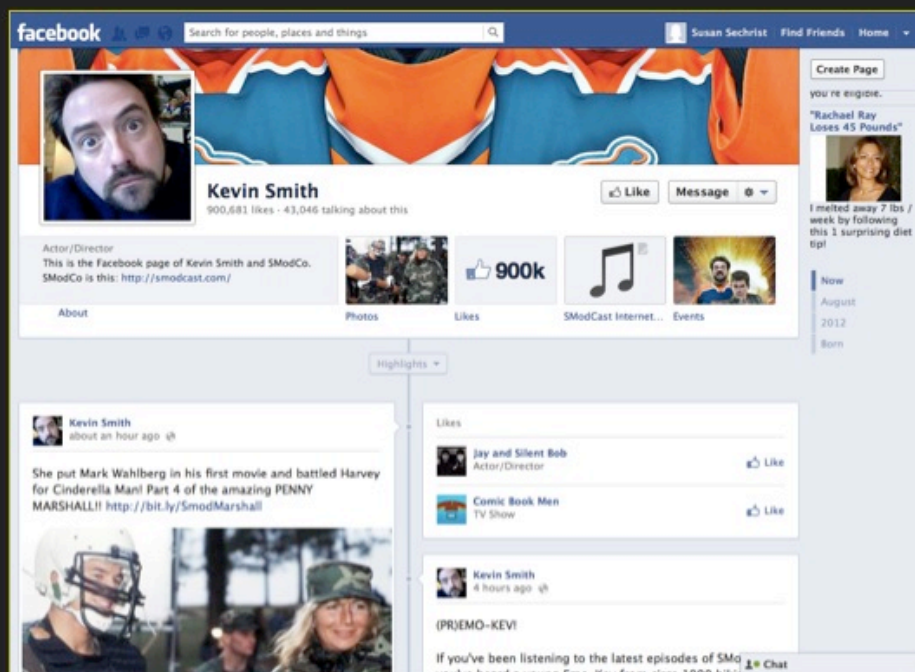I must confess: I have a fantastical vision of the scriptorium. It's from the 1986 film adaptation of Umberto Eco's The Name of the Rose – it's a dark, dank, secret labyrinth, full of hidden passages and filled gloriously to the top of its medieval arches with all kinds of knowledge – even forbidden knowledge (maybe especially forbidden knowledge) – lovingly copied and illuminated by dedicated scribes and fiercely protected.

I now think of a scriptorium as **any** place where people evaluate, judge, and organize knowledge. It is also a place where people interact with knowledge, to advance it, refute it; change and codify it.
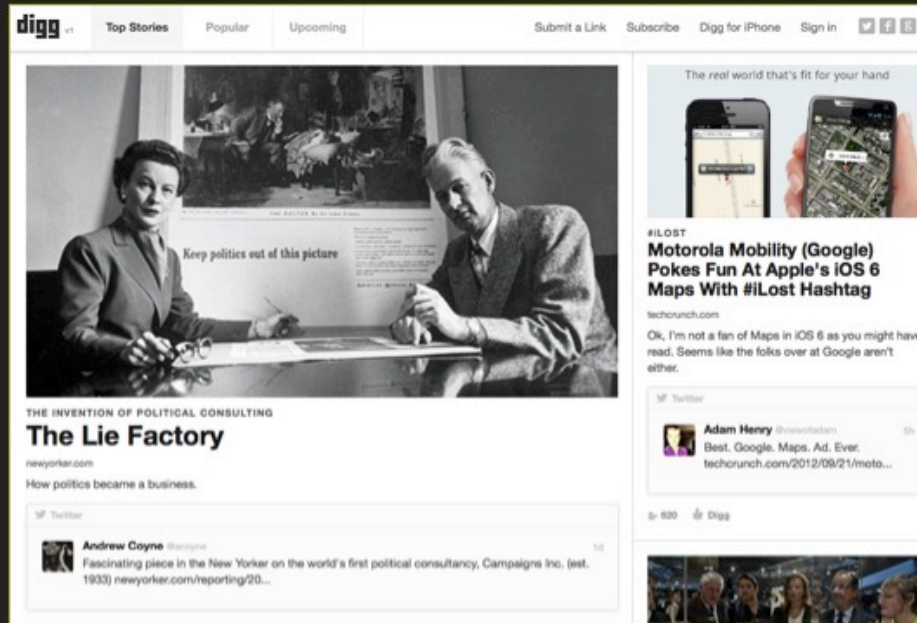
Now we have new places and new tools to evaluate, judge, and organize; new ways to interact with, change and codify knowledge. We have the keyboard instead of the quill, pixels instead of paper. We can create scriptoria from any room and send it around the world at the speed of an electron moving through a wire.
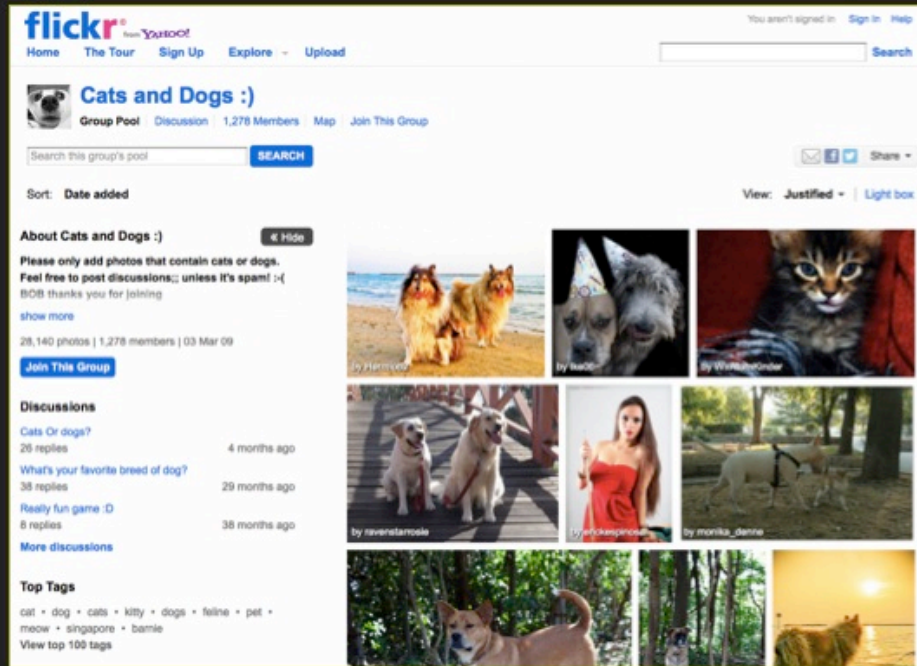

Is this what the new scriptorium will look like? Facebook, the ubiquitous clearinghouse of information both interesting and banal, where you can find out about your colleague's trip to Nepal or be pestered by your brother-in-law to water his sorghum crops on Farmville (which is just one of the many online games you can play). Facebook is only one example of the power and reach of Web 2.0 – an Internet paradigm that seeks to unite our previously fragmented online lives into something more cohesive and participatory and social. There are many others.
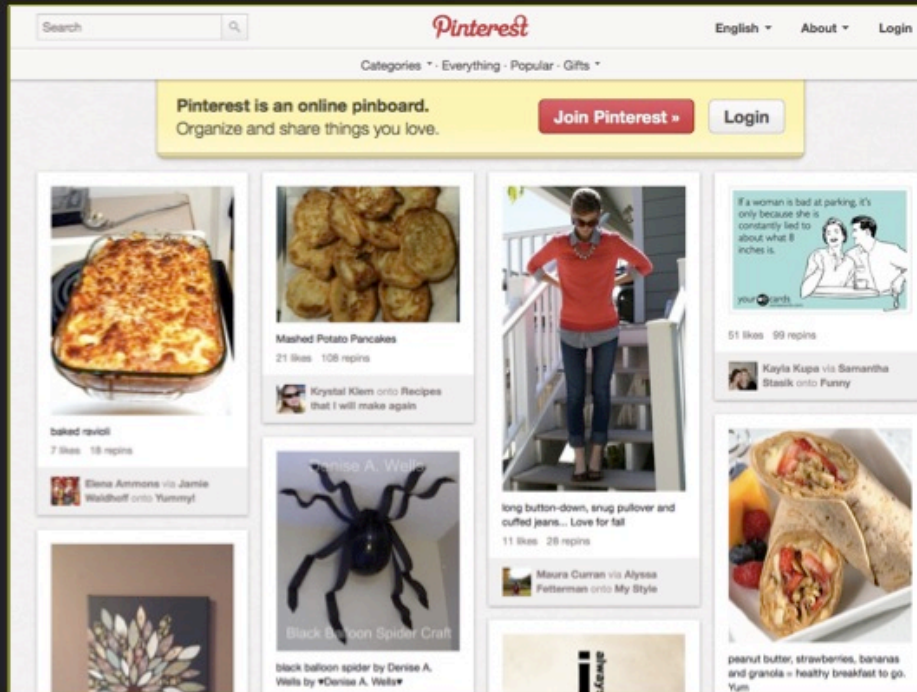
The New Scriptorium?

Such as sites that function as information aggregators like Digg, a completely user-driven site where users post and rank news stories from around the web.

Flickr, where we share our millions of pictures of our cats and dogs – as well as other illuminations, from the profound to the prosaic.
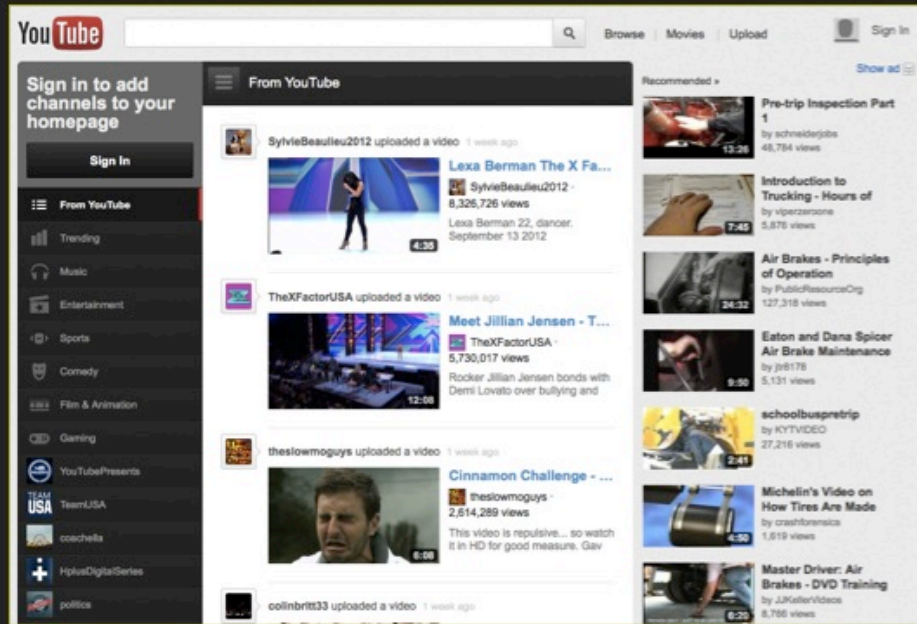
Pinterest, a "virtual pinboard," which offers a more visual alternative to tagging, organizing, and sharing interests.

The New Scriptorium?

Twitter, "a real-time information network that connects you to the latest stories, ideas, opinions and news about what you find interesting."

And last, but not least - YouTube, which features millions of original videos from the ridiculous to the sublime and everything in between.

Why are social media tools so compelling? Because they are interactive and participatory. We get to add our own two cents: to post comments, to like or dislike, to follow, to unfriend, to tweet and retweet – these tools offer us an egalitarian opportunity to do immediately, and sometimes anonymously, what the scribes in the scriptorium did: we can gloss the Internet.

[YouTube link - https://www.youtube.com/watch?v=usSrJGX1Wxs]

The reason I chose this silly, short clip from YouTube is not just because I think it's funny and familiar to many, but because someone glossed it – they annotated the video with a bit of marginalia. Marginalia is the common ancestor of prestigious integrative online learning systems, electronic books, and the crassest of social media outlets. Analyzing marginalia in its many forms, both ancient and emergent, gives us a sense of what the future digital scriptorium may look like and may even offer insight into how we will continue to codify knowledge.

Marginalia

From scholia, the corrections or scholarly comments on classical manuscripts;

Many researchers study why we write in the margins of books to understand how we evaluate, share, and organize knowledge.

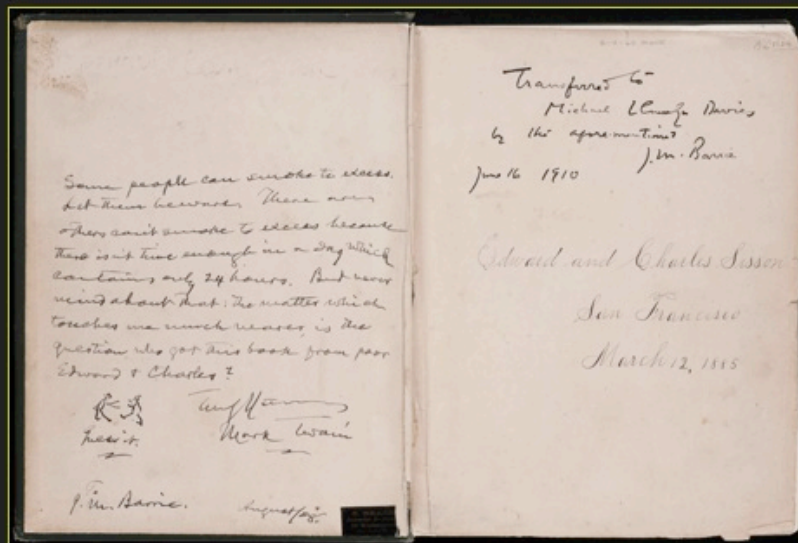From scholia (the corrections or scholarly comments on classical manuscripts)…
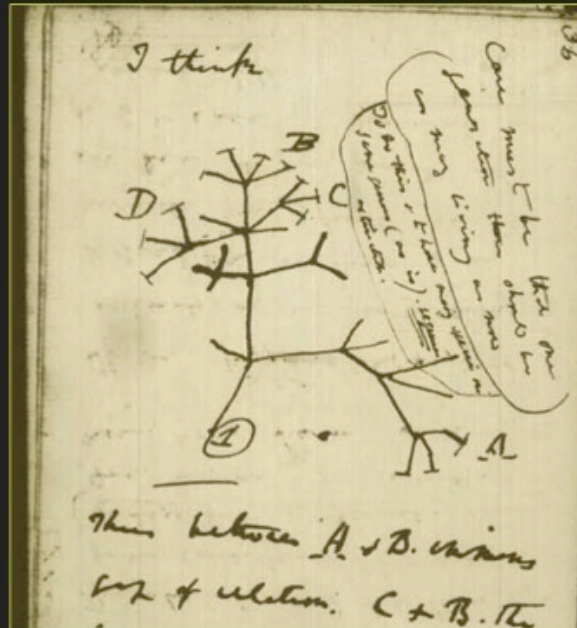
To the glossaries, liturgical notes, and illuminations in biblical documents…

To the copious notes written in other people's work by writers like Coleridge, Twain, Plath, and others…

To marvelous intellectual breakthroughs like Fermat's last theorem and Darwin's sketch of the tree of evolution, marginalia offers insight into how we receive, gauge, and propagate ideas. These marginal afterthoughts can be as transcendent and revolutionary as what is printed on the page. But, some have been unsure how marginalia would fare in the digital future, myself included.

Marginalia

"Old-school marginalia was – to put it into contemporary cultural terms – a kind of slow-motion, long-form Twitter, or a statusless, meaning-soaked Facebook, or an analog, object-based G-chat. (Nevermind: it was social, is my point.)"

- Sam Anderson

Writer Sam Anderson, a self-confessed and gleeful margin-defacer, declares in a 2011 *New York Times* article that marginalia is not dead or dying in the digital age, as some have pronounced. In fact, he believes it has a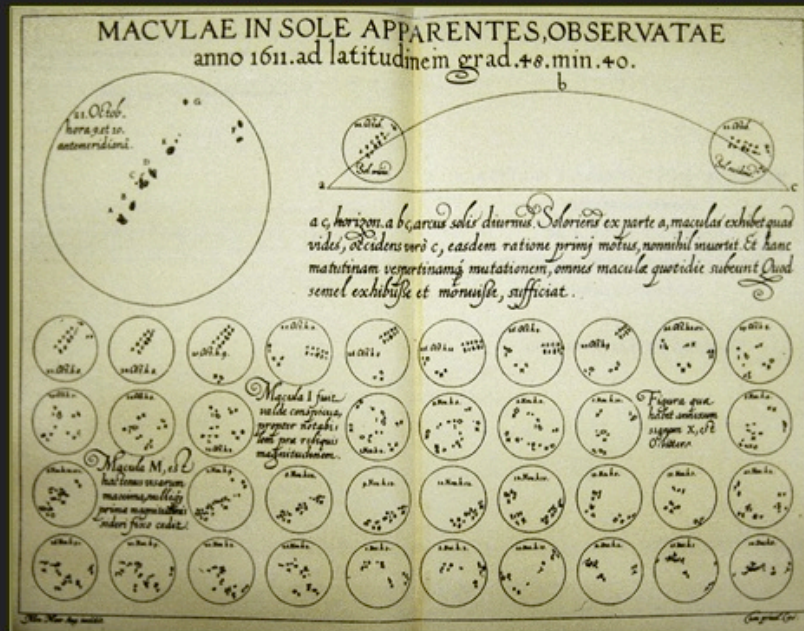ctually helped create our interconnected, electronic lives: "Old-school marginalia was – to put it into contemporary cultural terms – a kind of slow-motion, long-form Twitter, or a statusless, meaning-soaked Facebook, or an analog, object-based G-chat. (Nevermind: it was social, is my point.)"

Value of the "Spoiled" Book

The British Library's copy of Galileo's work on sunspots, *Istoria e Dimostrazioni Intorno alle Macchie Solari* (Rome, 1613)

Heather Jackson, professor of English at the University of Toronto, discusses this social aspect of writing in the margins in her 2001 book, *Marginalia: Readers Writing in Books*. For example, Jackson presents our divergent views of marginalia: how we value the authoritatively glossed canon and devalue the anonymously annotated modern paperback.
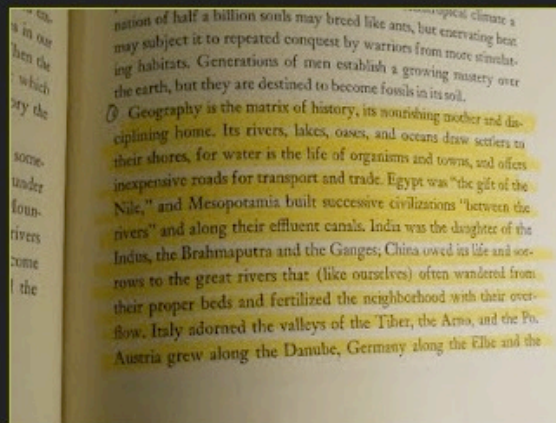
This is a plate from the British Library's copy of Galileo's work on sunspots, Istoria e Dimostrazioni Intorno alle Macchie Solari (Rome, 1613).

Every library in the world prohibits random, peripheral scribbling in the margins of its collections, yet every library in the world also covets the British Library's acquisition of this particular volume of Galileo's *Istoria e dimostrazioni intorno alle macchie solari* (his work on sunspots). The value of this spoiled book is in "the copious annotations in Italian, which have been written in the margins throughout the book." Even though "it is not known who wrote the

annotations… it is clear that they were written by contemporary readers who were interested in recent developments in astronomy and were competent enough to comment in detail on Galileo's observations and findings…. …these annotations are important evidence for the impact of Galileo's ideas on his contemporaries and give a glimpse of the excited interest and polemical discussion which Galileo's work often provoked."

On the flip side, Jackson also argues that we view the modern, reader-annotated paperback as a "scruffy thing," something that may even be contagious in some way. These are the random thoughts of some unknown, potentially untrustworthy reader. These are marks that may be cryptic or even indecipherable – and, therefore, they are deemed meaningless.

However, another researcher, Catherine Marshall, implores us to imbue the prosaic spoiled book with the same value as that of the profound canon, especially if we are interested in creating meaningful interactive digital reading and learning environments.
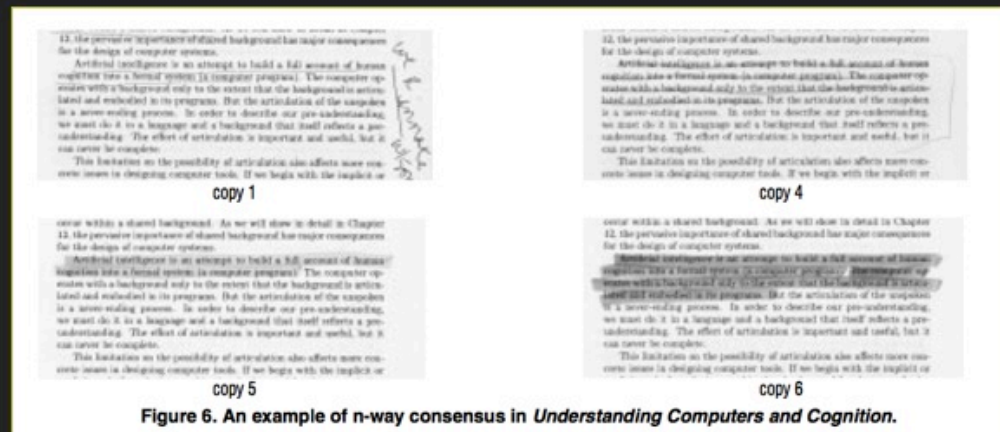

Figure 6. An example of n-way consensus in *Understanding Computers and Cognition*.

Catherine Marshall, of Microsoft Corporation and Xerox's Palo Alto Research Center, has written extensively on hypertext systems and the development of electronic books, focusing much of her research on how examples of marginalia and annotation in the printed book could be incorporated into digital tools.

"Annotation is a fundamental aspect of hypertext. In theory, hypertexts grow and change by way of addition – readers respond to hypertexts with commentary, make new connections and create new pathways, gather and interpret materials, and otherwise promise an accretion of
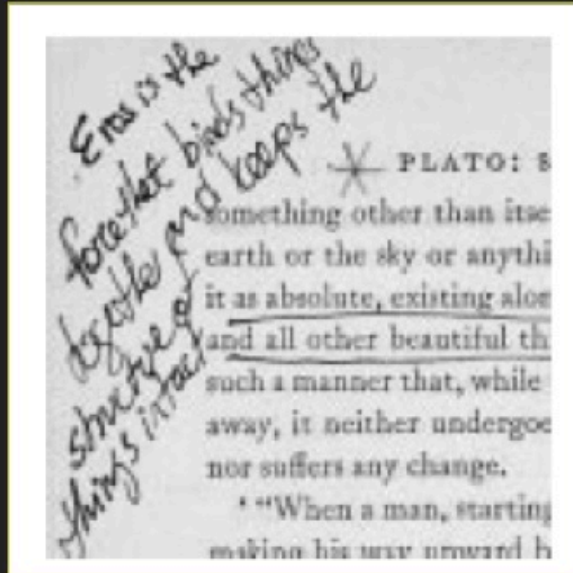
both structure and content. In so doing, they crucially augment an existing body of interrelated materials."

Marshall took an analog approach to the digital problem of building a usable shared annotation system: she examined hundreds of used print textbooks in a university bookstore, looking for marginalia.

This logic is counter to Heather Jackson's assertion that modern readers tend to avoid "used goods," but textbooks, by the nature of their intent and purpose, present themselves as a repository that is actively interacted with by a specific community – students – akin to Galileo's contemporaries making marks in his work on sunspots.

She categorized the marks students made: anchors, symbols of emphasis, resegmentation of paragraphs, and types of association. In four copies of one textbook, she found that students had annotated the same paragraph by highlighting or underlining passages or writing notes in the margin next to the paragraph. The paragraph was not set off by any formatting or design features, like italics or callouts, features that might draw a student's attention in the first place. These four different annotations on the same text provided a point of convergence, a place where several students shared a similar identification with the text and the process of reading.

Value of the "Spoiled" Book

A student annotating her own textbook is engaged in a private experience. Her marginalia serve as guideposts for her to return to, to explain a difficult idea or to offer personal insight that connects her to the material in the text. However, Marshall argues that buying a used textbook for the marginalia it contains is definitely an act of public discourse. Marshall interviewed students in the bookstore as they were picking through the used books, asking what features they looked for. Students said that they would pass up books that were heavily highlighted or underlined for those with copious handwritten notes in the margins or leaves.

They interpreted this level of interaction with a text as better than simple markings of emphasis – they wanted a more codified and obvious system to follow. They looked for someone else's writing as an indication of the book's educational value. Contagion was seen as a good thing – students valued the notes of fellow students who they perceived as most engaged with the text: those who wrote their own notes and codified their own ideas in **writing**.

Marginalia, therefore, is not just an outcome of reading; it is also an exercise in writing, in analysis and in philosophizing. With equal access to nimble, integrated digital tools, more and more people can contribute to the overall canon of any discipline as well as potentially build innovative bridges between disciplines.
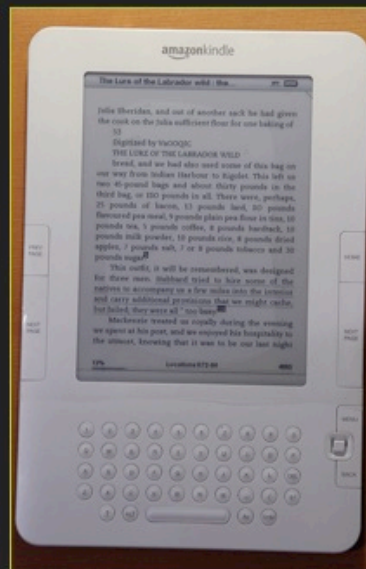

We move inexorably from atoms to bits. The annotatable digital book, the interdisciplinary hypertextual reading and learning environment, and yes, even social media clearinghouses like Facebook, Twitter, and YouTube are all descended from printed marginalia. And yet, each also propagates its own kind of marginalia, complicating our roles as reader and scribe.

What does the emerging digital scriptorium look like? How does it work? There are many, many examples, and some are very sophisticated: from systems that annotate medieval maps to new

publishing paradigms for hard science journals to experimental literary hypertext. I chose a tiny representative, because of their use of marginalia: Kindle's public notes feature; the Open Bookmarks web site, and the Golden Notebook Project. Each of these is an example of the growing digital scriptorium – a place where thought can coalesce through collaboration into codified knowledge. However, each of these examples also raises more questions about how we will manage the newfound land.

What did Kindle learn from John Adams, Studs Terkel, and Samuel Taylor Coleridge? These writers were all marginaliacs, but they also expected it from others. When they shared a book with a friend, they expected it to come back with that friend's comments. Studs Terkel said that "reading a book should not be a passive exercise, but rather a raucous conversation."

The personal book collections of these writers contained not only their notes, but the notes of their friends, colleagues, children, assenters and dissenters, alike. And, since digital books are not merely books, but whole collections of books and periodicals, researchers like Marshall who are working on the digital reading experience obviously want to emulate this shared annotation experience.
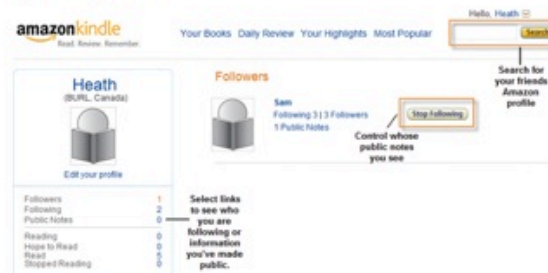

Kindle now features a public note sharing application, something writer Sam Anderson describes as "Coleridgean fantasy soft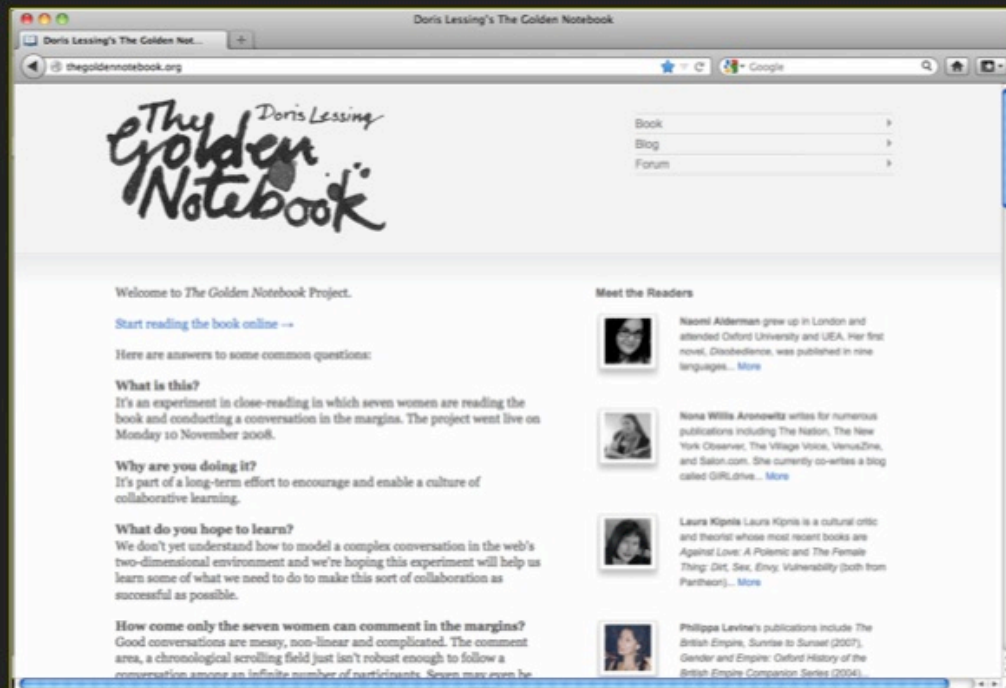ware that will make your friends' notes appear (if you want them to) directly on your own books." He goes on to theorize about where this technology could go, from the ability to import the marginalia of famous scholars to monthly subscriptions of books annotated by your favorite literary critic. However, at what point could a book or article become saturated by one-sided commentary? Could these annotation engines

begin to look like bifurcated American journalism, where readers reinforce only certain views and gorge themselves on only a conservative or liberal information diet?
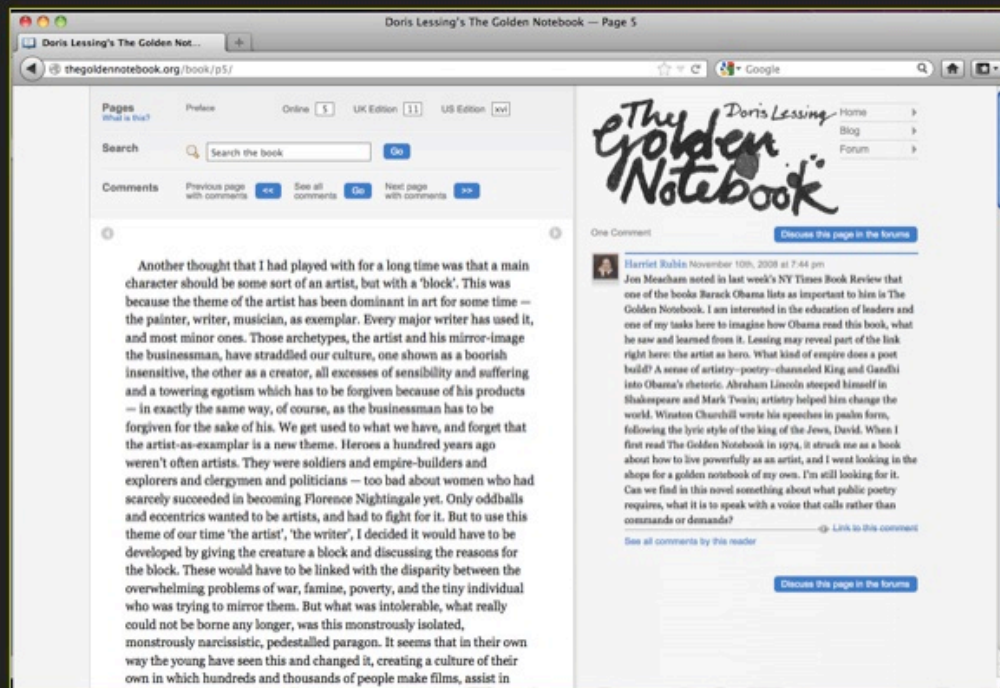

Another example of the digital scriptorium: James Bridle's Open Bookmarks web site, which defines the principles of and advocates for social reading. Bridle states that electronic books and online reading systems should emulate our printed books. They should feature multiple, interchangeable formats and platforms to ensure the most reading freedom for book lovers. However, how we will ensure equal access to and preservation of both book and bookmarks in the burgeoning digital scriptorium? Who will be responsible for storing and organizing all of this data? The publisher? The ebook device developer? The reader? What happens when I no longer want my data?
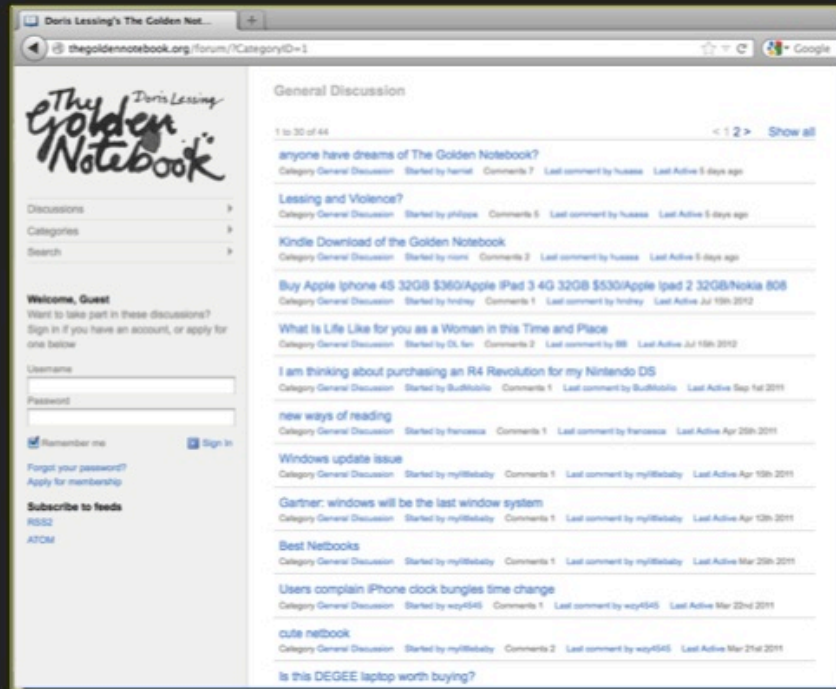
Lastly, the Golden Notebook Project – "an experiment in close reading in which seven women are reading the book and conducting a conversation in the margins." The goal is "to encourage and enable a culture of collaborative learning."

The Golden Notebook Project features Doris Lessing's book in its entirety. Online readers can scroll and page through the book and see the marginal comments of the seven women writers who've been asked to contribute. When asked why only seven, the site states: "Good conversations are messy, non-linear and complicated." To open up the conversation to more people, the Project supports online forums where anyone can add his thoughts on both the book and the contributors' marginalia. One can imagine the tangle of limitless threads that this kind of digital loom can weave.

From Atoms to Bits

In fact, when you click on the button under the author's marginalia, "Discuss this page in the forums," you come face to face with another problem inherent in using social media technology:

Here are some of the titles of the posts in the forum:

- Lessing and Violence
- Kindle Download of the Golden Notebook
- New ways of reading
- Windows update issue
- Buy Apple iphone 4G $360
- I am thinking about purchasing an R4 Revolution for my Nintendo DS

And so on…

Granted, the site has been live since 2008, but if we are going to trade physical books for digital ones, how will we keep them from falling into disrepair and ruin? How will we protect them from this kind of random electronic graffiti? Or, is commercial interruption going to be part of the new paradigm, like it is on television and radio?

Marginalia is not dead. In fact, its digital propagation may present more intellectual adventures (and misadventures) than its static ink-based ancestor. And, we still face many of the same issues we did hundreds of years ago: who will have access to these methods of evaluating, judging, and organizing knowledge? How will we educate people to be literate and numerate enough to contribute to the digital scriptorium in a meaningful way? What new hierarchies of authority will emerge? How will the private experience of reading inform public discourse? How will the annotatable digital book change the relationship between reader and writer? What will the practices of writing and reading even look like when both are accomplished on a pixelated palimpsest?

Lastly, I have a very personal curiosity. I wonder, as marginalia becomes systematized and Google-algorithmized in the cloud and weighted with likes, dislikes, pokes, and other social media parameters, what will happen to that ineffable, dream-like clue scrawled in between the lines of printed text? What will happen to forbidden knowledge?

Conclusion

What will be left behind to digitally die, like so much neglected and dried up sorghum on Farmville?

Thank you.