?
I have argued that we value the combination of attributes which most nearly exploits the potential of the medium, keeping our scholarly needs and desires foremost. Thus on the one hand, we look for truly interactive conversation, with the aim of discovery rather than achievement, characterized by association of ideas rather than proof or close argument; on the other hand, careful use of language and scholarly care with facts, arguments, and organization. We distinguish the e-seminar both from the electronic journal, which emphasizes finished work and may be systematically reduced to hardcopy, and from those "news-groups" whose studied formlessness and lack of direction make them too diffuse to be useful to our colleagues. We allow for the role of serendipity and serious play in research, and so value it in the electronic seminar, and we strive to recognize conversational elements such as repetitiveness and agonistic tone as proper to the medium, not as signs of failure. In general, we want to avoid "anticipatory control" of something we do not
adequately understand (Thompson, 1979, p. 15), and rather attempt to discover what the medium is good for.

2. How should it be managed?
The emergent model implies that the techniques of the moderator-editor selectively combine the practices of both journal editing and seminar leadership. Thus, standards are much more effectively applied by example than by censure, taking advantage of the exemplary force naturally attributed to editorial contributions. In any case, the truly interactive character of the medium, if it is to be preserved, leaves no time for peer-review, and editorial selection tends to shrink discussions to the narrow compass of the editor’s own interests. A large electronic group normally entertains several discussions simultaneously and so requires something analogous to the partitioned structure of a printed journal — but one which reflects the changing preoccupations of the group rather than fixes them. Its combination of oral and written modes, however, makes the electronic seminar especially susceptible to inflammatory and prolix rhetoric. Thus the editor must monitor discussions carefully and occasionally turn aside contributions or whole topics. Even more care is required to quiet a distraction, since the intellectual qualities of an electronic seminar intimately depend on the members, sense of externally uninhibited thought and speech.

3. What conditions are required for its success?
Since the electronic group is not associated with a physical meeting place or other spatial reminder (Finholt and Sproull, 1990, p. 42), its existence depends on a temporal one — frequent activity. Studies of such groups usually suggest that two things are thus required: a “critical mass” of people interested in talking with each other, and an active moderator or editor to provoke and guide discussions. Attracting and keeping the “critical mass” depend in turn on the scope of discussion and its “tone.” Minimum scope is difficult to predict: a highly specialized seminar may successfully continue on the basis of a single problem or situation, but broad appeal implies a wide range of involved or inexhaustible topics. “Tone” eludes precise definition, but it seems to depend on what the editor or other talkative individuals communicate through style as much as content. A certain tone becomes associated with the group it helps define, but because the group is dynamically reconstituted, the editorial persona continues to play a vital role.

4. What material and physical support is needed?
Apart from the human support a seminar requires, adequate mainframe facilities, including software, technical help, and reasonable connection to the academic networks, are obviously essential, as are free or very low-cost e-mail accounts to members. Although in parts of the world such support can now be taken for granted, its continuation is not guaranteed and may have to be argued for. Access to academic networks varies country by country and may be limited for economic, technological, or legal reasons. Since the academic community is immeasurably enriched by its international scope, attention needs to be paid to the development and extension of networks throughout the world.

Conclusion
As in other aspects of academic life, the more limited our world geographically the smaller it is intellectually. Just as preoccupation with local politics militates against international relevance, so an international seminar allows us to leave behind “politics” in the narrow sense and attend to an electronic polis of ideas instead. HUMANIST has demonstrated that e-mail can be a powerful instrument for intelligent discussion of such ideas precisely by drawing upon characteristics inherent to the electronic medium and by striking a particular balance. Because the electronic medium is so new as a cultural phenomenon, it appears paradoxical, simultaneously like stable text and dynamic speech. A model or paradigm that recognizes both aspects is necessary, I have argued, to understand when it is working properly and how to make use of it more widely.

This understanding is more vital than I may have indicated. HUMANIST, for example, has been run free of charge, and free of any granting programme or agency, first by the University of Toronto, now by Brown University — their gift, if
you will, to the international community HUMANIST helped to discover. Such gifts are seldom given, since institutions tend to look to themselves, especially when money is not plentiful. If we are to convince our institutions to support things like HUMANIST, then we have to be able to say what it is that they are being asked to support and so to justify the expense. We must be able to argue convincingly that what may at a glance seem an endless procession of unjustified opinions, unsubstantiated arguments, and irrelevant serendipity just might be the sound of ancient humanism rebuilding itself out of new materials — and that the chance is worth taking. Our case will depend further on our ability to make clear the crucial role of philosophical leisure to cultural vitality, hence ultimately to our survival, in a world accustomed to measure an academic’s value by essentially the same standards as the automobile worker’s.

I indicated at the beginning two easy ways to avoid the difficult work of understanding the new medium: either by dismissing its radical newness as an illusion or by attributing to it an autonomous, irresistible power. In an attempt to resolve what might be the inherent nature of the new medium, I have construed this irresistible power chiefly as technological potential, but there are other determinisms to be considered, e.g. economic profit, social desirability, and cultural force. As is clear from the development of the telephone, however, no single factor is involved, nor are we simply at the mercy of an inevitable development (Pool, 1977, pp. 66—8). Unlike historians of the telephone, we do not have the benefit of a recorded past to puzzle over and so can hardly even begin to separate what is determined from what is free. Our choices may not be certain, but we can be sure that one of them is to let them be made for us, and that is clearly undesirable. The best we can do, perhaps, is what we are now doing, in increasing numbers: conduct many other such experiments and observe carefully what happens, keeping always in mind what we desire. E-mail, like other applications of the computer to the humanities, offers us the opportunity to reexamine what we are about and so at least to choose a direction. Towards more of the same or something else?

I interpret the first three years of HUMANIST as a sign that in the minds of many of us the most important obligation of a university is still to allow for the life of the imagination to be lived, against all the devilish odds it faces from all quarters. As more than one writer has recently argued, universities are in serious crisis, and not just or even primarily for financial reasons. Academics inclined to debate the unanswerable questions of the humanities — the discussing of which tends not to advance one’s career — require the wherewithal. Ironically the very device which once seemed a dehumanizing juggernaut now seems to offer a humanizing channel of communication. I suggest that we can ill afford to misunderstand or misuse the powerful instrument of electronic mail in our struggle to keep the community of scholars together, like the blind Milton’s fallen poet, “with darkness and dangers compassed round”, wherever they may be found and so to further the ideals with which we have been entrusted since the beginning.

Notes

1 This essay was originally delivered as a paper at the convention of the Modern Languages Association, Washington, DC, December 1989. A substantially different version was given as a plenary address at “The New Medium,” the second annual conference of the Association for Literary and Linguistic Computing and the Association for Computers and the Humanities, in Siegen, Germany, 10 June 1990.
2 For a comprehensive survey of networks, e-mail, and conferencing software see Quarterman, 1990. See also Katzen (1982); Tombaugh (1984, pp. 129—31); Caswell (1988). Because of local variations in software, no general introduction to e-mail can be completely satisfactory.
3 Founded at the University of Toronto, Canada, HUMANIST was moved to Brown University in April 1990 and so is now known as Humanist@BrownVM.Brown.EDU. HUMANIST, an official project of Brown University, is co-edited by Elaine Brennan and Allen Renear, with the help of Steve DeRose (biographies), Eli Mylonas (topical collections), Geoffrey Bilder and Sebastian Heath (remote access), David Durand (software), David Sisman (ListServ), and Lou Burnard (usage statistics and summaries of activity). HUMANIST also has an international advisory board. To apply for membership, send a request to Editors@BrownVM.Brown.EDU.
4 The standard bibliographies are Steinfeld and Rice (1980); see also bibliographies and sources in Johansen, Vallee, and Spangler (1979, pp. 225—44), with the interesting tabular summaries of scholarship, pp. 148—91; Critical Connections (1990). Trends in the study of electronic media are discussed by Williams, Rice, and Rogers, who note the paucity of
attention to the intellectual history of communications research (1986, p. 16).

Complaints about the immaturity, poverty, insufficiency, or unsystematic nature of existing studies have been a regular feature in the literature since at least 1974. Mackay (1988) argues that although several substantial effects of e-mail have been demonstrated, the total effect of the introduction of electronic mail is not well understood. The sociolinguistics of conversation, essential to a thorough grasp of e-mail, is likewise a new subject, especially as it involves individuals of widely diverse cultural backgrounds (Gumperz, 1982, pp. 1–8).

"Information overload" may be defined as the state in which an individual recipient cannot cope with incoming messages and perceives the cause to be related to their volume. See esp. Hiltz and Turoff (1985), who comment on Denning (1982); also Mackay (1988); Malone et al. (1987); Critical Connections (1990, pp. 235-7); Shapiro and Anderson (1985 p. 19). Reviewing the crisis of overload in 1967, Vannevar Bush remarked that storage and retrieval are not so much the problem as "how creative men think, and what can be done to help them think" (1965, pp. 750). Overload, then, is related to our understanding of the medium, as I argue below.

For Information Lens, see Malone et al. (1989); see also Lai, Malone, and Yu (1988) on its successor, Object Lens.

The difficulties of assessing the technology and understanding its long-term implications are discussed by Rafaeli (1986, pp. 125–7); Westin (1980). Advantages and limitations are discussed by Kaizen (1982, pp. 186); and Heim (1986). Lanham argues that the computer is "intrinsically a rhetorical device" and that its most powerful influence on modern thinking is humanistic (1990, pp. 34, 38). See also Heim (1988).


As Rice points out, analyses tend to assume falsely that information is objectively separable from the participants who communicate it and for whom it has meaning (1987, pp. 71f); see also Ong (1982, pp. 79–81).

The social impact of electronic communications is thoroughly surveyed in Critical Connections and The Information Gap; see also Hiltz and Turoff (1985 pp. 688f); Freeman (1984); Kay (1991).

Quarterman (1990, pp. 79–80); on distribution lists more generally, see Finnell and Sproulf (1990).

Quarterman reports that as of December 1989 there were about 1340 sites for BITNET/NetNorth/EARN and related networks, thus probably at least half a million users. He notes, however, 812,000 readers of the USENET mail system for UNIX, and more than 1,000 networks on the Internet system, which probably translates to about 100,000 machines and somewhere between half and one million users (network communication from info-matrix@aaas.hc.com, 16 February 1990).

For the related idea of “remote learning” or “distance education” see Critical Connections (1990, pp. 197–9). The Virtual Classroom project as described in Hiltz’s research report.

For each list the server maintains logbooks in which are automatically kept all published messages from that list. The editor of the list may in addition store other files there by explicit command.

These have included, for example, conference calls, bibliographies, topical collections of messages, and back issues of electronically published newsletters or columns, such as Offline, written by Robert Kraft (Religious Studies, Pennsylvania) and co-published in Religious Studies News.

Quarterman (1990, pp. 141); Rafaeli (1986) provides a useful study of the BBS but does not distinguish between it and other kinds of computer-mediated communications media; see also Richardson (1990, pp. 2–3); Wood and Blankenhorn (1990).

ListServ does not keep a cumulative record of those who have either unsubscribed themselves or requested removal from the group. It does provide a way of suspending a member’s mail temporarily (the NOMAIL function), but I was unaware of this during my editorship and so routinely removed members from the list altogether when subscribed them again on request, as if they were new to the group. Thus I rendered the recorded date of joining the group unreliable for purposes of calculating growth and dropout rates. All that can be said is that the total number of members appeared to be increasing steadily over time. My clear impression is that the number of permanent dropouts was very small.

A kind of subdivision by subject may be achieved through ListServ by using a structure of linked sub-lists, each of which is devoted to a particular subject; a user may then receive only a chosen subset of topics by being subscribed to the corresponding sub-lists. The use of sub-lists was explicitly rejected by the membership of HUMANIST, who have consistently elected to keep it a fully cross-topical forum.

The executive committee of the SIG consisted of George Brett (North Carolina), Michael Sperberg-McQueen (Illinois at Chicago), and the author.

This document is the “Guide to Humanist,” available on-line and in printed form from the current editors. Such a Guide was proposed in late May 1987 and first circulated in mid August of that year; since then it has been sent to every new member along with other introductory materials, as recommended by Feenberg (1986, pp. 6ff).

This software, an XEDIT macro called DIGEST, takes an ordinary “notebook” into which related messages have been filed, deletes superfluous information in message headers and footers, builds a table of contents (with date, volume, and issue number), and attaches it to the front of each “digest.” The editor incorporates the digest into an ordinary e-mail message and sends it to HUMANIST. By convention the subject line of each such message gives the volume and issue number, identifies the overall topic, and specifies the number of lines in the message itself.

Shapiro and Anderson recommend packaging messages in this way (pp. 24f). Hiltz and Turoff note that “Overload and the stress it causes can be mitigated if certain structural design aspects of the interaction space are optimized” and they recommend that systems “should provide tools that can help
users to organize information and set priorities." (1985, p. 68).

24 Shapiro and Anderson discuss the paradoxical combination of volatility and permanence in e-mail (1985, pp. 2, 6f. 12, 14); see also Laham (1990, p. 32f).

25 Paffenberger (1986); Mulkay (1977, pp. 111-17); Kiesler, Siegel, and McGuire (1984, pp. 113f); Hiltz (1980, pp. 48f); Richardson (1990); Freeman (1984); Hiltz (1984, pp. 7-11, 151-62); see also Koenig (1978, p. 23).

26 Note the possibilities explored by Katzen (1982); see also Finholt and Sproull (1990, p. 46).

27 The cultural importance of "serious play" is argued by Huizinga (1950); Pieper (1964); Rahner (1965, pp. 26-45 and passion); and by Callil (1979). For the Renaissance in particular, see Wind (1968, pp. 236-8); see also Mitchell (1983, pp. 215f).

28 For the role of play and serendipity in scientific discovery, see Shapin and Schaffer (1985), and Roberts (1989); see also Holton (1973, pp. 17-20, 369-70, 384-6). The account by A. E. Housman, in which he describes the "unwilled "bubbling up" of his inner "spring" (1935, pp. 49f), recalls the ancient language of poetic inspiration as well as the recorded experience of other poets, e.g., Milton, in Samuel Johnson's Life (p. 100). Play and serendipity in electronic communication are briefly mentioned by Vallee and Johansen (1979, p. 100); Johansen, Vallee, and Spangler (1979, p. 24); Hiltz and Turoff (1985, pp. 683, 685); Rafaeli (1986, p. 127); Finholt and Sproull (1990, p. 61). See Mulkay for the role of unplanned "cross-fertilization of ideas" as an "important source of scientific innovation" (1977, p. 112). On the social and cultural roles of entertainment see Critical Connections (1990, pp. 203-5).

29 Critical Connections devotes considerable attention to the potential impact of new communication technologies on the democratic process in the United States and addresses issues of policy, see esp. chapters 4, 6, and all of Part III.

30 Freedom of speech and press in the U.S. as it applies to the electronic media is discussed in Critical Connections (1990, 78ff and chapter 6). See also Shapiro and Anderson (1985, p. 25).

31 Pool, cited by Williams, Rice, and Rogers (1988, pp. 26f), see also Critical Connections (1990, pp. 29; 183-8).

32 Note Kiesler and Sproull's brief discussion of the perceptual effects of railroad travel (1984, pp. 34-6).

33 These political terms are not intended to address inherent tendencies in oral andigraphic cultures, for which see Ong (1982).

34 Most if not all studies of the electronic medium emphasize its newness, but many fewer examine the causes, and very few, if any, completely. See the perceptive study by Thompson (1979); see also Vallee and Johansen (1974, pp. 104-10); Johansen, Vallee, and Spangler (1979, pp. 17-25); Heim (1980); Katzen (1982); Heimstra (1982); Rice and Case (1983, pp. 142f); Hiltz and Turoff (1985); Shapiro and Anderson (1985, pp. 5-9, 11); Heim (1986); Feenberg (1986, p. 2); Rice (1987); Williams, Rice, and Rogers (1988); Adriamson and Hjelmquist (1988, p. 79); Hufn, Sproull, and Kiesler (1989, p. 1374f); Finholt and Sproull (1990); Laham (1990); Sproull and Kiesler (1990). See also the discussion of "social context cues," below.

35 Rafaeli defines interactivity as the extent to which exchanges continue to be related to the specific form or content of previous ones, thus distinguishing it from bi-directional communication and from simple reaction (1988, pp. 111, 116). Interactivity is a human characteristic, not one of the medium itself, although the media "may set upper bounds, remove barriers, or provide necessary conditions for interactivity levels" (pp. 199). See also Rafaeli (1990); Critical Connections (1990, pp. 34-6); Finholt and Sproull (1990, pp. 54f); Rice (1987); Williams, Rice, and Rogers (1988, pp. 10-12, 78ff, 169-75); Katzen, 1982, pp. 19).

36 ListServ provides a "database" function, but this does not work reliably with lengthy contributions. A diligent member may, of course, download all of the proceedings and search them, but to do so means a time-consuming transfer of voluminous logbooks as they accumulate and clumsy interruption of an e-mail session for the search, which in any case can be only for known terms. Evidence suggests that few members of HUMANIST, for example, ever stop to look.

37 The summarizing of activities was begun by the author in August 1987, the topical collections in September 1988. See note 3 above.

38 As Callil points out, agon or combat is a form of play (1979, pp. 14-17); see note 2 above.

39 See Williams, Rice, and Rogers (1988, pp. 169-75) on interactivity and note 34 above.

40 In addition to "social context cues," writers also refer to "bandwidth," "social presence," and "communication channels." For the effects of attenuating paralanguage, see esp. Sproull and Kiesler (1986); see also Sproull and Kiesler (1991, pp. 119-21); Sproull and Kiesler, (1990, II.Ba); Short, Williams, and Christie (1976, chapter 4 and passion); Sproull and Kiesler, (1986), Kiesler, Siegel, and McGuire (1984, pp. 1125f); Tombaugh (1984, pp. 132f); Critical Connections (1991, p. 191); Shapiro and Anderson (1985, pp. 21f); Finholt and Sproull (1990, p. 44f); Heimstra, (1982, pp. 880-9); Rice (1987, pp. 67, 77-81); Johansen, Vallee, and Spangler (1979, pp. 18f, 21-3).

41 Consider, for example, that although the telegram is equally neutral in appearance, its usage implies urgency, and despite the impersonality of most printed documents, the various non-verbal cues, such as typography, letterhead, publisher's imprint, and quality of paper, communicate social context.

42 Emotional outbursts and heated argument in electronic media are known as "flaming"; see Sproull and Kiesler (1986, pp. 15-8). For HUMANIST I composed the "Guide to HUMANIST," mentioned above, in an attempt to define an acceptable etiquette, and revised it in response to various crises. See also Shapiro and Anderson (1985); Kiesler, Siegel, and McGuire, (1984, p. 1126); Finholt and Sproull (1990, pp. 56f); Spitzer (1986, pp. 20-2).

43 Sproull and Kiesler compare uninhibited behaviour in electronic groups to productive "brainstorming" (1986, p. 1510; see also pp. 1497ff); Kiesler, Siegel, and McGuire (1984, pp. 1126, 1129-30, 1132); Finholt and Sproull (1990, pp. 45f, 59); Spitzer (1986, p. 20); Kiesler and Sproull (1984, p. 231); Dubrovsky, Kiesler, and Sethna (1991). For
the positive effects on organizational commitment, see Huff, Sproull, and Kiesler (1989).

Spitzer (1986, pp. 19–21). Some groups establish anonymity or require use of nicknames. On several occasions, members of HUMANIST have insisted that others always give their real names so that they may be addressed as people rather than as cyphers. See Shapiro and Anderson (1985, pp. 17–19); Hiltz, Turoff, and Johnson (1989).


Hiltz, Starr Roxanne. “The Virtual Classroom: Initial Explorations of Computer-Mediated Communication Systems as an Interactive Learning Space.” (One of several research reports available from The Virtual Classroom, Computerized Conferencing and Communications Center, New Jersey Institute of Technology. Newark, NJ 07102.)


