Folio 89 of the Glastonbury Miscellany is just one of a number of badly damaged leaves in this fifteenth-century manuscript. These folios remind modern readers of the fragmentary nature of the medieval textual record. Badly torn and water damaged, but still here, the Miscellany’s paper leaves are a testament to the resilience
of medieval materials, as well as a trace of all those other folios, quires, and manuscripts from our period of study that are irretrievably lost. In 1969, the manuscript was repaired, and its damaged leaves mounted on new sheets of paper. More recently, it has been digitized and made freely available via Cambridge University’s Scriptorium website.

In my paper today, I take folio 89 of the Glastonbury Miscellany as the occasion to think further not only about the material and conceptual entanglements of medieval and early modern paper, but also the modern conservation and remediation of medieval manuscripts as digital objects: the interwoven paper and digital ecologies of my title. Modern materials work to shore up and recirculate fragmentary medieval folios. But I also argue that once we begin following some of the threads of digital culture, premodern pages quickly become more complexly entangled in larger environmental and infrastructural stories.

I

Work began on the manuscript around the middle of the fifteenth century at Glastonbury Abbey. Its materials and format suggest it was initially intended to be an account book: fol.1v includes a list of accounts for the abbey, though these are now largely illegible. This impetus appears to have soon changed as a number of more literary texts were added, including the dream allegory ‘Gregory’s Garden’ and the Stores of the City, a verse description of seven English cities, as well as a number of texts relating to the abbey’s abbots and monks, and its legendary founder Joseph of Arimathea.

In its combination of documentary and literary materials, the Glastonbury Miscellany helpfully encapsulates developments in the use of paper as it became more readily available in England during the fourteenth and fifteenth centuries. A. G. Rigg has examined the manuscript in detail and in his 1968 study argues that its paper folios were likely imported from the Netherlands or Italy. Rigg identifies
seven hands in the manuscript. ‘Hand T’ was responsible for the majority of its initial contents, though the numerous changes in ink suggest the manuscript was added to gradually over a number of years. ‘Hand X’ added a number of items around 1475. The manuscript was transported to London in the 1530s after the dissolution of the abbey and the dispersal of its library. It was still being added to more than three decades later, though, in the spaces between and alongside its existing texts as well as in a number of previously empty folios at the end of the manuscript. ‘Hand A’ was responsible for much of this additional material, adding seventeen further items of varying lengths, including an acrostic poem, proverbial verses, and a poem on the symbolism of colours.

The last datable entry by Hand A was on the fourth of June 1561, a short note on the fire at St. Paul’s at the foot of fol.88r. It’s not possible here to provide a full account of Hand A’s additions but it’s clear the miscellany had become part of a new network of reading and use, through which contemporary urban events co-exist alongside the monastic setting of the manuscript’s initial composition.

Hand A didn’t just add new text in the blank leaves and spaces, though, he also methodically added to those texts copied by Hand T, providing marginal comments in the form of proverbs and other notes, and also titles where they were missing. The manuscript’s blank leaves and spaces compelled new writing, but its existing materials also got to work on their new readers. Like so many manuscripts, the Glastonbury Miscellany is an artefact that productively traverses the divide between the medieval and early modern.

Refusing any simple narrative of diachronic succession or supersession, the miscellany is resolutely “untimely matter” in the sense outlined by Jonathan Gil Harris: not only do the interactions between its various scribes collate multiple temporalities and intentions, but these interactions can also “prompt many different understandings and experiences of temporality – that is, of the relations between now and then, old and new, before and after” (Untimely Matter, 4).
Harris considers a wide range of objects and practices in his account of early modern “untimely matter”, but it’s telling that the two central examples in his introduction are books: the Archimedes Palimpsest and a fifteenth-century breviary, not unlike the Glastonbury Miscellany, that Harris describes as palimpsestic in its combination of manuscript and printed materials.

Following the theme of this conference, we can add further layers to Harris’s comments on the polychronic and multitemporal nature of medieval and early modern books. The etymology of “stuff” in French étoffe, “cloth” or “quilted material”, reminds us that what in English has become a word for generic thingness or unspecified materiality unfolds a more specific relationship to the real and symbolic economies of textile production and use.

Medieval and early modern paper – in fact nearly all paper until the last third of the nineteenth century – was produced from hemp or linen rags, materials that had already undergone a lengthy period of inhabitation and use before they were worked over once more to become a writing surface. The rags were soaked, pulped and cleaned, and then pressed over a metal frame, producing the distinctive laid line and chain line patterns visible in paper folios.

The flecks and fibres visible in the page are the vegetal matter too small to be filtered out in the papermaker’s vat. As Joshua Calhoun has examined, larger shards of unprocessed fabric or flax sometimes made it through this process too, lodging themselves in the page and demanding, if not interpretation, then at least an appreciation of the texture and potential “rhetorical effect” of the page. Calhoun calls these fragments “ecological remainders”: they remind the reader that paper was only one form natural materials could take in a looping ecology of textual production, consumption, and reuse (“The Word Made Flax”).

Paper’s water-intensive production process also meant that elemental or topological features could be recorded in the page, prior to any inscription in the sense we usually understand that word. Leaves produced in the spring months,
when rivers ran heavy with mud or sediment could preserve this in their hue, for example.

Of course, discolouration and damage are common enough sights in medieval folios, particularly in manuscripts like the Glastonbury Miscellany that we know have passed through many hands. But as Calhoun suggests, we should also be careful about presuming that an off-white or uneven colouration of medieval paper folios simply represents the degradation of an older, “purer” form.

Though writing about parchment rather than paper, we can find an analogous awareness in Isidore of Seville’s *Etymologies*, a text well-known across Europe in the Middle Ages. Isidore’s short media history of parchment invokes an association between the idea of a radiant writing surface and the material realities of the page. Isidore writes that while parchment is naturally yellow or cream, pure white parchment was once invented in Rome. However, he says that it quickly proved to be “unsuitable”, as it “harms the readers’ eyesight.” Just as, Isidore notes, “the more experienced architects would not think of putting gilt ceiling panels in libraries,” writing surfaces should not be dazzlingly white (*Etymologies*, 141).

The ideal of radiant, featureless writing surfaces is a powerful and enduring one, for medieval and modern authors alike, but Isidore suggests that imperfection is the necessary condition for the production of writing surfaces that are useable. That is, new folios should be blank, but they shouldn’t be *too blank*.

The empty page is not a featureless ground of inscription, then, but a space that has already been written by an array of natural and social processes. Inscribed with an off-white or uneven hue, ruled by laid-line and chain-line patterns, punctuated by small flaws or gaps, the medieval and early modern writing surface is, in Calhoun’s apt description, “[a] palimpsest of natural growth, social processing, and textual production.”

**II**
The Glastonbury Miscellany’s eventful history took its toll and its paper folios became a record of misfortune and neglect; the manuscript was badly damaged during the second half of the sixteenth century and the catalogue entry notes that by 1729 it had already been described as “very rotten”. The manuscript found its way to Trinity College here in Cambridge, via Robert Cotton’s library and the collection of Roger Gale. In the late 1960s, the manuscript was rebound: a hard cover was added, with the original vellum soft-cover rebound as a flyleaf. Its numerous damaged leaves were mounted on cotton rag paper, the go-to material for book conservation due to its lack of acidity compared to wood pulp paper.

Cutting across the commonplace association of blankness with future inscription, the space of these leaves is definitely not for any further text, they are, in Craig Dworkin’s useful distinction “an ellipsis to be respected”, rather than “a provocation to incite writing” (No Medium). The looping ecology of paper production, consumption and recycling in has been joined by the modern materials of restoration, as well as by the open-ended digital ecology of screenic reproduction.

The contemporary form of the manuscript and its online distribution raises a question asked by media theorist Lisa Gitelman in her book Paper Knowledge: ‘What is digital thingness, after all?’ (4). A number of medievalists have addressed similar questions in relation to the recent proliferation of digitised manuscripts. As Johanna Green and Roberta Magnani argue, for instance, manuscripts gain and lose connections and associations as they are remediated. Digital resources are not lesser, or less authentic objects, but are replete with their own affordances and possible futures.

In a similar manner, Martin Foys draws on the burgeoning field of media archaeology in his discussion of a partially digitised eleventh-century manuscript in the British Library. Media archaeology’s non-teleological approach to the history of media seems particularly well-suited to medieval manuscripts that may have been reorganised in the early modern period, photographed for print facsimiles in the twentieth century, and digitised in the twenty-first. These alterations and
remediations turn the manuscript into a network of connected materials across multiple formats, a “media ecology” in one of media archaeology’s operative metaphors. Or as Foys puts it “rather than construct an object’s history based on a simple chronological and narrative line of reconstruction, media archaeologists view the media object as a site of ongoing exchange between past and present forms of media” (123).

I’ve written elsewhere about how the Glastonbury Miscellany also invites this kind of approach. In short, I argue that the history of the manuscript traced so carefully by A.G. Rigg has been productively complicated by its subsequent incorporation into the digital Scriptorium. In Rigg’s painstaking reconstruction of its origins, the Glastonbury Miscellany is a distinctly and securely medieval object. Yet from a media archaeological perspective at least, this view of the manuscript can be enfolded into a more broad-ranging account of its continuing life and of how, to quote Foys again, “the more we study a manuscript, the more we turn it into other media to study it, and the more complicated its media history becomes.”

In more recent work, I’ve also begun thinking about how the new field of critical infrastructure studies might add further material and temporal dimensions to our discussions of medieval and early modern materials. Critical infrastructure studies has emerged alongside and in conversation with media archaeology, with the digital humanities scholar and historian Alan Lui as one of its main voices. Lui traces what he calls the “convergence” of infrastructure and our experience of culture. Through a focus on all that is usually below our immediate perception, he argues, we can examine how regional infrastructures like power grids and global infrastructures like the internet enable our experience of culture, even as they also constrain and delimit that experience.

In a more historically expansive approach, Shannon Mattern has examined what she calls the “deep time of media infrastructure” – with particular attention to how media infrastructures have always been complexly integrated into towns and
cities. As such, Mattern advocates a more literal excavation of media networks than that offered by media archaeology. Perhaps her most compelling example is that of fibre-optic cables. Due to the cost and difficulty of digging new tunnels in urban areas, internet cables are often strung along existing water, gas, and sewage ducts; between cities, existing road and rail routes are used. In other words, the digital modern overlays the pre and early modern past in quite literal ways when it comes to the infrastructure of media.

Scholars of the medieval book have largely been reluctant to engage the theoretical and critical provocations offered by the fields of new media studies and media archaeology. Conversely, beyond Mattern’s work, media archaeologists rarely stray much beyond the broadcast and electronic media of the nineteenth and twentieth centuries. Approaches that work to close this gap have much to offer, though. In this vein, I’ve begun thinking about Geoffrey Chaucer’s contemporary Thomas Hoccleve as a poet of late medieval media infrastructure. Hoccleve’s poetry frequently addresses his role in the city of London and its institutional and documentary networks, as a scribe, author and reader. The subsequent digitisation of some of Hoccleve’s holograph manuscripts adds further dimensions to the work of a poet who frequently reflects on the availability and circulation of writing.

The popularity of bookmaking recipes and directions in the late medieval period intimates another potential avenue of investigation. These texts suggest a wide amateur interest in the production of ink, dyes, pigment, and other materials required for writing. They also point to the imbrication of book production and consumption with other industries and technologies, from the production of related media such as tapestries and wall hangings, to the broader domains of forestry, agriculture, and mining.

Critical infrastructure studies also demands a reflexive approach to our scholarly practices and methodologies. As Lui, Mattern and others have examined, drawing on a long philosophical tradition, it’s when stuff breaks, decays, or goes offline that infrastructure re-emerges most forcefully as an object of consideration.
Digital modernity is deeply invested, figuratively and literally, in the ideologies of innovation and disruption, but critical infrastructure studies repeatedly shows that repair, maintenance, and care are much more central to our increasingly complex world.

Indeed, my own work on the Glastonbury Miscellany included a small-scale example of precisely this dynamic. When I decided to write about the manuscript four or five years ago, I visited the Scriptorium website for images and metadata. When I returned to the page bookmarked on my browser to write the abstract for this paper, I found that it was no longer available. The site was down for maintenance, with no set date for its restoration, though images could still be obtained by emailing the address supplied.

Figure 2 Scriptorium website, May 2018

Scriptorium is now back online (and looking better than ever), but its temporary absence is testament to the fact that digital objects require conservation too, that code is fragile, and that academic research is dependent on multiple infrastructures, and multiple forms of labour, that for the most part remain hidden from view.

Martin Foys argues that all medievalists are now digital medievalists, by virtue of their engagement with online resources like the digitised Glastonbury Miscellany.
To close, I want to propose that critical attention to the infrastructure that permits these engagements also dovetails with the recent turn toward a more global medieval studies. This turn encompasses the work of a wide range of scholars, but can be characterised both by its broadened attention to the medieval world beyond Latin Christendom, as well as its reflexive return to the foundations of the field and its enabling methodologies in the European nationalism and imperialism of the nineteenth and early twentieth centuries.

To these areas of study, we might add the responsibility to address the broader geopolitics of digital culture, in particular the impossibility of separating the ongoing history of any media object – medieval manuscripts included – from considerations of labour, resource availability, and energy use.

*Figure 3 Rafael Lozano-Hemmer, Sphere Packing (2014)*
After all, digital culture’s aesthetic of airy immateriality relies on us not thinking too hard about all the stuff it relies on to function as required. Or about where our smart devices come from, and where they go when we’re done with them. In contrast to the medieval and early modern periods, we live in a media landscape in which devices are predominantly designed not to be altered or repaired, and in which the deliberate concealment of their workings is a central element of proprietary manufacturing and copyright law. Apple, for example, is keen to foreground its eco-friendly credentials, but each new version of the iPhone is held together by screws that are designed and engineered specifically to prevent repair and alteration.

The metaphor of the media ecology I mentioned earlier has been rematerialized in the work of a number of scholars seeking an environmental and geological media studies that more rigorously accounts for the origins and maintenance of new and old media alike. Jussi Parikka, Lisa Parks, and Lisa Nakamura, among others, have further examined the environmental and political realities of digital media, from the vast factories in China and southeast Asia where the majority of devices are made, to the mining of rare earth minerals and metals in conflict zones in central Africa, as well as the extraordinary energy and resource consumption of the vast network of servers behind so-called “cloud” computing.

Other environmental media histories are more fine-grained. As Parikka examines in a chapter on dust in his book *The Geology of Media*, highly toxic particles are sprayed over the screens of our smart devices just before they leave the factory, in order to give them that appealing sleek finish. These particles are inhaled and settle in workers’ lungs; they also settle on clothing and are transported outside the factory, eventually finding their way into nearby rivers and then the water supply of local populations.

Medieval and early modern media incorporated the elements into their structure, the earthy sediment and vegetal “ecological remainders” examined in Joshua Calhoun’s article. Digital media perform something like the inverse operation: water now courses with tiny particles of toxic matter. Following some of
the materials of digital media directs us toward modernity’s new hybridisation of the elements: polluted and flammable air, plastic-filled water, contaminated earth.

In one sense, these are more general connections that take us far from the lived existence of the damaged folio in a late medieval miscellany with which I began. And yet, this layering or enfolding of distance and proximity, of multiple materialities and temporalities, is representative of the challenges of accounting for the remediation of medieval objects as digital media. As Shannon Mattern notes in her discussion of urban media infrastructures, this is a challenge of thinking at multiple, overlapping scales and of tracing the relationship between the granular and the global. Historians of the book are used to writing format-specific histories, particularly for those manuscripts like the Glastonbury Miscellany that have led intriguing or eventful lives. The burgeoning fields of media archaeology and critical infrastructure studies suggest we might also turn our attention outwards to the environmental, political, and institutional factors that continue to make those histories possible.

References


