

Beyond Literacy?

Object as Document and the Internet of Things

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A Historical Framework: Ong's Eras, Extended

Ong examined the differences between oral and literature cultures, and delineated two eras of literate culture: *chirographic* (handwritten) and *typographic* (printed) and the differences in communicating in these modes (Ong 1982). Ong also pointed out an emerging secondary orality connected to electronic modes of communication, in which there is a resurgence of spoken communication mediated through the deliberation of print. While this treatment is illuminating in an age of radio, television, telephones, and other technologies, it predates the Internet and its power in understanding that medium today is limited.

Jablonski has proposed a third era of literate culture, the *typo-iconographic* (Jablonski 2006). Although this theory has not been elaborated in detail, we infer that it extends Ong's typographic culture into today's electronic media, such that documents are increasingly multimedia, hypertextual, and dynamic. It appears that this era is resulting in a mode of "secondary literacy". Like the secondary orality that Ong recognized, there is now a written, ongoing dialogue taking place on communication networks that is unlike the primary literacy to which we have been accustomed in a typographic world, in which economics dictates certain controls on what is widely distributed. This is the result of documents that are also increasingly comment-enabled, remixable, and collaborative.

This essay suggests a future era of literate—or perhaps post-literate—culture, in which information and physical objects are increasingly inextrica-

ble concepts, in which “documents” exist in, affect, and are affected by the physical world. The next section begins by examining the current era and the nature of documents today.

Digital Documents: The Typo-Iconographic Era

Early digital documents were merely text in electronic form. These grew in sophistication such that they were able to faithfully represent the appearance of a printed page (through word processing formats and page description languages), but were still essentially electronic imitations of typographic documents.

The World Wide Web and similar initiatives began to change that, however. The defining characteristic of the Web is **hypertextuality**, the ability to link documents together, in a much more fluid way than is possible in print. Early in its existence, the Web also became **multimedia**, first adding images, and later sound, video, and interactive content.

The Web now routinely makes use of documents that are **dynamic**, built on-the-fly from databases of content that can quickly be updated and changed. This allows content to be **collaborative**, through discussion boards, wikis, and similar applications. Content is also increasingly **comment-enabled**, so that others can make remarks or observations that “trackback” the original, linking conversations together. Content is also beginning to be **remixable**—reusable and syndicated for other purposes in other places, and combined with other content in “mashups.” These are the characteristics resulting in the apparent “secondary literacy” of today’s Web.

With the advent of electronic media, many discussions were raised (and are still ongoing) around the nature of the electronic document, contrasted with the traditional typographic conception. However, the nature of the document began to be questioned much earlier, during the Information Science and Documentation movements in the first half of the twentieth century on both sides of the Atlantic. The next section examines Suzanne Briet’s conception of the document, which was put forward during that period but only later discussed and examined in detail.

Briet's Documents: A Library of Things?

In 1951, Suzanne Briet, a librarian and documentalist, published a manifesto on the nature of documentation (*Qu'est-ce que la documentation?*). She offers several observations on the document: “a document is evidence in support of a fact”, “any physical or symbolic sign [*indice*], preserved or recorded, intended to represent, to reconstruct, or to demonstrate a physical or conceptual phenomenon”—implying that not only text, but any object that is “evidence” should be considered a document.

Briet offers several examples. A star in the sky is not a document, but a photograph of the star is. A stone in a river is not, but a stone in a museum is. A wild antelope on the plains of Africa is not a document, but an antelope captured, cataloged, and placed in a zoo as an object of study is. It is a primary document, and a number of secondary documents (a “vestment of documentation”, in Briet's words) grow up around it, based on its nature as evidence.

Briet offers her discussion and examples, but no clear-cut statement of rules to determine what is and is not a document. Buckland (who has been instrumental in drawing contemporary attention to Briet's work) infers four rules:

1. There is materiality: Physical objects and physical signs only;
2. There is intentionality: It is intended that the object be treated as evidence;
3. The objects have to be processed: They have to be made into documents; and, we think,
4. There is a phenomenological position: The object is perceived to be a document. (Buckland 1997)

Day (2006) has observed that Briet's use of the word *indice* may be important: that it is by being indexed/placed in a system of organization, in relationships with other evidence that an object becomes a document.

Indeed, it would appear that a critical component of documentary status for Briet is retrievability: the photograph of the star, the stone in the museum, and the animal in the zoo are all readily retrievable, while their “wild” counterparts are not.

Adoption of Briet's perspective—in which objects are coequal with texts as documents—forces close scrutiny on the practices of bibliography. The

preferential treatment of texts would seem to be a matter of convenience and historical imperative, rather than a conscious decision on the part of the fields of library science and information science or documentation. Why, for example, should a catalog include an entry for a book on insects, but lack an entry for a display case with insect specimens?

Briet's functional and phenomenological definition not only sheds light on the possible documentary nature of physical objects, but also serves well in conceptualizing an electronic document, by focusing on the *use* of the document rather than its form. Briet's definition may be all the more useful should the line between physical object and electronic document become blurred. The next section examines a future in which this is exactly the case.

Bleecker's *blogjects* and Sterling's *spimes*: An Internet of Things

What happens when Briet's antelope is collared with a radio transmitter? When the stone is tagged with an RFID (radio frequency identification) tag read by sensors embedded in the riverbank? When an index of the star's coordinates allow an electronically-aimed telescope to point at it at any time with a single click? These objects "in the wild" are suddenly retrievable, processed, indexed despite the fact that they're not "collected" in any traditional sense.

Ubiquitous communication networks and the advent of technology such as RFID tags can make physical objects increasingly trackable and retrievable through space and time and hyperlinked to information and other objects, a phenomenon often referred to as an "Internet of Things."

Bleecker has proposed the idea of the "blogject": an object that records information about itself and facilitates conversation about that information. For example, consider a flock of pigeons outfitted with tracking devices and air pollution monitors, flying around and transmitting information about the quality of the air to a web page that can be syndicated, commented on, and augmented with other data (Bleecker 2006). The idea of the blogject extends the Internet of Things so that objects are not passive, simply to be retrieved, but instead actively contribute to the conversations about themselves. Bleecker's blogjects are essentially Briet's object-documents that are engineered to facilitate and contribute to their own "vestment" of secondary

documents. Technologies to enable blogjects already exist, and we are beginning to see designers, engineers, and artists thinking about how to make them.

Sterling, a science fiction writer, has proposed the “spime”, a kind of blogject turned on its head in a slightly further-off future, in which the physical object is regarded as a “material instantiation of an immaterial system”—the documents specifying the object. The object doesn't exist until its needed, at which point its fabricated from its set of specifications. Its shipped, used, maintained, recycled, and all the while contributes its life-cycle data back to its parent “document” for monitoring and improvement. The “object” is merely an instance of the more primary document (Sterling 2006).

Where in Briets world, objects require deliberate treatment to become documents, in a world of blogjects or spimes, multitudes of objects are documentary, and it is possible to imagine a world in which the vast majority of objects have come to possess these characteristics.

Beyond Literacy?

Literate culture allows abstracted, distributed ideas, through written documents. Our imagined future allows abstracted, distributed things, through object-documents (blogjects or spimes or what-have-you). Whats the meaning of “literacy” in this culture, where the line between objects and documents is indistinguishable?

In many ways, our approach to information will not change. Information will still be ultimately expressed in language, whether written or spoken. The transfer of information between people and information systems will still happen in words. We will read or listen to information about pigeons and pollution. (That is, unless we become able to download information directly to our brainsthen all bets are off.) But will this era signal a fundamental change in our ways of thinking and approaching the world, just as the transition from orality to literacy did?

Sterling, in his conception of the spime, articulates five progressively more advance technocultures, describing the cultures of created objects or “things” much like Ong describes oral and literate cultures of information. Sterling delineates two boundaries crossed as technocultures progress: the Line of No Return, in which a culture cannot willingly go back to the previous culture; and the Line of Empire, in which a culture is impregnable to previous

cultures (Sterling 2006). These lines also seem to manifest between oral and literate information cultures. As “thing” and “document” become conflated, it seems likely that the era of the Internet of Things may be a new era both of technoculture and of information culture, eventually crossing the Line of No Return and the Line of Empire once again.

Only time will tell.

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