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INVITED ESSAY

Culture Digitally: Spam, and the Challenge of Chasing Shadows

**Finn Brunton and Kevin Driscoll
with Tarleton Gillespie, organizer**

Culture Digitally is a cadre of scholars, gathered by Tarleton Gillespie (Cornell University) and Hector Postigo (Temple University). With the generous funding of the National Science Foundation, the group supports scholarly inquiry into new media and cultural production through numerous projects, collaborations, a scholarly blog, and annual workshops. For more information on projects and researchers affiliated with *Culture Digitally*, visit culturedigitally.org or follow @CultureDig on Twitter.

This is the next in the series of *Culture Digitally's* "dialogues." On occasion, we invite two or more of our participants to engage in an intellectual back-and-forth, on a theoretical point of interest that emerges from discussions at our meetings, around blog posts, or based on evident, shared interests. In these dialogues, they are encouraged to grapple with theoretical questions, but to do so quite a bit faster than the glacial pace of publishing typically allows. We imagine them as the digital equivalent of the scholarly exchange of letters between pre-eminent gentlemen scientists. The thinking is meant to be raw and provocative, a chance for the dialogue participants to prod each other beyond their own certainties.

This dialogue was inspired by Kevin Driscoll's insightful book review in the L.A. Review of Books, of Finn Brunton's superb new book, *Spam: The Shadow History of the Internet*. I asked Kevin if he would use a bit of his review to begin a dialogue with Finn; the conversation moved quickly to the methodological challenges of studying the elusive.

Tarleton Gillespie, co-organizer of *Culture Digitally*

Finn Brunton (Ph.D., University of Aberdeen) is an assistant professor in the Department of Media, Culture, and Communication at NYU. His research interests include digital media, particularly hacking and experiments in networked politics; cryptocurrencies and money; and the history of computing.

Kevin Driscoll (Ph.D., University of Southern California) is a postdoctoral researcher at Microsoft Research. His research concerns the popular and political cultures of networked personal computing with special attention to myths about Internet infrastructure.

Tarleton Gillespie (Ph.D., University of California at San Diego) is an associate professor in the Department of Communication and the Department of Information Science at Cornell University, with an affiliation in the Department of Science and Technology Studies. His current work considers the regulation of online media platforms and its implications for free speech and public discourse. He is also the co-founder of the blog *Culture Digitally*.

Kevin Driscoll:

It was a pleasure to read your new book (Brunton, 2013)—enough so that it moved me to map the history it tells, and the argument you made with that history, in the *LA Review of Books*. I said there

The book's subtitle reads, "A Shadow History of the Internet," but the story we encounter inside may be more accurately described as a history of the Internet's shadow. At each turn, Brunton sets aside the areas of the net illuminated by publicity and venture capital to explore the ignored cracks and corners where spam proliferates. . . . As Brunton demonstrates, the history of spam—by definition, that which is undesirable and annoying—can help inform our ongoing quest to determine what the Internet is and can be . . . The history of what we didn't want is as important as what we did, and to remember it helps us to understand how this transnational assemblage we call "the Internet" came to be. (Driscoll, 2013)

But as compelling as the sociological argument is, the book is built as a history—and a history that, it strikes me, must not have been the easiest one to uncover and snap together. I didn't think I could spend much time in the book review on methodological and historiographic issues, but here's where I hinted at what I thought might be a particular challenge:

Whereas other historians of technology have been able to rely on old system manuals, institutional archives, and interviews with surviving users and engineers, Brunton's task is more difficult: formal preservation of spam-related materials is very rare, for the simple reason that spam is usually deleted as quickly and permanently as possible. As a result, Brunton finds himself chasing the spam story across an array of unusual, and in many cases unstable, primary sources. Usenet FAQs, Internet RFCs, and other vernacular policy documents provide some of the most important clues about the characteristic conflicts of their particular times and technologies, and Brunton's enthusiasm for his ephemeral subject matter is evident in the care that he takes in reconstructing these contexts for readers who may not have personal experience with a time-sharing terminal, a dial-up internet service, or an encrypted grey-market chat room. (Driscoll, 2013)

So I was hoping to ask more about that, about the difficulty not only of telling the history of spam, but also of the historical and archeological work necessary to get beyond "the areas of the net illuminated by publicity and venture capital." So, two questions to open that up:

(1) One aspect of the book that I really enjoyed was the effort you put into reconstructing the user experience of early time-sharing systems. Very few Internet users today remember reading email over a compressed 9600bps connection, never mind an error-prone 300bps connection with a tiny buffer. Wrangling this level of technical detail into something that will resonate with a variety of readers seems like a serious writing challenge. How did you tackle this problem? Did you get feedback from less technical readers? Were there any particularly troubling passages that required a lot of revision?

(2) Many of your primary sources were not found in traditional archives. The "Man in the Wilderness" leak is a particularly compelling example of an unusual

sort of source that played a crucial role in your analysis. In a sense, you are compelled to wear archivist and preservationist hats at the same time you are developing your own unique historiography. Can you say more about the techniques you employed to identify and manage these artifacts? Did you find yourself at any notable dead-ends? Are there key pieces of the spam story that seem to be “lost”?

Finn Brunton:

At the time that I was writing the book, I was deeply immersed in the world of the early networks—reading their specifications and technical documentation and policy materials, reconstructing the exchanges on and about the systems, studying the early users, their hardware, and their milieu. However, in the off-hours and the evenings I was reading a lot in a genre that I suppose could be considered “encounters with young technologies.” I wanted to understand how the machines and utilities felt to the people, the role they played in their understanding of what was happening in the world: the affect, as well as the effect—turn-of-the-century writers and artists on planes (Wohl, 1996); Gertrude Stein (Toklas, 1933) on cars; Hazlitt (1894) on a globalizing imperial space; Mayakovsky (1970) on electric light; C. S. Peirce (1993) thinking through the Marquand binary logic machine at Princeton; Oram (1972) encountering tape recorders and oscillators; Soviet teenagers sitting down with the Elektronika BK; Siegfried Giedion (1995) on glass, iron, and concrete in architecture; Benjamin (2005) and Brecht (1976) listening to and recording for the radio; and especially Humphrey Jennings’s (1985) under-appreciated masterpiece *Pandemonium*, a massive collage of the firsthand accounts of industrial machinery (and new ways of seeing, like ballooning and microscopy) from the 1600s to the late 19th century (limited largely to England, unfortunately).

Understanding the constraints that were part of the experience of the early network is, of course, very important to understanding how spam developed, both as a concept and a practice—but just between you and me and whoever is reading this, I had a bigger ambition. While I assert that my arguments in the book about spam and the history and dynamics of the Internet are both accurate and useful, I wanted the book to speak to people who had no particular interest in those arguments, by providing them with an account of how different eras in the history of networked computing *felt*. My authorial fantasy is that three hundred years from now, when the entirety of the legacy Internet comes shipped for free in some minute corner of every crystalline quantum computer sold, someone curious to explore it can pull up my book (along with many others, of course) to reconstruct the experience and the imaginary of one aspect of the technology.

And, about the practicalities of writing it, a lot of it was helped by virtue of reading those earlier accounts I’ve mentioned above. Something about reading the splendor and shock of electric light helps the terminal pop into its own as an object to be described. (All this is completely aside from the superlative editing I received from the ST&S manuscript reading group at the University of Michigan, and from my reviewers and editor at MIT Press, without which the book would never have worked.)

As for “the techniques you employed to identify and manage these artifacts,” finding them was largely a brute force operation: I just read everything vaguely related to the history of spam, on the wild off-chance it would be pertinent. I read the Arpanet News, and the papers that Leo Kuvayev (1997) wrote about teaching an AI to play Hearts while he was still at MIT, before he became a spammer, and all the tangentially related oral histories and publications. I learned an appalling amount about the phone sex business, money laundering and credit card fraud, the ins and outs of setting up an early commercial ISP, tape drives, the weird grey market that’s always swirling around weightlifters and body builders, long-distance calling rates, the history of support vector machines, and so on. Much of it never made it into the book, but these materials would often point me in the direction of the archival materials on which I ended up relying. Every scholar knows the magic of that experience, where one thing leads to another.

And, yes, I would instantly grab everything I could, whether with a *wget* command, saving as a PDF, screenshots in the case of some fascinating criminal IRC channels with bizarre, colorful iconography. It was at once amazingly easy to lay hands on materials, and amazingly easy to lose them if I didn’t preserve them myself. The Usenet archive managed via Deja News by way of Google Groups, for instance, seemed to grow progressively more broken with time; spam blogs and spam comment threads were (understandably) deleted by their host services if they were noticed. I would capture it all, just in case. As it stands, most Internet and digital media researchers must be their own archivists.

The areas of spam that I found the most opaque and frustrating were those involving significant people whom I couldn’t track down or contact. Part of why I was so obsessed with collecting firsthand traces was to reconstruct, as best I could, the activities, decisions and experiences of significant actors who were either in hiding, dead, or exceedingly disinterested in discussing their work.

Kevin Driscoll:

I strongly sympathize with the desire to preserve the feeling of computer use in various times and places. Not only does it help to illuminate the uses and values associated with computing use but also, ideally, it should stimulate design thinking and suggest alternative forms that networked computing might take in the future. I wonder what other resources your far-future readers will have on hand to accompany the book. Will they attempt to emulate the software and simulate the networks? Will they 3-D print a replica ASR-33 Teletype? It feels like some of this work is already happening outside of the academy. (Retro gamers collect CRTs to play their aging console and ham radio operators maintain vintage gear to participate in the annual “Straight Key Night.”) I wonder how the practice of writing history will change as computers are used to model and simulate a past. Will it be less important to describe the features of a technology than to examine the reactions of contemporary user-witnesses? Publishing will likely be affected as well—we don’t see many books published with bonus CD-ROMs these days, but even quite obscure books offer complementary materials on the Web. (An alternative way into this

question might be: what new sorts of apocrypha become possible when the past is repeatedly re-modeled? Will high-tech re-enactors set up cell phone beacons the way that Civil War re-enactors build campfires?)

In terms of tracking down relevant materials, it sounds like spam is in something of a media preservation double-whammy. The preservation of USENET and email has been generally inconsistent over the years, but any effort to archive these materials is almost certain to have begun with a purge of all spam. I imagine that this problem is only compounded as spam-fighting has been automated and messaging services centralized. I wonder about the extent to which USENET's decentralized architecture shaped its preservation.

Today, we have access to a big chunk of USENET but almost none of AOL. My hunch is that the redundancy of USENET's store-and-forward protocol left lots of partial collections gathering dust on university servers around the world. The opposite would be true for a highly centralized service like AOL. Presumably, only the company itself was in a position to archive its forums (on a mass scale). But the seeming plentitude of the USENET case also contributes to a false sense that the archive is comprehensive, secure, and unlikely to disappear. What does this comparison suggest for scholars who will attempt to reconstruct the experience of Facebook or Wikipedia?

You've also really piqued my curiosity about the sorts of people who are "exceedingly disinterested" in talking to a researcher about all of this. Given how recent these events are, there must be countless people ready and willing to claim various technological "firsts." Making contact with reticent interviewees seems like a valuable corrective. I suppose that having spam as your organizing theme presented another kind of double-whammy here, because many of the people you would want to contact were either acting pseudonymously or are remembered for rather dubious achievements.

When I was writing the review, I was struck by Bruce Sterling's rather vitriolic blurb on the dust jacket—"Brunton has done mankind a service with this coldly objective analysis of a great human evil." Did you have to manage a lot of lingering animosity as you started to talk to "survivors" of spam's past?

Finn Brunton:

There are so many interesting questions here, but I think they circle around a common theme—the peculiarities of doing digital history, especially with a technical orientation: access to archives, thinking through artifacts, working with participants, all as modified by the technology. This is, of course, a gigantic issue, too large for this immediate dialogue! But I have some thoughts connected to your questions that can help us get at it.

Both by temperament and by methodology I have a soft spot for lost causes and paths not taken. I'll bullet these, since there are a couple of sub-thoughts here:

(1) Part of this is a heritage from "strong programme" science studies: Bloor (1976) and others argued that to understand the work of science, especially in historical retrospect, you need to be able to see the space of options in which

science took place, rather than using social explanations for the theories that turned out to be incorrect and leaving the correct theories to “truth.” That one group was right, as we may now know, doesn’t help us understand how they went about producing truth, any more than it would to retrospectively marvel at Napoleon’s inability to anticipate bad weather and the Prussian army at Waterloo. (I love returning periodically to Stendhal’s [2007] description of Fabrizio stumbling through the battle in *The Charterhouse of Parma*: fog, mud, the dead, distant sounds, a plowed field, people fleeing, people charging, the wounded horse—“But is this a real battle?” he asks; “Something like.” replies the sergeant—it’s such a great corrective to our sense of pellucid armchair quarterbacking, an evocation of history as blurred present.) Understanding the advent of the accurate theory involves understanding the whole space of the inaccurate, and giving it the weight it historically deserves; understanding TCP/IP also involves understanding OSI (for a great, journalistic look at the latter, see Andrew Russell’s [2013] piece “OSI: The Internet that Wasn’t”).

(2) And, while I’m not a full-time media archaeologist, I follow that field with immense interest, and take very seriously the commitment that Zielinski (2006) makes in the concept of “variantology”—that media history should be the history of the vast space of unsuccessful alternatives and variants. This produces a richer, more meaningful historiographical record: to take Rick Altman’s phrases, “cinema-as-it-is” (in Gitelman & Pingree, 2003) is in many crucial ways the product of categories of the moving image like “cinema-as-it-could-have-been” and “cinema-as-it-once-was-for-a-short-time-but-ceased-to-be.” However, variantology also reflects a deeper stake. Paying attention to the legacies keeps the game of history (in which the present is embedded) still in play; it expands the space of possibilities for action now. (It is closest in some ways to Benjamin’s [1968, p. 257] “weak messianic power,” the appointment the past is waiting to keep with us, in all the failed tries, recalcitrant details, and silenced populations who can be brought into the sudden constellation of present action, for which stars of very different distances and times assume a single, coherent shape.)

(3) Finally, and related to the previous bullet, on a design level that space of alternatives is an amazing reservoir of creativity, from the Cybersyn of Allende and Beer (chronicled in Eden Medina’s [2011] *Cybernetic Revolutionaries*) to the architecture of Cedric Price, Archigram,¹ the Metabolists . . . the experimental politics of communalism, and initiatives like the Persimfans orchestra and Lysander Spooner’s American Letter Mail Company . . . and, getting back to the specific areas around computing that I work on, projects like T. O. Ellis’s amazing GRAIL programming language (Ellis, Heafner, & Sibley, 1969), Carl Hewitt and colleagues’ (1973) Actor Model of computing, Jef Raskin’s astonishing interface and OS work (from the Canon Cat² to *The Humane Interface* [2000] to Archy), and my beloved Plan 9 From Bell Labs.³

For my purposes, following the history of spam was very much about exploring these forks in the road: of networking technologies and standards; of models of community, politics, online economics, and governance; of cultural conceptions of

how networked computing should be, and what it should do. This meant keeping this space of alternatives, debate, and statements and counterstatements (legal, social, technological) in focus.

To your point, there are structural characteristics to digital technologies that make it possible to explore the space of alternatives in useful ways: in many cases, the people involved are still alive and happy to discuss (as in Belinda Barnet's [2013] great recent book on hypertext, *Memory Machines*, which draws on conversations with Doug Engelbart and Ted Nelson), and the hardware and software are, in various ways, often still available—whether through projects like the Media Archaeology Lab⁴ or JavaScript MESS.⁵ People are knocking together the firmware to have working on-line system-style chording keyboards (Gauger 2013), and emulators for specific microprocessors, like the legendary MOS 6502.⁶ We scholars of matters digital have an enormous advantage in this respect: we can, relatively easily, pull together that whole charged field of technical details and social contestation out of which a technology actually emerged. And, of course, this puts an ethical burden on us to keep as much of this available for the future as we can. (In this respect, we also have a great boon from the hobbyist community, who keep operating systems and old sites and platforms and machines running—every alliance we can form there will be very, very valuable—which speaks to your note about the material history of computing and networking happening outside the academy as well.)

But, of course, it can still be a bit feast-or-famine. Some resources, some huge chapters, are, to a shocking extent, simply gone; others are available in unbelievably rich, contextualized, time-stamped detail that would be the envy of any historian working with paper documents. (For an instance of the former, I've been fascinated by the methods Megan Ankeron [2012] has described in her work on the commercial Web design industry in the 1990s—things like finding images on screens visible over someone's shoulder in a photograph in a printed brochure, and using boxes and manuals—because of the ways that vitally important material was simply not preserved.) Ultimately, for me, the history of digital media is a chapter in the greater history of technology, and that has long been a struggle to restore names and timelines and context to what Siegfried Giedion (1948) called “anonymous history” in *Mechanization Takes Command*—indeed, in 1948 he was already decrying the “amazing historical blindness” that “has prevented the preservation of important historical documents, of models, manufacturer's records, catalogues, advertising leaflets, and so on” (p. v). And many of the worst villains were the manufacturers themselves, who rarely had contingency plans for the material and documentary legacies of their companies, or an archival vision, as you point out about AOL versus Usenet (and as will be the case, I would bet, for Facebook versus Wikipedia).

Kevin Driscoll:

Patent trolling aside, the notion that “dead end” technologies might serve as a common pool of unfinished ideas is really compelling. I'm curious to know more

about the dead-ends that linger on, not just as sources of inspiration or objects of nostalgia, but as practical, everyday tools. For example, there are thousands people working in actual Plan 9 environments today and I am sure that there is someone out there writing true crime novels on a Canon Cat. In these cases, continued liveliness is often accompanied and supported by a deep affective commitment among remaining users. I don't think the emotional heft of this loyalty can be adequately explained by economic models such as path dependence or the sunk cost fallacy, nor by mere contrarianism. Instead, it feels like the early rumblings of a rather radical opposition to compulsory upgrades.

One intriguing case I have been watching unfold recently is the Neo900 project. Neo900 is a proposed drop-in replacement motherboard for the Nokia N900 smartphone, one of only two products to ship with Nokia's Maemo/Linux operating system.⁷ For years, enthusiasts have consumed an unsteady stream of N900 clones from Chinese manufacturers rather than "upgrade" to an Android handset. To date, supporters have raised over 50,000€ for an alternative sort of upgrade that promises autonomy from Nokia. For these hardcore Maemo enthusiasts, the N900 is not just a curious "path not taken" but rather a path they aggressively refuse to abandon. They are, in effect, "occupying" Maemo in a pragmatic protest against vendor lock-in and planned obsolescence—an ideological position made plain on the Neo900 website.⁸

Admittedly, N900 enthusiasts enjoy a technical advantage over fans of other "dead end" systems because Maemo was based on Debian, the archetypal free software project. For users of Apple or Google products, resistance is, more or less, futile. Whereas devices like the N900 (or the Canon Cat!) will continue to work as long as electricity comes out of the wall, an old Android phone will gradually cease to function properly if the user refuses to accept remote updates.

It's interesting to link this rising resentment about forced upgrades back to the threats—real and perceived—that animate your "third epoch" in *Spam*. The recurring justification for Trusted Computing, centralized control, and mandatory remote updates is that they protect users and their information from malware. Maemo users are also shielded from malware, albeit by obscurity rather than any proactive defense. The return on N900 malware would be so minimal that malicious Maemo programs seem extremely unlikely to surface. In this sense, deciding to use one of the lingering "dead ends" from the periphery of computing culture could also be a strategic means of protecting oneself from snooping. (Maybe activists will start buying Palm Pres off of eBay?)

The lasting usefulness of aging technologies makes it difficult to mark a hard boundary between past and present. Whether because of nostalgia or utility, certain technologies refuse to settle comfortably into a categorical "past." And yet, it seems that there is an unmet desire for a history of computing in popular culture. Tech news sites regularly feature retrospective slideshows of companies in decline, Steve Jobs' biography was a bestseller, and *The Social Network* made it to the megaplex. With all of this story-telling going on, it's hard to see how (and when and where) scholars should intervene.

Finn Brunton:

Carlo Ginzburg (2012) and a few other members of the *microstoria* school,⁹ for whom I have a deep affection and respect, might provide a way for us to go back up a few levels to the historiography of the digital more generally. (There's a reason I spend so much time in a book that's nominally about spam with a Natalie Z. Davis [1983] book!) I'd like to try out the idea that there's something particular to the nature of digital technology and its history that distinguishes the kind of work we and others in the space do, and raises a particular set of problems and questions broadly.

One of the essential problems of microhistory is "asking big questions in small spaces"—using the space of a single village, a single person, a single trial, to come to terms with what we might call (a little tongue in cheek) the general dynamics of an era, a populace, a system. You look for the "normal exception," the everyday person who happens to have been recorded and documented in some detail, illuminating all the hordes of background extras who are normally out of focus in the distance behind the king, commander, vast Marxist historiographic waves, and so on.

However, the kind of digital work we and others do—and I mean that broadly, from the work you and I do, on spammers and BBSers and assorted malcontents and mutants, to those studying ARPANet, big connectivity infrastructure, contemporary social network business plans, the spread of personal computing whether through games or spreadsheets—this work is of a piece because the "normal exceptions" really aren't exceptional. Part of what makes the story of networked computing interesting is that little and big are so thoroughly mixed together. In my quick, back-of-the-envelope way, I'd like to distinguish this from the history of computing more broadly: in some of the those cases, particularly in the early institutional/industrial history, there really is a noticeable distinction between the operation of the "big iron" (as mainframes were called by their engineers and programmers) and the lives of those outside the Eliot Noyes gleaming glass enclosures—but this points up how much big and little blend once networking enters the picture. Hacker culture and phreaker culture, pro-am transitions by daydreamers, activists, and bored graduate students, the consequential inventiveness of literal and figurative small-timers: the outsize contributions of these many scattered micro-actors are such a significant part of the story they leave no element untouched. To turn my previous comment around, understanding OSI—one of the most classically institutional, formalized parts of the history of networking—means understanding the other standards, which were extraordinarily open to groups of all sizes and degrees of influence.

We could go on in this line: open source, Web standards and consortia, working groups, public mailing lists, user revolts and protests (to go along with user-generated content), the freely circulated RFCs, Zimmerman's PGP code¹⁰ migrating around Usenet and beyond, students Xeroxing the *Lions' Commentary on UNIX 6th Edition, with Source Code*,¹¹ open governance and open data projects, IP piracy, edit wars on Wikipedia. . . . It is inescapably a history in which little and big actors are tangled up together in a unique way, and have to be jointly accounted for—"unique" not in the sense that there has never been such an entanglement before, but that we have

never before been able to see the evidence of it so clearly. We don't have to seek out the normal exception brought to (generally tragic) light by court proceedings or records of interrogation and punishment. As a rule, everyone involved generates almost relentless self-testimony: in blogs, commented code, mailing lists, comments generally, RFCs, memos, demos, tweets, and public talks.

Your discussion of Plan 9 epitomizes this: it's hard to imagine a more old-school Big operation in contemporary computing than an initiative to build a successor to Unix, hosted and underwritten by Bell Labs—but of course, as you point out, the story of Plan 9 (for more than half its life, at this point) is the story of hobbyists and researchers of many stripes doggedly keeping it alive, forking it, reinventing it, and appropriating elements. And, of course, this quality is part of what fascinates me about spam: the collapse of the focal layers from the everyday interaction of someone with their email client, through the technicians, administrators, and architects of the network, all the way up to the scale of Interpol, Google, national jurisdictions, cyberwarfare—and the spammers seeking out their own normal exceptions, that small but inevitably reliably group of recipients who will take the bait (and produce a testimony of their own). For the story to be clear and accurate, we need to be like Gregg Toland, filming in deep focus, keeping all the elements at different scales visible at once. As people working in a historical register on digital technologies, that's our privilege and our challenge.

Notes

¹<http://archigram.westminster.ac.uk/index.php>

²<http://cannoncat.org>

³<http://plan9.bell-labs.com/plan9/>

⁴<http://mediaarchaeologylab.com>

⁵<http://jsmess.textfiles.com>

⁶<http://visual6502.org>

⁷<http://maemo.org>

⁸<http://neo900.org>

⁹<http://thrilljockey.com/thrill/Microstoria>

¹⁰<http://www.mit.edu/prz/EN/background/index.html>

¹¹ Available at, <http://v6.cuzuco.com/>, among other places.

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