

I find myself immediately agreeing with Bush's basic premise that as the sciences (and to generalise, societies) become more specialized the difficulty of disseminating knowledge outside of the academic disciplines in which research was conducted naturally becomes greater. And, therefore, as this specialization occurs methods and technologies related to the efficient and effective storage, organization, and dissemination of this knowledge becomes increasingly vital to prevent wisdom from being lost forever within departments or with academic elites.

I am also in accord with Bush's philosophy for effective organization which from my understanding discourages arrangements of knowledge by index (nested markers which organize texts mostly arbitrarily relative to their content and meaning), in favour of arrangements by association, which— according to Bush's conception of the term— takes into account the content and context of texts and relates them accordingly when one *selects*. From my understanding this parallels the contemporary difference between the looking up of an individual website via an objectively unique (although conceptually not very useful) URL versus typing some keywords into a search engine and being presented with a countless number of content-related articles, videos, books etc.

I find his imagined technology, *Memex*, which in theory realizes his association-over-indexing philosophy, especially interesting. I find *Memex* intriguing not so much at its face value: as a conceptual blueprint for a contemporary realization of the technology; but rather as a primary historical account: for through Bush's predictions of future technology and comments on the realism or absurdity of his prophecies we can make informed guesses about the technological paradigms that existed at the time of authoring. For instance, the idea of storing and accessing information purely digitally must have been unfathomable at the time based off the fact that Bush imagines ameliorated microfilm technology instead of floppy disks or hard drives as the solution to reducing the physical footprint of information storage. I know that this particular paradigm is more largely indicative of Bush's general time and place as the same technologies were present in sci fi classics written at the same time. In Frank Herbert's *Dune* published in 1965 thousand-page books are condensed to occupy no more than the space of a matchbook by using thin *filament paper* (26, *Dune*), this *filament paper* is then rendered legible to the naked eye using projections and/or magnifiers – an identical technology to Bush's hypothesizes.

I also love the ingenuity of Bush's *Memex*, for since he cannot fathom a world in which computers and algorithms can interpret and organize content meaningfully, Bush instead employs crowd sourcing to meaningfully associate related texts in what he terms *trails*. I feel the 1945 *Memex* was incredibly insightful: as

it seems both private, collaborative; allowing for both precise index-based and more organic association-based searches just like the contemporary internet.

However, I would have to disagree with Bush's basic assumption which necessitates that the grouping-by-association be crowdsourced in the first place: that is the assumption that computers can only be used for logically or repetitive tasks, are uncreative, and more fundamentally are in some way or another essentially different to biological, human minds. I believe that the recent rise in popularity of neural networks, machine learning and just artificial intelligence in general applied not only in fields of science and abstract logic but also in areas more traditionally associated with creativity and culture shows how technically deterministic entities can behave (by all practical definitions) in very creative ways. These developments blur hard lines which were understandably, yet mistakenly, drawn seventy years ago between (to use the gendered language present in the article) man and machine.

(In fact, even before the rise of neural networks and AI's algorithms used in web browsers could already meaningfully *associate* texts by their contents without having to rely on crowd sourcing as a creative crutch.)