

# Topiary

~sitful-hatred

Under the trees of England I meditated on this lost and perhaps mythical labyrinth. I imagined it untouched and perfect on the secret summit of some mountain; I imagined it drowned under rice paddies or beneath the sea; I imagined it infinite, made not only of eight-sided pavilions and of twisting paths but also of rivers, provinces and kingdoms... I thought of a maze of mazes, of a sinuous, ever growing maze which would take in both past and future and would somehow involve the stars.

– *The Garden of Forking Paths*, Jorge Borges

The story of hypertext is one of an idea swallowing the world -- an abstraction that was first described in print, demonstrated at laboratories in fits and starts, and finally summoned to consume nearly all written knowledge, and create a parallel realm of information that collapsed time and space. Though channeled and tamed by the consolidation of networked services by megacorps, hypertext is not yet finished reshaping the world.

On the eve of victory in 1945, the eminent director of American scientific research published an essay in *The Atlantic* proposing a machine to extend the human mind. Vannevar Bush had seen firsthand the explosion of both the production of scientific knowledge and sophistication in electronics manufacturing, and tied them together as problem and solution. His [description](#) of the Memex presaged the technological world we have inherited, envisioning a personal device that allowed a person to draw upon a vast library of information, and link documents together arbitrarily -- what he called "associative indexing", a deliberate recreation of how the mind connects thoughts.

The 1960s saw the first implementations of these ideas. Ted Nelson's [writing](#) around *Project Xanadu* elaborated this linking between documents into what Nelson called *hypertext*. Nelson imagined "a text arranged in a graph structure", centered around a corpus arranged in nonlinear sequence, manipulable by author or audience. The concept was first demonstrated at Douglas Engelbart's 'Mother of all Demos' in 1968, where a vision of computers as a collaborative social environment was revealed to the world. Among myriad fundamental innovations, a demonstration of "[The Journal](#)"

exhibited collaboratively edited documents with hyperlinked connections, recognizable to any audience today. From here, the idea would percolate through successive phases of computing, from mainframe to the PC.

Experimentation with these ideas continued through the 1970s and 80s. A team directed by Andy Lippman at MIT extended the concept to threaded visual hypermedia with the *Aspen Movie Map*, a user-directed virtual tour of Aspen, Colorado. Hypertext and hypermedia gained a mass audience for the first time with HyperCard, a program that shipped with Mac computers. Users were able to collect or create '[stacks](#)' of interlinked cards; a personal body of text, art, and knowledge could be accrued and modified, or shared with others -- though not yet with native networking capabilities.

With the World Wide Web, hypertext achieved escape velocity. Initially a one-man [project](#) aimed at goals that overlapped with the Memex itself (the sharing of information between disparate research groups), the web succeeded by connecting the computing and networking components that were on the ground in front of it: PCs with graphical interfaces, DNS, and the internet. Critically, its method of transmitting and traversing texts was a standardized protocol, allowing a free body of information to assemble atop the new global infrastructure, pieced together by anybody who wanted to pick up the tools. A new frontier was cleared and cultivated with open standards, but it would gradually face enclosure.

In the following decade, after the first wave of social networking sites had crested, but before phones became the primary web clients, Twitter was launched. Originally an awkward bridge between SMS and the web, its functional design eventually coalesced around static local identity, posts with chronological sorting, and globally-interlinkable threading. These primitives spawned a vast meta-text, a graph-of-graphs intertwined and overlapped, mapping reality as it occurred and forging its own. A product of its era, its dizzying potential was constrained by its environment -- the walled garden of an advertising company. The commercial incentives of the server operators demanded seizure of the commons, and protocols had given way to proprietary integrated platforms.

As the forms that had blossomed in the first age of the web withered, a new critique was articulated, and the abstractions to compose a new kind of machine were quietly [defined](#). They were tied together, as problem and solution. The design of Urbit extricated the future of a new world from the

lessons of the past; if power over the network would be consolidated by those running the servers, the answer was to run the servers ourselves.

Urbit itself is not fundamentally a hypertext system; it is a new kind of computer, designed to participate in a peer-to-peer network that rejects the client-server model. All software built on its foundation take its networking model for granted, in the same way that legacy systems had taken theirs. Foundational design decisions cascade out of the virtual world; the map reconfigures the territory.

In 2020, Urbit OS adopted an application called `%graph-store`, that made use of new, native [data structure](#) to act as a unified database service for its social applications. Chats, long-form text, and other types of data produced in the course of social computing now share a common language and template, a single database structure extensible to new types of content. Each item added to it is a node in a personal graph -- a tree that grows branches as your computer communicates. These nodes can be linked arbitrarily to other graphs -- Urbit's global immutable namespace lends both permanence and ownership over their contents, and allows their branches to intertwine with the those sprouted from other nodes on the network. Their design can accommodate disparate content, from simple text, to code and media, to forms yet conceived. The whole of a digital self is contained in a unified body, sampling and referenced by other bodies.

A personal graph of hypertext is no longer constrained within a system bound to any particular platform. Where graphs have until now been concentrated as tools of surveillance and legibility, they have been sown back to the network, each bound to the cryptographic identity of an individual, permanent computer. Where the map of your life has until now been splintered across a thousand systems and held in the custody of strangers, it is possessed now only by you and shared only as you see fit. An infinite forest of digital lives can take root, nesting their boughs and stalks.