From the Institute for Scientific Information (ISI) to the National Federation of Advanced Information Services (NFAIS): Interview with Bonnie Lawlor

Svetla Baykoucheva

Bonnie Lawlor

Bonnie Lawlor is Executive Director of NFAIS, a membership association for organizations that aggregate, organize and facilitate access to authoritative information. Prior to NFAIS, Bonnie was Senior Vice President and General Manager of UMI's Library Division (now ProQuest Information and Learning) where she was responsible for the development and worldwide sales and marketing of their products to academic, public, and government libraries.

Before UMI, Bonnie was Executive Vice President of the Database Publishing Division at the Institute for Scientific Information (ISI – now Thomson Reuters, Healthcare & Science) where she was responsible for product development, production, publisher relations, editorial content, and worldwide sales and marketing of all of ISI's products and services.

Bonnie is a very active member of the American Chemical Society. She is currently a Councilor for the Division of Chemical Information and an elected member of the Council Policy Committee. She is a past chair of the American Chemical Society's Committee on Copyrights and the ACS Committee on Divisional Activities, and has also served on the ACS Committee on Budget and Finance and the Committee on Nominations and Elections. She is currently a Trustee and Secretary of the Chemical Structure Association (CSA) Trust, an internationally recognized organization established to promote the critical importance of chemical information to advances in chemical research. She also serves on the Board of LYRASIS (formerly PALINET) and on the Board of the Philosopher's Information Center.

Bonnie has also served as a Board and Executive Committee Member of the Information Industry Association (IIA) and a Board Member of the American Society for Information Science (ASIS). Ms. Lawlor earned a BS in Chemistry from Chestnut Hill College (Philadelphia), an MS in chemistry from St. Joseph's University (Philadelphia), and an MBA from the Wharton School (University of Pennsylvania). In 1992 Dr. Garfield wrote about Bonnie's accomplishments at ISI that was published in the *Current Contents* and can be viewed at http://www.garfield.library.upenn.edu/essays/v15p280y1992-93.pdf

Svetla Baykoucheva: You have held a number of executive positions in different companies and non-profit organizations and you have served as an elected official in the American Chemical Society (ACS). It seems that all the organizations that you have been affiliated with professionally have something in common—they are all related to scientific information and scientific publishing. How did you come to this field, what triggered your interest in it, and what were the main factors that have influenced your career (e.g., education, chance, timing, etc.)?

Bonnie Lawlor: Svetla, I fell into the field of scientific publishing quite unintentionally. Immediately after college I went to the University of Pennsylvania to study for my Ph.D. Upon completion of my coursework I left to find a job as I had become engaged to a Vietnam War veteran who wanted to complete his college degree. With only a Bachelor's degree in chemistry the opportunities were less than exciting, plus I was uncertain as to whether or not a laboratory career was really for me. I saw an advertisement for a chemical indexer in the now defunct *Philadelphia Bulletin*. I had no idea what being a "chemical indexer" actually entailed, but I interviewed, was tested, and was offered the position at the Institute for Scientific Information (ISI). After two years I was hooked. ISI was, at that time, small, entrepreneurial and very interesting. Plus I was able to use my education and love of the theory of chemistry without having to spill chemicals (which I had been known to do!). Ultimately I became involved with other areas of the company - *Current Contents*, the citation indexes, etc. – and was caught up in the industry transition from print to electronic publications. An exciting era only made more so by the introduction and evolution of the Web!

SB: You are currently Executive Director of NFAIS. What does this acronym stand for and what does this organization do?

BL: NFAIS is short for the National Federation of Advanced Information Services. It is a non-profit organization that was founded in 1958. At that time President Eisenhower directed the National Science Foundation to ensure the provision of indexing, abstracting, translation, and other information services that would lead to a more effective dissemination of scientific information. He believed that science had won WWII and that science would keep the peace. As the U.S. mobilized to create a new information infrastructure for the promotion of scientific innovation, G. Miles Conrad, Director of Biological Abstracts (later BIOSIS and now part of Thomson Reuters), called an meeting of leading not-for-profit and government scientific Abstracting & Indexing services. He encouraged the group to join forces, cooperate, and interact so that as a unified force they could make rapid progress in achieving national priorities while simultaneously promoting the international advancement of science. As a result of his efforts a new organization - the National Federation of Science Abstracting and Indexing Services (*NFSAIS*) - was formed with the charter membership of fourteen information services, including *Chemical Abstracts*, *Engineering Index*, *AGRICOLA*, *Current List of Medical Literature* (NLM), etc. The organization has since expanded beyond science to include all scholarly disciplines. Membership is now available to for-profit organizations and is no longer limited to A&I services. NFAIS currently serves all those who create, aggregate, organize, and otherwise provide ease of access to and effective navigation and use of *authoritative* information and our Member organizations represent a global cross-section of content and technology providers, including database creators, publishers, libraries, host systems, information technology developers, content management providers, and other related groups. Despite diverse interests, all NFAIS members embrace the philosophy underlying the organization's original motto, *Promotion through Cooperation*, and work together to facilitate collaboration and communication throughout the Information Community. The work of NFAIS is to:

- Facilitate the exchange of information among NFAIS members
- Promote *NFAIS* members and their essential role within the Information Community
- Encourage discussion, understanding and cooperation across all Information Community sectors
- Sponsor topical conferences, seminars and educational courses
- Publish newsletters, current awareness alerts, books and reports
- Develop Codes of Practice, Guiding Principles and White Papers on Information Policy and New Technologies

SB: Being Executive Vice President of the Database Publishing Division of the Institute for Scientific Information (ISI is now Thomson Reuters, Healthcare & Science) and being responsible for so many areas (product development, production, publisher relations, editorial content, and worldwide sales and marketing of all of ISI's products and services) could be a daunting responsibility. What imprint, do you think, your work has made on ISI's success and image?

BL: Over the twenty-eight year span that I spent at ISI, I would perhaps choose a few "turning points" where I know that I had an impact on the outcome and the ultimate shaping of the company. The first is regarding ISI's chemical information products. *Index Chemicus*, a weekly alert to new chemical compounds, was launched by Dr. Garfield in the early 1960's before I joined the company. It was not a popular move and three vice presidents even left the company, partially due to this initiative that they perceived as being risky. In 1982 the entire chemistry product line was made a separate division under my leadership, with the directive to make it work. We were responsible for product development, production, sales and marketing. We had a great team and many in CINF may remember them – Judy Sarkisian, Jack Coulson, Kerry Louiso – and the indexing and encoding staff, some of who are still with the company – Pat Rosso, Maria Gonzalez, Josie Ortega, Shelly Rahman, Dave Jordan, etc. We believed in the importance of reaction indexing and wanted to create a database of new chemical reactions in organic chemistry, but had no funding. We were given approval to see if we could obtain seed money from interested chemical and pharmaceutical companies. So we launched a Charter Club in which those organizations who provided funding would have a say in the development of the reaction product. We were able to obtain the funding, develop the product and, through a partnership with Molecular Design Ltd. (MDL) offer a graphic interface to the reactions. It was one of the first of its kind and was quite successful. As a result the chemistry product line became financially viable and grew, and it remains a source of viable product offerings from Thomson Reuters. I am extremely proud of everyone who had a part in making that happen as the odds were not in our favor.

By the mid to late 1980's the entire abstracting and indexing community faced another challenge – how to adapt its print products and services to the newly emerging digital environment sparked in 1981 by the launch of personal computers and fueled by the emergence of the CD-ROM and diskette distribution media. We were very fortunate. We had been creating electronic versions of all of our citation indexes, *Current Contents* and the chemical products as a by-product of computerized production that most major A&I services had adopted in the 1960's. The issue was to take the data already available on magnetic tape and make it compatible with the new platforms. Change is not easy and it took some doing to convince staff (and in some cases management) that digital was the future. Again, my staff rose to the occasion – Theresa Rosen on the citation index side and Beverly Bartolomeo on the *Current Contents* side and together with the assistance of programmers, editorial staff, sales and marketing, we made it happen. Within two years 20% of our print base had converted to the new format.

This shift to digital products and services was coincidental with another major change that was specific to ISI, for we had caught the attention of JPT - a publishing company owned by Ted Cross, Joe Pallazolo and Paul Neuthaler. They were interested in acquiring the company – which they did in 1988. And over the next four years they helped us grow the business. During that period there were two decisions that I was able to shape that were to have a significant long-term impact. First, was the pricing of electronic products. JPT believed that they should be priced lower than print because there was no printing involved, shipping was cheaper, etc. I was just as convinced that they should be priced higher because of factors that were unique to digital products – ongoing investment in technology and software, training (digital information products were still relatively new), support via help desk activities and the fact that initial purchases would be by existing customers migrating from the print. It took a lot of meetings, presentations and analyses, but they ultimately agreed to launch *Current Contents on Diskette* at a price higher than the print. A good move if I say so myself! Remember, in the 1980's computer literacy was not the norm. Customer training and support was not limited to the product that was being sold, but spilled over to the technology as well.
In 1988, help desk phone activity grew 72% over prior year and 1989 grew 105% over 1988. By 1990 there was a 581% increase in phone activity. And the staff handling that activity had to be both computer and product literate. In addition, my guess was right – initial customers of electronic products were due to cannibalization of the print. And, as noted earlier, within just two years 20% of the print base was gone. (These stats appeared in a report that I wrote for NFAIS in 1991that was published in *Information Distribution Issues for the 90's*: copies available upon request).

The second decision that I was able to get approved was to add English language author abstracts to ISI products. Up until this time they were only included in the print issues of *Index Chemicus* and *Current Chemical Reactions* and I believed that they were an essential addition to our new electronic offerings. In addition, many of our competitors already had abstracts in their products. Again, many discussions and meetings – and outreach to publishers. In the end approval was won and the announcement was celebrated amid much fanfare at a customer party during the online Information meeting in New York in May, 1991. JPT funded a number of innovations that made ISI very attractive to much larger content providers. After four years - and many presentations to competing suitors - the company was sold to Thomson (now Thomson Reuters) in 1992.

Svetla, your question made me think of specific instances where a visible and long-lasting impact was made. In general, I would say that the combination of my fiscal responsibility and love of ISI together was a great foil to Dr. Garfield's creativity and drive. Throw in the unbelievable genius of people such as Irv Sher, George Vladutz and Henry Small, and the work ethic and loyalty of hundreds of employees who were devoted to the company – ISI became a major force in the Information community. I was just one of many and I am grateful that I had the opportunity to be part of the unique ISI family.

SB: What did it take to work and succeed in an environment (such as the one at ISI at that time) that was so innovative, dynamic and competitive—and dominated by a mythological figure such as Eugene Garfield? Could you tell us what your first encounter with Dr. Garfield was?

BL: As I mentioned earlier, when I joined ISI it was relatively small and very entrepreneurial. We all were made to feel that we were part of the creation of something of value. When a customer wrote to tell Dr. Garfield that a product or service solved a problem, he let us know (of course, we also heard all of the complaints). It was truly nourishing environment. In the early days I did not observe biases of any kind. No matter what your gender, color or educational status – if you had an idea, Dr. Garfield was willing to hear it. It was an environment that offered great opportunity if you were creative and willing to work hard. It was also a crazy place to work – perhaps due to the culture of the late 60's and early 70's. People parked their

motorcycles by their desks. The work dress ranged from normal to eccentric. I remember one person wore baby doll pajamas to the office and one executive always wore a small teddy bear on his belt (these same two people "streaked" at one of the company parties!). When my boss complained about the length (or lack thereof) of miniskirts, the corporate (unofficial) response was that the only dress code requirement was shoes! The examples are endless. But when I went to UMI in the 1990's I heard similar stories from their staff. I suspect the ISI environment was a combination of the times and the personality of our corporate leader.

I still smile about my first encounter with Dr. Garfield. Every day the coffee shop in the lobby of our building sent a cart to each floor in mid-morning and afternoon so that everyone could get a snack. While I waited in line by the elevators to get my caffeine fix in the early days of my employment, a rather strange vision emerged from the elevators wearing a gray jacket with a fur collar and wild hair reminiscent of Albert Einstein. I asked the person behind me who it was (I thought perhaps he was a handyman). When the laughter subsided I was told the vision in question was Dr. Garfield. Ultimately I came to know, respect, and occasionally fear him. I learned so very much from him – the importance of such things as quality, responsiveness to customers, innovation – and being a professional. Even though we competed with the American Chemical Society, he made sure that we were active in the ACS - particularly in what is now the Division of Chemical Information. He said that we were chemists and should actively promote the profession. He encouraged us to get involved and to have good working relationships with CAS staff. It is due to him that I and many others at ISI became active. In retrospect, I could not have had a better mentor. We still keep in touch and I treasure our relationship.

SB: The Science Citation Index has provided a new approach to information retrieval. Web of Science, which is based on the Science Citation Index, does not use topical indexing—it heavily relies on words used in titles of documents. What will happen if a particular term has been misspelled in the title of an article? Is Web of Science going to miss this article?

BL: I cannot address ISI's current processing system, but I can briefly talk about the "unique word dictionary (UWD)" and the process that was in place for providing accurate index terms for the citation indexes while I was there. Rather than use a controlled thesaurus for creating index terms, the decision very early in ISI's history was to use the natural language of science that would evolve over time. Simply put, we used the title words from each article processed. To minimize errors, every title was separately keyed by two different staff and the results were compared. In addition, the words were checked against the master dictionary file compiled to date and new terms were flagged. These were checked to see if they were simply author misspellings, keying errors that had gotten through, or real new terms being introduced for the first time. All terms were standardized to American spelling. The unique word dictionary was not a dictionary in the traditional sense of the term. It was a compilation of unique words that had been taken from titles and checked as thoroughly as is humanly possible and it grew in size over time. It allowed us to identify when new terms or phrases were coined and to track changes in science from a unique perspective, including the frequency by which a certain term was used during a given time period. This is a very simplistic description of the UWD. It actually was made up of several files: a file of words having 12 or fewer letters; a file of words containing 13-30 letters; and a cross-reference file that included variant-to-preferred spellings of words. In addition, there was a file of two-word "terms" created by the editors if they believed it was necessary for accurate search and retrieval. As I mentioned earlier, quality in all of its manifestations was an ISI goal and information scientists such as Irv Sher and George Vladutz were unbelievably innovative in developing systems that would provide accurate search and retrieval. Did errors get through? Yes, and the systems immediately were modified so that the probability of the same error happening again would be pretty low. I should note that the indexing process for the chemistry products was quite different. The indexes were created by chemists who would apply standard nomenclature rules to create the names of the new compounds that had been indexed, along with other terms that would identify relevant biological activities, new synthetic reactions, etc.

SB: How did the ISI decide which journals to cover?

BL: There was a set of criteria by which a journal was measured before being added to a specific product line. Journal evaluation was a never-ending process that was used not only to review the new journals under consideration, but also to review those currently covered to see if such coverage remained appropriate. The criteria included the timeliness of the journal - did it have and meet a regular publication schedule; were the articles written in English; were author-abstracts included; did it conform to standards for article publishing (e.g. have descriptive titles, author names and addresses, full references to cited materials, funding information for the research, etc.); were the articles peer-reviewed; was the publisher known and respected. If it was not a brand new journal, we would look at the

citations to the journal as a measure of acceptance in the market and the quality of research that it published.
Respected abstracting and indexing services serve as a "marketing" arm for publishers. They offer a unique distribution channel – exposing journals before the eyes of thousands of scholars and researchers around the globe. Therefore, it was very important to have published criteria and to strictly adhere to those criteria so that one could clearly justify exclusion of a title to a journal editor or publisher and still maintain a good relationship with him or her.

I took a quick look at the current selection criteria posted on the Thomson Reuters site. It is pretty much the same, with the addition of criteria for electronic journals, international diversity for global markets and specific criteria for material focused on region-specific products (http://isiwebofknowledge.com/benefits/essays/journalselection/).

SB: You have been involved in database publishing for a long time. How do you see the future of the secondary publishers? How will models such as Google Scholar that rely on parsing the full text of documents affect the commercial databases and in what respect? How will services such as PubChem affect the commercial vendors of chemical property information?

BL: I believe that the current climate of change in scholarly communication will impact *all* publishers, both primary and secondary. A 2008 blog entry by Clay Shirky (http://us.penguingroup.com/static/html/blogs/tools-and-transformations-clay-shirky) says it all. The Internet, like the printing press before it, has created an information revolution that is generating new forms of scholarly communication and publishing. That said, I will focus my comments on the Abstracting and Indexing (A&I) world. The concept of an A&I service was first noted in 1665 with the creation of *The Journal Des Scavans.* The journal's primary purpose was to catalog and provide a brief description of the principal books then being printed in Europe, as well as to provide readable and critical accounts of current scholarly writings. Its goal was to facilitate information discovery and to minimize information overload. A&I services as we know them began to emerge in the early 1800's when there were approximately 300 scientific journals. Since then their purpose has never changed: They play an essential role in allowing scholars to navigate masses of information with relative ease. The bibliographic pointers such as keywords, subject indexes, authors, titles, etc. facilitate the discovery of information; abstracts allow the evaluation of a document's relevance to one's research; and links – either a bibliographic reference, or in today's world, an electronic link, allow retrieval of the full text. And as over the years these services build a body of information, they serve as the continuum between past, current and future scholarly thinking upon which all human knowledge is built. This is the essential role that organizations such as CAS and ISI play even today. They began when scholarly communication was print-based and they have adapted; we now progress through a transition consisting of both print and digital media.

You have raised two issues, the first dealing with Google Scholar (and this can be extended to all free information on the Web) and the second dealing with scholarly information services that are available from the government or have been established using an open access business model such as the Public Library of Science (PLoS).

Based on survey results that I have heard NFAIS members quote, researchers use Google 100% of the time for concept searches and to obtain ideas. Who doesn't use it? John Regazzi reported on this trend almost six years ago (http://www.nfais.org/page/42-john-j-regazzi-2004). But when researchers become involved in a specific project they turn to the more traditional services offered by their libraries or information centers in order to obtain their information, and they do so for two reasons: 1) they know that these services cover the source material in which the vast majority of scientists and scholars publish (Google Scholar does not); and, 2) they know that these services provide authoritative, reliable content (all Google content is not reliable).
To the extent that a free A&I service such as PubMed offers the same authoritative content and comparable coverage as a fee-based service, researchers will use the free service if it meets their requirements; if not, they will use a fee-based version if one is available to them. Fee-based products based on MedLine are a good example. There have been many competing variations of MedLine over the years and they have done well based upon the features and functionalities that their creators built around the content. They created "value" that could be measured by the user. A&I services need to continue their never-ending investment in the creation of measurable value.

Open Access journals are covered by most A&I services. I view such journals as an alternative to the traditional *primary* publishing model. Even the venerable publisher Springer Verlag has moved into the open access arena, acquiring BioMed Central in 2008. Open Access journals are not head-to-head competitors to A&I services.

Having said that, I do believe that the well-established A&I services are vulnerable if they do not pay attention to the new forms of scholarly communication. Their charter is to facilitate the discovery of and access to scholarly and scientific information. As the primary basis of that communication (journals) evolves into a more dynamic, online, collaborative "conversation," they must adapt their services to capture and preserve the content of the conversation. Not easy, as to do so one must deal with issues of authority (credible content), privacy, ownership (copyright), etc. But they must ensure that they deliver products offering ease of access to *all* the available information that is needed by their particular user base – no matter what the source. Traditional A&I services have the knowledge and expertise to be the A&I services of the future. But they must embrace the new forms of scholarly communication today, not ignore them, and not "wait and see."

I see the biggest hurdles to their future being the fact that to offer high quality A&I services requires a significant ongoing investment. During the journal explosion of the 1960's and 70's many questioned their ability to survive. With the help of technology, many did; others were ultimately acquired by stronger organizations. The information explosion sparked by the Web is having a similar impact on the growth of information. This, combined with the constant struggle to identify new business models, makes them vulnerable in the long term to new, creative competitors who can freely experiment with business models as they have no "baggage' (existing revenue streams) that could be threatened.

But if the A&I community is aggressive in creating new value-added products by leveraging their well-honed skills on the growing body of Web-based literature – creating the "A&I seal of approval" for scholarly users of the Web – their future could be secured. Bottom line, survival for all traditional content providers - including libraries – is to insure that they are providing value as measured by the user.

SB: You have held many elected positions at ACS, and you have also served as editor of the Bulletin. What was your role as editor and how did you put the issues together? Of the many roles that you have played in ACS, in general, and in the Chemical Information Division (CINF), which one was most interesting and satisfying to you and which one, in your opinion, has made a difference for ACS and CINF?

BL: Putting the *Chemical Information Bulletin* (CIB) together was a manual labor intensive process when I was editor (1977-1983). There were three printed issues per year. I had to solicit articles and advertisements and create the actual typewritten materials (there were no personal computers). I was fortunate, though. My boss, Gabrielle (Gaby) Revesz had been editor before me and was very active in CINF. I was permitted to use the talents of the "paste-up" artists that put together the print editions of *Index Chemicus*. They did the actual copy and layout work and prepared the final copy for the printer on huge sheets of paper. We used the same printer used for ISI's chemistry products (CINF paid the cost of printing). The only pain process was the mailing. We would get the division mailing labels in zip code order from ACS Headquarters. We then had to manually apply the labels to the printed Bulletins, bundle them by zip code (bundles had to consist of 10 or more *CIB*'s going to the same zip code), and put them in mail bags from the post office (supplied by ISI's wonderful mail room staff). The bags were then hauled (not by me) to the 30th Street Post Office a few blocks away where we had a non-profit license to mail the copies. I have to say that putting CIB together in those days was interesting and fun and many of the indexing staff participated.

You can see their names on the masthead at: http://digital.library.unt.edu/permalink/meta-dc-5684:2 including that of Marge Matthews who was an Assistant Editor and who eventually took over as editor when I stepped down. The ISI artists created the hand drawn cover designs for each issue (see an example at http://digital.library.unt.edu/permalink/meta-dc-5694:1) and even cartoons on occasion – it became a tradition since the *CIB* was edited by a series of ISI staff members over a long period of time.

The most satisfying role that I have played in ACS in general was when I served on the Committee on Nominations and Elections (N&E). N&E is the recipient of complaints about the nominations and elections process and has seriously spearheaded changes over the last decade. I served for six years (2000-2005) and played a role in making the election process more equitable and in making sure that Divisions were being adequately looked at to fill elected positions. The committee is often criticized because its work is confidential. It identifies potential candidates for elected committees (except for N&E, that is done by the Council Policy Committee (CPC)), for ACS Directors and for ACS President-elect. Behind closed doors there is much discussion about the proposed nominees' qualifications and the development of a rank-ordered list of names takes place. N&E attempts to ensure that the most qualified people are asked, that diversity is achieved and maintained, and that Divisions and Local Sections are treated equally. Hence, confidentiality is an

absolute requirement of the process. I am proud of what the committee has accomplished in getting the ACS Bylaws changed to make the process more equitable and glad that I was able to be a part of that process. CINF is fortunate that Andrea Twiss-Brooks is now representing Division needs on N&E and being a part of the change process.

With regard to the various roles I have played for the Division – Chair, Secretary, *CIB* editor , and Councilor– each had or has its own fulfilling rewards. When I was Secretary the Division won the award for best annual report from a medium-size Division. That was exciting for me and for CINF. There were no report forms to fill out at that time, it was all free form and you could include as much or as little as you wanted. I recollect that our winning report was in a 2" binder – and it was a pure marketing tool for CINF (I was at Wharton at the time and I think I let my MBA mindset take over - I wrote it almost as a business report. My own secretary helped and chided me on my verbosity). To this day, when we get together for lunch, that report finds its way into the conversation.

I think that I have had a chance to most effectively serve the Division in my role as Councilor over the past seventeen years. My longevity has given me visibility and as a result I have been appointed or elected to committees where I could impact how Divisions were perceived, recognized and rewarded. Most recently I have been asked to participate on a Task Force on the electronic dissemination of meeting content that will have its first meeting on February 2010. Hopefully, that will lead to something for CINF.

SB: This is the first issue of the *Bulletin* that will be produced only online. What would you like to see in future issues? How could we make it more interesting and relevant to the chemical information community?

BL: I thoroughly enjoy reading your interviews. The personal history is fascinating. I would like to see articles on information industry trends in general as well as how those trends impact the flow of scientific and scholarly communication. This could include articles on information policy and copyright legislation. Perhaps we could include a summary at year-end - sort of a look back at the highlights of the year with regards to technology changes, mergers and acquisitions, new products, meeting highlights, etc. Not the Division annual report, (although it could include a link to the report) – I mean a much more global, industry wide overview with links to relevant sites. Specific initiatives or technologies discussed at the ACS meetings could be summarized with links to podcasts. The electronic format opens up a lot of possibilities that CINF can pursue. As an aside, and not really related to the *CIB*, we could use Val Metanomski's CINF history as the foundation of a wiki-like history of Chemical Information with links to items from the Chemical Heritage Foundation and other sources. Perhaps pieces of the history could be "reprinted" in *CIB* and expanded upon using links to relevant sources as an ongoing serial. Or we can highlight the history of specific technologies or companies of interest to CINF members. Best I shut up unless I am willing to contribute!