Institutional Circuitry:
Thinking About the Forms and Uses of Information

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1 Introduction

In this issue we have been asked to speculate upon the future of information, and I would like to begin by unpacking some of the assumptions bound up in this phrase, "the future of information". The word "information" is gramatically a mass noun, like "milk", "flour", and "money". Information is thus a figurative substance (cf Buckland 1991), and consequently we can tell certain stories about it: possession, accumulation, surfeit ("overload"), distributional inequality ("haves and have-nots"), measurement (Shannon and Weaver 1949), commoditization (Schiller 1993), and so on. In order to tell these stories about information, we must imagine it to have a location. Yet we have also come to understand information as a "content" divorced from any specific physical realization (speech, paper, computer chips, fiber optic cables). We imagine information to be intentional -- information is always information *about* something -- and we imagine it to be truth-functional -- we assume that information is true but we know it can be false. At the same time, the term "information" rarely evokes the troubling questions of epistemology that are usually associated with terms like "knowledge" and "belief". The concept of information, then, carries a certain connotation of neutrality -- it is homogenous and noncontroversial. The reality, of course, is more complicated.

To speak of the *future* of information, furthermore, supposes that information has a definite character that can change. Indeed, it supposes that information is a unified phenomenon with a single fate. To the extent that its future is already determined (if perhaps undisclosed), we are in the position of passively predicting it rather than actively making it ourselves. The idea is that, by predicting the future of information, we can prescribe a future for librarianship.

I want to suggest, though, that things actually work the other way round. Information is not a natural category whose history we can extrapolate. Instead, information is an element of certain professional ideologies, most particularly librarianship and computing, and cannot be understood except through the practices within which it is constructed by the members of those professions in their work. The future of librarianship is not contingent on the future development of something called information; to the contrary, the category of "information" is contingent on the future development of the various institutions that now constitute it. The category of information may disappear entirely, or it may be reconfigured as structural relationships change between the "information professions" and the other institutions of society. To understand this process, much less intervene in it, we must comprehend the system of dynamic tensions through which "information" is constituted in the present day. This is a difficult task since ideologies invariably present their constituent categories as natural and pregiven, and not as the contingent products of human activity. But it is a necessary task if information professionals wish to maintain their relevance to the deeper social values that give their work meaning.

Librarians understand themselves as experts on the use of information. This definition of librarianship is strategic. It is preferable, for example, to defining the profession and its expertise in terms of particular media: books, bound journals, long-playing records, and so on. The rate of migration of these materials to digital media is no doubt often exaggerated, but everyone understands that these media are technologies like any others, that specific technologies come and go, and that something important about the skill of librarianship would survive their demise.

But the concept of "information" is strategic in another, more significant way. Libraries serve a great diversity of patrons; indeed, the encouragement of social pluralism through public access to information is often cited as a central value of the profession (Dervin 1994). Research characterizing these patrons' diverse information needs and uses has evolved from a focus on catalog systems (Dervin and Nilan 1986) to a focus on the standpoint and experience of particular patrons (Bates 1986, Hewins 1990, Kuhlthau 1991). In particular, library patrons from various backgrounds may bring ideologies with them that differ from the constitutive ideology of librarianship (Dervin 1989). In other words, library patrons may or may not conceive of themselves as looking for "information". Academic research professions, for example, orient not to "information" but to "literatures". Most literatures are associated with keywords such as "organizations", "activity", "networks", or "planning", though these words might be employed in wholly different ways by unrelated disciplinary communities. Of course, librarians are well aware of the significance of these words to their users, and of the consequences of their choices of indexes (Fidel 1994). But a literature is more than that. It has a history (founders, milestones, rise and fall) and a structure (founding texts, survey articles, textbooks). Each of these in turn reflects a set of practices (research methods, standards of evidence, forms of argument) and a system of institutional relationships (dominant and dissident lines of thought, powerful and marginal research groups, politics of publication and funding). A research community's insiders read its literature with these things in mind; indeed, these larger forces shape the specific genres of writing and the protocols of reading in which the community's members are skilled (Bazerman 1988). Threading one's way through the archives to reconstruct a literature is a rite of passage for research people entering a new field, and standard reference works offer only limited assistance with the process. A bibliography might map certain regions of a literature, but most often with a degree of "flatness" that does not nearly map the complex and differentiated terrain which the researcher experiences.

Library cataloging schemes do not represent literatures. An ordering of topics, as in the Library of Congress classification system, may embody a cataloguer's understanding of their social history, but it will provide little explicit representation of that history. And the ordering can approximate the interconnections of a literature, so that someone exploring a literature can profit by browsing the shelves. Yet the gap between the ideologies of information and literatures remains. Few researchers realize that libraries could greatly facilitate their efforts by making the structures of literatures explicit, so in practice they tend to treat the work of exploring literatures as a series of discrete problems to be reformulated in the language of information, either on their own or with the assistance of a reference librarian.

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If librarians attempted to organize research works in the ways their patrons orient to them, of course, certain difficulties would follow. It would be necessary to make explicit some frequently contested matters, such as who founded the literature, which research groups are dominant, which survey articles are definitive, which systems of ideas prefigured which others, and so forth. It would also be necessary to sort documents into genres and to articulate those relationships amongst texts that are not explicitly provided for in their lists of citations. Librarians would find themselves effectively positioned as participants in the disciplines' conflicts but without the disciplinary standing needed to make their views stick.

The ideology of information, then, serves to position librarianship as a neutral profession, in two senses: (1) librarians minimize their participation in the internal disputes of other communities; and (2) librarianship does not define itself in relation to the ideology of any particular community of patrons. Of course, librarians do make decisions (about what books to buy, for example) that are inescapably political. Nonetheless, through the ideology of information, the library presents itself largely as a blank screen upon which particular communities can project their own practices and projects. To be sure, libraries occupy a special place in the world of academic researchers; Latour and Woolgar (1986 [1979]) suggested viewing an academic laboratory as a factory for turning research materials into publications. Likewise, my own university's *Policy and Procedure Manual* states that the "Published Work" contributing to a case for academic promotion "consists of work published in the open literature, i.e., work which one may reasonably expect to find in libraries other than UCSD's". But other communities will have their own ideologies for "information", and these ideologies will always be rooted in the categories of their own institutions.

Yates and Orlikowski (1992) suggest interpreting these categories in terms of genres that arise and evolve through the interplay of forms and functions in institutional communication. For example, they trace the rise of the business memo in the early 20th century. Business people first modeled their intrafirm communications on the familiar business letter. But as organizations grew, the special demands of internal communication led this form to evolve into another, the memo. The memo, then, was not invented once and for all on any single occasion. Members of each organization used existing rules as guides to action, but they did not apply these rules mechanically. Instead, they adapted them to the demands of each particular case, yielding modifications to the existing forms that provided precedents to which others could orient in turn. The genres of business letter and memorandum, then, are neither natural categories, arbitrary rules, or spontaneous responses to particular situations. Instead, the genres coevolved with the larger network of practices in which they participated, shaping organization members' activities and being shaped by the logic of those activities in turn.

But beyond this, genres of communication also embody ideas. The memo, for example, typically reflects ideas about accountability (in the identification of its author and the authors' orientation to scenarios in which the memo might come back to haunt them later on), collective identity (in the specific styles of writing that are cultivated at specific firms), procedure (in status codes such as "draft"), rationality (in its appeals to objectivity), and so on. These ideas are inseparable from broader understandings of business in general, as well as each firm's particular calling. Likewise, specific academic disciplines cultivate genres that reflect their own ideas about method, evidence, language, credit, dialogue, objectivity (or the rejection thereof), and so on. The "literature", in this sense, is an ideology of both the documents and the institutions of research. Both the genres and the ideologies can change, and these changes are part and parcel of larger institutional changes.

From this point of view, the problem with "information" is that it levels the distinctions among disparate categories of communicative actions and artifacts. Libraries contain artifacts generated within a wide variety of practices, and for that reason libraries are also points of intersection for a wide variety of differently structured processes of circulation in society. Library materials circulate, of course, in the sense of that term recognized by librarians. But the institutionally specific constituents of those materials -- the statistics, arguments, metaphors, ideas, coinages, and so on -- circulate as well, propelled by and propelling the whole range of energies that traverse a society's disparate sites of practice (Greenblatt 1988). These things circulate within a definite institutional circuitry: the forms and pathways that specific social formations maintain for the movement of their own categories of communicative practice. The institutional circuitry of academia, for example, includes the production and distribution of scholarly books and journals, but it also includes the circulation of draft papers, the ritualized explanation of one's research to others at conferences, the accelerating chatter of electronic mail, and the promotion of keywords. These practices are not machine-like or slavish in their orientation to existing rules of form, but they are most definitely guided by the precedents and expectations of precisely those communicative genres that one attempts to master in graduate school.

2 Case study

Let us make these ideas concrete by examining a particular artifact whose highly evolved genre is not regularly found in libraries. The *Beef Handbook: Facts, Figures and Information on the Beef and Cattle Industry* is a simply printed, 116-page paperbound document with 9"x11" covers and 8.5"x11" pages, divided into sections of varying length by five two-inch thumbtabs labeled "NUTRITION AND HEALTH", "BEEF SAFETY", "ENVIRONMENT", "ANIMAL CARE", and "ECONOMICS AND STATISTICS". Its pages are not numbered. According to its title page, it was "produced for the Beef Promotion and Research Board by the National Cattlemen's Association" of Englewood, Colorado. It is dated "Third Printing, September, 1990". I obtained it in 1992 by writing the National Cattlemen's Association to request materials that might assist me in presenting the industry point of view in a university course I was then preparing on the material organization of environmental controversies.

The *Beef Handbook* includes much evidence of its place in the institutional circuitry of business political mobilization. Its introductory page describes it as a "resource" that has been "designed to provide accurate and up-to-date information on issues related to the cattle and beef industry". Although it follows no consistent terminology in describing itself, it nonetheless conforms to a definite morphology: a hierarchical ordering of topics and subtopics, with "facts", "statements", questions and answers, and references for each.

The *Handbook* includes much evidence of being intended as a resource for industry members who engage in public debate. This is made particularly explicit in the introduction's explanation of "industry facts", which concludes:

> Note that third-party statements are included.
> **Consumer research confirms that third-party endorsements and statements are the most effective and accepted means of presenting the industry position on an issue.**

Here is a typical third-party statement, from the "Fat" topic of the "Nutrition and Health" subsection of the "Nutrition and Health" section:

> "The movement of the beef industry to make lower-fat beef available is a very important contribution to the consumer's ability to choose a lower-fat, lower saturated-fat diet", notes Nancy Ernst, Nutrition Coordinator, National Heart, Lung and Blood

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Institute.
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Likewise, "questions and answers" are explained as follows:

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Following each issue outline is a list of commonly-asked questions
on each subject as well as recommended answers.
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Here is a typical question-answer pair, from that the "Pesticides" subsection of the "Beef Safety" section:

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Q) Of all the pesticides used on the farm, how many does the
government test for in food samplings?
A) The government tests for essentially all compounds.  Pesticides
are members of specific chemical families, such as chlorinated
hydrocarbons.  The government tests for the presence of all major
chemical families associated with pesticides.  If a residue is
found, more specific testing is done to determine exactly which
pesticide is responsible.
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The introductory page treats the category "General industry statements" as self-explanatory. These statements outline a thesis that the following specific statements, facts, and quotes will flesh out; they rarely make specific factual assertions of their own, relying instead on relatively vague phrases such as "safe and wholesome", "properly prepared", and "protecting the environment". Here is a typical "overview statement", found in both the "Beef Safety" and "Antibiotics" subsections of the "Beef Safety" section:

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American cattle producers are committed to producing a safe and
wholesome product for consumers.  Experts often describe the
American food supply as "the safest in the world".  One reason
for that evaluation is the outstanding safety record of beef.
American beef is one of the safest foods available to consumers
today.
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Handbook covers a range of topics roughly coextensive with the objections to industry practice that activist groups had raised publicly over the preceding few years (Schell 1984). (However, it predates Jeremy Rifkin's book *Beyond Beef* (1992).)

My goal is not to assess the truth value of specific assertions but rather to specify how the *Handbook* is adapted to its role in the creation of a collective industry voice. The *Handbook* presents itself as a reference work, hierarchical rather than linear in its organization. As such, it addresses itself to members and allies of the industry, not to opponents, authorities, or neutral parties in the various institutional sites in which actual debate takes place. It presents only facts and quotes that tend to support stated industry positions. It does not appear to anticipate that its reader might dissent from its positions or its individual assertions. It does not present critics' views at any length, nor does it identify these critics or discuss their credentials or motives. Its posture is thus basically defensive, neither promoting an industry agenda for change or attempting to make a public issue of the activists or their activities. Its appeal to consumer research on the role of "third-party endorsements" indicates a rational, strategic, instrumental approach to intervention in the sites of public debate. This idea is a commonplace of public relations, and indeed the conceptual system of facts, statements, and quotations from third parties corresponds to the conceptual framework of the public relations profession. The "overview statements" in the various *Handbook* subsections, for example, are called "messages" in the language of public relations, and the distinction between statements/messages, facts, and quotes is maintained throughout, even though the bulleted points under each topic often include examples of all three.

Above all, the *Handbook* is geared to providing its user with these small, standardized units of rhetorical material, which might be reassembled into a wide variety of documents and performances. This user may wish to browse the *Handbook*, memorize its contents, or even read it linearly, but its physical organization provides extensive support for the user who needs rhetorical materials in a specific concrete situation. This situation is defined in terms of a specific public issue, and specifically the key words associated with that issue ("environment", "safety", "deforestation"), and then either in terms of specific topics ("fat", "water use", "reasons for proper care of animals") or questions that activist critiques have given currency in the institutional sites where the industry's practices are debated. It is also defined in terms of the types of arguments that are envisioned as instrumentally effective in these sites: appeals to scientific reason, expert authorities, statistical evidence, and pecuniary interests in doing the right thing.

The *Handbook* is also adapted to the cognitive situation of its user. This is most evident in the consistent set of cues for searching provided by its layout, including its conventions for starting subsections and questions-and-answers at the top of odd-numbered pages, heading these pages with standardized bold type subsection labels such as "INDUSTRY FACTS: ENVIRONMENT" and "QUESTIONS AND ANSWERS: ENVIRONMENT", along with square logos indicating the current section. More fundamentally, the *Handbook* reflects a recognition that the average industry member cannot individually command the rhetorical and factual resources required to answer effecively the full range of current objections to industry practices, much less project a standardized industry voice in a range of interactional settings. This voice is very much a collective construction, and the *Handbook* reflects a highly developed technics for the production of such a collective voice.

Clearly, then, the *Handbook* can be read for its place in the institutional circuitry of business political mobilization. It refers explicitly to certain elements of this circuitry, including the industry association employees who are available by telephone, the research reports and government documents that are available for further reference, and the government agencies that are listed as industry resources. In this sense, the *Handbook* is an industrial artifact that represents certain aspects of its own position in a much larger system of distribution. The industry in question distributes cattle and their products, of course, but more to the point it also distributes the messages, facts, and quotes that serve as modular components for interventions in public debates. The primary customers for this industrial distribution system are, naturally, the industry association's paying members, and the economic value of this system's products presumably lies in their effectiveness as tools for both the defense of purely individual interests and the coordination of solidarity across the organized interest group. The strategies of interest group mobilization are more complex than a reading of this single document can reconstruct (Heath 1988, Measell 1992). But the more complex strategies are assembled from the basic formal and ideological elements already described.

3 The future

The "stuff" that flows through a given institutional circuitry, then, is not information. "Information" is at best a superficial generic term for a

broad range of categories whose forms can be described in terms of genres but whose nature can ultimately only be understood within a larger system of structural relationships and ideologies. The artifacts and media that convey this stuff through the circuitry will change as the institutions change or as technological innovations supply new options for strategic communication. Yates and Orlikowski's (1992) theory suggests that any new technologies will be taken up through a back-and-forth motion, with existing genres being imposed on new media and new genres then emerging as the practical demands of the situation lead to incremental innovations in the genres themselves. In the case of business political mobilization, the emergence of "information-intensive" politics and real-time "grassroots" lobbying techniques (Greider 1992) has provided a purpose for telemarketing equipment, fax machines, and computer networks in tactical mobilization over current legislative and regulatory issues. At the same time, the emerging genres of communication through these media share the message/facts/quotes ideology and formal structure of the cattle industry *Handbook*.

Inasmuch as information technologists and librarians both define themselves as dealing in information, it is common to suppose that advances in the technology will undermine librarianship and heavily automate or even eliminate libraries, or else that librarians will migrate in a natural way from the management of physical information artifacts to digital information media. Yet analysis of this question requires an appreciation for the strategic neutrality of "information" as an ideological category in the definition of both professions. In each case, the strategy of providing generically defined services to an extremely diverse range of institutional customers has historically required that only a limited range of accommodations can be made to the specific structures and requirements of each.

But this may change. As Friedman (1989) has explained, the development of information technology can be understood as the accretion of successive layers of settled art: first the basic methods to get anything to work right at all, then the conceptual framework to get the right thing to work based on some representation of customer requirements, and then the provision of "user interfaces" for nontechnical users. He describes the emerging period of technical history as "the phase of organizational environment constraints", which constraints pertain to "the interface between internal computing systems and specific agents in the environment of the organization. Agents include customers and clients, suppliers, competitors, cooperators, representatives and public bodies" (1989: 337). These things are not straightforwardly "technical" at all. To the contrary, they concern the institutional relationships that information technology increasingly mediates: they are matters of institutional circuitry that only make sense within the practical logic of a particular institution. As a result, they may call not for computer people with some knowledge of (for example) political mobilization, but rather for experts in political mobilization with some knowledge of computers.

Librarianship may feel the same centrifugal force. As computer networks permit librarians to pool their efforts at cataloging, research assistance, and other duties formerly requiring a great deal of local duplication of expertise, intensive specialization will become increasingly feasible. Digital media, likewise, do not impose the constraints of an expensive, centralized, physically voluminous collection of physical artifacts. Therefore, as digital media increase in number and practical importance, multiple specialized cataloging schemes can arise to serve particular institutional audiences. In each case, it may become possible -- and perhaps even unavoidable -- for librarians to abandon the ideology of information and replace it with the specialized ideology that governs the circuitry of a particular institution. Research libraries will be catalogued in terms of literatures, libraries of materials for professionalized political mobilization will be organized through the categories of public relations, and so forth. The libraries themselves will become increasingly integrated into the rest of the institutional circuitry. The only question is whether a coherent profession of librarianship, and the pluralistic values of public access it supports, will survive this transition at all.

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Bibliography

Marcia J. Bates, Subject access in online catalogs: A design model, *Journal of the American Society for Information Science* 37(6), 1986, pages 357-376.

Charles Bazerman, *Shaping Written Knowledge: The Genre and Activity of the Experimental Article in Science*, Madison: University of Wisconsin Press, 1988.

Michael K. Buckland, Information as thing, *Journal of the American Society for Information Science* 42(5), 1991, pages 351-360.

Brenda Dervin and Michael Nilan, Information needs and uses, *Annual Review of Information Science and Technology* 21, 1986, pages 3-33.

Brenda Dervin, Users as research inventions: How research categories perpetuate inequities, *Journal of Communication* 39(3), 1989, pages 216-232.

Brenda Dervin, Information <-> democracy: An examination of underlying assumptions, *Journal of the American Society for Information Science* 45(6), 1994, pages 369-385.

Raya Fidel, User-centered indexing, *Journal of the American Society for Information Science* 45(8), 1994, pages 572-576.

Andrew L. Friedman, *Computer Systems Development: History, Organization and Implementation*, Chichester, UK: Wiley, 1989.

Stephen Greenblatt, *Shakespearean Negotiations: The Circulation of Social Energy in Renaissance England*, Berkeley: University of California Press, 1988.

William Greider, *Who Will Tell the People? The Betrayal of American Democracy*, New York: Simon and Schuster, 1992.

Robert L. Heath, Working through trade associations and public information organizations, in Robert L. Heath, ed, *Strategic Issues Management: How Organizations Influence and Respond to Public Interests and Policies*, San Francisco: Jossey-Bass, 1988.

Elizabeth T. Hewins, Information need and use studies, *Annual Review of Information Science and Technology* 25, 1990, pages 145-172.

Carol C. Kuhlthau, Inside the search process: Information seeking from the user's perspective, *Journal of the American Society for Information Science* 42(5), 1991, pages 361-371.

Bruno Latour and Steve Woolgar, *Laboratory Life: The Construction of Scientific Facts*, Princeton: Princeton University Press, 1986. Originally

published in 1979.

James S. Measell, Trade associations: Whose voice? Whose vice?, in Elizabeth L. Toth and Robert L. Heath, eds, *Rhetorical and Critical Approaches to Public Relations*, Hillsdale, NJ: Erlbaum, 1992.

Jeremy Rifkin, *Beyond Beef: The Rise and Fall of the Cattle Culture*, New York: Dutton, 1992.

Dan Schiller, From culture to information and back again: Commoditization as a route to knowledge, *Critical Studies in Mass Communication* 11(1), 1994, pages 93-115.

Orville Schell, *Modern Meat*, New York: Random House, 1984.

Claude E. Shannon and Warren Weaver, *The Mathematical Theory of Communication*, Urbana: University of Illinois Press, 1949.

Gaye Tuchman, Objectivity as strategic ritual: An examination of newsmen's notions of objectivity, *American Journal of Sociology* 77(4), 1972, pages 660-679.

JoAnne Yates and Wanda J. Orlikowski, Genres of organizational communication: A structurational approach to studying communication and media, *Academy of Management Review* 17(2), 1992, pages 299-326.

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