June 2002

Books Are Us

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Recommended Citation

Robichaux, Anne (2002) "Books Are Us," *Against the Grain*: Vol. 14: Iss. 3, Article 23.

DOI: <https://doi.org/10.7771/2380-176X.3996>

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rural health in America, living with epidemics, and much, much more. **David J. Rothman** of the **Center for Study of Society and Medicine**, College of Physicians and Surgeons, **Columbia University**, presented the **Fielding H. Garrison Lecture** on the historian as an expert witness. He outlined instances in which he testified at trials as an expert on informed consent.

The **75th AAHM** conference opened with a stirring address by **President Judith W. Leavitt**, Department of Medical History and Bioethics, **University of Wisconsin Medical School**, entitled "What Do Men Have To Do With It?" She described the changes in the role of the father in labor and delivery rooms. Lest anyone think it was all serious, the attendees were treated to a reception at the **American Jazz Museum & Negro Leagues Baseball Museum** with great music and Kansas City barbeque.

Of special interest to the librarians and archivists was a report on the project to develop an electronic version of the *Index Catalogue of the Library of the Surgeon General's Office*, the monumental catalog begun by **John Shaw Billings** after the Civil War. This great work contains nearly four million records in its five series and is the repository of medical knowledge from all times and countries. The word is that it will be available sometime during the next year to the great joy of all medical librarians and historians.

Books Are Us

by **Anne Robichaux** (Professor Emerita, Medical University of South Carolina; Consultant, Majors Scientific Books) <akr772@mac.com>

AKA your editor, this column is supposed to cover fiction about people like us — librarians, publishers, vendors, booksellers, etc. All contributions are welcome. — AR

Searching the Web for "librarians in fiction" resulted in several interesting Websites and also pointed to a bibliography of the same name: ***Librarians in Fiction, a Critical Bibliography***, by **Grant Burns** (McFarland & Company, Inc., 1998, \$29.95, ISBN 078640499X).

The bibliography is fully annotated with descriptions that read more like short reviews of 374 novels, short stories, plays, secondary sources (indexes, theses, etc.) and "bibliographer's choice: works not to miss." Each description contains a "delightfully opinionated synopsis of the story and details how the librarian is portrayed." (American Libraries). An assortment of reviews (mcfarland.com; amazon.com) recommend the title for librarians and library-lovers alike, commenting on the richness of the "unapologetically opinionated, and nicely indexed" bibliography. Descriptors such as witty, entertaining, functional, "a good read from cover to cover" are but a few of the well deserved praises from reviewers.

In the book's introduction the author notes "and this won't surprise any of us" that Librarians "have been somewhat preoccupied with their image nearly since the inception of the profession. One of the major vehicles for the development and propagation of images of any group is fiction. Librarians are plentiful in fiction." **Mr. Burns** writes that he had two purposes in mind in writing this book: first, to explore the images of librarians in fiction (originally written in English, or trans-

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lated into English over the last century); and second, to recommend interesting and good fiction featuring librarians.

One of the entertaining features of the introduction is the listing of both positive descriptors applied to librarians in the novels reviewed and a list of the negative, or "dark side" descriptors. The author observes that the positive descriptors are "concerned more often than not with issues of intelligence or nurturing ability." Librarians should be smart, and scholarly, as well as tactful and friendly. If they are sometimes pretty or funny, that is merely frosting on the cake. It is more important, in library country, to be well-informed that it is to be well-built."

In spite of the positive portrayals in the works included here, the author observes that more works represent fictional librarians in a negative way, leading him to suspect that some writers buy into old stereotypes or caricatures. The "dark side" list includes many descriptors that might lead one to believe that some novelists "suspect librarians of missing out on their fair share of amorous fulfillment. The professional-virgin sharp-tongued desiccated sex-starved shapeless spinster librarian is a caricature that seems so extreme — as to be laughable, yet many writers have not been beyond indulging in some variation of it."

The list of positive descriptors for the book itself certainly outweighed the list of negatives — in fact I found no "dark side" or negative comments.

In searching for more information about the author, I learned that he entered the book world over thirty years ago as a book-binder and a rare book conservator, and was a reference librarian for over twenty years with the **University of Michigan-Flint**. He is currently Assistant Director of the Library, but continues his love of reference by taking a turn at the desk. He also has an alter ego who has an intriguing Web presence, "**Uncle Frank's Diary**" in the Website **Newpages.com**. "**Uncle Frank**" plans to write "about issues in books, publishing, reading, and ancillary areas that excite, delight, baffle, or worry" him. The columns he has written thus far are worth a look — informative, interesting, opinionated and enjoyable. And in his words, **Newpages.com** (the work of his friend **Casey Hill**) "focuses on what could generally be called the alternative or progressive library and publishing world." While **Uncle Frank** is surfacing from time to time, **Mr. Burns** may consider a revised edition to **Librarians in Fiction** in a few years. Both **Mr. Burns** and **Uncle Frank** can be reached at <gfburns@flint.umich.edu>.

Innovations Affecting Us — 3-D Data Storage

by **Norman Desmarais** (Acquisitions Librarian, Phillips Memorial Library, Providence College) <normd@postoffice.providence.edu>

DVD superseded CD-ROM. Holographic data storage will eventually replace DVD. Demand for high-density data storage proceeds unabated; so engineers continue to search for ways to pack more data into increasingly smaller spaces. CD-ROMs packed 650MB of data onto a single layered disc. DVD found a way to put two layers on the same side of a disc. In addition to doubling capacity, it was the first three-dimensional storage medium. By putting two layers on each side, DVD can deliver up to 9GB of data. Holography promises to increase the number of information layers to ten and, eventually, to 100 or more. Holographic data storage differs from conventional storage techniques in that it uses the entire volume of the recording medium, rather than just the surface, thereby greatly increasing potential data density.

A hologram is created by splitting a laser beam in two. One portion of the beam illuminates an object with coherent light in which all the waves travel in phase with one another. The other portion of the same beam, called the reference beam, is directed at the photographic plate simultaneously, but it is reflected by a mirror or prism. Because the two beams take different paths, they are no longer in phase with each other when they reach the film and interfere. This interference pattern is recorded on the film and constitutes the hologram. To reconstruct (view) the image requires illuminating the hologram with a light shining from the same direction as the reference beam. The interference pattern (hologram) diffracts this light to reconstruct the light patterns from the original scene, rendering the original surface pattern of the object in three dimensions.

This works fine for images of objects; but digital data is not a three-dimensional object; so how can it be recorded in holographic images? The data is usually represented as bright and dark spots, analogous to the ones and zeroes or charged and non-charged particles of conventional binary storage devices.

The Big Picture

A single hologram can store a very large amount of data because each "page" is recorded at a different angle relative to the plate. To read each page requires illuminating the ho-

logram with a laser beam focused at the same wavelength, angle and polarization as the original reference beam. In other words, the address of the data is the angle and frequency of the reference beam. Rotating the beam slightly — as little as 1000th of a degree — allows recording a fresh "page" in the same hologram.

Holograms have a particular advantage in that they allow information retrieval with only partial information about the original content. The reading mechanism retrieves and transfers an entire "page" of data from the storage medium at a single time. A beam with only a partial image is sufficient to reconstruct a reference beam that can provide the address of the stored information content that corresponds most closely with the partial input information. This is significant for image-based data sets because they are difficult to process using relational database techniques. Holography permits searching a large volume of data simultaneously resulting in very fast data search rates. Rates of up to 100GB/s have been demonstrated under experimental conditions.

Developers have focused on two types of storage material. One approach uses a photorefractive ferro-electric crystal (lithium niobate). The other uses azobenzene polyesters in the form of an amorphous or liquid crystal. However, both the photopolymer and crystal methods have their problems. The material must be sensitive enough for a low-powered laser to read and write on it but not so sensitive that the laser does not obliterate data in the retrieval process. The photopolymers enjoy high photosensitivity, high dynamic range, and ease of processing for display; but they have a shorter "shelf life" than crystals. The crystals, on the other hand, must be "fixed" so that the reading laser does not destroy the information during the reading process. Holographic storage media have a projected life expectancy of up to a hundred years because they are more resistant to temperature fluctuations, water, acid, and electrical fields than traditional storage media.

Fluorescent Multilayer Discs

One effort at holographic data storage uses fluorescent multilayer discs (FMD) developed by **Constellation 3D Inc. (C3D)** in New York. FMD technology uses fluorescent dye instead of the reflective and semi-reflective coatings used by CD-ROMs and DVDs. They can support up to ten information layers on each side of a disc and match the density and transfer speeds of DVD.

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