BRIAN CUMMINGS

the end & the beginning of the book

bibliophobia

CONTENTS

V. THE BODY AND THE BOOK

VI. GHOST IN THE BOOK

Note On Texts

Classical Greek and Latin sources, including late-antique authors, whether in the original languages or English translation, are cited from the Loeb Classical Library; later Latin texts from Oxford Medieval Texts and the I Tatti Library. Translations of Hebrew scriptures, the Christian Bible (KJV), the Qur'an, and the Book of Common Prayer (unless otherwise noted) are from the Oxford World's Classics editions. For the Talmud and other Jewish texts, I have used the online collection at sefaria.org. For Buddhist texts, I have used the resources of the Pali Canon Online and the Buddhist Digital Resource Centre (BDRC). For Islamic texts I have used the Islamic Texts Society. Citations of Christian church fathers (unless otherwise noted) are from J.-P. Migne's *Patrologia Graeca* and *Patrologia Latina* (*PG* and *PL*). Shakespeare is quoted from the Oxford Shakespeare. All other references appear in footnotes. Transliterations from a myriad of world scripts comply as closely as possible to conventions used in my constant companion: *The World's Writing Systems*, edited by Peter T. Daniels and William Bright (Oxford: Oxford University Press, 1996). Non-English words in common use, where diacritics might be distracting, are left as they are. Proper names, similarly, are given in the source language except where common use prevails. Some words, sometimes for clarification, sometimes maybe as talismans, appear in the original scripts.

List of Figures

List of Plates

List of Plates

Plate 1 'The Library of Babel', Bruegel the Elder, *Tower of Babel*, oil on wood panel, 1563. Vienna, Kunsthistorisches Museum

Plate 2 'Islamic carpet page'; Opening page of illumination facing Q 2, by Muhammad ibn Mubādir, Cairo, *c.*1306–10; Dublin, Chester Beatty Library, MS Is 1457.1, fo. 1r

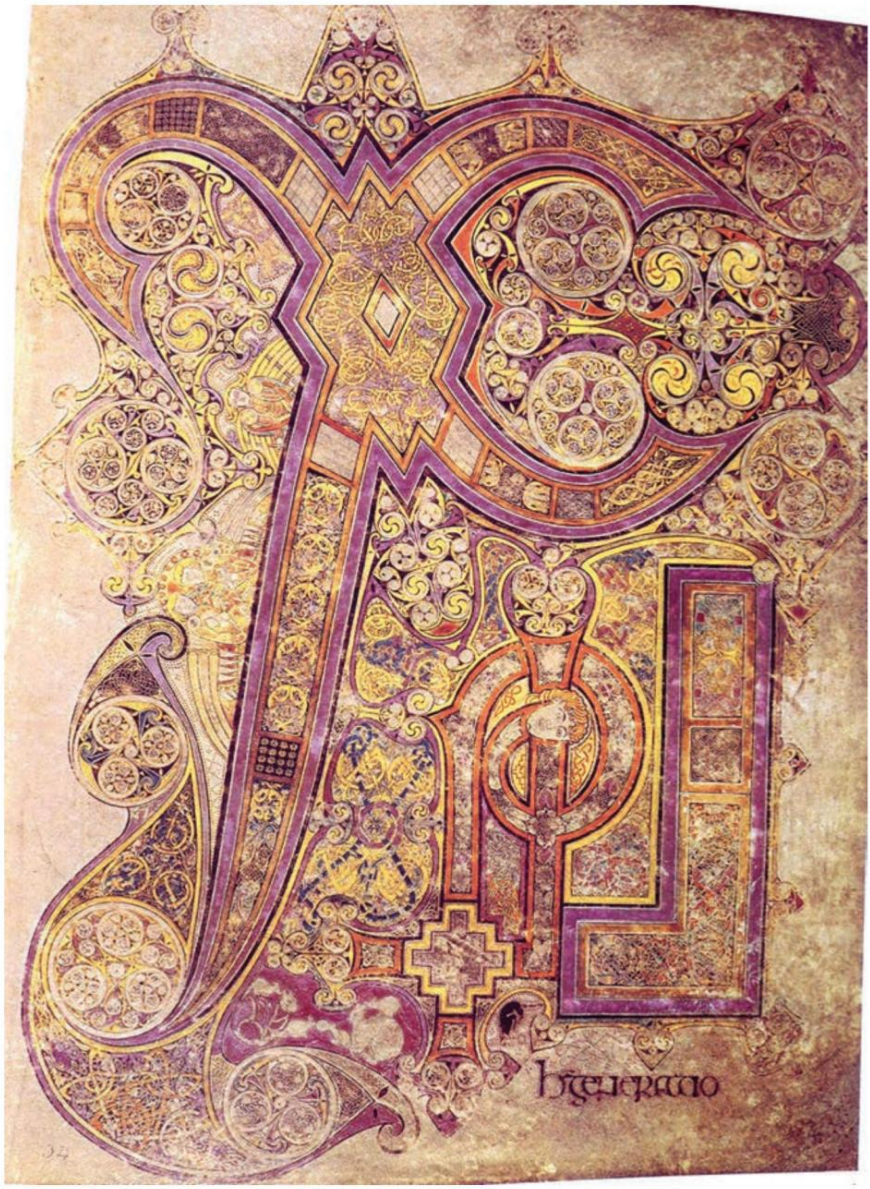

Plate 3 'Christian carpet page'; Trinity College Library, MS A. I. [58], fo. 34^{r}

Plate 4 'Writer as martyr'; Jacques-Louis David, *Marat at his Last Breath*, 1793. Brussels, Musées Royaux

I

DEATH OF THE BOOK

tota enim philosophorum vita, ut ait Socrates, commentatio mortis est
Cicero, *Tusculan Disputations* (45 BCE)

1
Is There a Future for the Book?

Wonder is never far from terror. At first the internet presaged utopia, a brave new world of freedom. Of a sudden, chains on human knowledge evaporated into thin air. 'We cannot eliminate inequality or abuse of power, but through technological inclusion we can help transfer power into the hands of individual people and trust that they will take it from there', says *The New Digital Age* (2013), with clunky optimism, co-authored by Google's humanitarian Chairman.[1] As digital books coincided with a new millennium, iconoclasm met prognosis in latent triumphalism. The first-ever issue of *Wired* in 1993 boasted: 'Books once hoarded in subterranean stacks will be scanned into computers and made available to anyone, anywhere, almost instantly.'[2] In July 2010, Amazon declared Kindle digital books outsold print (hardcover and paperback combined). Paper and moving type, it appeared, would turn into memories, as if antiquarian pastimes, like codicology or calligraphy. Books in postmodernity are outdated. Most people gain most information from digital sources, from smartphones or social media even more than laptops. Young people especially, literate, sophisticated, and intelligent, may never have bought a newspaper, or rarely read a physical book all the way through. Information is gained, or constituted, by other means. Meanwhile in October 2004, ironically at the Frankfurt Book Fair (which dates back to 1454, just after Johannes Gutenberg built his press), *Wired*'s prophecy came to life in Google Books. The ambitions of this project are totalitarian: nothing less than a database of all the books in the world.

Today, the project appears less utopia than dystopia, as it shatters through copyright and property law, threatens public libraries with destruction, and reproduces error upon error in merciless transcription. Now we tell ourselves we live in an age of the death of the book. An early prophet of doom was Margaret Atwood, speaking in 2007 to the theme 'Digitize or Die'. She advocated damage limitation toward new technology.[3] An elegy for her beloved personal library met deterministic fatalism about the future. In the decades since Atwood, that minimal hope offered by the word 'or' has diminished: we are all digitized, and we are still dying. Even as Atwood promoted the need to digitize, digitization was sucking our souls. In that year, Shoshona Zuboff conducted research into Google now present in *The Age of Surveillance Capitalism* (2019).[4] If the book is a machine, Google owns the rights, and also the machine that reads it. We are deluded to call ourselves its readers. Artificial intelligence drives each end of the process.

Already by 2007, algorithms supposedly designed to search knowledge mirrored back onto our selves. Facebook reads us, not the other way around. It is difficult not to feel apocalyptic: fear of obsolescence fights hand in hand with fear of oblivion. Which will come first? Such sentiments are not new to the twenty-first century: they feature in early twentieth-century modernism. Filippo Marinetti prophesied that books were fated to disappear, along with cathedrals and museums; in a Futurist manifesto of 1913, he called for 'a typographic revolution directed against the idiotic and nauseating concepts of the outdated and conventional book'.[5] Marinetti's rebellion against the standard typeset page also beset Gertrude Stein, James Joyce, and Ezra Pound. In an opposite plane, tradition regrouped. F. Scott Fitzgerald in 1936 bemoaned the consequences of cinema for literary authors: 'the power of the written word subordinated to another power, a more glittering, grosser power'.[6] It is possible to feel, four generations later, that the predictions look antiquated, like 'the death of the novel' that Walter Benjamin proclaimed in his 1930 essay *Krisis des Romans*; or 'the death of the author', in Roland Barthes's enduring sally of 1967.[7] In comparison to climate change or surveillance capitalism, the survival of books in printed form appears perhaps a trivial matter.

Report of the death of the book is exaggerated. We should have known: the Torah foretold the false prophet as 'the dreamer of dreams'.[8] Abū Naṣr al-Fārābī, in the ninth-century *Treatise of the Intellect*, said prophecy is not about fact but imagination.[9] The front cover of *The Future of the Book in the Digital Age*, published in 2006, depicts a machine on top of a pile of hardbacks, in victory.[10] The machine is an iPod, a device nobody now uses. I first heard bloomsdoom prophesied as a sixteen-year-old schoolboy, by the City Librarian of Birmingham: strange how common *bibliophobia* is among librarians. Yet the technology she predicted would destroy the age of paper—the microfiche—is a thing of the past. Most people today have never seen the monstrous contraption of the microfiche reader. Such is the irony of technological change and desuetude. In the 1990s, in an early case of memes going viral, a spoof email went the rounds proposing a new device for storing and retrieving information, called BOOK 1.0.[11] The device, it was said, was environmentally friendly, requiring no power source other than a human hand. The email also advertised a new device PENCIL 2.0, a 'manual input device', now in development, with which a user could make notes into BOOK 1.0. The joke may yet be reversed, as digital technologies fight against newer technologies in the ever-expanding Matrix. Paper may be old-fashioned but its capacity to last is well proven. Indeed, twentieth-century paper is the least well-lasting; older books survive better than new ones; manuscripts on vellum better still. How email will be archived in the libraries of the future, including the one about BOOK 1.0, no one yet knows.

This book is not about the e-book. The Kindle is a passing phase, a parasitic substitute for existing formats. If a new technology is central to my argument it is the smartphone. It might be said that it is a not a 'book' at all, yet in addition to

other functions it takes the place of a personal library of physical books. The Kindle *War and Peace* is not different in kind from an Oxford World's Classics paperback; but literature is not the only model for a book. Twenty-five years ago, any house in London, however indifferent to Tolstoy, would have contained a number of paperbacks: an *A to Z*, to navigate the local streets; a Yellow Pages to find a plumber or a new restaurant; a few cookbooks and travel guides. Somewhere would be a pile of newspapers and magazines. If you ran out of information you took a bus to a public library. Now all such things cohabit a smartphone inside the library of the World Wide Web. Everything about a smartphone is new-fangled, yet it performs functions forever old: a storage device for information. Like books, smartphones promise access to ideas: objects of desire, or a passage to free agency.

Prevailing argument in the last decades assumes the digital book is completely new, conceptualizing the relation of digital to physical as one of replacement. Yet this is not what has happened. So far, most people choose to use the two alongside each other. The same happens in music, where streaming coincides with a revival of vinyl, and new interaction between live and recorded performance. All the arts react to the energies of digital media. Yet alongside this is a curious fear, or paranoia. Digital media combine strange forms of intimacy and exchangeability, with almost unimaginable distance or loss. Where is your text? It is on my phone, but then again, it is not. I received it from you, but then, you are not there. I was reminded of this when I had the necessity of clearing my parents' home, a while ago. Loss combined with consolation, as I found my parents' and grandparents' letters and notes. The question struck: what will survive of me? For much of my life the telephone was the place where I spoke to my parents. Many significant moments of life are recorded on SMS or Skype, but I don't know where that is kept; some of my most important emails I can no longer access, even if the US government can. Anxiety of estrangement from the archive of daily life is pervasive.

As the digital age came into being it aroused euphoria and hostility, mixed with panic and experimentation. Many people reacted as if human beings had never felt this way before. Being a historian of the early printed book, I felt a sense of familiarity. On 12 March 1455, Eneo Silvio Piccolomini, secretary to the Holy Roman Emperor (and soon Pope Pius II) wrote that the previous October he had seen five folded sheets from a Bible, 'executed in extremely clean and correct lettering'.[12] Almost as Gutenberg printed his second book, people said print had changed the world. Cardinal Nicholas of Cusa, Papal Legate in Germany from 1446, was an early enthusiast. Martin Luther in his *Table Talk* called it God's last and greatest gift, with a sting in the tail heralding the end of the world.[13] Print, like digital books, offered non-finite freedom, the potential omnipresence of writing. This was not true: early printed books had small print runs. When Luther's 95 Theses appeared, only a few thousand people saw a copy of the original broadsheet. Yet the authorities feared it was impossible to get rid of it. Indeed,

Protestants regretted that the infernal machine had replaced the *viva vox* of preaching.[14] I sensed a synergy between overpowering feelings of five hundred years ago, and those of my generation. I wanted to understand why the book *per se* creates phenomena of fear, or violence.

Captain Henry Bell, agent in Germany for the Stuart kings James I and Charles I, translated Luther's *Table Talk* into English and had it printed in 1652.[15] The frontispiece shows Luther with a small book in his massive hands, a battering ram of a Bible at his feet. In the preface Bell tells a very strange story. Pope Gregory XIII, hearing of the 'last divine discourses' of the heretic, asked Rudolph II to make an Edict throughout the Holy Roman Empire, burning all printed copies of it in existence, and sentencing to death anyone keeping it at home. Years later in 1626, a German acquaintance of Bell, Casparus van Sparr, doing some building works in his grandfather's old house, dug some deep foundations. Lo and behold, a last lost copy of Luther's book happily turned up, in an obscure hole, wrapped in linen cloth, covered with beeswax. Europe now was gripped by a ferocious war of religion, the Thirty Years War, so the book went to Bell in England for safekeeping. Having perfect German, Bell begins to translate; he is slow at the work, but a ghost appears in a dream to hurry him up; he goes to prison for debt, which gives him opportunity for writing. Finally, he gives the text to Archbishop William Laud, who calls it a work of 'eternal memory', and Parliament grants it a licence. Even now, Lady Luck intervenes: the English Civil War erupts, and Laud is imprisoned and beheaded for treason in 1645. No wonder Bell calls his book, after this fabulous farrago of tall talk, a 'miraculous preservation'. If only a tenth of it is true, it is an allegory of the life of books.

I have called my book *Bibliophobia* in reference to the long history, as old as books, of their destruction, literal and metaphorical. It captures a dark side of the book, too easily idealized. Gutenberg's print revolution gets equated with enlightenment and progress. Bibliophiles hopefully outnumber bibliophobes. My subject is not only hostility, but a not unrelated history of bibliomania or what I will call bibliofetishism. We need not be students of Freud to recognise desire *and* anxiety in the same object. In Freud's case of Little Hans in 1909, a five-year-old boy has a phobia for horses and will not leave the house.[16] 'Bibliophobia' is not in any clinical list of phobias or psychoanalytic study of the Oedipus Complex. However, Freud's vocabulary of repression or aversion helps to analyse the medium of letters. Of special interest are ways in which material books invest embodiment and personality—or by obverse, fears of destruction or invasion of identity. The final act of *Hamlet* begins with a prince and some gravediggers; it ends with a litany over his corpse. In the graveyard Hamlet muses on a skull: 'That skull had a tongue in it, and could sing once'. No written record remains, but if it did, writing matter is dead skin: 'Is not parchment made of sheepskins?'[17] *Vitam mortuo reddo* ('I give life to the dead') is the motto in a famous early woodcut of the printing press in action; in French is added below 'I delight the dead'.[18] Laurence Sterne,

rewriting *Hamlet* in *Tristram Shandy*, has Tristram cry 'Alas, Poor YORICK!', then leaves two pages printed solid black in mourning.[19] In the life of Yukio Mishima in Tokyo in November 1970, this assumed ritual form. Shortly after finishing *The Decay of the Angel*, the fourth novel in *Sea of Fertility*, he recited death poems before performing seppuku.[20]

Marcel Proust's *À la recherche du temps perdu* begins with the narrator as a child trying to get to sleep while reading a book. 'Je voulais poser le volume': he wants to put away the book, but it has become merged with his consciousness.[21] 'I had not ceased while sleeping to form reflections on what I had just read.'[22] In the course of completing the novel between 1909 and 1922, writing merges in Proust's world with the experience of dying. In *Ulysses*, Joyce begins the chapter 'Calypso' with Leopold Bloom eating and ends with him shitting. In Jeri Johnson's words, Bloom is 'a bodied text, a corpus'.[23] When he enters the jakes, Bloom picks up a book of stories to read; Joyce's brother Stanislaus thought it a joking self-reference to a scrap of fictional juvenilia.[24] Having finished his business, Bloom recycles the pages on his own body: 'He tore away half the prize story sharply and wiped himself with it'.[25] The book incorporates his identity. This is not a modern idea: Aristotle compares literary form with a well-shaped body in the *Poetics*.[26] Horace begins his *Ars Poetica* with a metaphor of an ill-formed book mixing up a human head and foot.[27]

The internet, connoting the social projection of personality on a global scale, with corresponding anxiety of identity theft, is again germane. Desire to eliminate the book feeds off the power it contains. 'Knowledge is power' is a phrase mis-attributed to Michel Foucault: it made him laugh, he said, 'since studying their relation is precisely my problem'.[28] The first systematic bibliocaust took place in the name of Qin Shi Huang, First Emperor of China (Ying Zheng). An edict of 213 BCE, composed by Li Si, himself an author and noted calligrapher, ordered the destruction of historical records, philosophy, and literature, including key Confucian texts.[29] Li Si thought all texts dealing even tangentially with politics should be possessed only by the state. Free-thinking is the enemy of progress. The event came to be known as 'the burning of books and burying of scholars' (焚書坑儒). The story, as told in the *Records of the Grand Historian* a hundred years later, may not be accurate in detail. It is disputed whether the burying alive of 460 Confucian scholars is a mistranslation; medicine and agriculture and prophecy may have escaped the ban. However, many books certainly were destroyed, while (in a nice touch, reminiscent of modern copyright libraries) two copies of each text were simultaneously deposited in the Imperial Library, the one place able to keep them.[30] Li Si's place in the history of censorship is secure. It is my argument that the nexus recorded in the *Records of the Grand Historian* of fire and burial, and of book and body, is also no accident.

To make this case I shall range across a whole history of written artefacts, and a broad global range of books. I therefore begin with an apology, that as a scholar

largely of literature and of the printed book, I will describe many things in which I am no expert. However, at the heart of *Bibliophobia* is not so much a scientific history as a pathology of the symptoms of knowledge and oblivion, or past and future, invested in ideas of writing, books, and libraries. Literature runs like a river through it. It works as a palimpsest of similar things, rather than by linear chronology or comprehensive study.

Benjamin and Barthes both saw mortality inscribed in symbolic systems. The French title chosen by Barthes, 'La mort de l'auteur', puns on *Le morte d'Arthur* by Sir Thomas Malory, one of the first books printed by William Caxton. The death of Arthur, like that of Achilles, or Jing of Jin (or for that matter the death of Jesus), is not only a famous narrative but a figure for a principle of narrative. In the modernist novel (in Hermann Melville's *Moby-Dick*, Virginia Woolf's *The Waves*, or Samuel Beckett's *Malone Dies*) a physical book is a trope for how reading processes imitate a life's course. Mrs Ramsay 'turned the page; there were only a few lines more, so that she would finish the story, though it was past bed-time'.[31] While Proust is admired for transcending time, his book accepts mortality.[32] 'Eternal duration is no more promised to books than it is to men', Proust writes in *Le Temps retrouvé*.[33] The book embodies us: in consuming it we die.

In 1935, in exile in Paris, against a background of Nazi tyranny in Germany and imminent collapse in liberal values, Benjamin wrote a first draft of *Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit*. It marked, Eric Hobsbawm says, a transformation in modern experience of the arts.[34] A manifesto for modernism, it critiqued fascist culture by asserting art's revolutionary status 'in an age of mechanical reproduction'. A Latin motto used by Futurists, *Fiat ars, pereat mundus* ('Let art be made, though the world perishes') forms an epigraph: it exposes with equanimity 'the *Führer* cult' of his own nation and the spurious fetishes of Marinetti. While acknowledging the effect of mass media, Benjamin argues for emancipation through challenge rather than decline and fall. Revised in French in 1936, and in German in 1939, his work proposed photography and film as a release from 'genuineness' (*Echtheit*) in art.[35] In the process, art found social function: no longer imprisoned by 'ritual', it entered the domain of the political.

'In principle', Benjamin says, 'the work of art has always been reproducible. What man has made, man has always been able to make again.'[36] However, the concept of the artwork has been characterized up to now by its existence in 'the here and now' (*das Hier und Jetzt des Kunstwerks*): 'its unique existence in the place where it is at this moment' (p. 5). Presence defines art, the inviolability of which is threatened by reproduction. Art has been reproduced throughout history: the ancient Greeks cast or embossed bronzes, terracottas and coins; engraving and lithography (from the seventeenth to the nineteenth century) speeded such processes up. Yet something new is afoot. Photographs and moving images

radicalize meaning, by making the eye work without mediation, no longer subject to the hand. Something different results:

> We can encapsulate what stands out here by using the term 'aura'. We can say: what shrinks in an age where the work of art can be reproduced by technological means is its aura. (p. 7)

Here, Benjamin digresses into a history of Western art before modernity. The patina of a bronze, or provenance of a fifteenth-century manuscript, establishes authenticity. This embeds artworks in tradition, though understanding changes over time. A classical statue of Venus, an object of worship to its original Athenian audience, in the Middle Ages could be seen as a dangerous idol. However, in both cases, what is at stake is 'singularity (*Einzigkeit*) or, to use another word, its aura (*Aura*)'.[37] While the oldest art was magical or religious, 'aura' did not disappear with secularization in the Renaissance. Ritual function transferred to a different form of *Einzigkeit*, such as a theory of beauty or sublimity. Indeed, Benjamin sees art taking on religion's mantle at the Enlightenment. Here he cites G. W. F. Hegel in his *Lectures on Aesthetics*: 'art stands on one and the same ground as religion'.[38] Only as revolutions in reproductive processes arose did art feel a crisis. The sign of this was the vogue of *l'art pour art* (a term Benjamin cites in French, 'art for art's sake'). This can be called a 'theology of art', or even a negative theology, in which the 'pure' art form is felt to be beyond social context or even subjective origin.

What concerns me here is how Benjamin's extraordinary theory of mechanical reproduction relates to the idea of the book. In one sense it seems irrelevant: one of the clichés of cultural history is that mechanization of the book occurred more than 500 years ago, in the invention of a printing press in the German Rhineland.[39] Indeed, even this is a fabrication of Western vanity: paper was invented in China in the year 105 CE; wood block printing appeared there in the sixth century; book binding in about 1000 CE; and moveable type was invented by Bi Sheng in 1041 CE.[40] Of the book, even more than the work of art, it can be said that it has 'always been reproducible'. Indeed, it is of its nature *technological*. Long before print, books were manufactured, on a quasi-industrial scale, producing identical 'copies' of one thing. Francesco di Ser Nardo in the fourteenth century promised to make a hundred copies of Dante's *Divine Comedy* in a single order, a similar magnitude to seventeenth-century print runs.[41] One copy of Dante is (in ideal terms) no different from any other. That is what makes it a book. Michael Suarez and Henry Woudhuysen in *The Book: A Global History* argue that the term 'book' implies 'great diversity of textual forms'.[42] These embrace rolls as well as bound books, using pixels as well as ink; they include newspapers or wax tablets, sheet music or maps.

A book is never bound by material existence as an object: it can be copied a billion times and remain the same. Such is the true sense of Barthes on 'the death

of the author', however traduced (by friends and enemies) to mean something more sinister or banal. As we read words on a page, 'the voice loses its origin, the author enters his own death, writing begins'.[43] Writing, to be writing, must be legible to any reader, regardless of origin or creation. Whereas speech escapes a bodily mouth to be heard by the ear, writing is an information system belonging to no one, a medium of its own making. It is abstract to producer and receiver; and equally meaningful to both. I can, of course, know who wrote a writing, or infer from it a 'tone of voice' or style, but I can also (in principle) follow it without such context. Indeed, much writing survives anonymously, with no sign of where or when it arose. Provided a relevant linguistic system has been deciphered, there is no bar to interpreting. The first poet whose name is recorded is Enhedduana of Ur in Sumeria, priestess of the goddess Inanna.[44] Yet we could read her poems, or those of Sappho, without knowing anything about her, beyond a grammar of gender or proper name.

Writing is so ubiquitous in human societies, we often forget to ask what it is. The most extended theoretical model is *De la grammatologie* by Jacques Derrida (1967). The opening chapter is 'The End of the Book and the Beginning of Writing'. What does he mean by 'la fin du livre'?[45] Derrida is not inclined to statements of fact, alluding instead to a mood of Armageddon (long before the digital book) in Marshall McLuhan's *The Gutenberg Galaxy* (1962). McLuhan heralded an end to print, a new age of television and computer. It was cause for celebration: print suffocated the oral and aural. Print's hegemony reduces life to linearity, like a galley of type, so 'All experience is segmented and must be processed sequentially'.[46] McLuhan maker of zeitgeist was pessimistic: 'The world has become a computer'; or 'an electronic brain, exactly as in an infantile piece of science fiction'.[47] He felt triumph at the doom of print. Derrida treats talk of 'cette mort du livre' (p. 18) with heavy irony: 'this death of the civilization of the book, about which so much is said, and which manifests itself particularly through a convulsive proliferation of libraries' (p. 8). What Derrida analyses is not the book's extinction but '*exhaustion*'. Underlying this is not desire for a return to pure speech, unencumbered by print or writing, but the opposite. At the centre of Derrida's argument is a reversal of what he sees as a perennial philosophical bias in favour of speech at the expense of writing.

To summarize this bias he adopts two brief epigraphs: one, a eulogy from Friedrich Nietzsche in the *Birth of Tragedy*, to 'Socrates, he who does not write'; and the other a definition of the nature of writing from Jean-Jacques Rousseau's *Essai sur l'origine des langues*: writing is nothing more than 'le supplément à la parole'.[48] Philosophy, Derrida argues, has made language synonymous with speech, since speech can be taken as an uncomplicated carrier of thought, consciousness, identity, experience, subjectivity and so on. Above all, speech signifies *la présence*, the presence of the speaker who is thereby endorsed and authorized as a human subject. This 'metaphysics of presence' he famously dubbed

'logocentrism'. It has served as a tool of oppression for 'at least some twenty centuries': at the very foundation of patriarchalism, colonialism, and capitalism.

The pronouncements of Derrida on such questions are often received as a form of holy writ, a preposterous result since it repeats the structural bias Derrida means to lay bare. Here I am interested not in what Derrida says about 'logocentrism' but rather 'grammatology'. By this he means neither a history nor a philosophy of writing. He takes the word from I. J. Gelb's classic, *A Study of Writing: The Foundations of Grammatology* (1952). Gelb eschewed traditional approaches written from a 'descriptive-historical point of view'. Instead, he revealed fundamental principles in writing as an idea.

Gelb argues for a science of writing, to be called 'grammatology', independent of other linguistic sciences. Writing is a system of signs in its own right. Derrida turns this into a philosophical principle, making writing an emancipatory value in language. Shorn of identification with the authority of the voice, writing stands for freedom. Within this, features of writing traditionally taken as part of its inferiority to speech—exteriority, embodiment, equivocation—are revealed as a commitment to risk, energy, or creativity. Here, writing's 'iterable' function—a precondition for Derrida of all communication—becomes its latent power. Far from voice being the origin of language's potential, it is only as the link with voice is broken that language comes into play.[49] The term Derrida consistently uses for this is *différance*, a neologism to suggest how 'presence' within language is never perfectly represented, but instead is prone to decay and erasure.[50]

What connection can be made between this and Benjamin's manifesto on works of art? Derrida's 'iterability' shares with Benjamin's *Reproduzierbarkeit* an iconoclastic attitude towards the primacy of identity, presence, authority, intention, meaning, in accounts of literary or artistic valuation. In this context, Benjamin's metaphor of *die Aura* invites investigation. The word *Aura* in German, as in English, is an ineffable residue of a Greek root carelessly left in a Latin equivalent. Greek ἄϋρα means 'breath', or 'breeze', passing to Italian (such as Francesco Petrarca's *Rime Sparse*).[51] In philosophical fourteenth-century English, 'aura' was used by John Trevisa for a gentle wind. From here it dropped from the language, never used by Shakespeare, and by Milton only in Latin.[52] Revived in the eighteenth century, it expresses a sensory perception almost impossible to verbalize: the aroma of blood, the respiration of flowers, the touch of the wind. From thence it diverges, on the one hand to suggest the spirit of something non-physical (like ether); on the other, the physical character of something illusory or even imaginary (the emanation of living things; or the mystical electricity or 'mesmer' given off by a dead body). The entry in the *Oxford English Dictionary* frankly admits it is somewhere between word and pure metaphor, 'a subtle emanation or exhalation from any substance' (OED, 2.a.).

Benjamin's *Aura* is metaphorical, since plastic art can hardly hold 'breath'. The word connotes metaphysical quintessence, a quality by which a thing is known.

He shares Derrida's antipathy toward the presence of a sovereign author, suggesting a spectral stain of the holy inside artworks even after secularization. A Renaissance madonna, transferred from an altar to the Galleria degli Ufizzi in Florence or Musées du Louvre in Paris, keeps its halo. It is venerated by a crowd in a big exhibition even though deconsecrated from its liturgical or devotional purpose. 'Originally the contextual integration of art in tradition found its expression in cult', Benjamin says. Yet 'the existence of the work of art with reference to its aura is never entirely separated from its ritual function'. It retains the feel of an 'instrument of magic (*Zauberinstrument*)'.[53] Benjamin borrows from the resonant word Max Weber used to explain religion in modernity: *Entzauberung* ('disenchantment').[54] Art in Benjamin retains its spell. In a footnote, Benjamin described its axis of space/time as a paradox. Distance is the opposite of closeness: 'the *essence* of remoteness in an object is that it cannot be approached. Unapproachability is one of the chief qualities of the cultic image'.[55]

A work of art yields to damage over time, or changes in use or context, or transfers ownership, yet retains an essential 'aura'. For this process, Benjamin chooses a second metaphor: *die Spur* ('the trace'). This attaches itself to an object which once had an 'aura'. Chemical or physical analysis reveal such 'traces', which never attach to a reproduction, which lacks patina or residual pigmentation: its physicality is brute fact, denuded of 'aura'. It is significant to recall that 'la trace' is Derrida's term for the least possible residue of presence left in the written mark. In characteristic fashion, Derrida reduces even this irreducible minimum to less than nothing, not a presence but '…rather a simulacrum of a presence that dislocates, displaces, and refers beyond itself'.[56] The 'trace' (or *Spur*, in German translations of Derrida) is the terminus of writing.

Modernity, Benjamin says, is the era of *der Verfall der Aura* ('the decline of aura').[57] In one view, books never possessed 'aura' as art does. However, even a manuscript is not an 'original' like a work of plastic art. We refer to an authorial copy as a 'holograph', but the handwriting of the author is still a 'copy', not the work itself. The written work is inherently 'iterable'. Benjamin creates a rigid break between modern and pre-modern. Idealization of the past consigns to it a presence that has been lost. Yet medieval art, in its time, suffered decay. A madonna did not embody the Virgin Mary in a literal sense. It was a simulacrum, only a transferred relic of the saint. Devotion was made to a person, not the image. Alexander Nagel shows unexpected affinity between medieval art (serial production, the ready-made) and modern.[58] Conversely, post-Renaissance painting partakes of the relic: a piece by 'the circle of Velázquez' or 'workshop of Rembrandt' increases in value ninety-fold if reattributed to the hand of a master. Perhaps this will be taken as proof of Benjamin's thesis. The equivalent to medieval trade in bones is modern art's capacity to treat everyday objects as totems of a cult: Kazimir Malevich's black square; Marcel Duchamp's *pissoir*; Damien Hirst's dismembered shark. Andy Warhol meanwhile pastiches the reliquary in endless 'genuine' fakes for museums.

Artists' stuff always costs money, but never in proportion to 'market price'.[59] There is no commercial reason for raw materials in a Duchamp to affect its valuation more than a Giotto. Still, art's failure to ratify Benjamin's theory is relevant. Photography and cinema have not replaced other art forms, no more than the digital book erased the printed.[60] In conceptual art, video is not treated as cinema, but translated relic. Art is resaturated with 'aura', and fantasies of violence cling to its making. Whether painted, literary, musical or architectural, art works have in common a physical form attuned to metaphysical content, yet the relationship is at some level opaque to explanation or interpretation. Music, more than the visual arts, has undergone modern transformation through reproducibility. From the gramophone (patented in 1887) to the MP3 (in 1993), technologies once things of wonder are now superseded. Music metamorphosed from a medium defined by performance to one defined by dissemination. However, change was not so absolute: musical notation and printed music were revolutionary inventions in their day. Meanwhile, in an age of digital music, live performance has not lost its aura.

Theodor Adorno called form 'sedimented content', in order to express the impossibility of more finite or less metaphorical assimilation.[61] With the visual arts or music, perhaps the *mystery* of relationship is apparent at some level. Writing makes the exchange invisible. Language, as Derrida averred, only *seems* to promise direct access to what it, too, cannot foreclose. Writing is an enigma: blank letters shimmer forth meaning that is only explained by more blank letters. Speech, out of the mouth of one person directly into the ear of another, enacts presence more fully. But speech, too, at some level, is a confidence trick. What gives vocalized sound guarantee of exact communication?

We get by, of course: we converse, read, make sense as we can. However, Benjamin, Derrida, and Adorno, in different ways, suggest the sheer improbability of human inter-communication or intersubjectivity. At the heart of this is a doubt about subjectivity. Speech and writing imperfectly represent us, we fear, but what model do we have for identity? Sigmund Freud in a beautifully speculative essay of 1925 compared memory function to a recently invented device called *Der Wunderblock* ('the magic notepad'). He makes a two-way connection between writing and the mind. When I mistrust memory, he says, I write something on a piece of paper. The surface on which the note is preserved becomes as it were the material part of my memory, the rest of which I carry with me invisibly. I can reproduce this portion when I like, in the certainty it remains unaltered.[62] Yet this does not correspond to how memory works. 'The sheet is filled with writing, there is no room on it for any more notes.'[63] However, in the mind, capacity for new memories is not used up by existing memories: it receives unlimited supply of new, even as it retains the old, permanently (if not reliably or unalterably).

In the century since this remarkable essay was published technologies have in some way replicated Freud's model, suggesting Freud as a wild prophet of the digital. The iPad, it is said, is the *Wunderblock* made flesh. This misunderstands

Freud's project. The technology for a *Wunderblock* is neither here nor there for Freud, whatever his fascination that capitalism followed the tenets of psychoanalysis. The *Wunderblock* is a metaphor, and must be, because human consciousness (never mind the unconscious) is non-physical. Derrida in an essay on Freud argued that writing is thus the perfect metaphor for psychic existence.[64] This is as much the case today, even with a far more complete neuroscientific explanation of how physical neurones produce mental affects. Memory is an ideal example since, for Freud, memory is an invisible trace of things once visible. Human memory reveals the 'magical' capacity of mental apparatus for unlimited receptivity and preservation of durable traces. John Locke's *Essay Concerning Human Understanding* makes a similar metaphor for mind: a 'white Paper, void of all characters, without any *Ideas*'.[65] The vast store of ideas comes only with experience. Paper books uncover a mystic connection between the mind's void and the brute fact of experience.

Writing is now around 5,000 years old. Ancient scripts can be divided into seven different types, all of which appear to have independent origins: Sumerian in Mesopotamia (modern Iraq); proto-Elamite in Elam (in modern Iran); proto-Indic in the Indus valley (covering modern Afghanistan and Pakistan as well as north-west India); Chinese in China; Egyptian in Egypt; Cretan in Crete and Greece; and Hittite in Anatolia and Syria. To these can arguably be added an eighth, Mesoamerican, although this writing is much later. At its heart, all writing is a technology for the reproduction of language. The digital revolution currently carries everything before it, but we have been there before, in a series of media revolutions of which only the most obvious is the one called printing. Irnerio in Italo Calvino's *If on a winter's night a traveller* (1979) teaches himself how 'not to read'. It is a difficult task: 'they teach us to read as children, and for the rest of our lives we remain the slaves of all the written stuff they fling in front of us'.[66] What would human history look like without the invention of writing? The secret, Irnerio says, is not to refuse to look at the words on the page, but to stare so intently that they disappear.

The book shows little sign of dying. Yet fear of books is as explicable as love. Between a physical book and its ideal lies essential anxiety. Fantasies of destruction and rebirth revert, as we will see, to the beginnings of the book. Oblivion is fundamental to writing, coming into focus, perhaps, at the advent of new media. Our era is not the end of the book, but rather one in which the *life* of the book is more apparent and therefore fragile and dangerous. It seems that media revolutions produce both dreams of knowledge, and paranoia about oblivion. As coronavirus threatens social relations, just as climate emergency threatens the planet in which human beings dwell, information technology is at the centre of both, whether in terms of solutions or else potential apocalypse.

Information technology is a new word—the *Oxford English Dictionary* gives 1952 as its first use—but it is not a new concept. The first media revolution was of

clay tablets, reed, and stylus, in the thirty-second century BCE. *Cuneiform* is the world's first writing system. More than a dozen languages came to be written using this system. Its name comes from Latin *cuneus* ('wedge'), referring to a characteristic shape made by a stylus when applied to clay by a scribe. Cuneiform is not alphabetic and has no 'letters': it used between 600 and 1,000 characters to write whole words, or parts of them; or syllables (or parts of them).[67] The main two languages in cuneiform were Sumerian and Akkadian. Sumerian has no known relations, while Akkadian (existing in two dialects, Assyrian and Babylonian) is related to Arabic and Hebrew. Hittite, written in a simplified cuneiform, is related to Indian and European languages. Something of cuneiform's versatility and success is shown by its use into the first century CE: it lasted longer than the period separating us from Christ. In a word in Arabic we see a glimmer of the oldest past.[68]

A connection between writing and violence occurs in one of the earliest myths of the origins of writing. Enmerkar, king of Uruk, invents cuneiform to send messages to other kings. The Lord of Aratta, in receipt, knowing that he cannot understand it, submits.[69] Writing spells potency before it is read. In another Sumerian myth, Sargon, cupbearer of Ur-Zababa, king of Kish, tells a dream that frightens the king. He sends Sargon to Lugalzagesi, king of Uruk, bearing a clay tablet, concealed inside the first envelope. The message is his own death sentence but is not conveyed.[70] Sargon survives to become king of Akkad and father of Enheduanna. Similar stories survive in Homer's *Iliad* about Bellerophon, or the Bible about Uriah.[71] In this way writing comes to signify power itself.

Old as these myths are, they were written a thousand or more years after the invention of writing. The earliest examples of writing to survive are more mundane: expense accounts for temples, records of sheep and goats, bills for beer or bread. Yet a connection between information and power is inscribed in many copies of cuneiform. This text (Fig. 1) was written on a cylinder in the reign of Cyrus the Great in the sixth century BCE. Its technology is modernist in feel. The kings of Babylon buried cylinders in the foundations of buildings. These are messages to posterity: in finest script, listing royal achievements. As such they fulfil their objective: sometimes this is the only record we have left of the king in question. But the cylindrical shape was also symbolic: it gave the idea of endless writing, knowledge without limits, power reaching into eternity. The cylinders sometimes contained bleak prophecies of the ends of time and of knowledge.

'The internet is not a tool. It is an alien life form', David Bowie declared in an interview with Jeremy Paxman for the BBC's Newsnight in 1999. In 1996 he was already the first mainstream artist to distribute a song (called *Telling Lies*, perhaps without irony) as an online exclusive, selling over 300,000 downloads; in 1998 he launched his own ISP, called BowieNet. While Paxman scoffed at the internet as little more than a portable vehicle for Reuters news agency, his interviewee looked into the future with awe:

Fig. 1. 'The eternal book'; *The Cyrus Cylinder,* clay, 6th c. BCE. British Museum

> I don't think we've even seen the tip of the iceberg. I think that the potential of what the internet is going to do to society, both good and bad, is unimaginable. I think we're actually on the cusp of something exhilarating and terrifying.[72]

Ziggy the Prophet uncannily foresaw that the internet is far more than a medium for information. It is a metaphor for the illimitable ideal of perfect knowledge. As such it is also a symbol of the possibility of knowledge's imminent destruction, of the end of culture. Politicians show a manic-depressive attitude to the World Wide Web: the solution to their problems and yet the key to our fears. The Millennium Bug was meant to erase every bank and health record from the planet. Now we are told cyberterrorism holds the greatest threat to mankind. Meanwhile, in Denis Villeneuve's film *Arrival* (2016), contact with aliens depends on interpreting a written language completely different in form and system from anything previously encountered among humans. Linguists and codicologists are called in to save the world. Do the strange visitors bring a 'weapon', or a 'tool'? It is an old joke: the Greek word *pharmakon* meant either 'medicine' or 'poison'. Philosophers from Plato to Erasmus to Derrida have made the *pharmakon* the emblem of writing.[73] The answer, the future of human existence, lies in deciphering an alien script, one which will either save us or kill us—or possibly both.

In 2017, an object from outer space passed through the solar system: it was named *'oumuamua*, Hawaiian for 'first messenger'.[74] Within the world of the interstellar probe, it is legitimate to ask if we know any more what a book is, or what a library is for. For many people, a concept of the book is encapsulated by a codex, bound by stacking the pages and fixing one edge, using a cover thicker

than the sheets. Early in the second century CE, the Roman poet Martial (*Epigrams*, 1) advertises a work as this new kind of object, with a host of advantages over traditional scrolls. It can be held in one hand, he says; you can carry it with you; it can be your companion on long journeys, if you like. This is because it is made of 'parchment (*membrana*) compressed in small pages'.[75] 'My book (*liber*) is thumbed everywhere', he says.[76] While it took a while to catch on, by the fourth century CE, codices outnumber papyrus rolls. Despite the ubiquity of the roll book in Greek and Jewish traditions, almost all early Christian books survive in papyrus codices.[77] Neither economy nor practicality sufficiently explains the preference. Change coincided with gradual replacement of papyrus by parchment, and adapting binding techniques from other crafts, like weaving and leatherwork.[78] Yet the advantage of the codex shows itself in use: in the development of a particular kind of literature, intended as handbooks for life—one example is a 'gospel' – disseminated in public readings.[79]

In sixth-century CE mosaics in the Basilica of San Vitale in Ravenna, John the Evangelist holds his gospel in his lap, a codex complete with stitching holes and straps; on a table beside him he has a quill pen, a knife to sharpen it, and a pot for his ink (Fig. 2). Gospel writing: the invention of the codex embodies the spread of Christianity. Religions and intellectual revolutions alike negotiate their origins around terms in written media. Hindu *śruti* are defined precisely as words without text, or books 'without beginning and without end'.[80] The Zoroastrian Avesta became canonical in the fifth century BCE via texts such as the liturgy of Yasna.[81] The Jewish Torah consists in a scroll. The earliest copies of the Buddhist Pali Canon are written on palm or bamboo, stacked together with thin sticks, then wrapped in cloth and placed in a box.[82] Islam, like Christianity, and the religion of Mani, founded itself via the power of codices.[83] The Sikh holy book is not a mere book but the last of the gurus, still living.[84] Johann Sleidan wrote in 1542 that by Gutenberg's invention God chose Protestantism to triumph in the Reformation.[85] Three technologies aligned in the stars: ink and paper from China; presses adapted from oil or wine.[86] In turn, Enlightenment liberty declared itself by advances in press manufacture or copyright. The tech gods invoke the digital transformation of democracy and culture.

Whether by cause or myth, in every historic reformation of writing, violence is not far off. Rather than the dying book, perhaps we mean a 'codex in crisis', to borrow Anthony Grafton's phrase.[87] Codices are so universal they do not need naming. (Many people do not know a paperback *is* a codex, as the word is reserved for manuscripts.) Conversely, an e-book, while not a codex, is a book. The word 'book', says Cassiodorus (6th c. CE), comes from Latin *liber* meaning 'free'. It is 'freed' from prior existence as plant (whether tree bark or papyrus leaf). The etymology is false but its ideal of writing as synonymous with freedom is powerful. Writers are always referring to it. François Rabelais inscribes Gargantua's genealogy not on paper, parchment, or wax, but the bark of an elm tree.[88]

Fig. 2. 'Birth of the codex'; Ravenna, Basilica of San Vitale, mosaic, 6th c. CE

Google and Facebook invoke freedom so as to limit the power of democracies to regulate them. The book is not defined by any technology, old or new, it is a continuum of media from cylinder to tablet to scroll to codex to Kindle and so on. In some ways, the digital revolution returned to older techniques of reading, such as 'scrolling down'. Early computerized books imitated papyrus rolls, in which readers visualize the beginning of a text, with only a vague sense where it ends. Indeed, early computerized books were even more like rolls, since file space

was finite, and a text was divided into different 'floppy disks'. In the last decade the roll has given way to the 'tablet', where the flick of a finger makes a piece of text visible as it replaces the last. This, too, is an old medium, since tablets existed among ancient Egyptians, Mesopotamians, and Greeks. An erasable one on wax became a universal medium of the Roman Empire for ephemeral text, leading to the phrase *tabula rasa* or a 'clean slate'. Some modern technologies imitate this by providing a portable stylus. Latin used many words interchangeably for a 'book': *volumen* (a 'roll'); *liber* (strictly, part of a larger work divided into rolls, such as Virgil's *Aeneid* or Livy's *History*); *charta* (a papyrus sheet); *libellus* (a portable book, such as the poems of Catullus); *tabula* (a large public document); *tabella* (a temporary notebook).[89]

The conceptual key to the book is not a particular physical form, but the idea of a text with limits, which can be divided into organized contents. In that sense a book is not a physical thing but an *idea* of a thing. Nonetheless, physical constraints, whatever form they take, quantify limits, and what is contained in them. The limits express a boundary between writer, text, and reader; the boundaries are concrete *and* abstract. As I read, my book becomes me, I become my book. Its text—including pages still to be read—is (for the period in which I am reading) constitutive of my mental world. It takes its place alongside other books I have read, interleaves with them, and as I read, collates them together. I recall the words from previous readings, including re-readings (perhaps) of this book, as well as other books. Together, I carry them in my head as a kind of library. If I am lucky, they collect dust in my physical library. But even if not, my head is a history of reading, identical neither with consciousness, memory, nor neural networks.

In the fourteenth century CE, Richard of Bury, Bishop of Durham, wrote a beautiful book in Latin called *Philobiblon*. It is a collection of essays on the acquisition, preservation, and organization of books, mixed with something like an autobiography of reading. Richard collected books and hoped they might survive him in an unbuilt library in Oxford. Instead he died at Bishop Auckland, the palace of the Durham see, his books dispersed at his death. However, at least one, a copy of John of Salisbury, is in the British Library.[90] Richard's work was copied in manuscript and then printed, first in Cologne in 1473, and in Paris in 1500; in England by Thomas James, Bodley's Librarian in Oxford, in 1599.[91] The titles of its chapters would not look out of place in a book about books today:

1. *That the Treasure of Wisdom is chiefly contained in Books.*
2. *The Degree of Affection that is properly due to a Book.*
3. *What we are to think of the Price in the Buying of Books.*

Richard discusses how to control book circulation among students, and the open-stack system in library access. He pays poetic tribute to the book's

imaginative place in a full life. 'In books I meet the dead as if they were alive; in books I see what is yet to come.'[92]

In connecting memory with futurity, Richard repeated a common classical trope. Aeneas on landing in Italy inscribes a tribute to the Trojan dead on a shield.[93] Roman tombs are places of writing; indeed, they are among the commonest surviving sources of inscription.[94] They tell us about the dead, and warn us we will die, too. The *Manes*, the spirits of the dead, were believed to reside in and around the tomb; inscriptions, from the time of Augustus on, address them directly: *diis manibus* (D.M.).[95] Mesopotamian, Chinese, Greek, and Mayan tomb inscriptions all contain hopes and warnings at the threshold between life and death. Inside Egyptian tombs, hieroglyphics negotiate the passage of the dead into the afterlife; on the outer door-jambs and lintels, they instruct passers-by to perform proper rituals to ensure afterlife continues.[96] In Munich, we face in rapture an exquisite Attic stele showing a young woman meeting her dead mother, writing faintly visible above them.[97] The epitaph is a favourite literary mode in Virgil and elsewhere because by recording the dead, a book also promises a kind of afterlife. Ovid ends his long poem *Tristia* with the words: 'Forbid the door of my death to be closed!'[98] The book, in providing an epigraph to his life, still offers him the chance of survival.[99]

Books and writing lie between living and dying. It is no surprise bibliophobia is closer to bibliophilia than we care to know. We live in difficult times, candidly aware of threats to freedom. Even in Richard's book, eulogy contains menace. To friends who cannot trust a messenger, he says, we send books. Books keep secrets, and betray them, too. Richard records prisoners using books as 'ambassadors' to plea for their lives with the prince.[100] Boethius, imprisoned by King Theodoric the Great of the Ostrogoths in Pavia in 523 CE, wrote the *Consolation of Philosophy*, cramming it not only with Plato and Aristotle but also Homer, Euripides, and Catullus.[101] Perhaps they came from a mental library since his codices may have been forbidden him.[102] Elizabeth Tudor and Sir Walter Ralegh carved graffiti on prison walls at the Tower of London.[103] Sir Thomas More and Lady Jane Grey are recorded as Tower readers.[104] More's prayer book miraculously survives, an inexpensive Book of Hours printed in Paris, bound with a Latin psalter. In the margin he marked words for attention with his pen, or added comments.[105] Above and below a woodcut miniature of the nativity at the opening of the divine hour 'Prime', More adds his own prayer: 'Gyve me thy grace good lord | to set the world at nought'.[106]

In March 1944, Dietrich Bonhoeffer wrote from Tegel military prison in Brandenburg to his friend Eberhard Bethge. He was reading Wolfram von Eschenbach's twelfth-century epic *Parzifal*, side by side with Goethe's *Faust*.[107] Accused of conspiracy in Claus von Stauffenberg's July plot, he was sent to Buchenwald. Hanged at dawn on 9 April 1945 in Flossenbürg concentration camp, liberation lay just a fortnight away. Prisoners request books for company at

the last; yet books can also incriminate. Salman Rushdie in 1990 registered shock in meeting anyone 'for whom books simply do not matter'.[108] He makes a brutal connection of writing and death, reporting the burning of *The Satanic Verses* in 1989. 'These are the contemporary Thought Police', he said.[109] His inevitable reference-point for twentieth-century book-burning is state-sponsored public bonfires of May 1933 in Nazi Germany, in the first months of the Reich.

No more extreme encounter between writing and violence is imaginable than the fate of books described in Primo Levi's *Se questo è un uomo*. He recounts to his readers the impossible suffering of Auschwitz, in which his book itself comes to represent a post-human endurance. 'Non siamo morti', he says of the entrance into the camp, where the sign on the gate (*Arbeit macht frei*) appears to be the last vestige of human writing. 'We are not dead.'[110] For to write is to go on living, and the continuation of his sentence is a primal sign that life has not yet ended. From time to time the narrator intervenes in the present tense in order to express astonishment at past survival: 'Today, at this very moment, as I sit writing at a table, I myself am not convinced that these things really happened'.[111] Levi's astonishment at this particular moment is engendered by a bizarre encounter with a physical book, there in Auschwitz. The book in question is Ludwig Gattermann's *Die Praxis der organischen Chemikers* (1894). From it Doktor Ingenieur Pannwitz (Director of the rubber plant at Buna) conducts an improvisatory chemical examination, the result of which is that Levi is transferred to the factory. In a moment of utterly profound absurdity, he is confronted with the identical maroon-colour hardback volume from which he studied in Turin before the war. 'I stare at the fair skin of his hand writing down my fate on the white page in incomprehensible symbols.'[112] The memory of the copy of 'Gattermann's cookbook' draws forth a parallel account of another book in the next chapter, 'The Canto of Ulysses'. In order to teach some Italian to Jean, the Pikolo of the Chemical Kommando (who is bilingual in French and German), Levi gives an elementary lesson in Dante's *Divine Comedy*. There are no possessions in camp, but Levi holds the book inside his head. Dante, with Baudelaire, Dostoyevky's *House of the Dead*, Manzoni's *I promessi sposi*, and Rabelais's *Gargantua et Pantagruel*, are his unerasable companions in the *malebolge* of Eastern Silesia. Here, he says, *Questo è l'inferno*.[113]

Judaism, Christianity, and Islam have in common that they are 'religions of the book'. The Queen of Sheba, Augustine of Hippo, Martin Luther, and Malcolm X all converted via books. Whether in Asia, Africa, Europe or America, reading processes are spiritual.[114] The assumption goes that holy texts derive sanctity from the divinity that breathes into them. Yet it could be that religions derive power *from* the idea of the book. A book takes an elixir of the human and imparts it to whoever comes in contact. Cassiodorus, fifteen hundred years ago, understood the closeness of 'divine and human readings': each partakes of the institution of writing, the one feeding off the other.[115] Art takes over 'something mysterious'

after the Reformation, Hegel says; in this way it prefigures its own dissolution, or *Auflösung*, which some have called the death of art.[116]

Is this what we mean by the death of the book? *Bibliophobia* confronts Benjamin's *Aura* in its ambiguous immanence. An idea of the book is inscribed in human agency. Barack Obama browsed the stacks of his mother's library as a nine-year-old boy, looking for racial origin or political inheritance.[117] Personhood is located in odd rituals accruing to religious books the world over: kissing, blessing, breathing, burying. The Talmud declared Torah scrolls to be impure; rabbis discouraged Jews from storing offerings next to scrolls, in case mice nibbled sacred words.[118] In less explicit holiness, *Liji* was a 'book of rites' in the warring states period (*c.*4th c. BCE), summarizing practice under the Zhou Dynasty. Confucius wrote that 'rites' (*li*) are the most important thing in life: 'I found my balance through the rites'.[119] His books embody more than etiquette: rites and literature restore tradition tangibly in the simplicity of the past.[120] Examples printed on woodblock were still made in nineteenth-century Japan bound in the *fukuro toji* style (stacked sheets of folded double-width thin paper inscribed on one side only).[121]

Books partake of everyday as well as holy rituals: cherished by an owner, left to a friend as the most personal legacy. Natalie Zemon Davis has called early modern French books primary agents in a philanthropic economy of the gift.[122] Wills are the best guides to early private libraries: Elisabeth Leedham-Green's research into Tudor and Stuart probate records at Cambridge University runs to two vast tomes, one a list of the dead, and the other of their books.[123] Yet the personal emotional charge that Richard of Bury found in books—as transitional objects of conscience—also exposes them to danger or state power. Chapter 7 of *Philobiblon* is 'The complaint of books against war'. War, more than plague, is enemy to books. Winged Mercury is strangled, Apollo the python's prey. Aristotle, God's own scholar, is put in chains by Mars.[124] Richard mourns for Zeno of Elea who, failing to bring down a tyrant, bit off his own tongue and spat it in his face.[125] Richard prays to God for peace, and to Jupiter on Olympus as well, just in case.[126]

K. is approached by the Examining Magistrate in Franz Kafka's *Der Proceß* (1925) bearing 'an ancient school exercise-book', with the terms of his indictment. Left in the interrogation chamber, K. asks for some books to help his solitude: an erotic art-book, a novel.[127] In prison, Nelson Mandela's treasured books included his copy of Shakespeare. Mandela signed his name by a passage in *Julius Caesar* to show he was ready to die.[128]

> Seeing that death, a necessary end,
> Will come when it will come.[129]

Yet books have also been used in legal trials for at least 3,000 years in order to prove guilt, via association, or ownership, or even readership. Book burnings in

public long predate the Nazis, at least as early as the third century BCE in Qin Dynasty China.

Bibliophobia is not a history. Its motivation is anthropological or philosophical, in meditating what is invested in physical books. It is not about material objects, so much as the interaction between object and subject. In what way is a book held equivalent to a person, or a proxy for a person, in human actions? *Bibliophobia* ranges between the first appearances of writing 5,000 years ago, and the book's recent revenant in digital form. It is a personal study, motivated by chance encounters. When he died, my father, a chemist, left me the first gift he received from my mother, a mathematician, with her inscription inside, from seventy years before.[130] It reminded me of the first Puffin Book she gave me, the curious smell it had, its beautiful Garamond font; or of other books on his shelves, a blue leather *Works of Shakespeare*; or J. R. Partington's *Text-Book of Inorganic Chemistry*, printed the same year, it happens, as Levi's copy of Gattermann.

The book is the ark of imagination. So, writing begins: 'A voice comes to one in the dark. Imagine'.[131] Beckett's voice of imagination is promise and threat. Writing is not mimetic *of* something: it is the how and where of mimesis. A book constitutes the coming into being of writing, so that when revolutions take place in its form (such as new media), a terrible beauty is reborn. Change exposes the sightlines in the theatre of mimesis, making seen the unseen, and making its spectators vulnerable inside the illusion. This is an 'uncanny' beauty, in Freud's sense. Freud contemplates the wooden doll Olympia in E. T. A. Hoffmann.[132] It is familiar, but terrifying. At the heart of the terror is a feeling the doll might be a living thing, even if we know it isn't. Like the ghost in *Hamlet*, desire and fear at the uncanny 'excites a peculiarly violent and obscure emotion'.[133] Is the book an example of a living doll? Erasmus thought so: scripture, he said at the end of *Praise of Folly*, is like the figure of Silenus in Plato's *Symposium*, an idol which contains the mystery within.[134] What follows, is a love-letter for books, even as I recount the violence done to them. The book is not dead or dying, not yet. It has finitude written into it; as scroll, codex, or tablet, writing begins and ends, again. In that sense a book carries our mortality within it: beginning a book for the first time, or finishing it, is a metaphor for life. Closing the book brings mourning. Writing is the trace of morbidity, and reading is a little death. We live inside books, and expire with them, even as they outlive us.

2
The Library as Computer

From high in the roof, the book robot (Fig. 3) swings down in an arc in a vertical plane, 10 m or more in a single movement, between stacks ranking 20 m high. It pauses, chooses a stack, then hovers, humming all the time, hunting for the book that it is programmed to find. The scale of the building is difficult for a human to take in. The void is 24 m high by 24 m wide by 64 m long. In any case, the room is not designed for humans. Oxygen levels are kept at 14–15 per cent, which is similar to trying to breathe at the top of a Himalayan mountain. Visitors watch from a special cage, advised to leave after fifteen minutes for their own safety. This library is not a human environment, for it is designed for habitation by books and robots alone.[1]

This is a library for the twenty-first century. Roly Keating opened the British Library's National Newspaper Building in 2015 at Boston Spa, near Wetherby in Yorkshire. It is a library for an apocalypse designed by Andrei Tarkovsky: bunkers of books or readers, at the edges of the moors, a portent of climate extinction. The building houses 33 km of newspapers, 60 million issues in 280,000 bound volumes, or 450 million individual pages.[2] They are stored in a dark, air-tight, low-oxygen environment, eliminating risk of fire. The temperature is 14 °C; humidity 55 per cent. The concept of a Newspaper Building has now widened to apply to storage of millions of books from British Library collections. Since space at the main site at St Pancras in London is at a premium, it is proposed to house books 262 km away and transport them between the Reading Rooms in both locations. Eventually, it is planned that seven million items will be held at the 'Additional Storage Building' in Boston Spa. All of this makes logical sense: but it is a different matter taking in the logistical exercise of handling books on such a scale of magnitude.

The robotic crane adds a volume to a pile that it is assorting in a plastic bucket. In time, it delivers this to an airlock at the end of the room. There are 140,000 bar-coded containers. It is only at this moment that human intervention takes over, as staff retrieve items from the airlock to send to Reading Rooms, a maximum of 48 hours from ordering to arrival at a London desk. Yet if a human librarian wanted to enter the vault to retrieve a book, using either gigantic ladders or high-wire trapeze artists, it would not be feasible. The books are no longer on fixed shelves ear-marked for their location. Only the crane knows where the books are. It never puts a book back as it found it, absorbing the used item back into the system in the order in which it comes, then remembering where it was.

Fig. 3. 'The mechanical curator', British Library Newspaper Building, Boston Spa, 2015

The books are engaged in an eternal game of musical buckets, finding new neighbours, and slotting in accordingly. Only humans need shelf marks any longer: the shelves have gone. The retrieval system is fully automated, with the arm moving between 26,000 locations, capable of holding 89,000 stacks at a time. In principle, given a large enough vault, the robot could control all of the books ever made, all by itself.

Of course, it is not the only futuristic model of the book. Data now are digital: as indeed is what I write, until it comes out in print. Currently, the world produces 16.3 zettabytes of data per year. This dwarfs the contents of any imaginable

library past or present, even the Library of Congress in Washington, DC, the largest library in existence. Its website declares its collections 'universal', unlimited by subject, format, or national boundary, materials from all parts of the world and in more than 450 languages.[3] Two-thirds of items acquired each year are in languages other than English. It began with the purchase by the US Congress of the library of Thomas Jefferson in 1815 (numbering 6487 books, and costing $23,950), after the British burned the US Capitol, and all its books, in 1814. It now contains more than 38 million books and other printed materials; along with 3.6 million recordings; 14 million photographs; 5.5 million maps; 8.1 million pieces of sheet music; and 70 million manuscripts.[4] There are an estimated 128,731,750 items in the non-classified collections, perhaps more than 168 million in total. Jefferson's library, after a second fire destroyed it on Christmas Eve 1851, is today being reconstructed in a small spiral exhibition bookcase, with blank spaces for catalogue items still unfound.[5]

However, this is nothing in comparison to the World Wide Web. For the internet, now, is a book, too: the book of the world. Unfolding my laptop, the bibliolith opens before me, all-containing. Even a large printed folio takes up just 10 megabytes of data in electronic format. In a rough calculation, we could in theory transfer the whole Library of Congress into around 1.5 million gigabytes. A zettabyte equals a trillion gigabytes. Forbes.com predicts by 2025 that worldwide creation of data will increase ten-fold to 163 zettabytes per year.[6] No wonder, in the internet's hyperbolic world, that litotes is the rhetorical device to make sense of it. A zettabyte truly deserves its modest epithet 'Big Data'.[7]

However, digital euphemism conceals titanic demands. All over the world, megaliths of storage, in monumental bland structures, are built to house data. In place of a metaphor of interconnected network, we now speak of a 'cloud'. The cloud is physical: made of phone lines, fibre optics, satellites in space, cables under the ocean.[8] As well as a staggering consumption of energy in creating or sharing data, there is additional cost in cooling the digital hyperstores, using more water and power. United States data centres consumed 70 billion kilowatt-hours of electricity in 2014, 2 per cent of the country's total energy consumption.[9] Indeed, the figure is so low only because of gains in efficiency. Internet giants, Amazon, Facebook, Google, and Microsoft, invest in hyperscale data centres, reducing need for ever more individual servers. These cloud giants create a new science to maximize data centre efficiency, leading to a slow-down in the industry's overall energy use. However, the metaphor of the cloud, while containing data numbers within human comprehension, is nonetheless finite. Hyperscale savings can only occur once. Meanwhile the demands for data grow and grow. As the cloud gets bigger, it requires more space, and the space creates more and more heat. It is burning the world.

'You books must know your places', says Ahab, who knew better.[10] I first encountered Google on a first visit to the new British Library at St Pancras in

1998. It was an omen. I was trying to find a recalcitrant item in the brand-new Rare Books and Music Reading Room, soon a home from home. I went to Reference Enquiries (in those days a person); she asked me if I had tried Google. It is difficult to convey how strange it sounded on first hearing. Was it a brand name or neologism? It sounded playful: 'to go' plus 'to ogle'. Nobody yet (in my hearing) used it as a verb; that soon followed. Computers had been a daily part of life for a decade, and long ago I had first seen an email as a student in Cambridge, from a physicist friend working at CERN in 1983. But I had only recently finally acquired a laptop powerful enough to use an infant WWW; my first one in 1991 had a clockspeed too slow (although faster than Neil Armstrong's onboard computer on Apollo XI). Moreover, video (even images) was not common, so the net still appeared as a digital library, not as an Anthropocene witch. Dialling in used a phoneline, its echoing feedback dialtone portending nemesis, and it was a relief if a connection wheezed out of the router. The search engines I used were clumsily ineffective: so, when my rescuer at Reference Enquiries typed three words, clicked, *and found exactly the information I was looking for*, I felt myself in the presence of a priest or a magician. Google became my watchword, as for so many others, useful and at the same time clean, transparent, and homely. The fuss-free font was designed to appear non-commercial. Perhaps because I was in a national library, itself free of access, I did not ask why it was free.

In twenty years since my first Google date, people questioned what changed in human memory through the internet's intervention. It is obvious, passing from Gutenberg to Zuckerberg, or Facebook to Fake News, we feel 'a revolution in communication'.[11] Loss meets gain. 'I've almost given up making an effort to remember anything', says *Wired*'s Clive Thompson, 'because I can instantly retrieve the information online'.[12] Thompson refers to the net as an 'out-board brain'. Nicholas Carr in *The Shallows* finds long-term consequences in thinking processes. Relations between short- and long-term memory are not constant in neuroscience. Recalling in different ways, brains change. 'Out-source memory, and culture withers.'[13] Yet as the net began, Umberto Eco felt more sanguine. Anxiety about media is very old, he said in a lecture at Columbia University in 1996: a 'fear that a new technological achievement could abolish or destroy something that we consider precious, fruitful, something that represents for us a value in itself, and a deeply spiritual one'.[14] Eco's paradox is that computers cause more people to read rather than fewer. Aids to memory are as old as writing: indeed, they are one reason why writing was invented. Nonetheless, a question of what humanity would be like, without writing, is *a fortiori* present in the question of what humanity is in the net.

Rewriting Homer's *Odyssey* in *Heroides*, Ovid imagines Penelope writing Ulysses a letter. Don't write back, just come (*ipse veni*), she says.[15] She wants his presence. If only Paris had drowned in the Aegean Sea, before finding Helen of Troy. If so, Penelope would not now lie 'cold in my deserted bed, nor would now

be left alone complaining of slowly passing days'. It is anachronistic poetry: real-life Penelope knew no writing.[16] Yet an insistence that writing is no substitute for human presence is belied by Ovid's passage becoming a teaching device in schools for fifteen hundred years, in which pupils were taught how to write letters to make people remember them, far away. Bede the monk, shortly before his death in 735 CE, sends a letter from the River Tyne in Northumbria to his bishop Ecgbert in York because he cannot be with him in person (*corporaliter*). If only they could meet face to face, to share their passion for reading (*legendi*).[17] A later disciple of Ovid is Heloïse in the twelfth century, taught the classics (among some other things) by the academic Peter Abelard, finest thinker of the age. She learns well: and quotes to him the example of the *Heroides* to reproach her (now cloistered) lover Abelard for not writing more letters to her in her misery.[18] Heloïse, Peter Dronke comments, writes 'her own *Heroides*'.[19] In the process, Michael Clanchy argues, Heloïse teaches Abelard to write, not as philosopher, but as poet.[20] Writing preserves the *vox*, the voice, of the author, medieval grammar taught. Petrarch, avid Ovidian, owned a copy of the letters of the French lovers to capture it.[21] He wrote notes in Heloïse's margins, some of them to record his own sexual desires.[22]

After the advent of printing, another Parisian grammar guru called Peter, Pierre de la Ramée (or Ramus), invented new printed means in 1555 to teach presence in writing, recycling Ovid's Penelope topos once more.[23] The *vox* becomes the word. Technology is always trying to stay one step ahead. The codex used quires to create divisions in texts like chapters.[24] Print reinforced encoding of contents via systematic prefatory tables of them, found in any book today, although it took a while to get straight.[25] Ramus's printer André Wéchel in Paris created more tables to dichotomize his logic in columns, making it more accessible.[26] Compiling, archiving, or indexing in print, as Ann M. Blair describes, multiplied new methods to enable readers to search for terms.[27] Novel experiments, reproduced in engravings, engendered accurate diagrams, creating new credibility for science.[28] At some point, hard to know when, the numbered footnote was invented, to help the reader find the original source of knowledge: here goes.[29] The page became 'mathematized' by fresh textual representations of numbers and formulae.[30] Eventually, science invented an idea of 'fact', to help persuade readers of the reliability of truth.[31]

The internet has recreated Penelope's web all over. The problem of *this* web morphed from what humans do with books to what computers do with humans. What Google did next is told in mind-boggling detail by Zuboff. Like the new British Library, 1998 is the date Google incorporated as a company. The founding ideals of Larry Page and Sergey Brin shuffled democratic possibilities by creating an endoscopic search process. Algorithmic searching fed the information society over again. Google's mission, no less, is to 'organize the world's information and make it universally accessible and useful'.[32] The sentence effaces totalitarian assumptions. The web's benefits are so well known as not to need repeating:

knowledge implies unimpeded freedom. The illusion of isolation and privacy in individual internet users creates a sense of limitless choice. The power of Google Search is indeed a wonder to behold. Like a logical missile, if you define a target, you can pinpoint one result out of zettabytes available. You find friends, enemies, and of course your self, at a click, a digital selfie of global self-importance (how many Google searches begin with a proper name). In twenty years from 1998, Google Drive expanded to one billion active users on two billion devices; 500 million users of Google Photos upload 1.2 billion photos per day.[33] In 2017, 1.2 trillion searches were made worldwide.

This conforms to the first of what Zuboff calls 'the two texts' of the digital. The first is a familiar one of authors and readers. Every smartphone owner consumes it. This makes a universe of connection, on a scale never before experienced on earth. Here we are, with our 'friends', composers of our own world: in posts, blogs, photos, videos, tunes, stories, likes, or tweets. For most, it is a world limited only by access to enough storage. Storage is the oldest metaphor of knowledge. All learning depends on memory, Quintilian says, which is like a *thesaurus* (storehouse): the only thing more important than storage is how to find things inside the *thesaurus*, each idea in the right place.[34] Storage and searching are still keywords for Google. Digital storage is the postmodern determiner of desire. Everyone wants more, for more images, music, information. We buy storage in monthly contracts from suppliers, or (if the pinch is more acute), a new smartphone to process it faster, each change of hardware transcending older limits of personal storage. All we wish for now is *everything*, and all at the press of a button.

However, there is 'a second text'. In 1998, it was invisible even to Google. For a while, Google relaxed in performing simultaneous searches in the most efficient way possible, to satisfy its users. However, each search holds an implicit mirror image, of when or by whom a search is made. This, too, is digital data. At the moment Google discovered the existence of this text, it understood how easy, on exponential scale, it is to make money. The discovery came in a banal lucky dip known as 'Carol Brady's maiden name'. Carol was the TV Mom of *The Brady Bunch*, a US sitcom from 1969 to 1974. She began the fiction under a previous married name, Martin, her birth name never used in five series. However, Google's data team discovered in April 2002 that, on five occasions a day, at 48 minutes past the hour, 'Carol Brady's maiden name' attracted the highest nationwide search queries. The solution to the puzzle was *Who Wants To Be A Millionaire?* From Maine to Hawaii, as the time zones rolled past, this was the question on everyone's lips.

There is an innocence about the moment that deserves reflection. For a while, the UK *Who Wants To Be A Millionaire?* (which also began in 1998) became my mantra to demonstrate to students why, as I babbled about James I of England, they should listen. The first million-pound question was: 'Which king was known as the wisest fool in Christendom?' The poor contestant got it wrong, as the

students learned. If a million pounds seemed a lot of money, an equation of knowledge times remuneration was changing. As Hal Varian, Google's economist noted, 'Every action a user performs is considered a signal to be analyzed and fed back into the system.'[35] The Brady moment lay in the predictive power invested in search analysis. The key was not information gained by users, but that provided by them, in their searches. This is known as 'behavioural data'. The more data that were gathered, the more behaviour could be predicted. The economics turned out to be stupendous. In 2001 Google's net revenue was $86 million; in 2002, after Brady, this rose to $347 million; $1.5 billion in 2003; $3.5 billion in 2004: a 3,500 per cent increase in four years.[36] In 2014, its market value exceeded Exxon Mobil, making it the second richest company in the world (behind Apple).

The key point is that the 'two texts' are a one-way mirror. All textual relationships imply a mirror: that is what makes them wonderful. In literary theory this is known as mimesis, an idea invented in Aristotle's *Poetics*.[37] The reader sees herself reflected on the other side of the first text, and becomes two selves. While for some, mimesis belongs only to poetry and drama, a theory for how characters create illusory mimics of real people, mimesis can be seen as the principle behind language altogether. Words, we say, represent things. Indeed, in evolutionary anthropology, it has been proposed that mimesis is the fundamental factor leading to the development of human language. In *Origins of the Modern Mind* (1991), Merlin Donald proposed the 'mimetic skill' as the watershed adaptation through which humans gained symbolic control to rehearse the body's movements in a systematic way, to remember those rehearsals, and reproduce them on command.[38] Out of these symbolic traditions came first language and later technology, in the transference of communication to writing and ultimately to computers.

Indeed, it is tempting to find a mimetic relationship in the switch from speech to writing. Aristotle defines this in *De interpretatione*, foundation stone of Western logical tradition: 'Spoken sounds are the symbols of mental experience, and written marks are the symbols of spoken sound.'[39] Such metaphors occur the world over, as in a Chinese fourteenth-century scholar: 'writing is pictured speech, and speech is vocalized breath'.[40] Voltaire's *Dictionnaire philosophique portatif* lends a semblance of algebra: 'L'écriture est la peinture de la voix; plus elle est ressemblante, meilleure elle est'.[41] Writing is better, the more truthfully it represents speech. However, it is important to recognize mimesis as more complex than that. Cognitive neuroscience now regards Donald's theory as over-linear in its picture of evolution in three stages, as well as over-reliant on human exclusivism. So-called 'mirror neurons' exist in monkeys as in humans.[42] Neurons activate whenever an animal performs an intentional action; but they also operate when an animal watches another animal performing the same action. Interestingly, chimpanzees are often better at social cognition than humans.

Similarly, that writing expresses speech does not mean *only* speech. The linguist Edward Sapir is invoked in defence of an idea that written language is

point-by-point equivalent to speech, but states: 'this naturalness of speech is but an illusory feeling'.[43] Writing-as-speech ignores variable histories and epistemologies. The alphabet is its *sine qua non*. But does it really match speech? Alphabetic signs can function as single sounds, or as syllables, or as whole words; while syllabic signs (such as in ancient Hittite or Akkadian) can also function as single sounds. Visual morphemes show writing communicates irrespective of speech: 'How much wood would a woodchuck chuck if a woodchuck could chuck wood?' Writing uses signs with no conventionally assigned speech-forms (punctuation is a clear case). Even read aloud (or especially) writing is full of forms that are 'ambiguous and easily misunderstood'.[44] The assumption of correspondence in phonetization of alphabetic systems is as beguilingly misleading as one between writing and pictorialization in ideogrammatic languages such as Egyptian hieroglyphs, Chinese *hanzi*, or emojis. Such symbols are not pictograms, but logographs: words out of words.

Roy Harris demonstrates that Aristotle's original definition of writing presupposes a semiotic interpretation of representation rather than a substitutional one.[45] Nevertheless, mimesis haunts an epistemology of language from cave painting to artificial intelligence. Indeed, mimesis provides the energy for new software systems. We want to represent ourselves better, whatever the medium. Technocrats encourage us to believe each advance in technology advances freedom. Mission statements draw on too simple a mimetic metaphor. For Gelb's exhaustive analysis of the philosophical framework of writing, acknowledging necessary *relationship* of speech to writing, insists it is not the same in different languages. Gelb distinguished three forms of writing: logographic, syllabary, and alphabetic. Chinese characters adopt a different mimetic system from alphabetic European languages: they are logograms, representing a word phrase. Other written systems (like cuneiform) are syllabaries, each glyph a syllable. Egyptian hieroglyphs mixed logographic glyphs (morphemes) with phonetic glyphs.

Ignoring a temptation to create a genealogy of surviving written systems, Gelb desired to find what Assyrian cuneiform, Egyptian hieroglyphics, early Chinese characters, and Phoenician and Greek alphabets, held in common. Gelb constructed an overarching link between idiosyncratic forms: cuneiform of Elamite, Hittite and Sumerian types; Cretan Linear B as opposed to the logo-syllabic forms of Linear A or Cypro-Minoan; or syllabic derivations from Chinese such as Old Korean or Japanese. Writing for Gelb must be an order of 'visible signs', in which a relation of signs within system is arbitrary.[46] It is distinct from pictograms, used (with varying degrees of systematization) among early Indo-Europeans, Semites, and Amerindians. For pictures render their meaning as understandable in their own right, not as part of a system. Gelb is clear that pictograms are not *writing* as such: 'there was a time when man did not know how to write'.[47]

Behind all writing is Penelope's dream of human presence through imaginary speech. Yet only alphabets can be thought of as formally phonetic, and even so,

according to the latest consensus, scripts are divided into three types: *consonantary* (in which characters denote consonants alone); *alphabetic* (consonants and vowels); or *abugida* (consonants accompanied by specific vowels).[48] The consonantary systems, including Hebrew and Arabic, are sometimes described as 'abjads' (derived from the first four letters in ancient Arabic); the 'abugida' (from the first letters in the Ethiopic script) is typical of Indic scripts beginning with Brahmi.[49] In an abugida (such as Devanagari, in which Sanskrit is written) each consonant–vowel sequence is a unit, called an *akṣara* in Sanskrit. The Phoenician glyph ʾālep, which carried over into the Aramaic and Old Hebrew scripts, represented the glottal stop; all the other characters in Aramaic and Hebrew at first represented consonants.[50] The Arabic abjad used ʾalif to represent a long *a*, and developed a new sign (*hamza*) to signify the glottal stop. Other characters corresponded to consonants and long vowels, leaving a reader to supply all the short vowels.[51]

The earliest Phoenician script (which unlike cuneiform or hieroglyphs consisted of only a few dozen symbols) was still a syllabary. From its symbols, via complex routes, derived both Aramaic abjad and the radically different Greek phonemic alphabet. Hebrew came to be written in Aramaic square script.[52] A cursive Aramaic script formed Arabic.[53] Perhaps even Brahmi script derived from Aramaic. Early abjads, so seminally important in history, had yet no means to express vowels. Later, maybe under Greek influence, Hebrew and Arabic writing manifested liminal marks for vowels ('diacritics'). They were lovingly called 'mothers of reading' (*matres lectionis*), slashes and dots bespeaking speech.[54] Even so, lacking full representation of vowels, they were not yet phonetic.

The Greek alphabet (dating from 800–750 BCE, made from Phoenician letters) was thus revolutionary. In Gelb's terms, instead of splitting whole words into constituent parts (such as syllables), alphabets build words up from tiniest particles of sound.[55] Much later a variant Aramaic abjad emerged in central Asia, used by Buddhists, Christians, and Manicheans.[56] It is ancestor of the Old Uyghur abjad, and thence the Uyghur alphabet, written vertically, first used in the reign of Genghis Khan. In 1269, Kublai Khan, grandson of Genghis and now emperor of China and Khan of Khans, ordered a new alphabet to be designed from scratch, common to all the Empire's literate languages, Mongolian, Chinese, Turkic, and Persian.[57] It was named Phagspa, after its inventor, a Buddhist monk and Imperial Preceptor, who based it on the Tibetan abugida (derived from Brahmi). For a hundred years, until the fall of the Yuan dynasty, it attempted to regulate the world.

From Greek, the Glagolitic alphabet derived in the ninth century CE with extra letters (perhaps from Hebrew, Coptic, or Armenian scripts) representing sounds in Serbo-Croat, Czech, or Slovak. Further east, the Cyrillic alphabet used Greek uncial and Glagolitic letters to match Russian or other Slavic languages, as well as Turkic, Mongolic, and Iranic, from the Balkans to the Caucasus and into central and east Asia. Indeed, the Roman alphabet itself developed from Greek (via the

Etruscan). Earliest examples are carved in stone, from perhaps the seventh century BCE. Old Italic scripts included Etruscan in central Italy, Nucerian in the south, and the Raetic alphabet of Bolzano in the north. Runic alphabets may derive from Raetic or else from Latin, runes spreading into the Germanic north, followed by the Futhark of Scandinavia and the Vikings.

With the power of the Roman Republic and Empire, aided by sophisticated use of a monumentally legible culture of inscription (still visible from Iberia to Persia or from Northumberland to Sudan) the Roman alphabet conquered the world. The Emperor Claudius, says Tacitus, as well as invading Britain, invented three new Latin letters. Claudius understood from the example of the ancient Egyptians the power conferred by inscriptions in stone.[58] *Rex*: 'this is the king's cup', declares a heavy bowl found near the Temple of Vesta in the Roman forum in 1899: it may have belonged to one of the last kings of Rome.[59] The Romans were not great innovators in the technologies of writing—they borrowed almost everything from the Greeks—but they knew how to colonize and capitalize it. Law they inscribed not on stone, but on bronze, precisely because it was a rarer and more valuable material.[60] When Horace calls his own poems 'more lasting than bronze' (*aere perennius*) he is making a grand claim: because in casting letters in bronze, the Roman Empire aimed to own the world.[61] Augustus placed a complete record of his accomplishments (*res gestae*) onto two bronze pillars on his Mausoleum in Rome.[62] All over the Roman world, people learned to read, not only in the elementary sense, but in constructing the structure of their lives.[63] In the forum, on temples, in cemeteries, using an elaborate code of abbreviations, Roman power was a visible structure. In perfectly formed stone letters, still the standard for computer fonts today, the Romans turned the alphabet into money and property.

Print caught on fast: Erasmus' *Adagia*, an anthology of classical learning, came with an alphabetic index in Johannes Froben's 1515 edition.[64] Dictionaries and encyclopedias quickly used the same device.[65] The West weaponized the alphabet as cultural sirens of speech. Colonial imperialism ensured dominance. As a result, the alphabet comes to some to seem normative, and many non-alphabetic writing systems are transliterated to fit the norm.[66] In the Western mode, normative is regarded as superior. In 2015, Google devolved business to a parent company called Alphabet, to signal domination in futurity. Page and Brin, with minimalist irony, created a website for it with the url 'abc.xyz'. A rival is the Chinese company Baidu (meaning 'a hundred times'). The Chinese Amazon, Alibaba, deploys a name with ambiguous counter-reference to oriental linguistic secrets. Google assumes the alphabet always wins. Alphabets use letters in tens; cuneiform numbered characters in hundreds; Chinese, thousands. Yet despite proliferation, reading speed measured across alphabets, abjads, abugidas, or logograms, is shown to be uniform. The alphabet benefits from false prejudice about its similarity to speech. For while language systems change, writing systems tend to be stable. Even though the Greek alphabet began as phonemic, it devolved to fit different

dialects (as did Latin). Modern European alphabets derived from Greek or Latin represent speech imperfectly. When English orthography standardized in the eighteenth century with the ubiquity of printed words, it did so on a basis of written features rather than spoken (to the confusion of non-English speakers today). Indeed, a single sentence in modern English manifests features that are prosodic and others that are syllabic; some alphabetic and some even logographic (numbers, for example). Gelb concludes: 'Writing can never be considered an *exact* counterpart of the spoken language'.[67]

Writing does not directly represent speech, or speech personhood.[68] In turn, artificial intelligence only imperfectly and indirectly responds to human desires and needs. Yet by promising to do so, Google and Facebook draw us in. In the meantime, Zuboff's idea of a secondary mimetic process in the 'second text' has changed everything. At its heart is an asymmetry between personal storage and the capacities of Big Data. In 1986 human knowledge corresponded to the contents of a mega-library, on the model of a Library of Congress, adjusted to the gamut of human languages. At that time, 1 per cent of information was digitized. By 2000 this had risen to 25 per cent. By now the rush to digitize existing books and records was well under way. This accompanied a parallel effort to produce new information in ready-made digital form. The result is that by 2013 it was estimated that 98 per cent of the world's knowledge was digital. Does the robot know everything?

The volume of information on the internet now exceeds pre-digital mass by geometric proportions. Indeed, in Zuboff's words, 'its volume exceeds our ability to discern its meaning'.[69] This is a dizzying statement. It is, of course, of the nature of information to exceed understanding. In the seventeenth century it was a commonplace that the age of the polymath is over. Already before Goethe, there was too much science for one person to know. This was long since true. There are 480,000 items in the English Short Title Catalogue, listing English books between 1473 and 1800 (digitized in Early English Books Online, available for a small fortune from Proquest). Even boastful academics can claim only to read fifty books per week; squaring this twice over a reading life of fifty years makes 125,000 books; allowing no time for processing or thinking. Now God needs a computer (or alternatively, she always was a computer). To sift through vast amounts of information, Martin Hilbert observes, only artificial intelligence will do.[70] Google has hired more computer scientists than anyone else in order to design the computers and algorithms to cope. The book robot in that sense is now redundant. It patiently fishes out book after book for hungry readers, who patiently await in St Pancras for the van to arrive from Yorkshire. But all the human readers in what remains of human history have been left as if light years away. Google alone now employs 2.5 million servers in fifteen locations spread over four continents. Governments and universities lie in its wake.

There is a peculiar freedom, wrote Roland Barthes, arriving in a country not knowing its language. Landing in Tokyo in 1966, he perceived intensely the Japanese language around him, making sense of things (or of him) without his understanding. It is possible to apprehend a language making sense, without it making any sense to me. Barthes felt this especially in relation to Japanese, in which 'the empire of signifiers is so immense'.[71] He also felt instinctively that Japanese constructed reality differently from his own language. Its irreducible difference in that way freed him from the mirage of representation.

Mimesis is the magic spell of language. Writing, as much as images of the dead in the civilization of ancient Egypt, creates what Otto Rank calls 'a double of the body'. In Freud's analysis of Rank, 'the double' creates mirrors and shadows of us, and thus provides 'an insurance against the extinction of the self'.[72] The doctrine of the soul is an intellectual extension of this, as indeed in time 'all the suppressed acts of volition that fostered the illusion of free will'. We have here an outline theory of the origin of religion as well as of writing's magical function. In the third century CE, Serenus Sammonicus, physician to Emperor Caracalla, prescribed a cure for malaria.[73] Sufferers should wear, he said, an amulet in the form of a triangle, bearing the nonceword *abracadabra* (Fig. 4).

A version of the spell is found on Abraxas stones, used by gnostics of the heretic sect of Basilides, who taught in Alexandria in the second century CE. Magical papyri and gemstones bore secret writing as amulets and charms. The first mention of Abraxas is in Hyginus, superintendent of Augustus' Palatine library.[74] Irenaeus, Greek-speaking Bishop of Lyon, refuted Basilides, reporting Abraxas as *archon* ('ruler' of the earthly heaven) via a genealogy in which an unbegotten father begets *nous* ('mind'), who begets *logos* ('word'), and so on in sequence 365 times.[75] Hippolytus, hermetic hunter of magi, supplies a number value to the letters of *ΑΒΡΑΣΑΞ* to add up to 365.[76] A cruciform example survives from sixth- or seventh- century Burgundy in a silver talisman.[77]

In the hillside at Fiesole, high above the Arno, amid the cypresses below the piazza at San Domenico, wonder begins. Giovanni Boccaccio summons a party at a villa as respite from the Black Death in 1348, setting them a task of telling each other 100 stories over ten days. There are no limits to the spells of imagination: *egli sapeva tante cose fare, & dire, che domine pure unquanche* ('he knew how to do and say more stuff than God ever could').[78] Midst the Florentine pandemic they create a little earthly paradise, which Boccaccio with blasphemous scandal calls *Verbum caro* ('the word made flesh'). Daniel Defoe reported an 'Abracadabra' (Fig. 4) still in use in the Great Plague year of 1665 in London, saving occupants of a house during lockdown.[79] Folk etymology derives it from Hebrew, 'I create as I speak', linked to a passage in the Talmud, or Christ's own tongue Aramaic, 'I create like the word' (ברכדא אברא).[80] Abracadabra shifts between *abjad* and *alphabet*, from *a* to *aleph*. No document verifies its origin as it descends into the

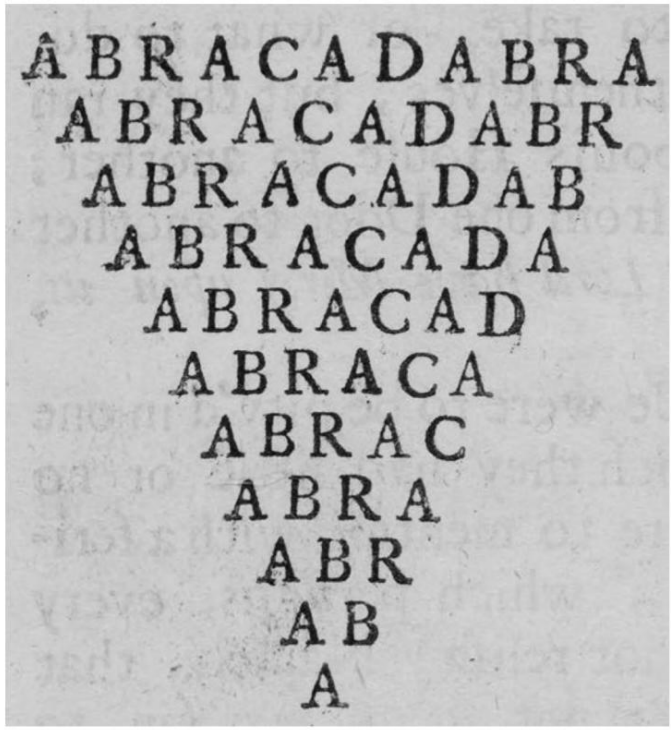

Fig. 4. ABRACADABRA': Defoe, *A Journal of the Plague Year* (London: E. Nutt, J. Roberts, A. Dodd, and J. Graves, 1722), 40. Oxford, Bodleian Library, Vet. A4 e.3659 (1)

vernacular of popular magic. The US Supreme Court in 1948 assured its citizens that charging a jury is no 'matter of abracadabra'.[81] Rushdie voiced in it the magic of railway trains: 'abracadabra abracadabra abracadabra sang the wheels as they bore us back-to-bom'.[82] *Harry Potter* echoes with an 'unforgiveable curse' in Voldemort's death-spell.[83]

Disappear, O sickness, at the sound of this word.

So writes Sharon Olds in 'Abracadabra Ode'.[84] Will Minerva answer our prayers? Google hardly cares. In the post-corona world, ALPHABET INCORPORATED ('Investors in Humans') imagines new ways to get us to stay indoors, turn on the computer, and give our selves and our data away for free, perfecting, in the process, the dreams of ancient despots.

3
The Message of Ashurbanipal from Antiquity

The Royal Library of Ashurbanipal at Nineveh, dating to the seventh century BCE, is sometimes described as the 'first library' of the world.[1] This is an exaggeration: books were collected a thousand years earlier, in the time of Hammurabi, who compiled lists of kings, and codified the law.[2] Mesopotamia had many libraries before Ashurbanipal, and systems of archiving already extant made his possible.[3] However, Ashurbanipal's stands as an archetype of the first library to have the attributes we expect of a modern library. The collection spread out in multiple rooms organized by subject matter. One group of rooms was dedicated to history and government; another to religion and magic; a third to poetry; and others to geography, science, and so on.[4] The Library of Ashurbanipal even had a kind of catalogue for finding books, arranged by what we would call shelves. The Assyrian king thus matches the ambition of the Chinese emperor fictionalized by Jorge Luis Borges, who maps out his dominion over the world by listing all the things within it, beginning with a taxonomy of all the animals. There are embalmed ones, trained ones, fabled ones, stray ones; all prefaced by 'those belonging to the emperor' and (in a singular case of metastatement) 'those included in this classification'.[5] Foucault borrowed from this parody in his preface to *Les mots et les choses* (1966).[6]

Yet the parody has serious meaning. Borges created it for an essay on John Wilkins's proposal in 1688 for a universal philosophical language which would encode a description of the thing within the name of everything. Human beings create epistemes, Foucault says, by which they organize the world to control it, like Borges's emperor. The Enlightenment created 'catalogues, indexes and inventories' out of the libraries and archives which it built, in order to categorize and lay claim to a totality called truth.[7] In 1690, Gottfried Wilhelm Leibniz was appointed the librarian of the Bibliotheca Augusta in Wolfenbüttel, one of the great early modern libraries of Europe, with 25,000 volumes. He created a new book indexing system and an alphabetical author catalogue.[8] He called for a general empirical database for all sciences. To assist this, he envisaged a *characteristica universalis* (a universal formal language), a *calculus ratiocinator* (a universal logical calculation system), and a community of minds without barriers.

How the king's library at Nineveh looked is deduced from other sites excavated in Mesopotamia, revealing an oblong of spaces set into stone, like multiple ovens,

or the funeral boxes in a columbarium. Each niche contained a separate selection of clay tablets. Individual tablets came with accompanying citations, acting as a table of contents. Each group of tablets in Ashurbanipal's library contained a further brief citation to identify it, and each room contained a tablet near the door to classify the general contents of the room. As in a modern library, tablets were organized according to shape and size, as well as contents. Among the finds at Nineveh are inventories detailing the acquisition of clay tablets and of wooden writing boards.[9] For Ashurbanipal's collection was not the result of accretion and heritage: he commanded the library into existence, with the aim of uniting under one roof all the knowledge yet known to mankind. This involved a colossal effort of textual retrieval inside and outside his empire; and another of intensive copying of texts transcribed into his own language in fair copies.[10] The efforts of scribes, combined with the demands of military intelligence, give this ancient archive something of the character of what is now called 'collection development'.[11]

The collection today contains 30,000 pieces of cuneiform, comprising approximately 1,200 distinct texts.[12] Despite the organizational talents of the original librarians, the library had less luck in early excavations. The first discovery, credited to Austen Henry Layard, aspiring diplomat and amateur explorer, was made in 1849 in the south-west palace, the Royal Palace of King Sennacherib.[13] Three years later, Layard's assistant, Hormuzd Rassam, an Iraqi Christian from Mosul, later Iraqi agent for the British Museum, discovered a similar 'library' in the palace of King Ashurbanipal on the opposite side of the mound.[14] A majority of surviving tablets were severely fragmented. Unfortunately, no inventory was made of either find; at the time they got to Europe, the tablets were irreparably mixed up, along with those of other sites. Thus it is impossible today to reconstruct the original contents of either of the two main 'libraries'.

Ashurbanipal (668–*c*.630 BCE) ruled ancient Assyria at its zenith of military and cultural extension.[15] Greeks named him Sardanapalos; the Bible, Asnapper or Osnapper, 'great and noble' (Ezra 4: 10). Diodorus of Sicily describes his reign in *Bibliotheca historica*.[16] Aristotle mentions him in *Nicomachean Ethics* as someone who could not distinguish the good life from bodily pleasure.[17] Lord Byron wrote a tragedy *Sardanapalus* in blank verse in 1821, set in Nineveh, making its title character the last king of the Assyrian monarchy. Byron dedicated the play to Goethe; its influence spread through Romantic Europe, inspiring a painting by Eugène Delacroix, and an unfinished opera by Hector Berlioz. The historical Ashurbanipal protected Assyrian territory by extraordinary military victories, yet his reign spelt the end of Assyrian empire.[18] Even in ancient times, Ashurbanipal's fame was associated with memory preservation, his conquests dwarfed by his collection of texts at Nineveh. Sources in Persian and Armenian literature recount that Alexander the Great saw the great library of Ashurbanipal and was inspired to create his own at Alexandria.[19] Dying before he could begin work, he left its creation to his successor Ptolemy. Libraries, Mary Beard reminds us, are not mere

repositories of information: they are the organization of knowledge, and so control it, and restrict access to it.[20] Not for nothing are library buildings often modelled on fortresses.

Most of the Library of Ashurbanipal is now in the possession of the British Museum and the Iraq Department of Antiquities.[21] Despite Layard's impatience, it can be deduced from the conservation of fragments that the number of tablets existing in the library was once many thousands, and the number of writing boards in the library was 300. The texts are principally in Akkadian, preserved in a Neo-Babylonian cuneiform script. The majority of the tablet corpus (about 6,000) includes legislation; foreign correspondence and engagements; aristocratic diversions; and financial matters. Most precious from a scholarly view is a nearly complete list of ancient Near Eastern rulers. The findings of spies or secret affairs of state were hidden secure in deep recesses of the palace, like a post-modern government data archive. The texts contain divinations, omens, incantations, and hymns to various gods, or concern medicine and astronomy.

Amidst ephemera are works which ever since discovery were hailed as masterpieces of early literature. Rassam found the *Epic of Gilgamesh* (Fig. 5) in 1853. Subsequently, even older fragments have been discovered of the 'Old Babylonian' version (18th c. BCE) known by its incipit, *Shūtur eli sharrī* ('Surpassing all other kings'). Akkadian texts found by Rassam are later, in the so-called 'standard version' (13th–10th c. BCE), with an incipit *Sha naqba īmuru* ('He who saw the deep', or 'He who sees the unknown'):

> He saw what was secret, discovered what was hidden,
> He brought back a tale of before the Deluge.
> He came a far road, was weary, found peace,
> And set all his labours on a tablet of stone.[22]

Approximately two-thirds of this longer, twelve-tablet version have been recovered, with the largest copy still being from Ashurbanipal's library. In addition to this wonderful find, the *Enûma Eliš*, a Babylonian creation myth, was discovered by Layard in 1849. It consists of about 1,000 lines divided into seven clay tablets. Like the *Epic of Gilgamesh*, this copy is seventh-century BCE, although the text may be a thousand years older than that. Other literary finds included the myth of Adapa the first man, who was offered immortality, but refused to partake of the food or drink of the gods, as it could be the food of death. Some said that Adapa had the body of a fish, and the bones of carp were found in the oldest Mesopotamian shrines. Even more elusive is the fragmentary tale, *The Poor Man of Nippur*. It consists of three strange economic stories, in which debts (as in Rabelais's *Tiers Livre* or the 2008 bank crash) turn out to be incommensurate with gifts. In the first, Gimil-Ninurta, 'an unhappy man', presents a goat to the mayor. It is interpreted as a bribe, and the poor man receives in

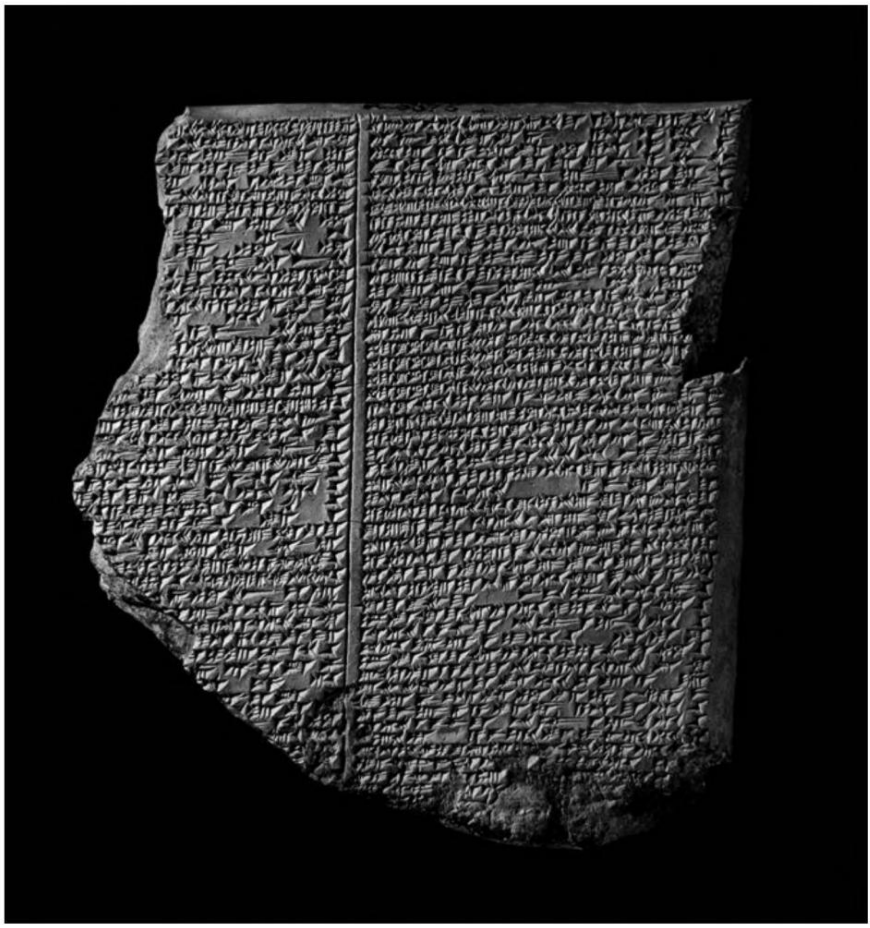

Fig. 5. 'The Flood Tablet'; *Epic of Gilgamesh*, clay tablet, 7th c. BCE. British Museum K.3375

exchange a cup of third-class beer. Debt is as old as writing, for which reason J. M. Keynes studied cuneiform texts.

The Sumerian goddess of writing was Nisaba (sometimes Naga or Nidaba), who also took care of accounts, grain, and harvest, venerated in rituals at Ere.[23] In the Gudea cylinders (c.2125 BCE), she holds a gold stylus and a clay tablet.[24] As writing moved into law and literature, her responsibilities expanded. She is 'wild cow' and 'wild sheep'.[25] In Babylon she declined, and by the Third Dynasty in Ur was replaced by a nerdy male god, Nabu. In Egypt, Seshat, dressed in leopard-skin, was 'Mistress of the House of Books'. She took care of accounting, mathematics, and architecture, under the sway of Thoth, her father or possibly husband, who ruled writing in general, as well as the dead.[26] The oldest civilizations all have complex mythologies of text and writing. In India, Sarasvatī is mentioned in the

Rigveda, one of the four canonical texts of Hinduism. On the fifth day of spring, even today, she helps young children to learn the abugida of the Devanagari script. In the Sarada Tilaka, a collection of Sanskrit mantras of the eighth century CE, she helps us to attain all possible eloquence, and also 'bring radiance on the implements of writing, and books produced in her favour'.[27] Yet long before her, the eagle Garuḍa 'is made not of feathers but metres. You cannot hurt a metre'.[28] Poetry is visualized speech. Garuḍa is the hymn. Buried among the branches of a tree, he reads the Vedas.

The Library of Ashurbanipal is the most capacious metaphor possible both for the survival and the destruction of knowledge. Uniquely among Assyrian kings, Ashurbanipal described himself as a scholar-king, conscious that knowledge was key to his power:

> I have read cunningly written texts in obscure Sumerian and Akkadian that are difficult to interpret. I have carefully examined inscriptions on stone from before the Deluge that are sealed, stopped up, and confused.[29]

Knowledge is a secret for kings alone, all-seeing. The library contains all, from reports of agents (all over the empire) interrogating dissent, to diviners who read the future.[30] Ashurbanipal oversees a comprehensive archive of the world of knowledge:

> I have already written to the temple overseer (?) and to the chief magistrate (that) you are to place (the tablets) in the storage house (and that) no one shall withhold any tablet from you.[31]

Estimates of original contents number 10,000 clay texts; the library may also have contained leather scrolls, wax boards, even papyri. Ashurbanipal's library offers an image of universality in knowledge, and equally one of destruction. Indeed, they are bound together in the story of the Library: without destruction, survival was impossible. A coalition of Babylonians, Scythians, and Medes destroyed Nineveh in 612 BCE.[32] During the burning of the palace, a great fire ravaged the Library. It caused the clay cuneiform tablets to become partially baked, and so, by an irony of chemistry as much as history, preserved the tablets. Other texts inscribed on wax were lost due to their organic nature. The story of Mesopotamia is irretrievably linked to a story of loss.[33]

In 2002, the British Museum launched the Ashurbanipal Library Project, a long-term co-operation with the University of Mosul in Iraq. It aims to bring Ashurbanipal's astonishing library to life. Using modern technology, an ancient place is opened to new readers. In its display (Fig. 6), the Museum in Great Russell Street beautifully reimagines clay tablets in MDF cabinets resembling, yet also subtly different from, the original columbary of the stone library. It is the ancient library seen as if in a modern dream.

Fig. 6. 'Antiquity reconstructed'; Library of Ashurbanipal at the British Museum, 2019

The wonder of books is intrinsic to the experience of them. When Augustine is in Carthage, he longs to meet Faustus, follower of the Persian cult guru Mani. Mani's cult beguilingly mixed books and images, hymns and psalms.[34] The *Gospel* of Mani was divided into 22 parts, named after all the letters of the Aramaic abjad. When he arrives, Augustine is delighted by this eloquence and skill in languages. But has Faustus been seduced by literature?[35] He lacks skill in all arts other than

grammar. 'He had read some orations of Cicero, a very few books by Seneca', some poetry, and volumes of the Manichean sect written in a Latin of superior style.[36] Augustine's first love is rhetoric, always, yet Mani's books leave him wanting. 'The books of the Manichees are full of long mythological tales about heaven and the stars and sun and moon': he worries whether wonder is enough.[37] Similarly, when Augustine travels to Rome, his friend Alypius gets into trouble while lost in books, 'walking up and down alone in front of the tribunal with his writing tablets and pen'. Immune to pleasures of money or the flesh, Alypius is tricked and punished for bribery, all while he is *solus cum tabulis ac stilo*. The one way to corrupt him is a passion for books: *hoc solo autem paene iam inlectus erat studio litterario* ('The only thing that nearly succeeded in tempting him was his enthusiasm for literature').[38]

The two global books of modernity are Charles Darwin's *On the Origin of Species* in the nineteenth century and Stephen Hawking's *A Brief History of Time* in the twentieth. Darwin's book cost fifteen shillings on publication in 1859, quickly selling out; an American edition followed in 1860, with a translation into German the same year.[39] By Darwin's death in 1882 it had appeared in six editions in England, fully revised, along with further abridgements and library editions, and been translated into French, Italian, Russian, Swedish, Danish, Polish, Hungarian, Spanish, and Serbian. Hawking's book was published in 1988, for readers with no knowledge of science, and including just one mathematical formula: $E = mc^2$.[40] The book sold more than 25 million copies, plus an app, a film that ignored the book, and an opera that was never completed; it has been translated into forty languages. Like Nicolaus Copernicus on the revolutions of the heavenly spheres, it is sometimes said of each that it is a 'book that nobody read'.[41]

Arthur Koestler was wrong about that, and it is silly to dismiss Darwin or Hawking.[42] However, in one sense it does not matter: their books contain theories of everything, matter or anti-matter, so that we ourselves no longer *need to know*. A metaphysical idea of the book links desire for fulfilment and fear (or desire) of oblivion. Perhaps, as in Freud's *Beyond the Pleasure Principle*, the two drives inextricably meet. If all experience teaches us that every living thing dies, Freud says, 'then we can only say that *the goal of all life is death*'.[43] In its search for knowledge combined with a need to rid itself of knowledge, 'the book' resembles the *Fort-da* game of the child who repeatedly throws the toy out of the cot and then reels it back in on the end of a string. The article on 'le livre' in Denis Diderot and Jean le Rond d'Alembert's *Encyclopaedia* veers between bibliomania and bibliophobia.[44] A book communicates to public and posterity a 'point of knowledge'.[45] Pliny the Younger (prolix himself), said the bigger the book, the better.[46] Yet everyone knew Callimachus the grammarian's view, that 'a big book is equal to a big evil'.[47] A big book is bad news. When is more, less? D'Alembert said every hundred years a list of useful books should be compiled, 'et qu'on brûlât tout le

reste'.[48] In a letter of November 1760, Diderot approved book-burnings by China's first emperor.[49] Immanuel Kant, writing in the margin of his own book, *Observations on the Feeling of the Beautiful and Sublime* (1764), lamented the 'flood of books' in which 'the world is annually drowned'.[50] The mathematician Marquis de Condorcet in 1792 commended 'une destruction commune' of aristocratic books.[51] There were plans for a bonfire of leather-bound books owned by Bourbons and clerics, but nothing came of it. Freud agrees there is no antithesis between life drives and death drives.[52]

'My book, stuffed with phrases, has dropped to the floor. It lies under the table, to be swept up', says Bernard at the end of Woolf's *The Waves* (1931). He has been keeping a notebook to archive his whole life, but it turns out to be an unachievable pipedream.[53] Rachel Whiteread's *Untitled (Paperbacks)* is a wonderful evocation of the spatial imaginary of the library, of what books entail (Fig. 7). First shown at the Venice Biennale in 1997, and now owned by the Museum of Modern Art in New York, the work consists of a negative plaster cast of the interior of a library, with the fore-edges of the books turned inward.[54] Whiteread creates, in spectral relief, a roomful of books whose contents and titles appear to be lost. The plaster surfaces are like a haunting of the library, at once there and not there. Examined closely, the size of the books, the texture of their pages, sometimes a

Fig. 7. 'Paperback ghosts'; Rachel Whiteread, *Untitled (Paperbacks)*, plaster and steel, 1997. New York, MOMA

residue of the coloured binding, are still visible. Whiteread's sculpture is a poetic monument at once to the immortality of the book, and its fragility.

Unpacking his library in Paris in 1931, Benjamin perused his books, still not on shelves, 'not yet touched by the mild boredom of order'.[55] Crates wrenched open lay on the floor, 'the air saturated with the dust of wood'. For a book collector, it was a moment of anticipation. After two years in the dark, awaiting a home, the books enjoyed the chaos of the box, arbitrary, confused. Indeed, their natural state is disorder: it is only in a library, above all in a catalogue, that they find order. The dream of Ashurbanipal tells us an intrinsic condition of the book. Tablets are things, yet body forth something abstract, in the form of contents. Every book, however small, organizes itself as a little world. Every library portends a galaxy of worlds, listed in constellations, every book in its place. In shocking foresight, Nineveh librarians created a catalogue of categories to organize tablets. With a little fantasy, these are not so different from Aby Warburg's in his library in Hamburg in the early twentieth century, now in Bloomsbury in London: symbols and images of art (*Image*, first floor); motifs in languages and literatures (*Word*, second floor); transition from magical beliefs to religion, science, and philosophy (*Orientation*, third and fourth floor); and ancient patterns of social customs and political institutions (*Action*, fourth floor). The library of the Sorbonne in Paris in the fourteenth century also began its catalogue with literary humanism, although the Vatican preferred theology first.[56] It took Conrad Gesner's *Bibliotheca universalis* of 1545 to summon the alphabet to organize books.[57]

Contents cannot be reduced to materiality. Taken collectively, indeed, the tablets speak of something more than their individual contents. A library is more than a linear sequence of books: it is a system of knowledge; and the bigger the system, the greater the paradox. The Library of Ashurbanipal was buried by invaders centuries before the famous library at Alexandria was established. Each of these legendary collections was taken as a symbol of the totality of knowledge, in different histories. Alexandria was bigger than Nineveh. The palace library of the Fatimid caliphate in Cairo, before its dispersal by Salah al-Din, was said to contain any book that anyone might want. Ibn Abi Tayy in his twelfth-century *Universal History* claimed it contained two million books.[58] A wild exaggeration, perhaps, but minute compared to the megaliths of the British Library, Bibliothèque nationale de France, or Library of Congress. All these, as the twentieth century ended, moved to new premises or built extensions to accommodate overfill.

These steel and glass temples of post-modernity, embedded in London, Paris, and Washington, DC, proclaim a realm of knowledge beyond the imagination of the past. Yet they emerged to meet a new revolution. Colin St John Wilson made plans for a library at St Pancras in 1962, just as ARPANET (the first packet-switching device) was devised. On 15 December 1996, the BnF moved (just eight years after President Mitterrand's proposal), only to greet a transatlantic datalink between Cornell University and CERN in Geneva. The library abandoned the