

The background of the book cover is a photograph of a sunset or sunrise. The sky is filled with soft, wispy clouds in shades of orange, yellow, and grey. On the right side of the image, there is a dark silhouette of a utility pole with several cross-arms and insulators. The overall mood is contemplative and artistic.

WRITING IN

THE CLOUDS

Inventing and Composing in
Internetworked Writing Spaces

JOHN LOGIE



WRITING IN THE CLOUDS

Lauer Series in Rhetoric and Composition

Editors: Thomas Rickert and Jennifer Bay

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John Logie

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Dedicated with love to my dear daughters, Nora and Shane,
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Introduction: The More Things Change . . .

This project has been a part of my life for the better part of a decade. For years now, I have been weighing the impact of internetworked digital tools on processes and perceptions of writing. I was born in 1965, making me (barely) older than the Internet and older than computers that remotely resemble the tools that have become central to the act of writing in the twenty-first century. And while *Writing in the Clouds* is directed at understanding many of the observable shifts in the invention and composition of written texts over the past dozen years, this project will often argue (spoiler alert) for the remarkable persistence of print-based practices in our current communication ecologies.

My purpose in these arguments was never to suggest that these practices would endure for all time. Rather, it was to contribute to a body of scholarship that points out the degree to which shifts in writing practices tend to *supplement* existing practices rather than *supplant* them. The transformations within my lifetime have been profound, but the shifts in any given decade of my life have often *felt* incremental. With the possible exception of browser-based access to the World Wide Web, none of the shifts in writing and writing-related technologies that arrived with attendant claims that a revolution was at hand could withstand strict scrutiny. Thus, this project, has endeavored to make measured assessments about our technological, cultural, and communicative ecologies and, further, to offer reasonable conclusions about where we might find ourselves in the coming years.

That said, the project as initially conceived did not take into account the possibility and implications of the COVID-19-driven global pandemic that has dominated every element of daily life in 2020 and 2021. While much of this project was composed prior to the pandemic, the deep work of determining the final shape of the project unfolded throughout 2020, and elements of the ways these chapters were revised for final submission respond to the experience of that awful year.

As I finalize this introduction, the world is still taking stock of dramatic cultural changes developed in response to the threat presented by COVID-19. Two of these changes feel especially significant for the arguments that follow. First, in a United States context, many more people are now working from home than ever before. Second, education in many locales has moved more online than ever before. In both cases, we can infer that these practical changes in the physical circumstances of work and schooling have prompted significant investments (where people can still afford to make them) in both the hardware and the bandwidth needed to fa-

cilitate these activities. I suspect this investment in hardware and bandwidth has accelerated the adoption of internetworked digital tools—tools based in the clouds that give this book its title—and not merely for the Zoom meetings that increasingly fill the days of knowledge workers and students.

At root, *everything* that happens within an internetworked computer can be reasonably understood as a form of writing. If, as we are routinely reminded, the core of the computer's activities is encoding and decoding of data into binary code, those zeros and ones represent texts that are Banks written and read . . . just not by humans. To this foundational layer of heavily automated code writing, we can add all the writing that found a home within internetworked digital tools and also the novel genres of writing facilitated by these tools, like SMS text messaging and tweets.

The accelerated investment in hardware and bandwidth, initially driven by a desire to hold meetings of various kinds, has the potential to significantly expand the pool of people who are now able to experience collective and collaborative writing in real time. Indeed, many children will now learn how to write in spaces where the possibility of composing collaboratively across distance is a baseline feature of the tools on which they learn the basics of writing. This, I suspect, will be a difference that will make a difference in what it means to write going forward.

As I argue throughout this text, one of the most significant characteristics of the technologies of this moment is the degree to which they facilitate collaborative writing. While much of this writing might be considered ephemeral or low stakes, the habits and practices that are implicitly taught by way of these interactions are likely to have a profound impact on how we understand writing, invention, composing, and authorship.

In the following pages, I offer a series of thematically-linked essays reflecting my understanding of the cloud-based writing practices of this moment and the ways these practices build upon and break with the writing practices of our shared pasts. I'll offer brief guides to the goals of each chapter here.

Chapter 1, "We Are Not Alone," is directed at surfacing the point at which changes in writing technology began to illuminate the degree to which the figure of the solitary author represents individual preferences and choices, rather than a baseline account of "what it takes" to be a "real author." This chapter positions the typewriter as representing a technology-driven interruption of a larger history of socially connected modes of writing.

Chapter 2, "What We Wrote About When We Wrote About Writing in the 1990s," honors the achievements of some of the "big books about writing" that worked to address how writing worked and how writing felt in the immediate wake of the widespread adoption of digital writing tools. Es-

pecially notable among these were Jay Bolter's *Writing Space: The Computer, Hypertext, and the History of Writing*, Christina Haas's *Writing Technology: Studies in the Materiality of Literacy*, and James E. Porter's *Rhetorical Ethics and Internetnetworked Writing*. Each of these books function as a sometimes-prescient time capsule, and I'll risk acknowledging that my aspirations for this project include that it might someday be thought of in a similar way.

Chapter 3, "Clouds, Composers, and Collaboration," begins by tracing the history of the spaces we now know, collectively, as "the cloud." It resituates cloud spaces as very physical spaces constructed of cables and servers that nevertheless facilitate very virtual modes of writing. The chapter closes with a discussion of meme compositions as an emblematic genre of writing in cloud-based spaces.

Chapter 4, "Arranging Invention: The Rise of the Second Rhetorical Canon in Internetnetworked Writing," is my contribution to a collective acknowledgment by scholars of rhetoric and writing that the traditional understanding of the canons of rhetoric must be adapted to respond to the specifics of internetnetworked digital writing. This chapter offers remix composition strategies as a way of illustrating the canon of arrangement occupying spaces and roles historically assigned to the canon of invention.

Chapter 5, "Looking Back at PureText: The 'Black and White' Writing of Our Past," addresses the degree to which the presence or absence of color within pages reflects larger cultural understandings about the appropriate look and feel for "serious" writing. Cloud-based composing spaces routinely use color to orient composers to their interfaces and offer composers robust choices with respect to how and whether to use color as an element in their compositions. This will inevitably distinguish the look and feel of twenty-first-century writing from its print predecessors.

Chapter 6, "The Android and 'i': The Politics of Twenty-First-Century Writing Interfaces," traces the historical development of smartphone and tablet interfaces with an eye towards understanding what internetnetworked composing spaces might look and feel like after the desktop iteration of the graphical user interface recedes from view. This chapter also addresses two cultural phenomena informing interface design: *dealphabetization* and *iconification*.

Chapter 7, "On 'Surrender to the Digital Revolution': Nostalgic Rhetorics and *The New York Times*," addresses the apparent bias of the *New York Times* against ebooks and internetnetworked media within its editorial and news pages. The recurring dismissal of cloud-based technologies within the *Times* is notable because the *Times* has a special role as arbiter of cultural value with respect to books and literary culture. Additionally, the *Times*'s bias is at odds with its own standing as a leader in sophisticated multimedia journal-

ism. This chapter works to understand how the *Times* simultaneously occupies suffocatingly traditionalist and leading-edge roles in relation to inter-networked media.

Chapter 8, “Keywords for Writing in the Clouds,” offers a visual and textual guide to ten especially significant words, and their associated concepts, that circulate throughout *Writing in the Clouds*. Taken together, these keywords function as a shortlist for those who wish to compose effectively in inter-networked writing spaces.

My conclusion, “Clouds, From Both Sides Now,” offers an alternative to the evolution/revolution framing that has sometimes misrepresented the practical realities and lived experiences of writers as they respond to times of substantial technological change. My afterword, “The End of ‘Viral’ Writing” speaks to my hope that we are ready to turn away from the “viral” as a descriptor for the kinds of highly connective writing we compose and consume within cloud spaces. Taken together, these chapters and subsections speak to the experience of working to understand writing in a moment of profound change, one which for me recalls the initial turn from the digital (and sometimes networked) writing spaces of the 1990s to the inter-networked writing spaces that pointed us toward the clouds.

When, in the Spring of 1993, the Mosaic browser barreled through the then overwhelmingly academic Internet, it was immediately clear to those who used it that the browser was about to transform the experience of the Internet in ways that would open it to a much broader public. To the degree that 2020’s challenges prompted a massive investment in technologies that facilitate collective communication and writing, it may yet prove to be similarly transformative. This is not to minimize the pain of living through these times, or to suggest that the possibilities now opening in any way counterbalance the profound losses of the pandemic. Rather, it is to encourage readers and composers to embrace the possibilities of the moment, and to explore these possibilities with a renewed sense of the value and importance of communication. When communities and cultures face profound challenges, finding a productive path forward usually depends on people using communicative tools to connect, to work together, and, ultimately, to draw closer together.

It is in this spirit that I offer *Writing in the Clouds*, in the profound hope that the tools and techniques I explore in these pages will eventually be understood as part of what connected us, reinforced our humanity, and helped us meet the challenges of this moment.



1 We Are Not Alone (or Why We Turned Toward the Clouds)

Writing is a lonely job. Even if a writer socializes regularly, when he gets down to the real business of his life, it is he and his typewriter or word processor. No one else is or can be involved in the matter.

—Isaac Asimov, *I. Asimov: A Memoir*
(written circa 1990)

*With Google Drive, you can now access your files from wherever you are . . . even the big ones. Whichever program you're using, just drag and drop, and there are all your files ready to be opened by you, and shared with anyone you want. Forget files being too big to e-mail. Just share them with Drive and everyone has the same file, automatically, that they can edit together, from anywhere. Now all your stuff, work or play is in one place, easy to find, and easy to share. **Google Drive: Keep Everything. Share Anything.***

—Go Google: Google Drive (Google)
(uploaded to YouTube April 24, 2012)

In July of 2012, something strange happened that—I now realize—transformed how I understood my relationship with computers as writing tools. In that month, Apple Computer released its latest iteration of its operating system for desktop and laptop computers, formally known by the clumsy name “OS X 10.8,” but more generally known by its marketing name: “Mountain Lion.” While this update incorporated many changes large and small to my day-to-day interactions with my Apple devices, the one that surprised me most was the presence of a new Notes application in the dock housing all my favorite applications at the bottom of my MacBook’s screen.

The icon for this application looked very much like the icon for the Notes app that I had grown fond of on my iPhone. My grocery lists ended up there, as did to-do lists that were not organized enough for my calendar applications. Occasionally, I would use my smartphone to take notes at talks by fellow academics, thereby earning furrowed brows from others in the audience who assumed I was texting or—worse—playing *Words with Friends*. Having become habituated to using the Notes app on my phone, I was intrigued to see a parallel application on my laptop, though I wondered why this would function any better than a word processor document or a brief e-mail to myself.

Then I opened the application.

All the notes I had taken on multiple iPhones over about the past three years were there, waiting for me: the grocery lists, the to-do lists (some unfinished), and the notes from the talks I had attended. For the moment I had typed these messages, they had been stored in a “cloud.” Apple had pre-emptively stored and saved these messages not only on my hardware, but on *their* servers.

This, of course, is no longer a novel experience. Some readers may now be impatiently wondering whether I was also surprised (or could yet be surprised) to learn that my Gmail account also produces information stored on servers that we colloquially refer to as “the cloud.” So, yes, I have been aware for years, that some portion of my work was stored not only locally, but also elsewhere in the areas formerly known as cyberspace. That wasn’t what surprised me about the Notes app.

What surprised me was that I was—by default—writing in the clouds *without* ever formally having made the decision to do so. The iPhone app announced itself as little more than a tidy little onboard repository for information, calibrated to the space of the smartphone as a piece of hardware. Indeed, the app’s look and feel were carefully managed to visually suggest a standard small yellow ruled “legal pad.”



Figure 1.1: The skeuomorphic design aesthetic of Apple’s virtual and cloud-based Notes apps, Apple Computer, 2012.

The default typeface for the app was “Marker Felt,” which—as its name suggests—looks like human handwriting executed with a Sharpie. Indeed, the degree to which Apple’s skeuomorphic design ethic prompted them to—for example—mimic the specifics of a legal pad right down to “torn” pag-

es at the top of the pad prompted ridicule from design experts, including this outburst from information architect Oliver Reichenstein:

What sells is sentimentalism, nostalgia, solemnity—what sells is kitsch. That's why kitsch can be so cheap. Because it sells so well. That is true for any kind of design. And this is why iCal has this f**king leather surface that makes any user interface designer puke wet feverish dogs. (qtd. in Hachman)

But no matter how hard Apple tried to visually persuade its users that they were just writing on a legal pad much as they always had, something else altogether was occurring.

The “pad” lived in the cloud.

With other cloud-based applications, I had always felt a moment of decision. Do I wish to have access to my whole music library via iTunes in iCloud? Do I wish to store some of my files on DropBox's servers? Do I see benefit in the potential to share work and comments via Google Docs or Google Drive? All these decisions involved me taking formal steps to establish presence in cloud-based server spaces.

But with Apple's Notes application, I had been quietly writing in the cloud all along. Increasingly, this is the “default setting” for most of the digital tools used to compose texts. The Notes application surprised me by throwing a spotlight on just how much of the work within my digital tools no longer resided only on my hard drives and flash drives. Most of what I write now lives both within and outside my hardware, by default. And, by and large, I am content with the benefits I receive from working both within and outside my digital tools.

But this is more than a matter of convenience. This is a shift in many practices of writing and in what it means to write. “The Cloud” has been an increasingly present metaphoric descriptor for the aggregation of wires and wifi that allow writers to experience what feels like real-time composition on a device's screen while actually composing in an array of servers residing far from the site of composition. Public consciousness of this metaphor on a reasonably broad scale can be traced back to 2007, with one especially notable marker being a pair of articles titled “Why Can't We Compute in the Cloud” by John Markoff in the Bits section of *The New York Times*. In the first of the two articles, Markoff concludes, “[n]obody seems to be ready to gamble on computing on the Web.” In the second, in the immediate wake of a catastrophic hard drive crash, Markoff is left to patch together what's possible with a compromised computer and hotel wi-fi. This turns out better than Markoff expected:

What I discovered was that—with the caveat of a necessary network connection—life is just fine without a disk. Between the Firefox Web browser, Google’s Gmail and and [sic] the search engine company’s Docs Web-based word processor, it was possible to carry on quite nicely without local data during my trip.

Markoff then observes: “it made me wonder why there aren’t more wireless, Web-connected ultralight portables for business travelers. Somebody, it would appear, is missing an obvious market opportunity.” Markoff was writing as a technology expert in 2007 about how distant cloud computing felt as a practical reality. Nevertheless, only a year later, the cloud’s footprint was becoming apparent.

This project is my sustained examination of these shifts. It is about the increased distance between our keyboards and the spaces where our words reside. It is about the compressed distance between our thoughts and the thoughts of others. It is about how these changes are influencing and will influence our composing processes as we continue to engage with one another through writing.

For centuries (but, notably, *not* for millennia) the act of writing has been understood as a process in which a composer applies dark marks to white or light-colored paper. The means of applying those marks has varied. For most of the centuries since paper was invented in China, those marks were applied with a stylus-shaped writing instrument of some sort, a pen or, much later, a pencil (the first record of something resembling the modern pencil dates back only to 1565). In the more recent past, these styli were complemented by writing machines designed to apply marks to paper. William Austin Burt patented an ancestor to the typewriter — the “typographer” in 1829. The first commercially successful typing machine, the Sholes and Glidden Type-Writer was first sold in 1873.



Fig. 1.2: The lavishly decorated 1874 Remington No. 1 Sholes & Glidden Typewriter, courtesy Daderot via Wikimedia Commons

I have fond memories of firmly pushing the keys on my mother's portable Olympia typewriter whose keys struck the paper with a resounding and satisfying mechanical slap. In 1961, the IBM Selectric substituted a golf-ball sized "type element" for the keys that would inevitably jam when high-speed typists approached their top speeds. By 1991, IBM was out of the typewriter business altogether. A generation of legal secretaries mourned as their Selectrics were carted away in favor of personal computers. For me, at least, many of these dates feel surprisingly close. The pencil, in particular, seems a shockingly recent innovation. *Pens* are indeed ancient, as are paper's pre-

decessors, papyrus and parchment. But the economies and ecologies of papyrus and parchment are well removed from the experience of composing on and for paper. In early literate cultures, composers wrote on scrolls or on skins. The materials they wrote on were expensive and labor-intensive. Every element of their writing process was costly, including the location and maintenance of adequate light. The phenomenon of the palimpsest underscores these costs. Parchment was *so* valuable that it made economic sense to scrape off existing writing from parchment pages to have a *somewhat* blank page for a new composition. All of this underscores that every time we retro-project a contemporary notion of “writing” back through time, we are likely dramatically misunderstanding what it meant for our ancestors to set out to produce written compositions. Contemporary readers of my words will have likely thrown tens of thousands of sheets of paper into wastebaskets, never having experienced their writing space as a precious commodity. We now live in an era informed—if not transformed—by the ready availability of disposable writing surfaces.

Yet, writing *happened* before pencils and paper. People scraped and struggled to create clean work surfaces for writing and painstakingly scratched or embedded their chosen characters onto these surfaces. The whole of Plato’s writings predate paper. So, too, the Upanishads and the I Ching. The holy texts of the Jewish, Christian, and Muslim faiths were all composed prior to their respective cultures adopting the use of paper.

Invented in China in the second century BCE, paper spread to the Islamic world about a millennium later, but it did not reach Europe until *the eleventh century*. All texts from the Roman Empire up through the night Nero fiddled—in spite of the flames—predate the adoption of paper in the West. This history underscores an important fact: the filling of white rectangles with black alphanumeric characters is a small portion of what writing has been, is, and of what writing can be. Even my chosen title’s invocation of writing in the clouds calls to mind two forms of writing that might strike many Western readers as falling outside the scope of writing *qua* writing: smoke signals and skywriting. Smoke signalling, practiced by an array of peoples stretching from Chinese soldiers along the Great Wall, to the indigenous peoples of what is now the United States is generally not thought of as writing because—for the most part—it is used to transmit messages rather than alphanumeric characters. Skywriting by planes expelling smoke counters this by delivering alphanumeric characters, but it might be distinguished from the writing that is celebrated, especially in Western contexts, on the grounds that it is brief, ephemeral, and typically commercial in character. All these characteristics are also common within Twitter, a cloud-facilitated

writing space. This, obviously, leads us to the overarching questions of what kinds of writing count, when, and why.

Mich  l Foucault famously zeroes in on these questions in the initial steps of his 1969 lecture, now presented as an essay, “What Is an Author?”:

The author’s name manifests the appearance of a certain discursive set and indicates the status of this discourse within a society and culture. It has no legal status, nor is it located in the fiction of the work; rather it is founded in the break that founds a certain discursive construct and a very particular mode of being. As a result, we would say that *in a civilization like our own* there are a certain number of discourses endowed with the “author function” while others are deprived of it. A private letter may well have a signer—it does not have an author; a contract may well have a guarantor—it does not have an author. An anonymous text posted on a wall probably has an editor—but not an author. The author function is therefore characteristic of the mode of existence, circulation, and functioning of certain discourses within a society. (211, emphasis added)

My work as a scholar of authorship and textual ownership has prompted me to engage with Foucault’s lecture many times, but on my most recent reading, Foucault’s narrowing of his claims to “civilizations like our own” resonated in new ways. Elsewhere, Foucault links the author function introduced here to the advent of copyright laws, and this sheds light on the dividing line between “civilizations like our own” and others. Some cultures have invested heavily in the figure of the author as owner and seller of texts. Not all civilizations have chosen this path, and many have functioned quite well as literate cultures in the author’s relative absence.

Human impulses to compose and record have, for most of history, occurred in defiance of the considerable technological challenges involved in simply securing an adequate medium for the recording of text. Clearly, writing *will happen* after pencils, pens, and paper take their positions alongside papyrus, parchment, quill pens, and typewriters as “vintage” writing technologies. After more than three decades of observing composers gravitating toward digital tools for written composition, we can confidently project that as long as the power grid stays up, most people will choose to compose in internetworked, digitally-enabled writing spaces more often than not.

This project is directed, in part, at assuaging the concerns reverberating throughout our culture because of the ongoing shift to internetworked digital composing spaces—colloquially known as “cloud” spaces—as the default for most writing work. At nearly every academic conference ad-

dress writing and composition I have attended, I have heard at least a few of my fellow scholars of writing and rhetoric grumbling that we are hurtling off a precipice, bewitched by our glowing LCD screens until—like Wile E. Coyote—we will all make the mistake of looking down.

These arguments shortchange both human creativity and human adaptability. The notion that the capacity for serious intellectual engagement with one another's written compositions is in precipitous decline (as Sven Birkerts, for example, famously claimed in his 1994 book *The Gutenberg Elegies*) is at odds with any empirical examination of what people are actually doing in the midst of our shift to digital media. Somehow reading has endured. In 2019, the Pew Research Center reported that in the United States, eighteen-to-twenty-nine-year-olds were the demographic group most likely to have read a book in any format (eighty-one percent) and most likely to have read print books and ebooks (seventy-four percent and thirty-four percent, respectively). In all these categories, eighteen-to-twenty-nine-year-olds were six to nine percent more likely to have read a book than any other demographic. The only category where eighteen-to-twenty-nine-year-olds lagged behind any other demographic was audiobooks, and there eighteen-to-twenty-nine-year-olds trailed thirty-to-forty-nine-year-olds by four percent (twenty-seven versus twenty-three percent). Simply put, young adults now read more books than their elders and nimbly mix and match media to fit their reading goals (Perrin). If we observe people's behavior, it is clear that the United States will almost certainly remain a substantially literate culture even as composing on and for paper becomes an increasingly "old-fashioned" mode of composition. Indeed, for all our reliance on screen-based reading and writing, we still have yet to move away from the cultures and ecologies prompted by print literacy.

Tellingly, contemporary discussions of writing routinely speak of "pages" even in cases where no paper page ever existed. It is, for example, by no means uncommon for contemporary college students to compose and complete, submit, and receive graded assignments without a single tree falling. (This is not necessarily a net gain, environmentally, as considerable energy is needed to illuminate all the screens involved in these processes.) Even so, in my own experience as a college-level instructor, many students still request page "equivalents" for major projects even when the projects (e.g., a Prezi or a pechakucha presentation) bear only a limited relationship to traditional paper-based compositions.

We now live amid a paper "hangover," constructing virtual facsimiles of paper in our minds and on our machines to facilitate familiar composing processes. In this, we are responding to shifts in literacy technology much as people always have. In her 1980 book, *The Printing Press as an Agent*

of *Change*, Elizabeth Eisenstein argues that during the “age of incunabula” the practices of scribal culture remained so entrenched that print texts were largely indistinguishable from handwritten texts prepared by scribes. Eisenstein asserts: “[t]he more closely one observes the age of incunabula the less likely one is to be impressed by the changes wrought by print” (26). To cruelly compress Eisenstein’s argument, the first generations of printers couldn’t quite *see* print as capable of delivering anything more than multiple copies of texts that—in their appearance and structure—mimicked handwritten texts. It was only over time that people were able to conceptually free themselves from the conventions that had grown up around script literacy. It was only over decades that people would come to favor the machined precision of refined typography—of letter shapes that were clearly *not* executed by human hands. Over centuries, this preference has become entrenched. Unsurprisingly, digital writing spaces have been developed to reflect these preferences.

In the present moment, we tend to compose pages in ways that mimic familiar practices that we have projected forward from the typewriter and the writing ecologies it prompted. The QWERTY keyboard is only the most obvious artifact of the typewriter era. Key placements designed to minimize the likelihood of frequently struck keys jamming into one another persist despite the half-century that has passed since the invention of the IBM Selectric’s “type ball”—which eliminated the possibility of keys jamming. But the cultural attachment to typewriter ecologies extends far beyond the keyboard.

What undergirded Apple’s marketing claim that the 1984 Macintosh might be “the computer for the rest of us” was that machine’s specific implementation of the graphic user interface (GUI) to mimic typewriter ecologies. Unlike its near peers, the Macintosh offered a visual representation of a *white* page. Keystrokes produced images of *black* characters on that white “page.” Indeed, the entire Macintosh interface was grounded in the specifics of a paper-based office culture, with file folders, paperwork, and a trash can all underscoring the notion that the virtual “desktop” offered up by the interface was really a close parallel to the real-world desktops in the “cubes” that had—by the mid 1980s—come to epitomize contemporary intellectual work spaces. Because the Mac could display *and print* pages that looked roughly the same on screen and off, it was dramatically more accessible to novice computer users who had been frustrated by the crude approximations of page spaces within programs like WordStar and WordPerfect on the amber and green monochrome monitors of the era. Indeed “WYSIWYG” printing, short for “what you see is what you get,” was arguably the central selling point of the Macintosh’s companion printer, the ImageWriter.

One could easily be drawn into lionizing the Macintosh OS and, later, the Windows operating systems for their ability to successfully mimic familiar features of workplace environments in ways that seemed at least somewhat intuitive to their users. But it is also important to acknowledge that we have always had “operating systems.” In the typewriter era the operating system—that is, the writing interface and associated systems of composition—involved metallic typebars striking an ink-soaked ribbon to impress characters onto paper before being brought to a sudden stop by the platen. This system also encompassed an array of materials placed *into* the typewriter ranging from the various types and sizes of paper (e.g., 20 lb. cotton, onionskin, carbon paper, A4 paper) to envelopes, to various methods of correcting mistakes (Wite-Out, Liquid Paper, correction tape). Taken together, all these elements of the typewriter ecology add up to a sharply defined and *sharply circumscribed* landscape of possibility.

With respect to positioning alphabetic characters on pages, the typewriter performed very well, allowing even amateurs to—with practice—deliver “professional” appearing documents with clean surfaces and high readability. But the typewriter offered no real opportunities for the incorporation of images into compositions. One could certainly remove a sheet of paper and affix an image to the page with rubber cement or glue, but this would then make it difficult (if not impossible) to type on or around the resulting layered page.

While it is tempting to argue that it would never have occurred to typewriter-using composers in, say, the 1940s to envision pages with sophisticated mixtures of text and image, in the United States, these same composers were likely reading *Life* and *Look* magazines, and their children were almost certainly reading comic books or the graphically intensive Little Golden books or the early books of Dr. Seuss. These then-contemporary examples were fairly straight-line descendants of illuminated manuscripts, which had then existed for more than a millennium. Certainly, the notion of texts and images coordinated with one another was by no means unusual in the first half of the twentieth century. But the tools for producing such texts were comparatively rare and required professional skillsets.

My argument here echoes those made by others in other contexts. Don Norman’s 1988 book *The Design of Everyday Things* (originally published as *The Psychology of Everyday Things*) popularized the notion of *affordances*, building upon work by psychologist James J. Gibson (Norman 12). Central to Norman’s conception of affordances is the notion that any environment offers a limited pool of specific options with some options being significantly more available or apparent than others. Norman’s work applied this concept to designed objects, shining a spotlight on the degree to which the design of

any technological object both offers opportunities for interaction and circumscribes possible alternatives. This circumscription can be the product of the design itself or cultural constraints, or—in many cases—the by-product of convention.

When we view the 1940s typewriter as an operating system—as a *system of operations* developed to produce composed texts—these affordances and constraints are thrown into sharp relief. The typewriter of the 1940s offered its users a single typeface, in a single size. Scaling letters for emphasis or to draw readers' attention is flatly impossible. The primary method of emphasizing text was through use of bicolor (red and black) typewriter ribbons, invented by Charles Underwood in 1909.



Fig. 1.3: A typewriter using a bicolor (red/black) typewriter ribbon, courtesy Tejyng via Pixabay

While professionally published scholarly texts have long reflected the development of robust systems for footnotes, the typewriter had no specific capacity for distinguishing between the main text and annotations. And, as mentioned, the possibilities for images being coordinated with texts bordered on non-existent. Taken together, the aggregation of limitations makes it clear that the typewriter was not understood as a tool for producing *finished* texts. Rather, it was seen as a means of producing *manuscripts*. The

typewriter offered its users the opportunity to produce relatively polished texts that stood in a space between handwritten texts and fully composed print texts. The typewriter allowed “regular” people to prepare the texts that editors, designers, and typesetters could transform into the sleek and clean print texts of the first half of the twentieth century.

Nevertheless, the look and feel of pages composed on typewriters has achieved a certain nostalgic “charm.” Almost every contemporary computer operating system offers at least one typeface that recalls the particular aesthetics of typewriter text, this being Apple’s “American Typewriter.” Further, font designers routinely challenge themselves to **p r e c i s e l y r e p r o d u c e t h e a r r a y o f i m p e r f e c t i o n s t h a t a c c u m u l a t e d a s r i b b o n s f a d e d a n d f i n g e r s s t r u c k k e y s i m p e r f e c t l y , a s i n D r a c o n i a n T y p e w r i t e r b y N i c o l a s C o r a n a d o .** As the preceding sentences illustrate, contemporary operating systems offer composers *so many options*. But these options are *not* limitless. The typewriter’s century-long heyday allows us to see with clarity that it was introduced with fanfare as the replacement for the pen. But the *manus*—the hand—embedded in the concept of the manuscript remained present throughout the life cycle of the typewriter. What the hand lost in proximity to the written page, it gained in speed and visual clarity. For decades, the tasks of the typewriter were understood as those of streamlining and regularizing the production of what had formerly been handwritten texts. This was all that was asked of it. This constrained sense of the machine’s purpose sharply circumscribed the types of innovation that might have otherwise occurred.

So too, we see today’s tools for written composition sharply constrained by the accumulated array of conventions that solidified during the typewriter era. Microsoft Word slavishly reproduces most of the conventional patterns of composition established in the typewriter era, including margins, tabs, and restrictions on how and whether columns can be used. Images are an afterthought. Word’s developers’ decisions were clearly driven by the compartmentalization of words and images that bracketed off “tables” and “figures” as floating elements that might or might not appear on the specific page where their contents were being discussed. The notion that

An image *might* be simply an embedded element in an argument.

is one that clearly was beyond the reach of the initial designers of Microsoft Word, and it is only just now finding purchase in the latest generations of what remains, for many, the “default” software for written composition in the United States.

This is not to minimize the importance of the more general democratization of access to profoundly sophisticated tools for textual composition. We are, at present, witness to an extraordinary explosion of creativity driven by composers' access to opportunities for textual production and manipulation that used to be available only to highly trained professionals with prohibitively expensive tools. This is an unalloyed positive, and to the extent that Moore's Law and economies of scale make the initial cost of access to these technologies increasingly available to broader swaths of composers, we can expect even more inventive approaches to textual composition in the coming years.

But in the almost thirty years of widely accessible digital tools for textual composition we have only begun to break free from the conventions of the tool that the computer was supposed to supersede every bit as much as the typewriter was supposed to supersede the pen. We still are in the thrall of the vertically oriented rectangular page. And in the US, we still spend countless hours producing *manuscripts* even though it is now not only possible but easier than it has ever been for composers to produce finished texts. It was only after more decades of built-in access to italics on computers that the arbiters of the APA and MLA citation systems allowed *italics*—rather than underlines—in their prescribed textual treatments for endnotes (APA in 2001 and MLA in 2009). This does not necessarily imply that the APA has entirely reconsidered its role as a facilitator of *manuscripts* rather than of finished texts. As of the sixth edition (2009) of the APA style manual, Times New Roman was the *only* font allowed in APA-style texts. Thus, the array of scientific and associated fields that adhere to the APA's manual have pre-determined that the benefit of allowing composers a measure of precise visual expression is outweighed by the benefits of having no significant variation among those texts submitted for publication. Thus, we await acknowledgment that composers of scholarly texts might *not* be producing work that would be handed off to others for editorial and design refinement. We await full recognition that composers might be using digital composing tools to produce complete and finished works *themselves*.

At present, the spaces in which many composers are learning that they have both the tools and skills they need to produce finished works are cloud-based spaces. For many digitally literate people who were at least teen-aged by the turn of the twenty-first century, the question was not *whether* to blog, but where and how. While many people in my demographic are deeply embarrassed by photographs of the haircuts (and in some cases beards) that marked their efforts to settle into adulthood, it is clear to me that many of those younger than me will look to their initial forays into public writing on sites like MySpace as recording too much of their own all-too-awk-

ward paths to adulthood. Though not commonly described as such at the time, early social networks and blog spaces were “cloud” spaces in the sense that the writing that appeared on these sites was prepared within browsers, housed on external servers, and delivered to audiences within browsers. Thus, the writing on MySpace (as well as the engineering of decorative “bling” to personalize individual sites within MySpace) was largely external to an individual MySpace user’s computer.

We can now see MySpace as ancestral to the always external and by-default collaborative space of a browser-based app like Google Docs. While the menu bar at the top of a Google Docs page superficially resembles Microsoft Word’s, the degree to which Google Docs participates in inter-networked digital composition is readily announced by the array of colorful icons that pop up and *even overlap the menus* when collaborators join in the development of a particular composition. Google Docs *presumes* and *prioritizes* collaboration. It is the “value added” that Google Docs initially offered relative to its competitors. But more fundamentally, it is a signal that writing is, for the foreseeable future, no longer as lonely as it once was widely understood to be.

The writer of the first epigraph for this introduction, Isaac Asimov, believed writing to be lonely in 1990 because he was acculturated to tools that isolated him from others. Asimov—who wrote more than 470 books across a range of genres but is best known for his science fiction writing—no doubt speaks for a broad swath of writers who composed their texts in the half millennium prior to his characterization of writing as necessarily isolating. For centuries, writers sought out rooms of their own, for contemplation, for gathering thoughts, and for the act of writing itself. This loneliness was exacerbated by the mechanization of personal written composition over the course of the twentieth century. The clatter of typewriter keys—especially when struck by a driven composer—was often deafening. Few could hope to sustain a conversation in a room where another person was typing.

When Asimov wrote “Even if a writer socializes regularly, when he gets down to the real business of his life, it is he and his typewriter or word processor. No one else is or can be involved in the matter,” he is speaking to not only his own narrow experience, which was informed by the available writing technologies of his lifetime. He is also speaking to his own sense of assuredness with respect to defining what it is that writers, or perhaps “real” or “serious” writers do. While Asimov was an exemplar of a thin strip of writerly culture, he was by no means speaking for the experiences of most of the people who were writing for a living within his own lifetime. While one might wish to overlook Asimov’s historically conventional sexism (“when *he* gets down to the real business”) this exclusionary language is especially dis-

appointing coming, as it does, from a writer associated with genres (science fiction, mystery, fantasy) that tend to fall outside the most celebrated spaces of literate life. Whatever Asimov meant to achieve by constructing the lonely, implicitly male writer of these sentences, we must turn towards a broader and more inclusive understanding of who writers might be, the variability of their composition strategies, and the degrees to which writing technologies that facilitate sharing productively expand opportunities for participation in writing as a practice and as a profession.

During Asimov's lifetime (1920–1992) the “typewriter” and the “word processor” were the obvious tools of the trade for writers. As a product of his time, Asimov—despite having the ability to conceive “Three Laws of Robotics” that have been widely adopted by subsequent science fiction writers—had difficulty viewing computers as serious tools for written composition. In his memoir, Asimov recalls:

I was once asked to say what I wanted for Christmas in the way of computers. I was urged to describe anything I could imagine, whether it was feasible or not. I answered briefly and truthfully that I had an antediluvian electric typewriter and a medieval word processor and both worked properly. They were all I needed, and I really didn't want, for Christmas or for any other time, anything beyond what I really needed. (230)

Later in the memoir, Asimov recounts a story where, in the spring of 1981, he is “asked [by a computer magazine] to do an article on my experiences with my word processor” (472). He responds that he does not have one and cannot write the essay. This prompts the magazine to deliver what Asimov refers to as his “word processor.” It is in fact a “Radio Shack TRS-80 Micro-Computer with a daisy-wheel printer and a Scripsit [word processing] program” (472). This particular computer is fondly remembered for its easy-to-understand BASIC programming language. But for Asimov, this “word processor” served a single purpose:

I use it for only one job and no more—the preparation of manuscripts. I had the Radio Shack people adjust it so that it gave me the margins I wanted and the double spacing I wanted, and everything else that I wanted. I haven't the faintest idea of how any of these things can be changed. I couldn't make it single space, or adjust the margins, for instance, so I don't use it for anything *but* manuscripts. (473)

Asimov had limited what was—for its time—a remarkably powerful personal computer to a single function. His choices recast the TRS-80 *computer* as a dedicated word processor.

In fairness to Asimov, the true dedicated word processors of this era represented only incremental steps beyond the typewriter. Dedicated word processors were—at best—relatively portable and relatively quiet tools for written composition. In 1990, The Smith Corona company, best known for its typewriters, was selling a “laptop personal word processor” that cleverly separated the task of composition from the task of character generation. This six hundred dollar machine allowed a composer to type quietly and briefly (given the limited battery charge) and then select an appropriate time for the mechanized printout of the composed text. As a former owner of this product, I have a clear memory of the chattering sound of the daisy wheel printer furiously typing out the pages I had composed. I could never, in good conscience, print any documents while others might be sleeping under the same roof.



Figure 1.4. The Smith-Corona PWP 7000 LT “Personal Word Processor,” screenshot from YouTube video by offensive_jerk

Thus, for most of the twentieth century, for reasons that have little to do with artistic temperaments or inclinations toward strong drink, writers were not pleasant to be around. The machines they used were simply *too damn loud* for polite company. Simply put, current technologies for writing do not have the assaultive sonic qualities that, for much of the twentieth century, assured that writers would necessarily remove themselves from their families, friends, and communities. The keys on contemporary laptops are unobtrusive. The virtual keyboards on the touchscreens on contemporary tablets are all-but silent. For centuries, writers have written in cafes and coffee shops, but it is only in the past two decades that they have been able to comfortably and quietly do so with their preferred composing machines. This has become so much part of contemporary writing, that the use of a typewriter in public spaces has become especially disfavored. I am not at liberty to share the specific image, but a sighting of a young man typing on his portable typewriter inside a local coffee shop prompted my academic peers to deliver a memorable auto-da-fé via Facebook, in which his apparent hipster ethos was unfavorably associated with certain strands of vinyl LP purism, leading briefly to a #hipster/douche hashtag. In short, this man's choice to write loudly when it was, in the eyes of these viewers, *so easy* to write quietly in public rendered his motivations suspect.

For these, and other reasons, writing is no longer as lonely as it was throughout Asimov's lifetime. In addition to the cloud-based Notes application, Apple's 2012 Mountain Lion operating system incorporated a feature called "Notification Center." By default, Notification Center places small badges in the upper-right-hand corner of a computer screen notifying the computer user—for example—that an email has arrived, or that a friend has commented on a Facebook posting, or a shared calendar has been updated, or a Twitter tweet has been retweeted. Many Apple users found this feature annoying, and the Web is now awash in mini-tutorials helping users turn off the notifications. But Apple's decision to pursue this feature illustrates how very different composing in internetworked digital spaces is from *all* prior writing circumstances.

In a sense, Apple's OS was only making explicit what has always been true about internetworked writing spaces. To borrow the tagline from Steven Spielberg's *Close Encounters of The Third Kind*, when we compose in these spaces "we are not alone." The personal computers of the 1980s were the last to offer their users an approximation of the sense of isolation that Asimov encapsulates in this chapter's first epigraph.

For what we can now understand as a brief window of time, between the eras of mainframe computers with so-called "dumb" terminals (from the 1950s through the mid 1980s) and the widespread adoption of

the World Wide Web (from 1993 forward), personal computers were not necessarily attached to anything more than the power grid. But from at least the 1990s forward, computers have been built with connectivity to the Internet as a foundational design element. As a practical consequence of this connectivity, twenty-first century writers are now far closer to others—and others' texts—than at any point in human history (with the possible exception of those writers who routinely composed within major libraries).

Not only are twenty-first century composers habituated to the link as a rhetorical strategy, they compose using software that often recognizes URLs and e-mail addresses and makes them active by default. The distance between written ideas is collapsing, with the overly long term of copy-right being one of the few marginally effective firewalls separating texts from one another. Over and above the steady hum of notifications, updates, and likes bringing our “friends” onto our screens with regularity, the structure of the World Wide Web—with its foregrounding of the link as a conceptual structure—encourages writers to understand themselves not as islands but as nodes in networks. This understanding is deeply embedded in the Web. The inventor of the World Wide Web, Tim Berners-Lee, was explicit about this goal: “When I proposed the Web in 1989, the driving force I had in mind was communication through shared knowledge and the driving ‘market’ for it was collaboration among people at work and at home” (Berners-Lee and Fischetti 174). Thus, the machines that house the software tools that most people use for written composition are never far from the tools people use to connect with one another.

Often, the preferences and practices of print composition will remain stubbornly in place as composers adopt new technologies (still writing on their QWERTY keyboards). But every now and again, we will experience moments of possibility, of perceived weightlessness as the potential of internetworked digital composing tools makes truly new practices and patterns of composition possible. This book is directed at helping us understand when and how we might realize the promise of writing that lives both in the *heres* of our various writing tools, and the *theres* of the internetworked servers that house our words as we write, known colloquially, and aspirationally, as “the cloud.” It is worth noting, in passing, that “the cloud” is typically presented as a singular, even though as a practical matter it includes all the *many* cloud-based services offered by internet giants like Amazon, Apple, Google, and Microsoft, along with hundreds of smaller cloud-based services.

While cloud computing means that we are often composing texts that ultimately reside in servers half a continent or more away, the substitution of these servers for our own hard drives means that these texts are now more available to both our far-flung collaborators and our co-work-

ers down the hallway than they were a decade ago. Opportunities for collaborative composition—solicited and unsolicited—are multiplying exponentially. We might look longingly at Virginia Woolf’s hoped for “room of one’s own”—a writing space removed from the chatter and challenges of one’s personal and familial relationships—and realize that even if such a room could be located, the tool we use to compose texts no longer offers this same sense of apparent distance from others. It is tempting to conclude that writing, as a practice and an art will suffer because of this shift. But this is underestimating the tremendous power of human creativity and the will to write and be understood. We will write differently because we have moved from anti-social writing machines to avowedly social machines, but there is no reason to believe we won’t write at least as well as we have through history. In fact, the broad availability of sophisticated writing tools argues that we may be on the verge of one of the most writing-intensive moments in human history. Nimble composers will undoubtedly avail themselves of novel and powerful opportunities within our writing platforms as they respond and recalibrate to technological changes.