

Panel Session: Past Visions of Hypertext and Their Influence on Us Today

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ABSTRACT

In July 1945, Vannevar Bush published the seminal paper *As We May Think* in *Atlantic Monthly* [2]. In this paper Bush proposed MEMEX, a device where information and records could be stored and linked together through ‘trails’ and ‘associations’ rather than ‘artificial’ indexing mechanisms. This idea is credited with being the inspiration, and precursor, for the modern World Wide Web (WWW) invented by Tim Berners-Lee, but as Harper notes, for most of the article, Bush was not concerned solely with the technical aspects of his MEMEX system. Instead, as with most computer visionaries, he was more concerned with how the computer system and its interfaces could help humanity [3]. We must therefore consider if, as a research field, we are still trying to build MEMEX as Bush envisioned it, or are we more influenced by a vision of information storage and presentation, of which Bush’s paper was one of many?

Categories and Subject Descriptors

H.5.4 [Information Interfaces and Presentation]: Hypertext / Hypermedia – Theory

General Terms

Theory, Human Factors

Keywords

Panel Session, Vannevar Bush, Memex

1. 65TH ANNIVERSARY PANEL SESSION

It is this idea of the influence of past visions of hypertext that will be explored in this panel session to mark the 65th anniversary of *As We May Think*. A key concept of MEMEX was the notion of trails, but as Nelson points out, while the concept is useful, it is not general enough to be hypertext [4]. Bush was alluding to sequences of documents stored on microfilm, whereas hypertext can occur in multiple directions with links that have multiple meanings.

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Indeed it was Nelson himself who is credited with coining the term “Hypertext”. His work on the Hypertext Editing System (HES), along with Andries van Dam, produced one of the first functioning hypertext systems and included hypertext concepts such as linking and jumping between documents [5]. In addition to the work of van Dam and Nelson, Doug Englebart was also working on the oN-Line System (NLS), which in addition to the mouse, pioneered work on hypermedia and hypermedia publishing.

While HES and NLS came after the publication of *As We May Think*, Bush’s MEMEX Device was not the first to propose using Microfilm to store and retrieve information. In the 1930’s Emanuel Goldberg developed a machine, called a “Statistical Machine”, similar to that of Bush, whereby records from spools of microfilm could be retrieved by using photoelectric cells to do pattern recognition [1]. While Bush appears to have received the credit for inspiring the notion of links and trails, Goldberg remains a largely forgotten figure, yet could it be that the “Statistical Machine” is the true forerunner to Hypertext?

In this panel session we shall explore how these previous hypertext systems have envisaged collecting, storing, associating, and presenting knowledge to the user. We shall also examine how these systems have influenced our thinking today and what the future of knowledge capture and information association will involve.

2. REFERENCES

- [1] M. Buckland. *Emanuel Goldberg and his Knowledge Machine*. Libraries Unlimited, 2006. ISBN: 0-313-31332-6.
- [2] V. Bush. *As We May Think*. *The Atlantic Monthly*, July 1945.
- [3] S. Harper. ‘As We May Think’ at 65. *SIGWEB Newsletter*, (Spring):1–3, 2010.
- [4] T. H. Nelson. *As We Will Think*. In J. M. Nyce and P. Kahn, editors, *From Memex to Hypertext: Vannevar Bush and the Mind’s Machine*, pages 245–260. Academic Press Professional, Inc., 1991.
- [5] J. Nielsen. *Multimedia and Hypertext: The Internet and Beyond*. Morgan Kaufmann, 1995. ISBN: 0-12-518408-5.