BEYOND FINDABILITY

Organizing in the Age of the Miscellaneous

by Katherine Bertolucci Isis Information Services

Michael Wesch's video, ***Information R/evolution***, focuses on an electric typewriter that could use a new ribbon. Under the drone of inane music, the video [http://www.youtube.com/watch?v=-4CV05HyAbM] presents a pre-computer information flow — typing on a piece of paper, carrying the typed page to a file cabinet, entering a library with bookshelves, thumbing through a typed card catalog, correcting errors by overtyping. (This must also be the pre-Witeout era.)

The video finds a file cabinet with microform cards and selects a 1995 issue of ***Newsweek.*** Displayed on a microform reader, the article predicts, "Why cyberspace isn't, and will never be, nirvana." The camera again lingers over the first typed document, almost illegible in its original state. But nirvana does arrive. We can tell because the music changes as the video displays word processing on a computer screen. It stays there a few moments before jumping into the web, all the while entering words and phrases, deleting and re-entering. With about 60 examples in 4 minutes, Wesch seems to marvel at the slightest digital editing technique. ▶

HappyDevil Comics' response to the Wesch video, *Brad and Phil's Information R/evolution,* picks up the library theme [http://www.youtube.com/watch?v=WWmERReCRvg]. Of the duo, Phil's the dumb one. He visited a high school library once, so he knows about the public library. Having established the dork factor, HappyDevil, in a burst of creativity, simply replays *Information R/evolution* and we are back once again in a library with a card catalog, vertical files, and a typewriter.

Wesch, an assistant professor of cultural anthropology at Kansas State University, pays homage to David Weinberger's *Everything Is Miscellaneous* (2007) by filming pages from the book. The card catalog image comes straight from Weinberger, who consistently refers to card catalogs in the present tense, while never mentioning library online catalogs, a neat trick in a book that includes a visit to the catalog at the New York Public Library (pp. 46, 58). He even takes time to explain the inadequacies of a 3x5 card (p. 119).

A columnist for *KMWorld,* Weinberger identifies the web's digital information as stored randomly, hence his concept of everything being miscellaneous. With the sharing capabilities of social software, he promotes tagging and individual organizing as preferable to pre-organized information. Users search a set of tags for a momentary need. They sort the material, and when done, let everything return to the miscellaneous.

However, Weinberger gives very little advice about how to organize this miscellaneous material for maximum momentary value. Instead, he devotes much of the book to the weaknesses of pre-organized information, such as library classification and zoological taxonomies. This is an important development in the advancement of organized information. While each of us has always had the capability to organize whichever way we want, social networking offers tools to reorganize in an instant.

As a researcher of information arrangement, I approached Weinberger's book with excitement. The first fracture arrived early with descriptions of three photo archives (2007, pp. 17–23) and a sample photo with "a Civil War soldier eating outdoors" (p. 18). The Bettmann Archive holds historic photos and original card catalogs [http://www.corbis.com/BettMann100/Archive/BettmannArchive.asp]. Weinberger mentions that a card catalog cannot include a card for every access point. If there is no card for "eating outdoors," that Civil War photo may be unfindable. He then moves to Corbis, a commercial photo site [http://www.corbis.com], again using his Civil War example, commenting that the team of professional indexers and the online environment allow complete cataloging for every access point.

Next up is Weinberger's favorite, Flickr, where users upload their own photos and assign their own subjects as tags [http://www.flickr.com]. I was eager to see how he would fit the Civil War photo into the tagging technique, but he switched examples, turning instead to "dogs wearing red clown noses" (p. 22), thus avoiding mention of a major tagging drawback. If an amateur tagger forgets to tag "eating outdoors" when uploading a photo of great-great-great-grandpa, that web photo is as unfindable an example of 19th-century alfresco dining as it is in the Bettmann's card catalog.

Later Weinberger tries another spin tactic with an apples-and-oranges comparison of Dewey's shelving classification and Amazon.com's subject search, never mentioning in this section that libraries also have subject search (2007, pp. 57–63). Perhaps to avoid reminding readers of this well-known fact, Weinberger apparently deleted the word "Subjects" from his examples of Amazon categories. At the time of his book's publication, the first word in Amazon's subject categories was the word "Subjects," which can be seen on a Wayback Machine page for Weinberger's example (Amazon.com, 2007).

In an otherwise compelling book, these spin tactics are unnecessary. Amazon has many true advantages over library cataloging. Weinberger doesn't need to make a false analogy. For the photos, Flickr currently does have one of "a Civil War soldier eating outdoors" [http://www.flickr.com/photos/ektelonn/2532305779]. It's not the photo he described; the soldier is a reenactor and it was uploaded a year after he published. But it's there now and it proves the efficiency of mass data, one of Weinberger's points.

Why would he spin when he doesn't have to? In a sarcastic commentary on libraries for his *KMWorld* column, Weinberger writes, "We can spend a happy afternoon there because that's how long it takes to find stuff" (2008, p. 29). I'm a big fan of the free public library system, but my visits are only about 10 minutes. That's because I access the web-based online catalog from home instead of trying to find a card catalog in the building. Perhaps Weinberger feels uncomfortable with organized information. Even while promoting instant reorganization, he gives very little advice about how users can arrange the miscellaneous for maximum value.

He does offer a few platitudes about the benefits of organizing, such as a closing comment that "The world won't ever stay miscellaneous because we are together making it ours" (2007, p. 230). But for that to happen, we will all need a better understanding of the values and techniques of organized structures. Instead of castigating current examples of organized information with false analogies, we need to examine the full benefits of well-designed arrangements, which are much wider than findability. The mere process of organizing can lead to new knowledge. User interaction with knowledge can be influenced by different perspectives, especially when working from the viewpoint of service to another user. Part of that service may lie in providing a calm interaction with complex ideas, an interaction perhaps enhanced by the symmetry of orderly patterns.

Photo found on Flickr of "a Civil War soldier eating outdoors." He's actually a re-enactor.

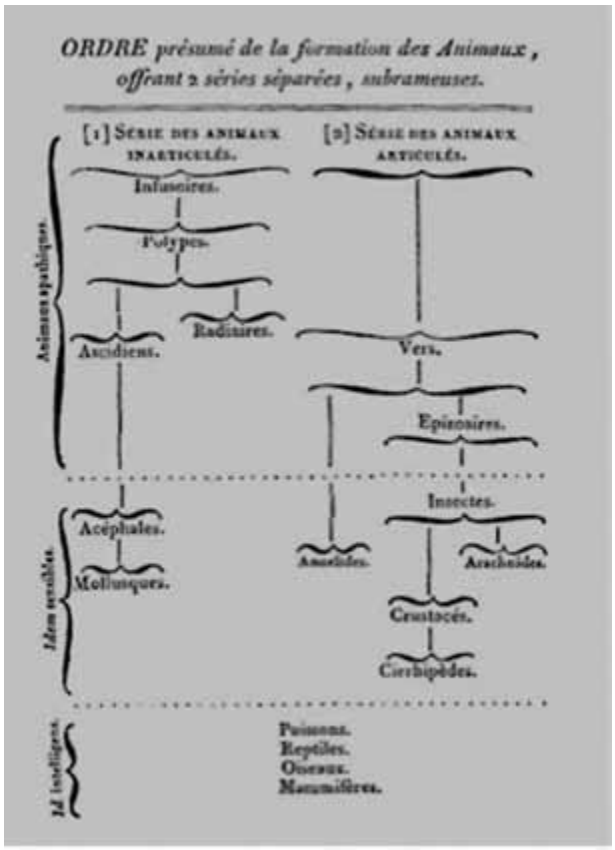
Knowledge From Ordering

Weinberger declared himself an internet Utopian in a 2008 online article, "Is the Web Different?" [http://www.hyperorg.com]. He believes the social web will transform our understanding of knowledge, which, prior to the web, "was supposed to be a mirror of reality. It was thus either true or not true, end of story" (2007, p. 218). That's a limited definition, but Weinberger is not alone in seeing new knowledge generated by social upheaval. He joins, among others, the Utopian scientist Joseph Priestley, who described the French Revolution as a "change from darkness to light, from superstition to sound knowledge" in his 1791 *Letters to the Right Honourable Edmund Burke* (p. 144) [http://books.google.com/books?id=j6CIDuLv168C&printsec=frontcover&dq=%22edmund+burke%22+inauthor:priestley&lr=&as_brr=0]. (By the way, don't try to find page 144 using the search

strategy "superstition to sound." This ancient tome uses a barless "f" for "s" and Google's digitization OCR software apparently can't handle this obsolete font eccentricity.)

Weinberger does not compare his own new knowledge with that of earlier Utopians, but he does wander into the 18th century with a story about Jean Baptiste Lamarck, the French scientist who categorized invertebrates in the first major revision of Linnaean taxonomy. Like many organizing projects, this revision involved a category puzzle. In the course of finding the solution to the puzzle, Lamarck invented branched zoological classification, diminished the role of religion in science, and initiated the move toward modern evolutionary theory. Weinberger, however, dismisses the significance of this monumental change in knowledge, commenting that Lamarck's work "reveals relationships Linnaeus missed, but a fisherman would divide the bucket still differently" (2007, p. 88).

Both Weinberger and I take our story of Lamarck from an article by Stephen Jay Gould (2000), who had access to a rare edition of Lamarck's *Système des Animaux sans Vertèbres* with the author's hand-written notes. Using these notes, Gould traced Lamarck's intellectual progress as he reconsidered his firm belief in the Great Chain of Being, a linear form of zoological complexity that placed God on top and worms on the bottom. Working to fit different invertebrates into one chain, Lamarck began to understand that life is too complex for such a minimalist arrangement.



I found a photo of one of the pages that Gould used as an illustration in his article. This is the final branched version.

This new idea was not just biological; it was social and religious. The Great Chain of Being organized everything. God came first, then angels, then humans, with men the most important, then women, then the kids. Social hierarchies followed the same chain with a king on top and peasants on the bottom.

As Lamarck studied invertebrates, he realized the line from God wasn't quite so clear. Invertebrates, simple in one way, were complex in other ways. Each species had a different combination of simplicity and complexity. When Lamarck tried to fit this anomaly into the pre-defined pattern, he realized he needed to look at the biologic relationships of animals in a new way. This revision ultimately changed our understanding of the social relationships of humans. The organizational process itself helped Lamarck realize the Great Chain of Being did not describe life.

Weinberger, in his version of the story, says that "order often hides more than it reveals" (2007, p.88), which means that Lamarck's taxonomy hides the organizing method that could be used for fishing bait. But order also reveals more than it hides. For Lamarck, and for us, a category puzzle revealed a new understanding of our place in the natural world. While most solutions are not as monumental as Lamarck's, the organizing process is a game that often leads to better understanding of the subject being organized. Sometimes even the simplest arrangement, such as alphabetical or chronological order, can clear the mind for advanced thinking and for the development of complex structures.

Perspective

The angler and the biologist organize invertebrates for different reasons, selecting parameters that meet diverse goals — a taste for fish for the one and zoological characteristics for the other. Parameters also influence organizers who work with the same type of material and have the same goals. Maya Lin's Vietnam Veterans Memorial and Edwin Lutyens' Memorial to the Missing of the Somme provide similar experiences with different organizing strategies. These two memorials list the dead and missing from war. Both honor the listed individuals, grouping

Online War Memorials

The Vietnam Veterans Memorial (VVM) and the Memorial to the Missing of the Somme both have an online presence. TheWall-USA allows users to search a database of names on the VVM by first name, last name, hometown, home state, military branch, age, ID number, rank, birthday, casualty date, and position on the Wall [http://thewall-usa.com]. The search results are listed in alphabetical order by last name. Information for each name also includes race, religion, marital status, and sex, but those are not searchable. There are eight women. Two who died in the same helicopter crash are next to each other on the VVM. Each name in the database has an additional page with more details about the death. Visitors to the site can add their own personal comments or pictures for each name.

The Commonwealth War Graves Commission offers a database for everyone from the two World Wars buried in a British war cemetery or listed on a Commission memorial [http://www.cwgc.org]. The primary purpose of this database is to find an individual. Searchers must have a last name. That name can be filtered through fields for initials, the name of the war, year of death, military force (or civilian), and nationality. The last name requirement precludes a search on the basis of, for example, nationality, although a last name can be entered and then filtered by nationality.

Photo courtesy the Commonwealth War Graves Commission

them in a meaningful way for survivors by engraving the names of those who died, or who are missing, near others they would have known in battle. Yet their arrangements are as different as the two wars.

The British recruited by geography in World War I with towns sending their own units into battle. Those assigned to the Somme experienced a massacre on July 1, 1916, when British troops surged into the waiting guns of the German army. Entire units were decimated and, with them, a generation of young men from British towns. In his memorial near Thiepval, France, Lutyens interweaved massive arches into an open structure through which visitors can walk. It holds 72,000 names of the missing from a 5-month battle, most from the July 1 surge. They are listed in British Army Order of Precedence, the order in which military units appear on the parade ground. Within each unit, the names are organized by rank and then alphabetical order.

At first glance, this might seem like an arbitrary arrangement for a regimented society — parade ground, chain of command, alphabetical order. But in the context of Britain's recruitment strategy and the nature of World War I, it has the effect of keeping friends together. Men from the same town joined the same unit and served with each other for the duration of the war. When they went missing, they went missing with their neighbors. British Army Order of Precedence kept the units together, helping survivors and townspeople find the names of their relatives and friends together in one section of the massive memorial.

Maya Lin, influenced by Lutyens, chose a different arrangement to achieve the same result. Instead of a 5-month battle, the Vietnam Veterans Memorial (VVM) honors the dead and missing from a 20-year war. Soldiers, recruited or drafted individually, stayed in Vietnam for a few years. They were closest to those who served at the same time. Instead of organizing by unit, the VVM lists the dead and missing in chronological order, then alphabetical order within each day, a strategy different from Thiepval, where so many went missing on the same day.

The chronology approach on the VVM also holds together those who died in the same battle. Survivors can locate their time of service, see the names from one day of battle, and for a few moments reflect on their own experiences and remember their comrades. Names are engraved in order of casualty, not death.

Those who died later of their wounds are listed on the date they received the wounds. The missing are listed on the date they went missing, so they too remain with the last people to see them alive.

Each memorial offers only one unchanging view. The VVM, for example, is a wall of names and, other than the beginning and ending years, has no dates. To locate a time of comradeship, visitors must find a name in a print index located near The Wall. Obviously a memorial that listed names in alphabetical order would solve the indexing problem, but that method would "hide more than it reveals," as Weinberger has commented about any type of informational order.

Like all communication, organized structures have their genesis in perspectives that influence form. Is a conversation better or an exchange of emails? Is it better to follow parade order or chronology? It all depends on what you want to say and the context in which you want to say it. One can think of other arrangements for the VVM, by military unit for example. That arrangement, which would have separated Vietnam friends, is exactly the arrangement that keeps friends together on the Somme memorial.

(For more resources on the Vietnam Veterans Memorial and the Memorial to the Missing of the Somme, see my blog post "Names on a Memorial: Comrades in Vietnam and the Somme," http://isisinblog.typepad.com.)

Vietnam Veterans Memorial, Washington, D.C.

Service

Weinberger believes traditional organizing gives "people who control the organization of information more power than those who create the information" (2007, p. 89). His example is editors, who "decide what to bring to the surface and what to ignore" (p. 89). In a book filled with card catalogs, it is surprising he did not mention librarians as members of the power elite.

My approach to organizing information is diametrically opposed to power grabbing. I learned many years ago that I have to organize for the user, so my best attitude is one of service. When a community of users needs information, my goal is to organize that information for maximum value to them. That's why I built a new classification system with my first professional position and why I began specializing in taxonomy arrangements in the early 1980s. Of course it is always tempting to build a structure in one's own image. Like Lamarck, all brilliant organizers love to play category games. But it is the users who determine success with their ability and interest in navigating the structure. So I join the users. I think about the information from their perspective and build the classification in service to them.

During a recent environmental disaster, I was recruited to help with a blog and wiki designed to become a primary source of survival information in the immediate aftermath. People on the ground in the affected areas sent messages about aid services, volunteer opportunities, numbers of deaths, names of the missing and the found. When I joined the project, the material was organized by time received. Survivors had to read item by item or guess at a search term and look through all the results. My team organized the material onto separate pages and then organized within those pages so survivors could quickly find crucial information.

We had two sets of clients. Survivors on the ground, in the midst of devastation, reported services available to other survivors. We made it easy for them to provide their information. They just sent it in whatever format and we worked with it at our end. The other clients were survivors who needed to find information fast. For them, we designed separate organizing structures for each page, to meet the unique parameters of the different types of material.

Because the disaster covered a large area, we tended to use geographic alphabetical order as a beginning overall pattern. This helped users pinpoint material specific to them while maintaining equality among all areas. Then we organized according to the type of material on the page. For example, the Help Lines page listed phone numbers by combining priority with alphabetical order. Within each area, emergency numbers were listed

first, with the remaining services in alphabetical order. For the page showing numbers of deaths, we veered from geographic alphabetical order. That would have placed an area with very few deaths, and thus no emergency services, in the first position. Since there were areas of massive devastation, we decided the most sensitive arrangement was by the magnitude of deaths.

About a week into the project, we had an offer from an IT professional with an idea for organizing information using a database technique. We asked for a work sample before authorizing such a big project — a short database of medical personnel names in alphabetical order using the proposed technique. The resulting deliverable offered a novel approach to alphabetical order. For a prototype with characters from the medical TV series, *ER,* see Table 1 below.

When I commented on the erroneous interpretation of alphabetical order, the IT pro suggested I take responsibility for fixing the vetting project. While my team had all been giving 20-hour days to cleaning and organizing data sent from the disaster area, our new volunteer hadn't bothered to clean less than 100 names. For obvious reasons, objections to proceeding with the plan arose, followed by a coup. Armed with a fancy database and high tech jargon, the IT pro lured team members away.

There is evidence the pro's database project never produced anything valuable and failed to be included in at least one major compilation of websites concerning the disaster. I believe this is due to a lack of service orientation. Even Lamarck, who worked alone on an arcane intellectual exercise, operated within the concept of service. He believed in the Great Chain of Being, but he believed more in the advancement of science. The IT pro wanted to help in the disaster, but the primary service was to a pet database project rather than to the survivors. Perhaps it takes experience thinking about and organizing for clients to understand that you have to get into the comfort zone of the people who use the information. That comfort zone could be a tagging system with the ability to organize and reorganize at whim or it could be a Help Services page with emergency phone numbers clearly marked in large font at the top of the page.

Symmetry

György Darvas, a founding editor of the journal *Symmetry: Culture and Science,* writes, "We have a need for organizing principles to deal with the many phenomena around us, the many experiences we acquire, and the multitude of knowledge we deduce from these" (2007, p. 2). Organizing information for the survivors of a disaster was one small gift of sanity in a time of horror, but the IT pro's alphabetic offering felt disruptive. The ordering of letters is technically correct, but the name elements are arranged differently in each entry. Sometimes first name is first, sometimes last, sometimes title. It lacks the calm reassurance of knowing what to expect next, an assurance often activated by symmetry.

In his book on symmetry, Mario Livio describes Mozart's Symphony 40 in G Minor, in which the pattern of the first measures are moved by a few notes and repeated (2005, pp. 18–19). Livio refers to this symphonic pattern as translational symmetry, although that is more properly seen in linear patterns where the same image is repeated along one line. For example, in a frieze, the repeating image is exactly the same as it moves along one continuum. In the Mozart symphony, the pattern is the same and the movement is along a continuum, but the notes we hear are different.

If a slight change in a musical composition triggers our enjoyment of symmetry, perhaps slight changes in the presentation of organized information can also meet our sensitivity to symmetry. Alphabetical order is the simplest example. In a dictionary, words are presented in lines of repeating patterns. These patterns change by at least one letter in each entry: Symbol, Symmetry, Symphony. We know what came before these words and we know what to expect next. It is not perfect symmetry, but it may be a variation known as dissymmetry, where slight changes interrupt perfection.

In the *ER* list, each entry begins with a different element, so the list has no symmetric expectation, although the letters are in alphabetical order. If we build a list with the elements in the same order, perhaps title, first name and last name (Ms Katherine Bertolucci) and organize the names in alphabetical

Abby Lockhart, RN	**D**r. Doug Ross	**E**lizabeth Corday, MD	**J**eanie Boulet, PA
Benton, Peter, MD	**D**r. Greene, Mark	**F**inch, Dr. Cleo	**K**erry Weaver, MD
Carter, Dr. John	**D**r. Malucci, Dave	**G**regory Pratt, MD	**L**uka Kovac, MD
Dr. Anna Del Amico	**D**r. Romano, Robert	**H**athaway, Carol, RN	**M**r. Michael Gallant
Dr. Chen, Deb Jing-Mei	**D**r. Susan Lewis	**I**ntern Ray Barnett	**M**s Knight, Lucy

Table 1. The *ER* prototype had alphabetical order but no symmetric expectation.

order by title, the experience still jars our sense of understanding because the primary organizing element — title — impedes findability. Form follows function, even when the form is symmetrical.

Darvas lists 18 academic disciplines that include symmetry, from applied art to psychology, with several sciences in the middle (2007, pp. 33–34). He could easily have included zoology, along with just about every discipline in human knowledge. The 2008 Nobel Prize for Physics was awarded for work on two aspects of broken symmetry with implications for particle physics and for the origin of the universe [http://nobelprize.org/nobel_prizes/physics/laureates/2008/press.html]. Broken symmetry occurs when a symmetrical object becomes nonsymmetrical, for example, by tilting over.

In his section on history, Darvas writes, "Symmetry emerged at an early stage of human development, at the same time as culture, and entered the symbol system almost immediately" (2007, p. 35). Livio cites psychological studies indicating an area of the brain that may be activated by visual symmetry (2005, pp. 37–38). In light of this, it would be odd if there weren't a symmetrical aspect to information management.

While Darvas has written about symmetry in the meaningful contents of hierarchical nested categories (1998), simple visual symmetry also occurs in the presentation of an organized list. This may come in the form of alphabetical order or in hierarchies with evenly indented subcategories. Other organizational patterns, including chronology, complexity, measurement, numerical, and spatial, all have elements of symmetry. Even a canonical structure, where the organization is based on another work, is symmetrical with the original work.

If our brains are hardwired for symmetry, it makes sense that an appreciation for orderly visual experiences emerged with our earliest cultures. Perhaps the symmetrical look of an organized structure helps us use it more effectively. A recent study in *Science* by Whitson and Galinsky (2008) indicates pattern perception may be a human mechanism for dealing with lack of control. The authors conducted experiments using fuzzy images with and without embedded patterns. Participants who had been manipulated to feel a lack of control tended to see patterns in fuzzy images that did not actually have patterns. The authors concluded that when an individual lacks control, "the very act of perceiving a pattern, even an illusory one, may be enough to soothe this aversive state" (p. 117).

When the chips are down, we transform the miscellaneous into a pattern. Apparently our brains like organized structures so much, we make them up when they aren't there. When we do see a true organized structure, its orderly appearance may help us calmly interact with the information it contains.

Organize

For thousands of years organized structures were difficult to manipulate because we lacked tools. David Weinberger's *Everything Is Miscellaneous*, even through the fog of spins, alerts us to the new organizing capabilities offered by social networking. We are all organizers now.

As Michael Wesch's video so clearly demonstrates, one of the great capabilities of the information r/evolution is the instant edit. Now we just switch sorting parameters to arrange information from a new perspective. It may be the perspective of an individual who needs a moment of clarity or a scientist who wants to see data in a new way. It may be that of a skilled organizer who appreciates the users and builds structures for them. Or it may be an artist who wants to fill an emotional need. Like all communication, the organizing process helps us understand and present new knowledge. ■

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