THE LONG NOW FOUNDATION

Archiving Today's Digital Culture

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By Stephanie Izarek

NEW YORK ? From cave paintings and stone etchings to manuscripts and books, people have always left their mark on history.

But in a society where information is directly tied to media that quickly becomes obsolete, how do we preserve our "culture" for posterity?

The 10,000-year Library Conference, hosted by The Long Now Foundation and Stanford University Libraries in early July, discussed how today's archival institutions will cope with preserving multimedia content such as digital audio and video files, photography, databases, Web pages and even links to related content.

One solution is a "digital library," which, according to the Association of Research Libraries (ARL), is an electronic access system to a body of information that includes digitized books and reference materials and original digital content.

It's a concept most archival institutions are pursuing avidly. In a study published by the ARL last December, most libraries said they were currently handling electronic material or expected to do so within the next three years.

The Library of Congress, for example, has begun digitizing the world's largest library so that its contents can be accessible by anyone, from anywhere, at any time. It currently has three million primary documents online, with two million in the pipeline ? putting it closer to its goal of digitizing five million items by 2001.

Likewise, Yale recently spent just under $1 million on subscriptions to electronic journals and on databases and reference services, while the University of Texas at Austin plans on increasing its 7,000-title digital book collection over the course of the year.

Archiving the Ages

But as libraries spend thousands of dollars to digitize and store new types of information, they must also grapple with technological issues ranging from retrieval systems and compatibility to new storage methods and intellectual property rights.

And despite the advantages digital archives bring to academia, they are vulnerable because they are directly linked to the very technology that enables them. Just as a book can crumble to dust, magnetic data can fall prey to time. And as technology advances, it also becomes increasingly difficult to retrieve older material.

According to the experts at Long Now, while digitized media may have "some attributes of immortality ? great clarity, great universality, great reliability and great economy" ? people often find that they can't revisit their computer-based work from as early as ten years before.

Magnetic media, such as floppy disks and tape, lose their integrity in five to 10 years, while optical media, such as CD-ROMs, degrade in five to 15 years. In Long Now's view, technology is constantly self-obsolescing.

"It turns out that what was so carefully stored was written with a now-obsolete application, in a now-obsolete operating system, on a long-vanished make of computer, using a now-antique storage medium. The great creator becomes the great eraser," writes Stewart Brand, co-chairman of the Long Now board, in his article "Written on the Wind" (first published in *Civilization Magazine*, November 1998).

The Rosetta Disk

The Foundation's proposed answer is a small, metal prototype disk, called the Rosetta Disk, which was unveiled at the conference. The Rosetta Disk, designed by anthropologist Jim Mason using nano-analog optical-storage technology developed by Norsam Technologies and Los Alamos Laboratories, was produced under a grant from the Lazy Eight Foundation to act as a "long-term linguistic archive and translation engine."

The two-inch micro-etched nickel disk will store thousands of words, written at a microscopic scale, including all the world's translations of the book of Genesis and an assortment of creation works, such as the Big Bang Theory.

Like the Rosetta Stone, the disk will record a single text in many language translations. According to Long Now, the translation engine will allow for the recovery of "lost" languages in the "deep future," and the goal is to store as many currently extant languages as possible.

The disk records analog text and images at densities up to 350,000 pages per disk, with a life expectancy of 2,000 to 10,000 years. Densities above 20,000 pages must be read with an electron microscope, but those below 20,000 can be read with an optical microscope.

The analog coding is key. Because there are no 1s and 0s, the disk has no platform- dependency issues and no format/operating system/application incompatibilities. According to Long Now, this eliminates the need for "constant up-migration of long-term storage digital files."

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