

## Chapter 4

# Ted Nelson's Xanadu

### Caution – Four Letter Words Ahead

**Ken Knowlton**

Ted Nelson has a wide personal history of meeting writers, folks in the performing arts, and computer geeks who have brought us the modern flood of so-called “information.” By 1974 he had met, as shown by *Computer Lib/Dream Machines*, a dozen times as many people in computerdom as I had. Since then, his interest and energy for collecting ideas and methods has continued undaunted. In normal conversation, it isn't unusual for him to pull a pad from his shirt pocket and begin scribbling. I presume he's capturing something brilliant or stupid that I just said.

He has a box-car-size trove of books, notes, correspondence, files, manuals, and related debris gleaned from our culture's thoughts and toys. Somehow he got his arms and mind sufficiently around the tangled middens to write his breezy *Geeks Bearing Gifts*. The book is a compendium of everything you did (or didn't) want to know about the exciting (or dismal) uses (or misuses) of computers. It is also judiciously spiced with attitude.

We've been friends for many years, in spite of—perhaps, because of—the fact that we haven't really worked together. We do have similar reactions, I believe, to the how-to-live attitude of Spinoza who said:

I have striven  
not to laugh at human actions,  
not to weep at them,  
nor to hate them,  
but to understand them.

On this four point check-up, my scoring for both of us is the same: 25 %. We fail badly on the first three, and we do well with the fourth. We do laugh at the world, but, it's with a tart sense of humor. What else can one do when so many people seem intentionally insane? We don't exactly cry, but we despair at human over-reach. In *Computer Lib/Dream Machines*, Ted bemoaned the combination of overpopulation

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and resource depletion. Hate is not too strong for those who—in striving for fame, wealth, and/or power—are so insouciantly and widely destructive.

We do agree with striving to understand the world, and Ted pursues this with great energy and devotion. He also tries to arrange for folks in general to better understand people’s stories and their intertwined connections.

In short, better arrangements for understanding have been his life-long concern and quest. He has sought answers to the following: (1) what tangible stuff ought to be attended to; (2) how should it to be organized; (3) with what grappling tools; and (4) should we want to do what?

**A Hint: Some Four-Letter Words** For thousands of years, people have left records of things important to them: myths, legends, morals, customs, laws, fairy tales, plays, paintings, sculpture, songs, movies, pageants, and operas. Each record was a statement about themselves and their outward and inward experiences. Run through the alphabet slowly, with a small sample of short words, and ask about each: “What is evoked that should be recorded?”

Acta, Book, Copy, Data, Echo, Fact, Game, Hope, Idea,  
Joke, Know, Laws, Myth, Note, Oral, Page, Quip, Role,  
Song, Text, Uses, View, Want, Xray, Yore, Zone

We can hardly speak three sentences without alluding to something about us that’s been/being preserved. The creation of a modern Library of Alexandria— and ways to benefit from it—is a mind-boggler.

Once you go beyond the process of collecting, it becomes necessary to begin the process of “understanding.” We hope that those who follow will study, search, read, and try to make sense of who and what we were. And if “we” is more than tekkies, or Americans, or modern humans, then how did “we” relate to the others? Nothing arrives *de novo*. Almost everything one says or writes has lines of descent to it. Polite and diligent authors make such references explicit with quote marks and footnotes.

Here are a couple of examples for consideration. How to we trace the relationships in a letter-to-the-editor that corrects a statement in a review of two different authors’ translations into English of some odd ancient work. In my current life, I performed the following query in Google: “Knowlton’s Fast Storage Allocator.” This is a two-page paper that I wrote while at formerly Bell Telephone Laboratories, Inc [1]. Google responded with a list of 27,000 hits. If I search for “Ted Nelson,” Google’s response starts with “45,000,000”! What do those numbers mean? This is a set of connections of some sort, but they are quite unmanageable.

Here we have design issues galore! How many categories of items are present? What are the relationships: pointers to entreties, parts, paraphrases, allusions, hear-say, forerunners, anticipated future works, or other parts of the same text? Can pointers be permanent, tentative, private, one-way, or to other pointers? Can they be grouped in sets? The list goes on and on.

What then can we say about implementation? How should this look to the user? What are the necessary tools, and what level of sophistication is required?<sup>1</sup> The

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<sup>1</sup>System builders will be still on the scene because their job will never be finished.

system must be feasible, maintainable, understandable, and the data—of course—must be correctable, updatable, and protectable.

It must also be scaleable. Imagine a small information “package” for your home office, expandable to, or part of, a larger one for the franchise office. The latter package is associated with corporate headquarters and is, or will be, mingled into the whole world. At every level, the appropriate permissions and payments must be present.

From the bottom up, what are the appropriate tools to manage this commingled complexity? Another list of short words that hint at intellectual and electronic tools:

Alfa, Baud, Code, Disk, Else, File, Grid, Hunt, Item,  
Join, Keep, List, Move, Name, Omit, Path, Quit, Root,  
Sort, Tree, Undo, Vary, Webs, Xout, Yoke, Zoom

Of course, there are thousands more words that apply. Should we worry? There are lots of people who already have done groundwork in information input, processing, storage, transmission, retrieval and display. That's a beginning. But it's hardly the solution.

From my own experience in putting together programming languages, one hopes for some rest and gratification at the end. But it doesn't come easily, and it's not guaranteed. Sometimes the jungle is too large, tangled, and forbidding. It's the kind of place that only the brave even dare enter.

And there's a kind of private pain that most outsiders never realize. It's the pain of trimming back, leaving out, and simplifying. It's the pressure of the bank account running low and that hooded fellow with the scythe. He's behind a bush somewhere, and he's sneaking ever closer. The really nasty part is the many things that should have been there, but along the way, really good ideas—often half-way-worked out plans and methods—got dumped. There will be no jazz funeral for them. At most, they will receive a small private tear or two. The philosopher Peit Hein was famous for his short poems he called *grooks*. Ted's situation calls to mind this particular grook:

Problems worthy  
of attack  
prove their worth by  
hitting back.

There's one real difference between Ted Nelson and myself. I've been rambling for the past 50 years, picking low-hanging fruit in computer software, hardware, and art. In this same time, Ted has stuck with one gargantuan, significant, and tough problem. I marvel at this, and I commend him for it.

**Summing Up, and a Puzzle** Here's a puzzle, and I introduce it by noting that Ted and I have an experience in common. We each spent long stretches of our early years on a small farm. We experienced the smell of cut hay, trees to climb, animals in the woods, birds that visited for the warm months, and snow to shovel in the winter. These boyhood experiences were our springboards into an ever rich and vibrant world. Or at least, one would have thought that this would be the case. But this world is now being fried, drowned, poisoned, and overrun. It's hard to imagine, but in my own lifetime, the number of people on this planet has tripled!

Here is the puzzle. Why have we expended all of this personal effort, when we're already convinced that this whole ship of civilization is headed for the rocks? Ted said in 1974 that our ecology was in bad shape and very likely to get much worse. I urge you to read again the ending of *Computer Lib/Dream Machines*. Later, I wrote my own independent, but similar scribbles, "Great Day in the Evening" [2] and "Brief Manifesto" [3].

What record of our doings will, in any sense, last? Unlike our friend Laurie Spiegel,<sup>2</sup> we have no computer music, nor anything else, on the Golden Record of Voyager 1, which is traveling outside the solar system and on course to outlast the sun.

My own answer to why-all-the-effort, not for everyone, recalls what I've heard about the two types of mathematicians. Those who believe in God, say that God has a *Book* that holds all mathematical truths; those who do not think and feel in terms of God nevertheless say that such a *Book* exists!

I believe in a similar *Book*, a book of All Things that have happened, probably the one in which Omar Khayyam's imagined finger "writes, and having writ moves on." This is a book with an ever growing total history, and it includes people's hopes, values, and things they cared about. It records those things that always will have been hoped, that always will have been valued, and that always will have been cared about. Each of us has a good bit written there. Here's my toast to Ted Nelson: You have already contributed a solid and admirable chunk to that story. You are on a good track, Ted. Carry on!

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## References

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3. Knowlton KC (2012) Brief Manifesto. The website for Ken Knowlton. <http://kenknowlton.com/pages/35manifesto.htm>. Accessed 4 Jan 2015

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<sup>2</sup>See in this volume, Laurie Spiegel, Chap. 6: *Riffing on Ted Nelson*.