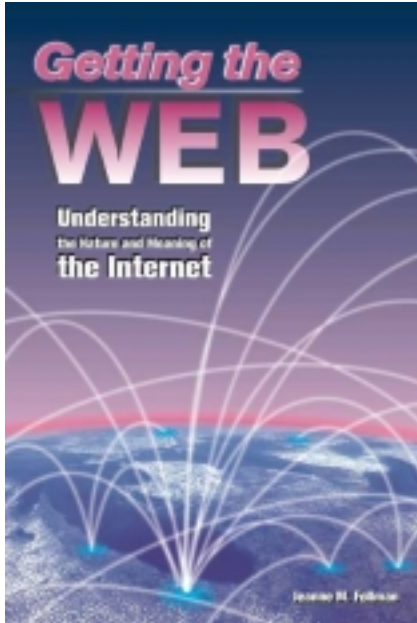
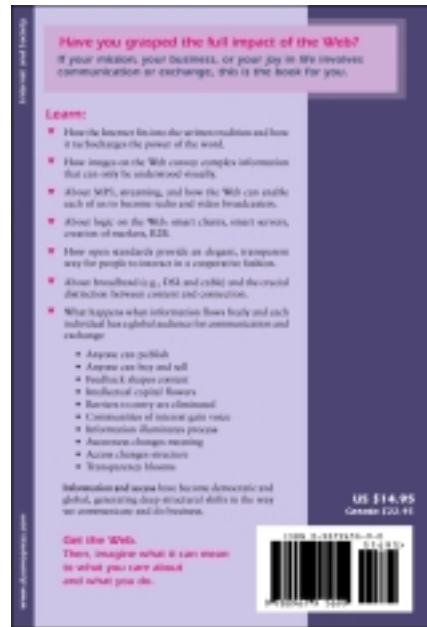


Read Me and Pass Me On
chapter excerpt & annotated Table of Contents

*Getting the Web: Understanding the Nature
and Meaning of the Internet*



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Getting the Web will be generally available in bookstores by September 2001. After mid-March, you can purchase the softcover book directly from Duomo Press at <http://www.duomopress.com> or order it through your favorite online retailers and traditional bookstores.

an eTaste of
Getting the Web

Understanding the
Nature and Meaning
of the Internet

Jeanne M. Follman

Published by Duomo Press, Chicago, IL
www.duomopress.com

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Files of Words

Too much of a good thing is wonderful.

– Mae West

IN EMAILS, chat rooms, Web pages, news groups and instant messages, countless words fly across the Internet every day; the written word hasn't seen such a boost since the invention of printing.

We have been storing our thoughts in various forms of writing for about five thousand or six thousand years. In each case (as with telephones and computers) there is a sender, a signal, and a receiver. The signal can be pressed into clay, chipped into stone, written on a papyrus, inscribed on parchment made from the skin of an animal, printed in a book or newspaper, or squirted in pixels on the screen of a computer monitor. The point is the communication of a message. It can be anything from an accounting entry, to a stock quote, to the conveyance of an entire world created in one person's imagination and given life in another's: Sherlock Holmes, Winnie the Pooh, Hamlet, Star Wars, or Star Trek (OK, those last two are visual media but the books keep us going in between the movies and the episodes).

In his book *The History and Power of Writing*, Henri-Jean Martin says the following about how we encode our thoughts in writing systems:

The signs that were aligned by the human hand were

nothing by themselves. What mattered was the resonance that seeing them prompted in those who deciphered them on the basis of their own previous experience. (Chicago and London: University of Chicago Press, 1994).

And now the written word has joined the world of broadcast. The mass media of television and radio have given us instantaneous transmission of images and sound, vastly shrinking our world and just as vastly increasing our understanding of it. For the first time, the Internet gives us a mass medium for the instantaneous transmission of text. Not only that, it's a mass medium controllable by an individual. With it, a person's words can travel not just to one person via print or fax, not just to a group of people through the intercession of a government, corporation, or publisher, but to anyone on the planet who chooses to search for them. Now individuals, geniuses and crackpots alike, have joined the ranks of the bureaucrats and the pointy-haired managers with their ability to transmit the written word to the masses.

Visualizing Discourse

To further quote Henri-Jean Martin in *The History and Power of Writing*, "writing exists only by right of previous speech, thought or spoken, and its first aim is to set down spoken discourse in visual form." Well that seems fair enough; we can't write or speak until we think, even though there's some evidence to suggest the contrary.

But is writing a transforming act? In the same book, Martin says the following about writing:

It is not revolutionary but appears every time that a revolution in communications and exchanges prompts

a fusion into a larger whole. Where this occurs it accelerates the changes set in motion within the society. There are two reasons for this. The first is that culture is nothing but what the thought of successive generations has produced; it permits the storage of that thought. The second is that writing casts speech onto a two-dimensional space and fixes it there, thus permitting speech to be an object of reflection outside of any context. Furthermore, because it visualizes discourse, writing prompts new sorts of connections in the reasoning process.

There's no question that a revolution in communications has been going on for a good part of the century and now we've added to it the ability to instantly transmit stored thought, the opportunity to reflect upon that stored thought, and the ability to create unlimited connections between it all. And those abilities and opportunities now belong to individuals, not just to governments or corporations.

To help figure out what this will do to the way we communicate, let's take a look at what our relationship has been with the written word in the past and how it has affected us.

A CHANGING RELATIONSHIP WITH TEXT

Mesopotamia dot COM

You wouldn't think that accountants would be at the vanguard of literary evolution, but they are to blame for the invention of the written word. In fact, most advances in literacy and mathematics are spurred by commerce. It was the Mesopotamian bean-counters, not the poets, who established cuneiform as the first written language. They inscribed pictures and counts of objects bought and sold (in sections called calculi using a base 60

number system) so that there would be no cheating on deals between people in distant cities. (“You owe me 40 oxen, not 20, and I have the tablets to prove it!”) Writing was the first form of creating a presence in a distant place; it was also a means to register transactions and manage the accumulation of wealth. And during the Renaissance, most of the huge volume of correspondence of the time was devoted to a similar management of distant commercial exchanges.

The written word has appeared in many different forms and each form has flavored our relationship with the text. When ancient Romans used to scroll through words, they unrolled a physical scroll made of papyrus pages pasted together. They would read a page (with words in two columns, no spaces between the words) and then unroll the next page, while at the same time rolling up the previous page. Since the average scroll was about 10 yards long, skipping from the last page of the scroll to the first involved a lot more work than it does to skip pages in today’s books. But the scroll was a big improvement over engraving words into clay tablets. It wasn’t until the third or fourth century that people started writing on both sides of the parchment, piling the pages on top of one other and binding them into what we now think of as a book.

And of course the medium made a difference, as well as the exchanges it generated. You can encode information much faster on papyrus than you can in stone. Once papyrus appeared as the medium of choice, scrolls became standardized and their numbers skyrocketed, with the library in Alexandria containing over a half million. Likewise, indexes and tables of contents didn’t appear until books were bound and you could flip through the pages rather than rolling through a scroll; there’s not much point in an index or table of contents if it takes you 20 minutes to get to the right page. Likewise, the invention of paper and movable type in Europe set off a great boom, with print shops springing

up everywhere, run by renaissance yuppies looking to make a buck and creating in the process a marketplace in which ideas could be bought and sold. Those ideas then proceeded to shape the course of history.

The Solitary Reader

Initially, scrolls or books weren't read as we know it today. Readers spoke the written word aloud to a group, using the text as a script, much like talking heads on television use a teleprompter. "Thus for some time no one imagined that discourse could be cast in any other language, or follow any other rhetoric, than that of the spoken word," says Martin. Even though people wrote words, they were used as an aid to memory in what was clearly still an oral tradition.

It wasn't until well into the Middle Ages that reading was even thought of as a solitary affair. "Henceforth the reader looked at a page rather than listening to a text, and his eyes moved over the two dimensional surface seeking a particular word or scanning for reference points or colored letters. By the same token, any reasoned argument . . . took on an objective existence," says Martin. The tradition of a single individual curling up with a book was thus born with the medieval creation of a one-on-one communication between a writer and a solitary reader; the speaker turned into an author, at once more personal yet more removed. Back then, if someone disagreed with something you were reading out loud, they had the physical proximity to slap the day-lights out of you. The read manuscript put an end to that for the most part; if someone wanted to smack you around for something you wrote they would have to track you down.

But the read manuscript did offer a way to react, since to acquire a book before the invention of printing, you had to copy it yourself or pay someone to copy it. This gave scribes the opportunity to add their own embellishments to the text, including

notations, commentary, and the frequent addition or correction. As a result, the manuscript not only contained text that changed over time, it contained rubrics (i.e., additions to the text in red ink that outlined the structure and helped explain the material) and lengthy commentaries. Each time a manuscript was copied, it gained a bit more embellishment and annotation, as each scribe added something to the work.

The Logic of the Book

The printed book also created its own relationship with text. Books were first printed exactly as duplicates of manuscripts, complete with rubrics, commentary, and hand-painted decoration. Over time, however, these embellishments disappeared, leaving only the undecorated text, alone on the page with ever-shrinking margins. Books became pruned and standardized, the result of being a manufactured object. The mechanics of printing also inhibited the placing of words and pictures together on a page, so printed books lost the hand-copied manuscript's integration of text and image. As a result, images were herded together away from the relevant text; sometimes they were even printed as entirely separate volumes. "Thus the Enlightenment marked the moment of triumph of the text over the image, of a certain form of typographical rhetoric over the rhetoric of the spoken word, and of the serially produced object," says Martin.

Very briefly, we can see some common impulses in our use of the written word. First, there's the obvious desire to visualize discourse: to set something down and integrate it with image and decoration. Then, once it's stored and reflected upon, we see the impulse to comment upon it, either by way of clarification, elaboration, or commentary. Finally there's the desire to create a complex structure of information or thought that stands by itself and can be communicated as a whole from author to reader and from which connections can be drawn.

THE FLAVOR OF TEXT ON THE INTERNET

When we think of text on the Internet, the fact that it's transmitted electronically is of course important, but that is not the only thing happening. The human impulse to visualize discourse, to create a complex structure of thought and image, to rant after reflection (or more often before), and to make connections, now has a new place to flower.

While not as intimate as a book (I've yet to take my beloved iMac to bed with me), a Web site offers a place of almost infinite space and complexity for the storage of information and thought, accessible to anyone who chooses to go to it. And just as in the past, when the level of complexity of the stored thought reached a certain level, the need for rubrication (i.e., additions to the text that outlined the structure and helped explain the material) kicked in. We don't use red ink for that any more, but we do have a fairly clear set of rubrics for helping people navigate the huge amounts of text and image found in Web sites, including clickable tables of contents and indexes, next/previous navigation buttons, search features, and clickable external references and bibliographies.

Two other impulses that appeared in the medieval manuscript have also surfaced on the Web. One is the embellishment of words made possible by being a single entity. A Web site, unlike a book, is not a mass-produced item but a one-of-a-kind creation, even though it might be mirrored on multiple sites. A Web site is hand-crafted for the most part so it can be elaborated over time like a physical manuscript. And as the site evolves, the visitor always gets the most recent additions. The other is the fact that words and pictures are easily interwoven once again. More than just eye candy, the integration of text and image offers new possibilities for visual forms of communication.

Finally, commentary has returned in full force, even though

it's no longer transcribed in the margins of a manuscript. The number, quality and size of the Web sites that have blossomed in the past few years is incredible, as is the amount of reaction these sites have generated. Any topic of any consequence at all has a huge number of discussion groups associated with it, with endless diatribes back and forth, some of which are actually useful. And with email, an author is once again an easy target for flak.

Hypertext – Connection Made Manifest

The Internet offers an outlet for many impulses that we've seen implemented in written media of the past. It also offers one key feature that hasn't been realized before: *hypertext*. Hypertext is the mechanism you use when you click on a Web page link to see a new Web page. Hypertext provides a way to make the connection between related pages physical by linking words or images to another file. When you put your cursor over linked words or images, it turns into a finger; you click and you see the linked page. It is a wonderfully efficient way to connect one idea to another, regardless of where or how that idea is represented.

In the past, sequence and proximity were the only ways to relate groups of words. Paragraphs followed one another in chapters and chapters followed one another in books; related books were issued in sets. Now, by the way that we write our hypertext links, we have the ability to connect groups of words directly within a work (e.g., paragraphs, sections, chapters, glossaries, bibliographies, notes). We also have the ability to link pages externally to other pages, creating complex repositories of thought spanning the globe.

The architecture of hypertext allows an excellent structuring of knowledge because it puts the connection right where you need it. For example, if you define a concept in a book and then use it more than once, you must either define the concept again or refer to the previous definition's specific location. Being able to link

directly to the definition from each usage is clearly a more useful way to communicate.

Hypertext also allows us to create dynamic webs of connection. While the set of links in one Web site may be created by a single person, the links available at the next linked site would be created by someone else. A person following a thread of links through various sites is therefore taking a path through information that no one person or organization can design or control.

Breaking Down Barriers

Text and hypertext on the Internet is the capstone of the communications revolution of the past century since it not only offers a medium for the mass, instant transmission of text, it also puts that medium in the hands of the individual. The Internet turbocharges the power of the word, which is awesome enough to begin with; it accelerates the breakdown of barriers and expands the context in which we see each other. Villages in the past were small, self-contained and compartmentalized. Today, our villages and neighborhoods may still be small but they are definitely not self-contained or compartmentalized. Rather, they are intertwined in a great link of commerce, culture, and information. The power of the Internet is the power of the word – the power each individual now has to create complex repositories of thought and to enter into a conversation on that thought with anyone else on the planet.

What We Were After All Along?

It is still quite mind-boggling to me (if not to my children) to be able to get words delivered via the Internet to my computer from millions of different Web sites all over the planet in a matter of seconds. It is even more mind-boggling to have my words read and responded to by people all over the world, even if those people may be few in number. Words used to be stuck to paper; if you

wanted the word you had to have the paper too. Now words have been freed, morphing into an electronic form where digital copies exist in files going from servers to clients, displayed on a computer monitor until the next link is clicked. Given the explosion of words on the Web and the various desires to visualize discourse that the Web satisfies, I can't help but wonder if the Internet is a form of communication that we've been after from the very beginning. Digitized words will never replace words in books, but they make a mighty companion.

To close, here's one final thought of Henri-Jean Martin's from *The History and Power of Writing*:

On every occasion, oral communication (and communication by images) has developed along with writing in a world of expanding cities and accelerating exchanges. And now, in the last few decades, a society of simultaneity has come to be organized, as if it were a logical point of arrival.

And this he wrote before the blooming of the Internet!

Getting the Web

Annotated Table of Contents

A quick look at the other chapters in the book.

The Big Picture

The pictures taken by the Apollo 8 astronauts were the first to show us Earth, floating alone and majestic in space; these pictures forever changed the way we think about ourselves. Likewise, the Internet is now forever changing the way in which we interact. It is launching us into the new millennium by giving to each individual the powers of communication and exchange that in the past were held only by governments and corporations. This book explores what the Internet is, how computers and telephones shape the internet, and how the Internet shapes communication and exchange and ultimately, us. Technically, it's all quite complex and sophisticated. Conceptually it's a simple matter of moving files back and forth between servers and clients to engage people in communication and exchange. Chapter topics: Looking at What, Not How — Structure of the Book

Part I

In Part I, we see what happens when individuals exchange words, pictures, sound, motion, and logic by putting them in files and moving them back and forth on the Internet – the telephone company for computers.

The Telephone Company for Computers

How the telephone network and computers, as either clients or servers, make up the fabric of the Internet and create the basic mechanism for communication. Chapter topics: *Computers — The Telephone Network — Clients and Servers — Summary: The Telephone Company for Computers*

Files

Traffic on the Internet is no more or no less than billions of requests and files, flying back and forth all over the world, between clients that have requested the files and servers that have served them. Chapter topics: *Signals — Suck It and See*

Files of Words

How the Internet fits into the written tradition and how it turbocharges the power of the word, visualizing discourse and giving each individual the power to create complex repositories of thought and to enter into a conversation on that thought with anyone else on the planet. Chapter topics: *Visualizing Discourse — A Changing Relationship with Text — Mesopotamia dot COM — The Solitary Reader — The Logic of the Book — The Flavor of Text on the Internet — Hypertext - Connection Made Manifest — Breaking Down Barriers — What We Were After All Along?*

Files of Pictures

How images on the Web can be used to convey complex information that can only be fully done pictorially. Chapter topics: *Image File Guts - Pictures as 0s and 1s — Pictures are Cool — Visual Knowledge — Photographs — Art*

Files of Sound and Motion

How the Web can enable each one of us to become radio and

video broadcasters. Chapter topics: *Sound as 0s and 1s — Streaming Audio — MP3 — Internet Radio — Broadcasting Internet Radio — Video on the Web*

Files of Logic

Smart clients, smart servers, B2B: what happens when we start creating Web clients and servers that not only do “show and tell” (i.e., transmit files of words and pictures), but do the million other things that software is known for. Chapter topics: *Smart Servers — Smart Servers - Business to Business — Smart Clients — Downloading Programs — The Telephone Company for Computers*

Part II

Part II explores why the Internet is the way it is: how computers and telephone networks shape the nature of the Internet. We see how open standards successfully orchestrate the daily movement of millions of files, we look at search engines, we see why bandwidth is an issue, and we explore the crucial difference in a public network between content and connection.

Open Standards

Open standards are the power that fuels phenomenal growth, providing the clarity and stability necessary to create new forms of communication and exchange. They provide an elegant, transparent way for people to interact in a cooperative fashion. As Tim Berners-Lee says, “As long as we accept the rules of sending packets around, we can send packets containing anything to anyone.” Chapter topics: *Standards and Communication — File Types — File Standards — Standards and the Birth of the Web — Standards Today — Open Standards — Open vs. Proprietary Standards — Open Standards and Growth — The Power of Cooperation*

Searching the Web

Push vs. Pull, metadata, and why it's so hard to *find what you're looking for on the Web. Chapter topics: *Push vs. Pull — Catalogs, Search Engines, and Portals — Mechanizing Meaning — Metadata — Sort of Meta — Real Metadata*

Bandwidth and the World Wide Wait

A quick tour of the Internet, why squeezing bits through the voice telephone network is such a slow process and what forthcoming "broadband" solutions, especially ADSL and cable, can do to help the situation. Chapter topics: *The Local Loop — The Internet — The Internet Service Provider (ISP) — Traffic on the Internet — Bandwidth — Speeding up the Internet Network — Speeding Up the Local Loop — In the Interim — Speed in Both Directions — Broadband Solutions — Asymmetric Digital Subscriber Line (ADSL) and the Pooz Deaf Telephone Company — Cable TV — Fiber — Wireless Options — Accessibility Issues — Cost and Convergence — Why Bandwidth Matters*

Content and Connection

What happens when a number of centralized, private networks such as TV broadcast and cable networks crunch into the distributed, decentralized public network that is the Internet. Chapter topics: *Bundling — Bundling in a Broadband World — Bundling Access and ISPs — Public Networks Connect — Content, Connection and Convergence — History Repeats Itself — The Pricing Issue — The Infrastructure Challenge*

Part III

In Part III, we discuss the ways in which the Internet shapes communication and exchange and ultimately, us. The Internet gives us a splendid mechanism to hold an enriched conversation or to

do business with anyone on the planet. And when people start talking on the Internet, information flows freely, anyone can publish, barriers to entry for many businesses are virtually eliminated, intellectual capital increases, feedback shapes content, communities of interest gain voice, local communities thrive, and complex and differentiated entities form and emerge, like the open source movement and the Internet itself. Information illuminates. The Internet will make obvious new ways of doing things and create new ways of looking at life. With it, we can more easily see ourselves in the full context of who we really are and ensure that our institutions truly function the way they should.

Individuals in Conversation

On the Internet, the vast complexity and storage capacity of computers fuses with the reach of the telephone network, dramatically enriching our conversations. If your interests, your business, or your mission in life lay within the realm of communication or exchange, the Internet is the tool for you. Are you ready? Chapter topics: *Communication and Exchange — The Power of Publishing — The Power To Exchange — The Creator's Tool of Choice — Using Files for Communication and Exchange — Visualizing Discourse — Internet Time — Discourse and the Shaping of Content — Sharing and Amplifying Intellectual Capital*

Formation of Community

On the Internet, it's not unusual for people who would otherwise be complete strangers to do cool stuff as a community for no other reason than their love of doing cool stuff. Far from being a force for social isolation, for people of like minds or similar interests, the Internet is a wellspring of community formation, and is itself the product of such a community. The Internet dissolves barriers, the main but not the only one being distance, and provides a forum for conversation, debate, and interaction. Chapter

topics: *Conveying Presence — Reaching the Niche Audience — A Small Corner of Cyberspace — Victorian Email — Enhancing Physical Communities — The Virtual Corporation — The Community that Created the Internet — Doing Good and Showing Off — Open Source — Transparency and Complexity — Cyberspace is Earth*

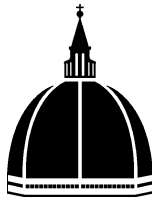
Conversations Driving Change

The Internet doesn't cause change but the people using it certainly do. If there are conversations between people and within communities that the Internet can bring about, it is from these conversations that change will come. Information and access have become both democratic and global, generating deep structural changes in the way we communicate and do business. Chapter topics: *The Free Flow of Information — Access Changes Structure — Everyone's an Operator — The Price in the Marketplace — The Marketplace Itself — A Market of One*

An Outbreak of Sanity

Information illuminates. With it, we can see ourselves in the full context of who we really are and insure through transparency that our organizations function the way they should. Using the Internet, each individual, alone or in communities of interest and knowledge, finally has the power to trump the agenda of the institution and shape it to serve those who give it meaning. It may be just the thing we need to permanently nail into place the mother of all paradigm shifts: the idea that the person gives meaning to the institution, not the other way around. Chapter topics: *Illumination and Formalization — Transparency — Epiphanies of Context — Welcome to the Renaissance*

Glossary, Bibliography, Index



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