Uses of Electronic Communication to Document an Academic Community: A Research Report

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Résumé

Le *Bentley Historical Library Computer Conferencing Appraisal Project* (NHPRC Subvention no. 91-113) a débuté en septembre 1991. Ce projet visait à explorer le potentiel des conférences informatiques an niveau intellectuel, culturel, et celui de l'environnement social des collèges et universités et de faire des recommandations quant à leur évaluation et à leur acquisition. Les deux principaux objets du projet étaient d'abord de placer la Bibliothèque Bentley devant les défis archivistiques (à la fois intellectuels et pratiques) que représentent les communications électroniques à l'Université du Michigan et ensuite, de relever le niveau de discours à l'intérieur de la communauté archivistique du collège et de l'université quant à la nature et à l'administration du matériel généré par les communications électroniques. Cet article brosse une vue d'ensemble des systèmes de conférences informatisées plus particulièrement celui du logiciel CONFER II utilisé à l'Université du Michigan aussi bien que dans d'autres institutions académiques et non-académiques et présente la méthodologie et les principales conclusions du projet. Cet article souligne également quelques questions soulevées par le projet susceptibles d'être communes à la gestion archivistique de la communication électronique.

Abstract

The *Bentley Historical Library Computer Conferencing Appraisal Project* (NHPRC Grant No. 91-113) began in September 1991. Its aims were to explore whether or not computer conferencing has potential to document the intellectual, cultural, and social environment of colleges and universities, and then to make recommendations regarding the archival appraisal and accessioning of such materials. Two larger purposes of the project were 1) to propel the Bentley Library into facing the archival challenges—both intellectual and

practical—presented by electronic communication at the University of
Michigan and 2) to raise the level of discourse in the college and university
archival community about the nature and administration of materials generated
through electronic communication. This article provides an overview of com-
puter conferencing systems, in particular the CONFER II software used at the
University as well as many other academic and non-academic institutions, and
then outlines the methodology and major findings of the project. The article
also discusses some issues raised by the project that may well be generic to the
archival management of electronic communication.

Introduction

Helen Samuels has argued that the prime responsibility of an academic archives is
to document the functions of colleges and universities. These functions are: confer-
ring credentials, conveying knowledge, advancing knowledge, maintaining culture,
providing public service, socializing students, and sustaining the institution.[1]
College and university archivists with a mission to document their academic envi-
ronments, however, have long realized that, while the administrative aspects of
their institutions tend to be well-documented through organizational records, intel-
lectual discourse, pedagogy, and student culture are not.[2] To translate this realiza-
tion into Samuels's terms, college and university archivists have not been very suc-
cessful in documenting the environment and processes in and by which academic
institutions convey and advance knowledge, maintain culture, and socialize
students.

There are a variety of reasons for the difficulties inherent in documenting these
functions. Almost no administrative records are created that capture the discus-
sions and interactions underlying the genesis and transfer of ideas and opinions in
the many disciplines, professions, and ways of life present on the typical college
campus. The personal papers of faculty sometimes give limited insight into these
areas, through correspondence, publications, and research notes. These insights,
however, seem to have declined steadily during the latter stages of the twentieth
century, in large part due to the increased use of the telephone, a communication
medium that leaves no documentary trail.

With the obvious exception of curricular development discussions, teacher-stu-
dent interaction, in terms of both how material is presented to students and the
mentoring role assumed by faculty, is also poorly documented in administrative
records. Faculty personal papers or student collections may prove useful for such
study because of the occasional availability of lecture notes and other course mate-
rial; even with these sources, however, much information of potential value to
intellectual and cultural historians and researchers in the social sciences is not
recorded.

Student life is another area that traditional archival records and personal papers
do not document well. While records documenting various aspects of student life
are available in narrowly focused areas, the overall intellectual and social experi-
ence is difficult to reconstruct. Commonly available in the archives are such offi-
cial university documents as academic counseling material or housing office

records, which, together with records of student organizations, student publications, football programmes, fraternity and sorority material, ephemera such as flyers and posters, and similar documentation, do provide a picture of student life on campus. Unfortunately, it is a distorted picture, as such records represent only partially the student experience.

Archival staff at the Bentley Historical Library were intrigued by the possibility that the growing academic use of electronic communication technologies might result in additional documentary sources that could partially address the shortcomings found in traditional archival material.

With funding from the National Historical Publications and Records Commission (NHPRC), the Bentley undertook a one-year appraisal project to look more closely at the documentary potential of electronic communications. The project staff decided to focus upon computer conferencing because it is an electronic communication medium that has been in use for a comparatively long time (from a technological perspective), and many early text files still exist. Conferencing appeared to have a particular appeal to those in an academic environment and enjoys widespread use, not only at the University of Michigan but in colleges and universities throughout North America and Europe.[3]

A review of the research literature and methodologies of several disciplines indicated that computer conferences might provide a significant research resource for social scientists as well as historians. Indeed, a considerable amount of research has already been conducted into electronic conferencing since its inception in the early 1970s. Particular focuses of this research include the establishment of communication norms and investigation of new group dynamics, content and lexical analysis, the use of conferencing in computer-mediated interactive instruction, and the "invisible college" value of computer conferencing as a mechanism of scholarly communication.[4]

There were also wider professional reasons driving this project, most notably the pressing need for college and university archivists to begin to address the intellectual and practical challenges presented by electronic communication. The administrative importance of electronic record-keeping applications had long been a focus of concern and research among governmental archivists. The extent to which the approaches and practices developed by government archivists were transferrable to different organizational environments such as those of colleges and universities, and not necessarily viewed within the strict parameters of record-keeping electronic media, remained to be tested. Pennsylvania State University Archives has investigated the applicability of existing archival approaches to university administrative datafiles.[5] The Bentley Historical Library elected to explore computer-mediated communication—specifically, computer conferencing—in an environment with multiple facets extending beyond the administrative.

Overview of Computer Conferencing and the Development of CONFER II Conferencing Software

Before discussing the methodology and specific findings of this project, it is necessary to provide some background both of the evolution and nature of computer

conferencing as a whole, and of the implementation of computer conferencing at the University of Michigan. Indeed, a major premise underlying this project was that most archivists know little, if anything, about computer conferencing, despite the fact that it has been a widely utilized communications medium for over twenty years.

The development of computer (or electronic) conferencing directly reflects the rise of computer-mediated communication (CMC), or computer-based message systems (CBMS), in the 1960s and 1970s and their subsequent proliferation with the advent of the microcomputer era in the late 1970s. Today conferencing is widespread throughout higher education, scientific and research institutions, and the corporate sector.[6] Ellen Pearson has provided a succinct definition of a computer conference as:

> an ongoing database of all text contributed by the conference members. Members may search for and retrieve stored text at any time. Typically, participation in the conference is asynchronous.... Each participant sees all the others' statements and may comment on those already entered and/or add new thoughts to the discussions. The conferencing system software tracks all new entries, linking statements and comments thereto, so that members may read or proceed through the messages either chronologically or logically. The software also tracks each member's individual online session so that when he next joins or signs on, he is notified of the numbers of new or unread messages.[7]

Conferencing systems all share the basic characteristics laid out by Pearson, although the style and "feel" of conferences can differ considerably from one system to another. Some systems favor short-term, small group projects, while others are designed to foster extensive, ongoing dialogue in a wider setting, and utilize more sophisticated text entry and organizational capabilities. Three of the earliest and most influential systems were EIES (earlier versions of which were Partyline, Discussion, and EMISARI), PLANET (originally FORUM), and CONFER. Other common conferencing systems include DEC's VAX NOTES and Honeywell Multics' FORUM. EIES (Electronic Information Exchange System) was sponsored by the National Science Foundation (NSF) and developed by Murray Turoff at the New Jersey Institute of Technology. PLANET developed out of research led by Jacques Vallee and Hubert Lipinski at the Institute for the Future in Menlo Park, California. One of the primary institutions associated with PLANET was the University of Southern California in Los Angeles. CONFER was developed at the University of Michigan by Robert Parnes and first implemented in 1975 just at a point when work in group communications media was beginning.[8]

Parnes developed the first version of the CONFER software for his doctoral dissertation in Educational Psychology through the University's Center for Research on Learning and Teaching (CRLT) and with partial support from NSF funds designated for development of electronic communication in support of academic activity. The development of the CONFER software is documented at the Bentley in the files of CRLT as well as in Parnes's doctoral dissertation.[9]

Parnes's aim with CONFER was to design a system to:

> address both the communication and decision making needs of university and other groups involved in governance...[and to] facilitate small group

communication... limited to less than a thousand people.... The set of princi-
ples which I have tried to operationalize in the CONFER system are those of
individual equality, freedom, privacy and flexibility, and the facilitation of
individual participation.[10]

Other principles upon which Parnes based his design were really quite visionary
for the mid-1970s. They included the assumptions that the primary users would be
geographically widely dispersed, computer novices, and untrained in interactive
computing; that eventually most if not all users would have their own personal
computer or computer terminal; and that users would be making a long-term com-
mitment to computer conferencing by using it on a day-to-day basis for more than
just task-oriented activities.[11]

Upon completing his dissertation in 1981, Parnes set up his own company in Ann
Arbor, Advertel Communication Systems, which develops and markets CONFER
commercially. The rights to the software belong to Parnes with the university hav-
ing non-exclusive rights to use his CONFER II software. Today CONFER II is one
of the leading and most influential electronic conferencing software packages
available.[12] It has been used by many colleges and universities throughout the
United States, Canada, and Great Britain. In Michigan alone, these include
Michigan State University, Wayne State University, and Western Michigan
University. CONFER II has also been implemented by other institutions such as
the Research Libraries Group (RLG), the Bureau of Social Science Research, the
University of Michigan Highway Safety Research Institute, Formative Evaluation
Research Associates, Onyx, and Acumenics (as consultants to the Federal Aviation
Authority).[13] At the University of Michigan between 1975 and 1991, over 3,100
conferences of many different types were hosted on the university's computers
with over 165,000 individual memberships. Log-ins to conferences currently run at
more than one per minute.[14] More than 250 conferences, both current and no longer
active, have so far been identified on the union list under development by the
Bentley Historical Library, a testament to both their permanence and their tran-
science.

In his 1981 dissertation, Parnes categorized conferences into several types based
on intended function. These categories are a useful way of illustrating the variety
of tasks for which conferencing was envisaged: task force, workshop, committee,
special interest group, commission, assembly, congress, and general interest group.
Each of these functional categories could be further refined with any combination
of the following variables: well- or ill-defined membership; focused or full-scope
content; and fixed or indefinite duration.[15] For the purposes of this project, howev-
er, the Bentley archivists found it more useful to classify University of Michigan
conferences, in line with local use conventions, as either public or private. Public
conferences are those open to participation by anyone with a valid University of
Michigan computing account. Private conferences have membership limited by
some defined criteria. Within that classification, the project archivists defined three
types of private conference: administrative, course-related, and social.

Public conferences are usually thematic, e.g., women's issues or student govern-
ment, but may cover a wide range of topics. Administrative conferences may oper-
ate on a standing or an ad hoc basis. They are used as electronic meeting forums,

for decision-making, or to circulate documents to specific groups. Examples would be the university deans' conference or search committee conferences. Course-related conferences are associated with a specific course and membership is restricted to the students in that course. They may be used to follow up on class discussions, to generate student writing, as part of mandatory class participation, or simply to hand out assignments. The content of some are graded, whereas others are used merely to facilitate communication between student and instructor. Private social conferences are organized by two or more persons with common interests. Membership is recruited through a variety of formal and informal mechanisms, sometimes with participants voting on whether or not to admit a candidate for membership. These private conferences are not listed or documented by the University Computing Center and read-access is restricted to members only.

Although by far the most popular and widely used, CONFER II does not have a monopoly on conferencing at the University of Michigan. There are several similar commercial and non-commercial—as well as academic—conferencing systems, such as USENET, available within the Ann Arbor area. One relative newcomer is GREX, implemented in 1991 for non-academic, non-commercial users. The University of Michigan itself also maintains a Forum conferencing system, which was originally used predominantly by Computing Center staff; its primary users now are from within the College of Engineering. Each of the systems has its advantages and loyal partisans. The widespread acceptance of computer conferencing in the University of Michigan community suggests that Parnes's expansive vision was correct; conferencing as a form of computer-mediated communication has indeed taken on a life of its own over and above any specific task-oriented function, both at Michigan and everywhere it is in use. It is this aspect in particular that caught the attention of archival staff at the Bentley and led them to hypothesize that conferences might be generating and recording material of potential archival value.

Methodology

Because of the relatively small amount of archival research that has been conducted to date on different forms of electronic communication, there were no tested models for the project archivists to apply in toto for this computer conferencing project. For this reason, they devised their own methodological approaches based in part on those advocated in archival literature and in part on their own experiences from working in the academic environment.[16]

The main component of this project was appraisal of electronic conferences: first as a record genre and then as individual record series. (At this point, at least, individual conferences, which may include multiple "volumes," are being treated as discrete record series.) The project archivists were seeking to determine whether electronic conferences could provide documentation of the college and university functions outlined by Samuels and defined in the mission statement and collecting policy of the Bentley Library's University Archives and Records Programme.

It was originally hypothesized that, if ten per cent of the examined conferences were found to contain significant evidential or informational value, the university

archives would consider electronic conferences a record format that should be examined and appraised at the series level. If that hypothesis proved correct, then individual conferences were to be appraised and compared with the existing non-electronic holdings of the Bentley. For this comparison archivists would look at subjects, individuals, and dates covered, nature and depth of material, and textual extent, to determine if conferences contained material not covered elsewhere in the collections, or which significantly overlapped or enhanced existing collections.

The appraisal methodology, therefore, was formed within this framework. For political and logistical reasons the university does not maintain metadata on conferences, such as a comprehensive listing or index of existing conferences, their organizers, purpose, or subject content. The Bentley's archivists, therefore, spent a considerable amount of time throughout this project trying to locate and gain access to conferences.[17] They used five different sources to compile a union list and identify conferences for appraisal: a short list of major public conferences selected, described, and publicized online and in publications by the University Computing Center; references to other public conferences made by participants of major conferences; references made in university publications such as departmental newsletters; personal discussions with individuals organizing conferences; and ongoing contact with Robert Parnes, who remains responsible for initializing all new conferences. It was through Parnes that project archivists were able to make contact with organizers of course-related conferences.

Course conferences were the first and most procedurally complex area tackled, not only because of privacy considerations but also because of the fact that the project started right at the beginning of a new school year. It is at this time that conferences for semester-long courses are established. Parnes receives electronic mail messages from instructors wishing to establish a course conference and giving him a computer account ID under which to do so. He then initializes each conference and sends a message back to the instructor (or that person's computer ID—he often does not know his or her actual identity) to indicate that the conference is ready to go. At the end of the semester, the conference is automatically terminated and purged by the Computing Center. There is, therefore, minimal contact between Parnes and conference organizers. Parnes met with the project archivists and agreed to attach a message to his reply to all conference organizers informing them about the Bentley conferencing project and indicating that he had passed their electronic mail ID on to the archivists so that they could contact organizers directly about the possibility of observing their conferences. The archivists then sent a form letter via e-mail to all organizers explaining the purpose of the Bentley project and asking for permission to observe the course conferences while they were active and potentially to accession any that might prove to have considerable documentary value. While a few organizers were only too happy to work with the Bentley, the rest ranged from reluctant to downright hostile, despite reassurances of, and a number of measures taken to ensure, the privacy of conference participants.

The reactions of course conference organizers had been anticipated by the project archivists, who themselves were very concerned with the possible legal implications of appraising and, more importantly, possibly accessioning course-related conferences. They were particularly concerned, in the absence of clear legal guidance, about the extent to which the *Family Educational Rights and Privacy Act*

(FERPA) might come into play, as well as with establishing ownership of the textual content of the conferences. Consequently, they devised a model two-part student release form to be used with active course conferences, one part dealing with *FERPA*, the other with literary rights. Project archivists asked cooperating organizers to give these releases to their students to sign at the beginning of the semester and then to forward them to the project office. This procedure also signified the agreement of both the organizer and the participants that the project archivists would be permitted to observe these private conferences for the purposes of appraisal and possible accessioning. Three classes agreed to be observed and signed and returned release forms, although in one class there was one student who refused to sign a form. This did not become a problem since the archival appraisal found the conference to have no long-term value. Potentially, however, such a situation could be an issue if another conference were deemed archivally valuable, accessioned, and made available to researchers.

In total, the project archivists identified for appraisal fifty-four active and twenty now defunct conferences and subconferences to which they were able to gain access physically within the time constraints of the project. *Readers should bear in mind that this figure represents probably less than two per cent of the total number of conferences ever hosted on a University of Michigan system, and is also a skewed sample given that it was to a large extent self-selecting.* It is hard, however, to envisage any way, given the intellectual freedom constraints of an academic environment, to draw a more representative sample for such a project.

Appraisal of the conferences comprised several activities:

1. An assessment of the statements of sponsorship and purpose, indexes, item descriptors, span dates, and participant lists all contained in individual conferences, as well as the life cycle of individual items (most of this was conducted online);

2. The creation of random lists of sample items using Minitab to randomize item numbers;

3. Purposive sampling of discussion items using item descriptors to identify topics of known interest to the Bentley and "fat file" topics (i.e., a large number of responses to a given item); and

4. Assignment of Library of Congress Subject Headings to appraised conferences to facilitate identification and comparison of their content and date coverage with those of the Bentley's existing extensive university collections that are described in RLIN using the MARC AMC Format.

Based on the findings of this appraisal component, the project archivists were able to go on to make recommendations regarding possible accessioning and future work that needs to be done to make computer conferences intellectually and physically accessible.

News of the appraisal project quickly spread through the conferencing community, on campus and beyond, with the result that the project archivists engaged in numerous lengthy discussions about the project and its possible implications.

These discussions took place as items in several conferences, through electronic mail, and in-person. In large part this was because the appraisal process quickly revealed the overwhelming concern of all involved about privacy and ownership of conferences. Some of this concern is inherent in computer-mediated communication and the genre of conferencing in particular, and some relates directly back to the values CONFER developer Parnes hoped were reflected in the structure of the software (i.e, individual equality, freedom, privacy, flexibility, and the facilitation of individual participation).[18]

Parnes appears to have been extremely successful in achieving his goals: conferences have become largely self-moderating, with many participants strongly aware of the archival, historical, and privacy implications of this medium of communication. Conferencing encourages an atmosphere of democracy that leads many participants to believe they are co-owners of the forum. The fact that conferences at Michigan are accessible to anyone with a user ID and a terminal, by name, pseudonymously, or anonymously, also complicates the issues of literary and institutional ownership.

These factors raise obvious issues for archivists of how to determine provenance, ownership, and responsibility for the long-term preservation of conferences, as well as how to authenticate the textual content of conference discussions. Archivists have also found that when they attempt to negotiate these issues directly with conference participants, they run the danger of having a "chilling effect" on the conferences, that is, changing the nature of the conference environment, its discussions, and, by implication, the historical record. Participants have stated that, while they are very aware that computer conferences may contain material of future research value, they also have reservations about archival preservation. These reservations arise from concerns about privacy, intellectual freedom, and the legal status of public and private conferencing within a public university. Indeed, many participants feel that conferencing resembles a telephone call or intimate conversation among a group of friends. They are only too aware that CONFER was deliberately structured, both philosophically and technically, toward protecting group and individual privacy, and many have stated that potential "archiving" flies in the face of the private atmosphere fostered by CONFER. Participants too are concerned that as a result of this issue, the possibility of accessioning by the archives is changing the nature of the conference by inhibiting discussion or the use of personal names.[19] The archivists have found that if they do not respond to these concerns, participants can effectively prevent conferences from being accessioned by the archives in a number of ways. Consequently, the project archivists have devoted a large amount of time to allaying participants' fears about potential "archiving."

The concerns about privacy are also institutionalized in the form of the University of Michigan's *Conditions of Use of the Resources of the Information Technology Division Statement*, which all users are required to sign or acknowledge before gaining access to any system. The policy states several conditions to which users must adhere. One of these is that the user agree in advance "to respect the privacy of other users; for example, you shall not intentionally seek information on, obtain copies of, or modify files, tapes, passwords belonging to other users

or the University, or represents others, unless explicitly authorized to do so by those users." It is unclear what weight such an agreement might have in a court of law, but it does present a problem to the archivists if they are to accession and make available computer conferences on the grounds that they are "public records."

On the question of provenance, Parnes writes that:

> The conference organizer derives her/his authority from the person who set up the conference and pays for the computer disk resources that it takes to support the conference. That is, there is a cost to maintaining the conference information on disk, and there is one person who is ultimately responsible for seeing to it that the computing system is properly reimbursed for providing the disk resources. That person is able to designate a conference organizer. Often the person simply assumes the role her/himself. Thus the organizer is the owner (or officially speaks for the owner) of the conference files. By providing differential access to various parts of the conference files, CONFER is able to extend a kind of joint ownership to the author of each item of vote but it is the owner of the files who has ultimate control (and responsibility) over their contents.[20]

One result of these discussions and Parnes's views on ownership is that project archivists have down-played the question of accessioning conferences under authority of public record law. Concern over the issue is being met in part through a notice that is now being displayed as part of the sign-on banner on several public conferences and any course conferences observed, which indicates that:

> This conference may be evaluated for preservation by the Bentley Historical Library for its potential to document the intellectual, cultural, and social environment of the University of Michigan.

This banner alerts participants in advance of entering text to the possibility that their contributions may be saved and later made available to researchers. It seems to be an agreeable compromise to participants on many of the privacy and ownership issues, as well as being in line with the spirit of the "Conditions of Use Statement."

Project archivists also used discussion on conferences to their own advantage. Two conferences, with strong participation by many experienced conference users and computing center staff, were specifically established to discuss university computing issues, including those associated with the development, use, and organization of conferencing. Project archivists initiated items on these conferences to generate ideas as to the technicalities of how to preserve conference materials in the long term. This was particularly enlightening with regard to opinions about and institutional support for tape cartridge storage and routine backup procedures for electronic communications.

As with any project, certain events occurred that were beyond the control of the archivists and that necessitated a modification of original plans. In this case, developments within the university's Information Technology Division—a switch from two host mainframes to one and policy changes designed to reduce technical support to magnetic tape users and encourage the use of cartridges instead—required

the project archivists to become involved with accessioning issues earlier in the
project than had been planned in the original grant proposal.[21]

As a result, project archivists accessioned electronic versions of the current vol-
umes of MREV:FORUM, a conference sponsored by the editorial board of the
Michigan Review, a conservative student publication, and LGM:RAP a conference
discussing gay and lesbian issues. Negotiations continue for accessioning
Wing:Span, a women's conference, and several conferences sponsored by the
Information Technology Division. Project archivists are also negotiating with
Robert Parnes to accession the private conference he created with several col-
leagues as a forum for discussion of the development and testing of enhancements
to the conferencing software; a conference in some ways analogous to the scien-
tist's lab notebook. To facilitate the accessioning of these conferences, the project
archivists devised two new transfer agreements, one for public conferences that
reflects the Bentley's university records policy, the other for private conferences
that reflects its procedures for accepting personal materials from donors. These
transfer agreements also raise the issue, however, of how to determine ownership
of conferences and the legal status of private conferences using university comput-
ing resources.[22]

Findings and Recommendations

Appraisal

From a compiled union list of 259 individual conferences (some of which no
longer exist in any format), project staff were able to gain access to and appraise
sixty-four. The appraisal recommendations fell into four categories: 1) accession in
electronic format, 2) accession in whole or in part in paper format, 3) do not acces-
sion at present, but continue to monitor conference for possible reappraisal if the
content changes with a new volume or new participants, and 4) do not accession or
monitor further.[23]

Conference Appraisal Recommendations		
Recommendation	**No.**	**%**
accession in electronic format	18	28
accession in paper format	5	8
continue to monitor	12	18
do not accession or monitor	30	46
	65	**100**

The total of twenty-three conferences (thirty-five per cent) recommended to be
accessioned exceeded the hypothesized ten per cent figure established for electron-
ic conferencing to be considered a medium with archival value. It must be noted,
however, that the high percentage of conferences recommended for accessioning is

in part an artifact of a somewhat biased sample. The public conferences identified through the listing maintained by the Computing Center did constitute a self-selected sample of presumably important or popular conferences. Had all 259 of the conferences identified in the union list been examined, the percentage recommended for accessioning would have been significantly lower, but still well above the ten per cent threshold.[24]

The appraisal process showed that computer conferences as a genre do indeed have potential to document the academic environment, and that, at least in the case of the University of Michigan, several individual conferences contain information which is unique or which significantly supplements traditional sources of archival information in the areas of intellectual history, pedagogy, and academic life and culture. One can say unequivocally that conference material is more current, directly reactive, and topical than traditional collections, since the immediacy of the medium makes them very responsive to current events and cultural trends. Subjects that came up again and again, although discussed from many different perspectives by the different participant communities of the various conferences, include race and race relations (such as racism on campus or the Rodney King verdict), gender issues (especially feminism and homosexuality), national and campus politics (for example, the Supreme Court nomination of Clarence Thomas or the presidential race, and the introduction of an armed campus police force); reproduction, health, and nutrition; children; recycling, alternative energy sources, and environmental conservation; evangelical religion; and role-playing games. Individual discussion items on conferences, such as those relating to "political correctness" or campus diversity can be very extensive, wide-ranging, and thoughtful, and thus have very evident research value. This value is further enhanced, however, both by the dynamics of the conference as a whole and by comparison with the differing perspectives of other conferences discussing the same issues. The value is also enhanced by the digital format of the materials, which will afford researchers opportunities for electronic content analysis not previously available with traditional textual university materials.

Where there were qualitative similarities between conferences and existing Bentley holdings, they were most frequently found to be with manuscript collections contained in the Michigan Historical Collections—the library's manuscript division—rather than with records of the University Archives and Records Programme (for example, discussions on issues such as abortion, political affairs, or environmental activism). This appears to be because of their personal nature and concern with issues that are germane not only to the university environment but also reflect upon community, national, and international concerns.

Those conferences with clear provenantial relationships to university units (administrative divisions, academic departments) or student organizations will be integrated with existing record groups. Conferences sponsored or owned by organizations, university units, or individuals for which the library does not have an existing record group or collection will be accessioned as independent record groups.

As stated earlier, in comparing the electronic conferences with the existing collections, the project archivists looked for overlapping coverage. They found that

there was some subject and a very small amount of span-date overlap, but that qualitatively the electronic and paper records were yielding a very different documentary perspective. The archivists looked also for existing collection strengths that would be enhanced significantly by those qualitatively different conferences; they found that for areas such as public health, feminism, and academic freedom (especially Political Correctness) the conferences did indeed provide significant new documentation. It was also important to look at areas documented by conferences that pointed out gaps in the Bentley's collection efforts. Among the gaps that conferences might fill at Michigan are those relating to documenting an aging student population and the challenging of traditional sex roles; topics made evident in frequent and extensive discussions of sexual harassment, homosexuality, and parenting.

A particularly important new area of documentation made evident in the computer conferences is that of the impact of the computer on academic (especially student) life and culture. On many college and university campuses computers have become ubiquitous and linked network systems have become increasingly important. Academia is in the vanguard of the use of electronic communication for more than just administrative and research purposes. Electronic communication provides many different forums that can be used for learning, invisible college networking, debating, protesting, gossiping, grumbling, and partying—each of which develops a certain "culture" with norms for etiquette, language, and punctuation.

In many colleges and universities, there has been a sea-change in the campus environment due to an influx of students who are computer literate and many of whom own computers. This change in the student population as well as in networking capabilities has brought the computer sub-culture that had existed since the sixties into the nineties as an integral part of everyday student life. Few if any college and university archives have traditional holdings in non-electronic format that document well the computer revolution of the 1960s onwards and, in particular, the microcomputer and networks revolution of the 1980s and 1990s as they exert an impact upon the campus environment and youth in general.

One more interesting finding is a set of topics that were seldom if ever discussed on the computer conferences examined. These include fraternities and sororities, most student clubs, and college athletics and sports in general. These are often amongst the most highly documented topics in college and university archives, suggesting that in this sense too, traditional and electronic conferencing materials are complementary.

Comparing the conferencing with non-electronic materials was not as simple as the project archivists had envisaged. There was a problem associated with the contemporaneity of conferences: overlapping paper records might perhaps be available at some point in the future, but had not yet been accessioned or appraised. Where there were related materials within existing collections, they were sometimes described under more generic (or institutionally preferred) subject headings suitable for describing the entire collection. In comparing Library of Congress subject headings assigned to each material-type, there were also problems with matching dated and revised subject headings.

What the appraisal figures clearly demonstrate is that conferences must be appraised as distinct series and not globally as a format. There is no one strategy that is appropriate for all conferences; appraisal of active conferences needs to be conducted by college and university archivists on an ongoing basis, since individual conferences come and go and their nature can be quite different from year to year as organizers and student participants change. In addition, conferences may periodically be closed and restarted as a new "volume" if their size has reached the technical maximum allowed by the software, or if the conferences are run on an annual academic cycle. This ongoing appraisal can be done either as part of an archival records management programme, as manuscripts field work, or possibly as both.

Accessioning and Storage

One of the recommendations of the project was that the electronic records of conferences having archival value be retained in their original, software-dependent electronic format, while being frozen by the electronic "archiving" process in such a way that it would be almost impossible to tamper with the original record. To do this involves relatively simple "archiving" and remounting procedures on the part of the archivists and the organizers, for which written guidelines already exist. This format retains most of the evidential value of active conferences by capturing the dynamics and different dimensions of conferences in a way that it would be difficult for a researcher to reconstruct using a printed version of the text they contain. It also permits digital manipulation, either by the archivist to strip out and/or replace personal identifiers where required or by the researcher.[25] Although there are important preservation concerns (mostly the question of software obsolescence), this method is efficient with space (a printout might run to several thousands of pages) as well as being most theoretically sound (since the dynamic elements of a conference cannot be transferred successfully to another medium). To this end, the Bentley has established an ongoing mainframe computer account with sufficient disk space allocation to be able to conduct electronic "archiving" of accessioned conferences, and to remount them online for research access. By selecting this option, however, archivists still retain the other storage options of generating "flat" files of text or of printing out conferences if at some point it becomes infeasible or not technically possible to migrate the conferences to an upgraded system.

Areas requiring further work and study

Issues relating to intellectual and physical access to "archived" conferences represent the most extensive and pressing areas requiring further work and research by the Bentley. However, apart from committing to ongoing appraisal and accessioning of electronic conferences, some other areas still require further attention.

The appraisal work conducted to date should be codified into appraisal guidelines that could be used by non-technical archivists working with electronic conferences at other institutions. Since much of this appraisal work is laborious, and not always easy to assess manually, there should be further investigation into developing an

automated front-end application that might assist the appraisal archivist in discerning use patterns and changes in them.[26] Such information would greatly improve the archivist's ability to make informed appraisal decisions and develop accurate scope and content statements.

Further research needs to be conducted into the legal issues associated with literary rights of conference participants and with the definition of ownership of a conference. This is necessary to determine what is and is not a university (and therefore a public) record, so that informed decisions can be made when developing transfer/donor agreements and access policies. Further research is also required to establish more precisely the nature and needs of potential user communities. Much more effort will need to be expended in outreach activities in order to bring those research communities to the conference materials.

Research Implications for the Profession

Two major questions must be posed by archivists looking at computer conferencing and any other form of electronic communication: to what extent will these electronic media have a long-term existence as distinct genres, and what will their record status be. Perhaps computer conferencing is a genre that is a product of just such a transition into the era of computer-mediated communication and cannot be relied upon to be in place twenty years from now. However, it was one of the earliest communication formats and has stayed the course for twenty years. It has also expanded from its original task-oriented role into a broader sociological phenomenon. Even if the genre were transient or non-record, to what extent would that devalue its documentary potential in the college and university environment with its multiple documentary mission? In David Bearman's words, "some written forms of electronic communication, such as intra-office uses of electronic mail, are currently undergoing cultural definition, and could come to be perceived as private in the absence of institutionally defined etiquettes and records policies." Bearman feels that such policies are central to effective electronic records management.[27] The experience of the Bentley project archivists is that this approach is somewhat simplistic when one tries to implement it in an electronic communications environment that is loosely regulated and often subject to competing concerns of intellectual and academic freedom, personal privacy, and public disclosure laws.

While it is potentially dangerous to attempt to extrapolate standard approaches from one limited experience with only one of a myriad of communications media, the project archivists think that there are elements in their experiences and findings that do translate to generic approaches or raise generic issues in the electronic communication environment. For example, discussions of FOIA implications, authentication, ownership, preservation, description, access, custody, and appraisal mechanisms should be similar for all electronic communication—although they may not all play out the same way in different institutional environments. There is only one way to test if the approaches and conclusions of the Bentley Computer Conferencing Project have validity and generalizability in the college and university setting and the wider archival arena. That is to replicate them in other settings: a large university with a different student population, an undergraduate college, a corporation or non-profit institution.

What is of most critical importance for the profession at this juncture, however, is to develop a profile of the archival nature of electronic communication and examine further what has been learned here that might be of use to archivists exploring other forms of electronic communication. Well suited to the academic environment, perhaps, and certainly to the documentary goal of the Bentley's computer conferencing project—to look at computer conferencing as a means of documenting academic life—are the insights of Hugh Taylor on communication media, especially when they are in a period of transition. Taylor draws attention to some of the more subliminal aspects of electronic media by discussing the underlying symbols and messages beneath the text, and the need for archivists to be able to read them:

> Archivists reared in a largely textual environment have had a tendency to "read" all media of record literally, without realizing that all forms of communication are loaded with conventions and semiotic "signs" inherent in their respective technologies. Consequently, archivists and users alike are having to employ more perceptive strategies of interpretation.[28]

This project has made an important first step toward employing such strategies.

Notes

1   Helen W. Samuels, "North American Archival Identity," in Judith A. Koucky, ed., *Proceedings of the Second European Conference on Archives* (Ann Arbor, 1989), p. 85; *Varsity Letters: Documenting Modern Colleges and Universities* (Metuchen, 1992).

2   Helen Horowitz, *Campus Life: Understanding Undergraduate Cultures From the End of the Eighteenth Century to the Present* (New York, 1987), is one of the few scholarly surveys. John Straw, "From Classroom to Commons: Documenting the Total Student Experience in Higher Education," *Archival Issues* 19, no. 1 (Spring 1994).

3   Other forms of electronic communication in use in college and university environments include bulletin boards, listservs, Usenet newsgroups, and electronic mail. In many respects, computer conferencing permits more complex interactions than other forms of electronic communication.

4   See, for example, Andrew T. Finn, "Process and Structure in Computer-Mediated Group Communication," in Brent D. Rubin, ed., *Information and Behavior, Vol. II* (New Brunswick, 1988), pp. 167-93; S.R. Hiltz and Murray Turoff, "The Evolution of User Behavior in a Computerized Conferencing System," *Communications of the ACM 24* (November 1981); Ronald E. Rice, "Computer Conferencing" in Brenda Dervin and Melvin J. Voight, eds., *Progress in Communication Sciences, Vol. II* (Norwood, 1980), pp. 216-40; Jane Siegel, Vitaly Dubrowsky, Sara Kiesler, and Timothy McGuire, "Group Processes in Computer-Mediated Communication," *Organizational Behavior and Human Decision Processes* 37 (1986), pp. 157-87; Howard Rosenbaum and Herbert Snyder, "An Investigation of Emerging Norms in Computer Mediated Communication: An Empirical Study of Computer Conferencing," Proceedings of the 54th ASIS Annual Meeting, Washington, D.C., 27-31 October 1991, Jose-Marie Griffiths, ed., *Learned Information, Inc.* (N.J., 1991); Robin Mason, "Moderating Educational Computer Conferencing," *Distance Education Online Symposium (DEOS) News* 1, no. 19 (1991); Terje Rasmussen, Joergen Bang, and Knut Lundby, "When Academia Goes Online: A Social Experiment with Electronic Conferencing for the Nordic Media Research Community," *DEOSNEWS* 1, no. 24 (1991); and Mary Joan Tooey, "Computer Conferencing: A Campus Goes Online," *Online* (July 1989), pp. 54, 57-60.

5   "Penn State Electronic Records Appraisal Programme, Final Report," November 1993.

6   It is widely used, for example, at the University of California campuses, the University of Maryland, Syracuse University, Rensselaer Polytechnic Institute, Carleton College, and the University of British Columbia in Canada.

7   Ellen M. Pearson, "Computer Conferencing for Enhanced Communication: Its Potential for Academic and Research Communities" in Ahmed H. Helal and Joachim W. Weiss, eds., *International Library Cooperation: 10th Anniversary Essen Symposium, 19 October - 22 October, 1987* (Essen, 1988), pp. 328-37.

8 Matthew Rapaport, *Computer Mediated Communications: Bulletin Boards, Computer Conferencing, Electronic Mail and Information Retrieval* (New York, 1991), pp. 1-11 and passim, describes the evolution of conferencing and the development of the principal software packages.

9 See University of Michigan Center for Research on Learning and Teaching, Records, Box 3, Bentley Historical Library; and Robert Parnes, "Learning to Confer: The Interplay of Theory and Practice in Computer Conferencing," (Ph.D. Dissertation, University of Michigan, 1981). According to Parnes, "The ideas which became CONFER had their origins and early development in a seminar led by Merrill Flood on problems in academic governance.... The seminar took place in the School of Education at The University of Michigan in the fall of 1974. Its goal was to examine ways of improving both the communications and decision making processes as they related to academic governance. An underlying assumption was that if any important impact were to be hoped for, something significantly different from the status quo, i.e., a new technology, would need to be developed. Individual interest in computers led to a focus on how they might be used in this context. Merrill Flood set about examining the decision making process and I the communications process. It was the intention of both of us to integrate the results of our work into a system making other features and facilities that allow participants to choose their own styles and levels of involvement." (Parnes, "Learning to Confer," pp. 40-41).

10 Ibid., pp. 2-3.

11 Ibid., pp. 50-51.

12 CONFER and CONFER II are registered trademarks of Advertel Communications Systems. For discussions of conferencing systems and comparisons of conferencing software see Elaine B. Kerr and Roxanne Starr Hiltz, *Computer-Mediated Communication Systems: Status and Evaluation* (New York, 1982); and Rapaport, *Computer Mediated Communications*.

13 One of the factors that assisted in the promotion and spread of CONFER was that the Michigan Terminal System (MTS), an operating system developed in 1967 at the University of Michigan to run on IBM and compatible mainframe computers, and upon which CONFER resides (although it can function independently of MTS also), had been sold internationally. Other purchasers have included the University of Illinois, Rensselaer Polytechnic Institute, the National Laboratory for Scientific Computing in Rio de Janeiro, the University of British Columbia in Canada, and Durham University and the University of Newcastle Upon Tyne in England. CONFER II has been ported to the DEC VMS and Unix operating system.

14 Electronic mail communication from Robert Parnes to Carol Hughes and Anne Gilliland-Swetland, 18 October 1991.

15 Parnes, "Learning to Confer," p. 118.

16 Important recent publications for academic archivists contemplating the archival administration of electronic records include Charles Dollar, *Archival Theory and Information Technologies: The Impact of Information Technologies on Archival Principles and Method* (Macerata, 1992); David Bearman, *Electronic Records Guidelines: A Manual for Policy Development and Implementation* (Pittsburgh, 1990); United Nations Advisory Committee for the Coordination of Information Systems, *Electronic Records Guidelines. A Manual for Policy Development and Implementation* (New York and Geneva, 1989); Katharine Gavrel, *Conceptual Problems Posed by Electronic Records: A RAMP Study* (Paris, April 1990); Margaret Hedstrom, "Privacy, Computers, and Research Access to Confidential Information," *Midwestern Archivist* 6, no. 1 (1981), pp. 5-18; and "Understanding Electronic Incunabula: A Framework for Research on Electronic Records," *American Archivist* 54 (Summer 1991): pp. 334-54. Two works, Margaret Hedstrom, *Archives and Manuscripts: Machine-Readable Records* (Chicago, 1984) and Harold Naugler, *The Archival Appraisal of Machine-Readable Records: A RAMP Study with Guidelines* (Paris, November 1984), are very dated, but still provide information useful to archivists on systems background and offer procedural advice not found in other texts.

17 The University and the Computing Center have been concerned to establish and maintain (and the user community has demanded) an open and free computing environment with minimal monitoring of individual's computing activity. It is felt that requiring reporting and maintainance of metadata on all conferences might inhibit the free flow of ideas in an academic setting. These concerns apply particularly to "private" conferences.

18 Parnes, "Learning to Confer," pp. 41-42. Parnes has stated that "CONFER was designed—both consciously and unconsciously—to incorporate the liberal democratic values of equality of opportunity and civil liberties," and "As a consequence of the values of equality and freedom embodied in CONFER, there can result a tendency towards freewheeling, extended discussion. CONFER makes

possible unfocused, open-ended discussion, and is somewhat biased towards allowing people to write too much, rather than too little."

19 This is a concern that has also been voiced by archivists, albeit probably not thinking about an example as specific as computer conferencing. Katharine Gavrel, for example, has written that "the difficulty from an archival perspective on the early involvement of the archivist in the development and design stage of any electronic system, be it an office system or a database, is the influence the archivist will have over the records being created and identified for long term preservation. Archives have traditionally been the passive receivers of documents, making appraisal decisions at the end of the active life of the document. If archives become active participants in the development process, what influence will that have over the information that is being created and designated as archivally valuable?" (Gavrel, *Conceptual Problems*, pp. 27-28).

20 Parnes, "Learning to Confer," pp. 66-67.

21 The university had operated two mainframe systems, designated "UB," which hosted most student accounts, and "UM" which hosted most faculty and staff accounts. Many people had accounts on both systems. When UB was phased out in January 1992 conferences on that system could elect to move intact to UM or close their current UB volume and restart on UM. Since completion of the project, the university has begun to move away from its mainframe to a distrubuted computing environment, which spurred Parnes's develoment of a Unix based version of CONFER known as CONFER-U. This poses additional problems for archivists, as the text, participation, and other files of individual conferences will no longer be resident on a single piece of hardware but possibly spread over many machines.

22 Organizers wishing to "archive" a computer conference originally did so on magnetic reel tape. At present, cartridge tapes are the preferred method of data storage. Cartridges offer a potentially more stable storage medium than reel tape, and since the late 1980s have come down considerably in price, albeit that they are still not a long-term preservation medium in the archival sense. See Thomas E. Weir, Jr., *3480 Class Tape Cartridge Drives and Archival Data Storage: Technology Assessment Report, National Archives Technical Information Paper No. 4* (Washington, D.C., June 1988).

23 Accessioning in paper format was recommended for three reasons: 1) the electronic version no longer existed, 2) the conference was very small, or 3) only a few selected items from a conference were judged to have archival value, in which case it was deemed most efficient to print those items and add them to existing record groups as new series.

24 It should also be noted that several of the course conferences observed were judged to have archival value, but inability to comply with *FERPA* regulations resulted in a recommendation not to accession. See Anne Gilliland-Swetland and Gregory Kinney, "Uses of Electronic Communication to Document an Academic Community, Appendix II," *Final Report to the NHPRC*, December 1992.

25 In the "archiving" process the text of the conference is "frozen" insuring the integrity of the original as it was received by the archives. This still permits archivists and researchers to use CONFER II's various index, search, and query features and to download or print portions of text. Duplicate copies of tapes would be generated for research use. The conference file is "renderable" and "redactable" to use Bearman's terms. David Bearman, "Record-Keeping Systems," *Archivaria* 36 (Autumn 1993), p. 32.

26 Anne J. Gilliland-Swetland and Carol Hughes, "Enhancing Archival Description for Public Computer Conferences of Historical Value: An Exploratory Study," *American Archivist* 55 (Spring 1992), pp. 316-30.

27 Bearman, *Electronic Records Guidelines*, p. 17.

28 Hugh Taylor, "'My Very Act and Deed': Some Reflections on the Role of Textual Records in the Conduct of Affairs," *American Archivist* 51 (Fall 1988), p. 457.