How Scholars Read Now: When the Signal *Is* the Noise

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Abstract

Distraction is not a problem for scholarly reading in the humanities: it is, in fact, intrinsic to how we work. An openness to distraction facilitates knowledge creation in conversation with and between sources, bringing together disparate times and places, authors and forms of source material, frames of reference and layers of insight, harnessing peripheral vision as much as central focus to create the conditions for serendipitous discovery. This "loose hold" on focus results in a knowledgescape with a substantial tacit dimension, with the result that humanists most certainly know more than we can tell. This is not to say that the epistemic process of the humanist is all encompassing, however: administrative work, for example, is viewed as a "true" distraction, and managed accordingly.

In spite of the wide availability of digital tools to consolidate and organise the process of extracting information from the reading of sources (be they text, image, landscape or indeed even the self), the notetaking process of the humanist remains stubbornly multimodal, harnessing embodied, material, and spatial dimensions of knowledge. The resulting knowledge environments humanists create around themselves resemble life-sized realisations in mixed media of a Prezi stack, a physical manifestation of the fragmented, capricious, haphazard stream of influences jostling for scholarly attention, and the scholar's understanding that their system inter-relationships are complex, sometimes tenuous, and largely undiscovered.

This article will lay out the evidence for and implications of this understanding of humanistic reading, and then explore possible future paths for using technology to explore and indeed celebrate distraction, including: Technology as blurring the line between the personal and the professional, not so much as a labour practice, but as an epistemic one opening the way to the validation of "epistemic emotions" as a valid research input, but also to the more effective convergence of humanities research with other inputs to the identity formation process of seemingly distracted undergraduates; and research infrastructural implications for libraries (where remote storage and electronic catalogues diminish the likelihood for serendipity, essentially by reducing distraction) but also for vitual research environments founded upon a new understanding of what the ideal humanistic work environment might be and how to get "below the level" of that work.

Lesen als Kulturtechnik ist eine kreative Leistung des menschlichen Gehirns, die aber durch einen Missbrauch desselben erkauft wird.

Reading as cultural technology is a creative achievement of the human brain, made possible only by an abuse of the brain. [Pöppel 2009]

The mental images evoked by the description of someone engaged in the act of "reading" are generally ones of focus, stasis and concentration. Portraits of readers from the 18th and 19th centuries have perhaps contributed to this bias, depicting, as they so often do, a figure (very often female) gazing downward at her book, unaware of the spectatorial gaze, her head perhaps resting unconsciously on her hand. Reading a good book is one of the canonically cited means

by which to access the psychological state for which psychologist Mihaly Csíkszentmihályi coined the term "flow," but the flow that we see in our mind's eye is a strangely static one, an invisible beam of pure attention connecting the ideas of the author and the mind of the reader that is so powerful, that the reader's body is negated by the purity and undeniability of her focus.

This perhaps clichéed image of the reader may be real, may be anchronistic, or may indeed have always been driven by urges quite outside of the social understanding of reading. What is clear, however, is that they depict a particular mode of reading, one designed for pleasure, focussed on escape and on passive abandon to the author's intentions. In his 2008 essay, "How Scholars Read," John Guillory defines a difference between such reading for pleasure and scholarly reading, which he describes in some detail as quite a different process all together. Though he plays throughout the essay with a number of possible characterisations that partially define the differences between lay and scholarly reading (extensive versus intensive modalities, close or interpretive reading, browsing and scanning, skimming etc.), in the end the essence of the work of the scholar is found in not the inhabitation of one intensive mode of reading, but of precisely the ability to move between multiple very different modes:

> The technique of scanning can be organized, alert to keywords, names, dates, or other features of a text. This technique is a form of attention, even heightened attention, although the scholarly reader might ignore the continuous meaning of a text, deferring comprehension until some textual signal brings the scanning process to a temporary halt and initiates a more intensive reading. … At some point reading must be decelerated for the purpose of a more analytic reading, which aims to correct distortions produced by scanning. [Guillory 2008, 13]

This process of accelerating the reading process by scanning, only to decelerate at the call of a textual signal so as to read intensively, is a response to what Guillory elsewhere in the essay refers to as the "clock time of scholarly reading." This imperative, to absorb more text in the course of a project or career than could be reasonably expected of intensive lay reading strategies, drives the scholar's need to fast-forward some passages, and savour others in slow motion, and to adopt alternating states of intensity, and of scanning, a process that removes details and yet represents not only attention, but a "heightened state" of attention. It would be tempting to view the alternating currents of scholarly reading as representing a weakness, rather than a strength. If a scholar had infinite time, would she not read everything intensively, absorb every nuance, and be empowered to reflect every possible argument relative to or interpretation stemming from a particular text? We know instinctively that this is neither possible nor ideal, in part because of the nature of the humanistic instrument of scholarship (to be discussed below) and in part because of the work of scholars that point us toward the strengths of this very attentive yet selective method, such as Franco Moretti, who says:

> Distant reading: where distance, let me repeat it, is a condition of knowledge: it allows you to focus on units that are much smaller or much larger than the text: devices, themes, tropes — or genres and systems. And if, between the very small and the very large, the text itself disappears, well, it is one of those cases when one can justifiably say, Less is more. [Moretti 2000]

Moretti privileges certain kinds of theoretical questions as meeting the requirement of distance, and certainly the example he explores in the article quoted above (nothing less than the problem of world literature) is adequately vast. But every perspective requires some distance, every object of scholarship exists within a frame. Scholarly reading as Guillory describes it is therefore not only an admission of defeat in the face of a deluge of scholarly writing, it is also a framing mechanism for scholarly work in a field that privileges the operational mode of the hunter-gatherer, rather than the agricultural consolidation of activity into a limited space. Humanists accept their sources as they find them, with all of their messy embeddedness and resonances born of their provenance as the creations of human beings and their cultures. The controlled experiments and clean environments of the physics lab do not reflect this experience of reading as a human through the artefacts of human creation. Following this logic, to be attentive in the context of the study of the humanities is to be, paradoxically, distracted, focussing not merely on a central figure, but both the figure and the landscape that surrounds it.

The dichotomy hereby established between the "clean" conditions required for the study of physics and the "mess" of

the humanities should not be taken too far, however. The argument that follows should not be read purely as an exercise in valorising terms normally weighted negatively in the face of their more acceptable opposites, nor of proving definitively that the sciences and humanities are essentially different. Discourse, both public and scientific, about research practices suffers too much from such overly simplified, oppositional positioning between different methodologies and disciplines. What I do propose to do, however, is to contribute to the much needed body of reflection about humanities research methods by challenging the valence positioning of some of the key terms that might be applied to them. Central among these oppositional terms is that of distraction versus focus. Humanities scholarship has always held within it the capacity to not only manage, but make productive use of distraction in the way its practitioners find and integrate information. This input process maps to what we might also call reading. Hence it is the distracted reading of the humanities scholars that shapes the way we build our instruments of scholarship, the way we privilege knowledge interactions we deem serendipitous or environments we may ourselves deem chaotic, how we organise information in space and time, what we deem allowable in the frame of constructing scholarship. It also mediates how humanities scholars adopt and use technology.

The analysis that follows will unpack some of these statements and defend the notion that scholarly reading is not only based on the process of accelerating and decelerating through discrete texts, but through an entire world of signal and noise. Reading, according to this model, does not adhere in the least to the image of immobile reader locked in to the limited space between her face and her book, but is instead a kinetic, embodied, multimodal series of interactions, engaging not only the centre of focus, but the peripheral vision as well. It is a place not of happy accidents, but of prepared minds, where the reading process is not based on an "abuse of the brain" (as per the quote from Ernest Pöppel that stands at the start of this article) but a harnessing of almost primal human urges to seek, to gather, to organise and to narrativise.

The conclusions that follow are based upon the results of a modest but revealing ethnographic study, conducted in 2015, and known as "Scholarly Primitives and Reimagining Knowledge Led Exchanges", or SPARKLE [Edmond, Bagalkot, and O'Connor 2017]. This investigation was inspired by a digital humanist's frustration: having built a tool addressing an identified need of a humanities community (in this case historians with highly heterogenous, dare we say disorganised, research notes), the project team was somewhat surprised to find that while the result met the specifications of the user community and "solved" the identified "problem," the target community of historians did not love it, and reverted quickly to their messy analogue ways. Why? The answer, as demonstrated by the eight hours of interviews of a range of historians (medieval and modern, archaeologists, as well as literary and art historians) conducted by the ensuing project, was that the mess and chaos was an inherent part of the scholarly methods, it was a source of strength rather than weakness. The signal, in other words, was inextricably bound up with the noise, and it was precisely the capacity to be distracted that these rich environments facilitated that was key to productive reading experiences.

Noise is, of course, not a phenomenon specific to the humanities. Indeed, an appreciation of noise, in the form of a paradigm-changing "novelty" or indeed "crisis," can be said to be at the heart of fundamental work such as Thomas Kuhn's *The Structure of Scientific Revolutions*. In that case, however, noise is a disruptor indicating a change in signal, rather than a component of the context that suffuses it. Distraction in humanistic reading is therefore the process by which a scholar manages to create knowledge in conversation with and between sources, bringing together, disparate times and places, authors and forms of source material, but also frames of reference and layers of insight, harnessing peripheral vision as much as focus to find the moments of serendipity that lie at the core of so many humanists' methods.

Designing for Distraction

The knowledge environments humanists create around themselves to facilitate the pipeline from reading to writing are like mixed media realisations of a Prezi stack, except that the relationships between objects and places reflect a layered set of interconnections, simultaneously reflecting the places where an individual keeps certain sorts of things and the path by which those things came to enter the system.

The scholar's desk is often a messy place, a reification of the fragmented, capricious, haphazard system of influences jostling for scholarly attention, and for alignment like with its "brothers in meaning." A recurrent subtheme within the SPARKLE project interviews was that of clutter, a nearly universal topic that was not prompted by the interview protocol in any way. "[T]he problem with the desk is that often you have to clear a space on it, whereas the sofa is generally kept clear," said one interviewee, while another made the very insightful comment that: "my desk space tends to be extremely cluttered and messy and not conducive to reading, so … tend to take everything off the table and move it or try and minimise what I am looking at." The primary reason clutter seems to be such a strong recurrent theme is because of the need to balance focus and attention with the parallel requirement to have certain things – notes, primary or secondary source materials of many types, objects, data, computer environments or tools, or comfort objects such as water, coffee or a lap desk - "at hand" or "beside me." One interviewee even described this arrangement for her as "almost like a nest." "I tend not to write in … my departmental office which I use more as a teaching and meeting space, even though I have bookshelf space here, but I tend to write in a box room at home where the stuff is very close to my desk, um, it's not very scientific, there are piles and piles of paper, the paper somehow forms a useful order."

In some cases, this desire for a particular physical arrangement of space is clearly indicative of a similar process of arranging ideas, building a knowledge organisation system to assist information retrieval and prepare for insight. In some cases, the researchers' understanding of this system is somewhat ad-hoc and intuitive: "I don't really have [a system], I just flick - I have a good idea of the order when I did something." In most cases, however, the interviewees were very aware of the underlying structure of their personal information landscape: "I break down the reading by all the different topics that I'm interested in… so that when I come back to it ...I have that all stored in logical chunks that will turn into chapters."

Some of this active management of spaces for research work functions so as to optimise certain kinds of concentration and minimise certain kinds of distraction. Focus is key to constructing a valid argument, but it is also an efficiency concern serving the purpose of managing time constraints. Time pressure was keenly felt by all of the interviewees: "… there are so many claims on my time, kind of 200% claims on my time, so how can I start to segment out?" This reflects Guillory's "clock time," but there are specific constraints as well. Often these time constraints arise because of externally limited time, such as the limited hours of an archive or museum, for example, which encourage certain kinds of binge photography and condensed note-taking.

Indeed, the rise of distraction in the seeking out and assimilation of information may have as much to do with dealing with these kinds of restrictions as with the nature of the loosely bounded questions and objects being pursued. What might be thought the most obvious strategy for maximizing time (by focusing narrowly on one project before moving on to the next) is not one that fits comfortably with the humanities researcher's modes of work. In fact the researchers, in particular those at the more senior level, consistently referred to the fact that they would work on several projects at the same time. While this was sometimes viewed in the pejorative ("…when I was at school my Latin teacher called me a 'flibberty-jibbet' which ...I think I still am," "I like to flit around to lots of different things and I try to keep my view broad," "I have too many projects on the go"), it was clearly also a strategy to manage the implications of potential blockages in insight, access to sources or sustained time for research, ensuring that a mix of activities was available at any given time to provide a good "fit" for the kind of environment, attention and other cognitive resources an individual had to devote to their research. Regardless of how they viewed their own management of time and space, the interviewees consistently displayed a highly developed expertise in the decomposition of large tasks into chunks [Miller 1956] or microtasks [Cheng et al. 2015], common recommendations for enhancing productivity, but also emerging areas of interest for software developers trying to produce environments and tools to support busy lives characterised by information overload and distraction.

Defining the scholarly instrument of the humanities

The idea of instrumentation is central to the understanding of any epistemic culture. For the scientific communities in which the term is most familiar, such as the high energy physics and microbiology research teams studied by Karin Knorr Cetina in her landmark ethnography of science, *Epistemic Cultures* [Knorr Cetina 1999], it takes an external form, either as a device or as a documented procedure. These filters for knowledge creation, made tangible, become a

significant contributor to the shared lab capital, and a hallmark of the overall advantage or distinctiveness one lab would have over any other in their ability to produce scientifically relevant results. They also provide a point of focus that can be shared by a team of collaborators, a shared set of readings to define the frame of analysis, or a shared set of actions that can be repeated by different individuals at different times with ostensibly similar results. For the historian, the idea of using any kind of shared or sharable devices or procedures in the knowledge creation process does not resonate with actual practice. Instead, the process of building a scholar's apparatus is as individual (which is not to say subjective) as it is robust. An appropriate mental image or metaphor for this process is not that of the lens or the dissection manual, but of the dry stone wall, where building blocks of irregular shapes and sizes are laid upon each other to create a matrix through which, depending on its density and maturity, light or air may pass. The materials of which this apparatus is made are acquired largely by reading – of primary and secondary sources, of theoretical material, of foundational texts in other disciplines - but, as anyone who has seen or indeed built a dry stone wall will know, the strength of the construction is not just in the individual stones, but in the way they intersect and lie against each other. The object of reading in to the humanistic apparatus is to create spaces not where the fruits of reading can be kept apart from each other, but precisely where they can interact and influence thinking about each other. A number of distinct reading modes are deployed to achieve this aim.

The first of these creates the footing or foundation, which is almost inevitably comprised of knowledge of the primary sources, the objects of study. Being "source-led" was a point of pride for many of the interviewees, and the arguments and research questions were seen by and large to emerge from the direct engagement with the primary objects of study: "I don't really arrive at the argument until the evidence takes me there." The potential for meandering through a landscape of sources is inherent in this approach, but the researchers also stressed the idea that a single contact with a primary source was never enough to fully comprehend it: "you don't just look at something once ever;" "reading it five or six times over;" "…doing lots of reading, but also by reading it multiple times." In most cases, this rereading is however also a process with a time component to it: " …it's no good reading anything once … having read something once you may return to it because at a later point you may find it'll solve a problem for you, or it will have a suggested connection." As implied in this quotation, the rereading process as it takes place over time, bringing the same text into different juxtapositions and contexts within the scholar's instrument, is widely viewed not only as essential but transformative: "…that involved kind of going back over some of the older stuff that I'd looked at beforehand as well, oh yes very much changed the kind of thing that I was looking for."

A further omnipresent "course" in the wall of the humanistic research instrument is secondary research. Each researcher's relationship with their peers as it played out in part via the published scholarship of others was subtly different, but each expressed some kind of strategy for striking a balance between making one's scholarship appropriately robust and spending too much time reading the work of others, another more specific manifestation of Guillory's "clock time of scholarship." The challenges described there were also keenly felt by the SPARKLE interviewees: the thing that "has changed most dramatically if you look back 30 years is the volume of secondary literature, it's just exploding and getting faster and faster and we're still expected to stay on top of so much of it." In spite of the challenges, however, secondary literature is a key component in the humanistic instrument: without embedding and contextualising within the community of practice, scholarship feels insubstantial, and indeed even risky. Ensuring that this base is covered is not always possible, however: "[recognition of the secondary literature is] what I feel that I would need, but I recognise the flaw in the piece but there's no way that I could commit to that either, so you know I gave them what I had!"

This simple strategy of managing time by accepting one's limitations within a certain area of enquiry was not the only one, of course: a different approach described was to focus on particular genres of scholarship (books being more important than articles, for example), or to set a certain representative sample and work within those constraints. The ideal situation, as described, was one of following the trails of connections and references until reaching a point of recursion, however. "[you know you are done] when you start just going round in circles… one of the things I like about [conferences] is that every time you stand up in front of people there's always the opportunity for someone to say 'ah but you haven't read X', or you haven't thought about Y, so that is a really important part of the process to really make sure that you've covered all your bases." In this way, reading (and rereading) secondary material is an exercise in itself,

but also a part of the all-important dialogue with the primary sources and the researcher's growing understanding of them. In the process of going "round and round in a few circles and … reevaluating what you already think, reevaluating what other people have suggested," knowledge of the secondary research provides that key layer of the documented thoughts of others. It helps to test the place of pieces of evidence in an argument, and also to form the overall size and shape of a work, and to contribute to what can often be long periods of semi-active or even inactive gestation (quite often when another project has taken over).

These strategies for managing the "clock time of scholarship," also impacted on the level to which the interviewees felt they could or should engage with disciplines beyond their own, or with theoretical material arising from another discourse, each of which has the capacity to form another layer within the humanistic research instrument. For example, one established researcher confessed about an interdisciplinary project: "I knew I had to be able to really try and not master, but at least engage sincerely with their literature. In fact given the reading I've done since, I'm amazed that I got away with it!" Although they present a further challenge, informing one's work through interdisciplinary investigation was also seen as one of the most invigorating ways to extend one's filter for research questions: "…the thing I get a real kick out of would be the things that are off to the side… the different ideas, and it is challenging." Such interactions create new layers in the scholarly stone wall of independent, but integrated sources and influences from which research questions and eventually scholarly output will flow. [18]

Sources and scholarship were not the only contributors to this apparatus, however. Certain skills, often focussed quite literally on new ways to read, such as palaeography or languages, were key to specific disciplines or approaches: "if you're an early Irish scholar, those people are much more learned than me, it takes them probably a decade and a half before they can even begin - because they need to learn Hiberno-Latin as well as Old Irish - as well as probably Russian, German, French, maybe some Scandinavian languages … the apprenticeship is very long." The mastery of such fundamentals can be a key differentiator between scholars, and will drive the definition of research questions over the course of a career, as new skills open up access to new source material. They also open up interesting questions about the plasticity of the mind of the humanities researcher, shifting frames not only between different kinds of sources, but code switching as well between distinct semiotic systems. [19]

Beyond this, however, external factors such as political imperatives or funding priorities can also create layers that highlight attention to certain seams of evidence, or encourage connections to be drawn between things that might otherwise seem disparate. Across society, we can see that the personal and professional spheres are collapsing in a negative way, due to the pervasive influence of technology and its application as a tool for controlling (and extending) labour. But the personal experiences of the scholar form a powerful layer in the epistemic apparatus, and always have. This is what one interviewee called "those itches you want to keep scratching," "where your own subconscious urges and fascinations come up," and these may or may not have a direct connection to a recognisable personal history. The personal nature of many research projects is however a largely taboo subject, being viewed as compromising the "objectivity" of science. Such urges can also be seen differently, however, as what anthropologist Thomas Stodulka characterises as a layer of the epistemic apparatus that is essential to analysis, but often discounted as a distraction from objectivity: the emotional. "As embodied products of researcher-researched interactions, emotions may either motivate or discourage further engagement. The emotions that we express (or suppress) and articulate (or mute) in the encounters with our research protagonists, shape the ways in which stories are told and social realities are conveyed. Ignoring the epistemic quality of emotions obstructs our capacity to make valid claims about other peoples' experiences, behaviors, and speech." [Stodulka 2015, 85–86] Every historian, and indeed any scholar of human culture, writes as a human being born into a particular decade and a particular society, and part of the context and framing of the research is most surely derived from the observation of internal phenomena as well as external ones. Even when distanced from their "research protagonists" by barriers of time, space and culture, historians seek to engage their own experiences to build. They demonstrate, as Gadamer stated it, that "Historical knowledge is a mode of self understanding" [Gadamer 2004, 237] and, we might add, vice versa. This aspect of how the personal influences research provides for some of the most enduring fascination and utility of the resulting research: "…every historian writes from their own context and how we see history from one generation is going to be completely different … you read … the research done in the 50s and 60s and it comes with a completely different set of assumptions about what's right and what's normal and what your [20]

basic default assumption about who you are and what history is for, that tells us something about why we tell and retell history. It's also how we explain us to ourselves as well which makes it a really interesting conversation to be part of, 'cause human beings are creatures of narrative, really!"

These many layers of the humanist's instrument combine to create both a scaffold and a filter for the identification of research questions and the development of responses to them. The SPARKLE interviewees were able to describe the process of creating and using these interconnections through reading and rereading very vividly, often providing extensive narratives detailing the development of key elements of their argument: how influences from other areas of study became integrated with and understanding their own area of focus, or how a similar methodology was applied to a different corpus; how they work through the connections between both the evidence they want to present and wider disciplinary trends; how they traverse within and between the layers of their apparatus, knitting together notes and texts, primary and secondary sources, theoretical and methodological insights, extradisciplinary material, hard won archival gems and chance comments from friends and colleagues, gradually resolving any doubts about the reliability of connections and conclusions. The application of this method is about balancing the context in which a piece of information is being situated, and the precise nature of the evidence itself, moving as well between initial reading, and the creation of prosthetics to prompt and promote future reading (note-taking, filing or organizing, condensing information) and preparing for the next foray to gather material (following footnote trails, testing resonances) all along the expected and the unexpected pathways through the evidence, which may be dense and extensive or consist only of fragments. "In most cases the evidence is quite fragmented and you need to compile your evidence across a number of archives, plus literary works, plus narrative sources, chronicles and so on, so you're building a picture." This fragmentation, like gaps in the wall, is a challenge to the epistemic authority of the scholar, but it should not be allowed to become a barrier: "I go as thoroughly as I can and within the range of what I can see I will gather as much information as I can before reasonably making a judgement on what I think happened… And I think that's rigorous and I think sometimes more imaginative and brave or misguided than what scientists do in that you're willing to take a risk and you're willing to roam a little more freely outside of your [expertise]."

Like a climber planning a summit attempt, the researcher plans their angle of approach, aware that some parts of the planned route will almost surely be blocked, and that their unique constellation of sources and influences may very well be leading across known territory, but in a new way: "there's a discussion in one of the chapters which ...had my approach been purely literary ... possibly wouldn't have been there at all." In the end, this researcher will follow the terrain, one hand or foot hold at a time, until it leads … somewhere. That somewhere, like climber's peak is often shrouded in mist, but it can be inferred - "I was fairly sure that something would be produced of that that would be interesting" – but the process of building some aspects of this journey can feel like "beating my head off what felt like a solid brick wall, to the point where I ended up talking to a couple of lecturers within the department and they were like 'yeah theory kind of always feels like that when you're building it.'" At some point, however, momentum takes over "… and then what happens is that all that snowballs and gathers speed and gets to the point where you're being carried along by it."

Serendipity and Peripheral Vision in Humanities Research

A key result of the application of this form of reading-led instrumentation for the interviewees was that it maximised the capacity to harness serendipity. This is not serendipity in terms of the "happy accident", however: it is the serendipity of the prepared mind that can find subtle connections across space and times. "The time that you have the serendipitous find may occur a year or two years after the initial browse but because you've done that initial browse you have embedded a context for later on when you meet it. I think that certainly in my type of history it's the endless building of more and more context in different contexts, laterally, chronologically or conceptually, and also mining downwards and piling more and more detailed evidence on top of it. I think that that's what expertise really is, in our world."

Experiences of serendipity were reported in the finding of research materials in an archive ("coming across an object"), searching in an electronic source ("…you could put in the thing that you're looking for, but a whole lot of other entries come up and you go, oh that looks interesting, and it turns out to be a whole lot more interesting than the thing you were looking for") or through reading ("how did I find them? I found them by reading really widely… How do I come by that

motley crew? My own interests, my reading exposure, my language limitations.") These examples are all relatively conventional in some ways, in that they are based in the experience of insight coming through the finding of something new. Serendipity does not always work this way, however: very often the experiences of serendipity were of ideas sparking together, of connections arcing across the time from exposure to moments of engagement with certain sources and ideas. Serendipity comes from working through sources and absorbing them for what they are, rather than for what you think you may need from them. Serendipity grows out of what you store in the background of your thinking for later use. "Those moments don't seem to come on call necessarily they just seem to pop up. But the way to get them is just to sort of saturate yourself in the text." These descriptions of how insight may come unbidden, but not without effort, are reminiscent of Koestler's theory of how creativity can stem from the collision between matrices of perception, which end in "…laughter, or their fusion in a new intellectual synthesis, or their confrontation in an aesthetic experience" [Koestler 1969, 45].

This preparation for serendipity is actually a key part of the historian's method, and a cornerstone of their version of "professional seeing" [Goodwin 1994]. For the historian, the peripheral vision is as important as the central focus: it is here that the real connections may be found, where context is preserved, and where the next projects are being scoped and tested. In many interviews, seeing (or rather not seeing) became a central metaphor for the limits of scholarship. In the archival context, there is an awareness that some objects have been lost or removed from a collection, meaning that "there will be stuff that's not there that you'll never see and no one else will, or there's stuff that you won't know about." In secondary literature, there are potential blind spots as well: "I discovered that there was more said, or there had been more said in other disciplines and I didn't really see." It also can express how the scholarly method operates: "…when I sort of started seeing, when I started not seeing the parts where it didn't explain things, where it was adequate but not complete, where there were lapses sort of seeing that I started having a feeling that there was enough here that I could work with." But the importance of seeing for the harnessing of serendipity – across interactions, across spaces, across time - was one of the most interesting aspects of such utterances: "I have the kind of mind where later I think 'oh actually those things did fit together' and I only saw it later and actually it's only been in recent years I would see myself, and … I actually think that all the things I do do actually fit together, but I think there was a sort of underlying motivation in my mind that I'm interested in that I didn't see originally." | 25

This constitution of professional seeing as one part reading and one part insight results in a knowledgescape with a very broadly informed tacit dimension, which the philosopher Michael Polanyi summarised well in the phrase "we know far more than we can tell" [Polanyi 2009, 4]. Although framed as an inability, the inexpressibility of the range of knowledge of the historian is not a lack, but a latency, an immense store of potential knowledge waiting for the right distraction to spark it into kinesis. | 26

Technology and Distraction

If there is nothing that cannot be read as text, and if the work of the humanist is to apply an individualised instrument to frame and reframe, to accelerate and decelerate through an unknowable mass and density of scholarship, then where does the introduction of technology into this system leave us? Do the technical tools that enhance our capacity to read at a distance or otherwise organise masses of information into visual codes or telling images give us mastery over the process of ensuring that our distracted reading is captured, or do they make us lazy, tempting us to skip over the all-important step of registering our full field of vision? | 27

Certainly the SPARKLE interviews indicated that technology and tools were increasingly present in the researcher's apparatus. Although some of the interviewees would have had experience working on digital projects, none of them would have self-identified as primarily a digital humanist. In spite of that, they each gave a sense of how technology was influencing their work. In particular for those historians who worked in archives, the ability to photograph and save images of archival materials was transformative. "You notice a really big difference in somewhere like Kew where you can photograph and somewhere like PRONI [Public Record Office of Northern Ireland] in Belfast where you can't. It does make a huge difference in terms of the volume of material you can get through … certainly dictates why certain sources are used more than others." This already ambiguous positioning of increasing access as something that not only supports, but incentivises scholarly attention (potentially to the deficit of other sources and collections that may | 28

reveal a different narrative) also comes with a further disadvantage: although the ability to photograph sources may maximise the time one spends physically in an archive (thereby also maximising one's research travel budget) it doesn't increase one's overall available time for reading and analysing the materials captured: "…while it's fantastic that we can now go into archives and take photos of materials, there is a problem that you take all these photographs and try to remember what you have, and trying to remember that taking photographs of stuff is great, but you have to, you also have to use the time, allocate the time to work through the material."

Discussions of other technological interventions continued this theme of both benefit and compromise. Laptops are ubiquitous, and often used for analysis of sources or note-taking, but they are seldom seen as flexible and extensible enough to be the only place for these activities: notetaking, as we have already seen, is highly multimodal, and even for analysis one researcher was wishing for "multiple screens." Databases were used for capturing structured information, but they had to be created for the purpose, and relevant information often then was exported back out to another format, such as a flat spreadsheet or pdf. Even then, one particularly digital scholar commented about his method: "I think this is maybe a key point for Digital Humanities that, certainly for me anyway, the first time I go through a big body of evidence, the hard copy remains crucial and I still find it hard to really do close reading on screen." On-line searches through bibliographical sources and repositories of scholarship were also common, in particular as a starting point, but never able to support the full scholarly process: "…the jumping off point is certainly always digital, and the majority of the resources that I use are digital, but again I think that tends to increase as you get to know the field better, because you have to read the big books and the big books are almost always in book form." The common conception of humanist scholars as luddites is clearly not upheld by these accounts – instead, it seems that the available tools simply aren't up to the standards of these consummate microtaskers and their highly refined, multimodal, embodied methods. As more and more disciplines adopt or adapt big data approaches and methods, we can only expect this gulf to become more pronounced, not only because the source material to underpin big data research in the study of history seems unlikely to emerge any time soon [Edmond 2016], but also because of the relative diminishment of context and complexity in source material big data research invariably requires [Edmond et al. 2018].

Epistemic Versus Real Distraction and its Uses

Distraction may be a key element in the scholarly processes of the humanities, but it is also an element that its practitioners have yet to fully validate as a positive rather than negative force in their knowledge capture and organisation processes. A very good overview of the kinds of statements made by prominent historians on their strategies can be found in Keith Thomas' excellent diary piece published in the *London Review of Books* [Thomas 2010]. From clippings to the card index to various forms of organisational technology, from the pigeonholed desk to the white envelope, Thomas' account is as learned and engaging as it is modest. Herein lies the problem with many discussions of the humanistic method, however, namely the fact that the power of the methods developed for keeping the knowledge harvested by distracted reading in a state of readiness for reuse is obscured by the perception of the methods as being haphazard, not meticulous, curious, outdated, capricious. Many of the researchers interviewed for the SPARKLE project displayed a similar lack of appreciation for the power and rigour of their notetaking processes, describing their notes, for example, as "messy ways of putting things together." To truly appreciate these strategies, they must be understood not just for the many things they lack, but for the power with which they triangulate between the elementals of humanistic scholarship, such as sources and peer opinion, and the path and cognitive strengths of the individual scholar. They must also be viewed at the macro level, not just at the level of the individual's curious habits, but as an almost endless set of variations that nonetheless share common goals and structures.

Scholarly distraction in reading is a powerful and productive force when guided by serendipity and commitment to the values of humanistic scholarship. This is not to say, however, that the epistemic process of the humanists is all encompassing, and that no distractions are viewed negatively. Administrative work, for example, is viewed as a "true" distraction, and distractions in the synthesis and writing phases of work are viewed quite differently than the unexpected appearance of an artefact of interest in a scholarly reader's peripheral vision (as any reader of popular academic social media feeds such as *Shit Academics Say* knows all too well). But blending of the personal and the professional, the mature and the new research projects, the discipline and its neighbors, and indeed the virtual and the analogue all forms a part on an extensive (and, I would say, little understood) system for the pursuit of insight on a relatively

unbounded field of enquiry. If we embrace this view of scholarly reading in the humanities as distraction, then a few avenues for future exploration arise:

> First, we need new evidence and new frameworks for validating the kinds of distracted reading processes humanists demonstrate. For example, it might be helpful to view the frame of scholarly reading not via outdated images of absorbed readers, but of something broader, like, for example, a macroscope: "Macroscopes provide a 'vision of the whole,' helping us 'synthesize' the related elements and detect patterns, trends, and outliers while granting access to myriad details. Rather than make things larger or smaller, macroscopes let us observe what is at once too great, slow, or complex for the human eye and mind to notice and comprehend. [Börner 2011, 60]

In addition, validating the place of distraction in the epistemic practices of the scholar can help us to understand the pedagogical place of distraction. Many learners, from undergraduate students to citizen scientists, are by and large more interested in creating a self through their education, than a knowledge base. How can this dimension of their distraction, and the technologies that enable it, be engaged? Can we not do that in the digital humanities better than anywhere else? Early learning emphasises "rich environments" – can we not do the same? Rather than continuing to promote the focussed reading of the book list, young researchers might instead be facilitated to build their own macroscopes, incorporating (though not without questioning the bias that may be found there) the objects and information they discover at the peripheries of their objects of enquiry. [32]

Finally, embracing distraction as the noise that *is* the signal can also allow us to rethink humanities research infrastructure and environments. The modern library, with its remote storage and electronic catalogue, is bewailed by scholars as a place that diminishes the possibility for serendipity, essentially by reducing distraction. But virtual environments as well suffer from their impetus to centralise activities that may look haphazard, but which are anything but. How do we meet what Edwards et al. defined as the true test of infrastructure, that is that it get "below the level of the work," when we have redefined what the work is [Edwards et al. 2007]? In her DH 2016 keynote address, Claire Warwick, asked her audience to imagine new environments for research, ones that might facilitate the humanist and her sources without organising them too strictly. For this vision to become a reality, we will need first to embrace the true nature of the humanists' distracted journey through the rich environments of knowledge inextricably bound up with the the study of human culture and society. [33]

Acknowledgements

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