June 12, 2023

Revisiting the Meaning of the City and the Library

Michael J. Paulus, Jr.

**"Revisiting the Meaning of the City and the Library:
Harnessing the Newest Form of Artificial Agency"**

Michael J. Paulus, Jr.

Virtuous AI Conference
Graduate Theological Union's Center for Theology and the Natural Sciences
June 12-14, 2023

This paper responds to the first VAI core question—"How and to what extent will AI influence the evolution of human culture and virtue?"—by:

1. introducing historical and theological resources helpful for thinking about the future of artificial agency;
2. highlighting how artificial agency has been shaping human cultures for millennia, especially through information agencies and information artifacts;
3. exploring how libraries have harnessed artificial agency to advance human hopes through the augmentation of intelligence and the cultivation of formative practices.

Abstract

We are living through an information revolution connected with automated information processing and artificial intelligence. Previous information revolutions, connected with information agencies and information artifacts, resulted in cities—described by Jacques Ellul in *The Meaning of the City* as artificial and autonomous systems—and libraries, which augment human intelligence through technological systems as well as related formative practices. The library remains an important institution and infrastructure for confronting challenges and opportunities associated with the latest form artificial agency, AI. Focusing on the history of the library, this paper explores the history of—and future possibilities for—the role of artificial agency in cultural development.

Introduction

Within the last ten years, especially following the introduction of popular digital assistants such as Apple's Siri (2011) and Amazon's Alexa (2014), artificial intelligence has become a ubiquitous and general-purpose technology like electricity and the digital computer. It is a regular part of our daily lives and our social imagination, rapidly transforming what we hope for, how we understand ourselves and our world, and what we do. Klaus Schwab of the World Economic Forum claims transformative digital technologies such as big data (i.e., the analysis of large datasets) and AI (especially self-learning predictive models) have created a "fourth industrial revolution." This industrial revolution, he says, is "fundamentally changing the way we live, work, and relate to one another."[1] More profoundly, the philosopher Luciano Floridi argues we are living through a fourth modern scientific revolution, an "information revolution," in which our dependence on automated information processing is "affecting our sense of self, how we relate to each other, and how we shape and interact with our world." Throughout history,

[1] Klaus Schwab, *The Fourth Industrial Revolution* (New York: Currency, 2016), 1.

information and communication technologies have changed both how we interpret and how we interact with the world. But now, Floridi points out, "Smart and autonomous agents no longer need to be human" and with them we are shaping a world that is increasingly "friendly" to artificial agents.[2] The significance and scale of the technological challenges and opportunities facing us require us to understand and proactively shape an information environment that ensures artificial and automated intelligence augments rather than inhibits human intelligence, hopes, and agency.

In the twelfth century, Hugh of St. Victor articulated how human artifacts, as a product of human agency, were distinct from the works of natural and divine agency. Hugh identifies three types of works: "the work of God, the work of nature, and the work of the artificer." The work of God, he says, "is to create that which was not, whence we read, 'In the beginning God created heaven and earth.'" The work of nature is "to bring forth into actuality that which lay hidden, whence we read, 'Let the earth bring forth the green herb,' etc." And "the work of the artificer is to put together things disjoined or to disjoin those put together, whence we read, 'They sewed themselves aprons.'" The new artificial creations in which Hugh was interested included "fabric making, armament, commerce, agriculture, hunting, medicine, and theatrics," but these technologies were connected with and dependent on much more ancient and significant artificial innovations: cities and libraries.[3] For Hugh, human artificial agency—manifested in both old and new artificial creations and systems—had an important role in God's work of new creation.

Jacques Ellul, in *The Meaning of the City*, took a negative view of human artificial agency and considered the city to be a counter-creation—not part of God's works of creation or new creation. For Ellul, the city is an artificial, autonomous, and adversarial system that is an anathema. At the same time, Ellul acknowledged that the city was the greatest technological invention of humanity and would need to be re-created by God at the end of history. In the book of Revelation (the Apocalypse of John), however, while the artificial agency manifested in the unjust city of Babylon is condemned, the image of the just New Jerusalem suggests that some forms of artificial agency may be affirmed and participate in the life of a good city.

Ancient cities depended on information agencies to aggregate human intentions and actions, and information agencies quickly came to depend on information artifacts to communicate information across time and distance. Information agencies and artifacts led to the creation of libraries, which augmented human intelligence through a structural agency that integrates artificial and human agency. For millennia, libraries have leveraged new information technologies to advance the creation, discovery, sharing, and augmentation of knowledge. Today, in the midst of an information revolution connected with automated information processing and the automation of intelligence, the library remains an important institution and infrastructure for confronting challenges and opportunities associated the latest form of artificial agency, AI. Using the example of the library, and the ways they cultivate human attention and agency, this paper explores the history of—and future possibilities for—the role of artificial agency in human and cultural development.

1. The Meaning of the City

[2] Luciano Floridi, *The Fourth Revolution: How the Infosphere is Reshaping Human Reality* (Oxford: Oxford University Press, 2014), vi., 32, 40.
[3] Hugh of St. Victor, *Didascalicon*, trans. Jerome Taylor (New York: Columbia University Press, 1991), 55, 74.

About 12,000 years ago, around the world, some humans began to manipulate the lives of a select number of animals and plants to provide supplies of food, raw materials, and muscle power. Clearing forests and fields, digging canals and ploughing furrows, building houses and walls, these humans became adept at creating artificial environments within natural ones. Some of these settlements became cities, one of the most significant technological innovations of our species. Over the following millennia, cities became a central part of the human experience and "one of our species' favored niches."[4] To realize complex, shared, and future-oriented goals—and overcome the limitations of individual intelligence—cities depended on increasingly sophisticated social structures and organizations to organize laws for courts, accounting for markets, narratives for temples, and instructions for collaborative processes that sustained civic life. These institutions or "information agencies" aggregated human attention and agency, and they created forms of structural agency that enabled cities to operate as multi-agent and semi-autonomous systems to extend collective human actions across space and time.[5]

In 1964 Jacques Ellul published *The Technological Society*, an English translation of *La Technique ou l'enjeu du siècle* (*Technique or the Wager of the Century*, 1954). In this big bleak book, Ellul critiqued the tyranny of "technique," by which he meant "the totality of methods rationally arrived at and having absolute efficiency" that was dominating "every field of human activity." He argued that the modern technological society had evolved into an autonomous force, which "pursues its own course more and more independently" of human agency. Ellul claims: "it is vanity to pretend technology can be checked or guided"; we have become "[e]nclosed within [our] artificial creation."[6] A few years later, in 1970, Ellul published a theological critique of the technological society in *The Meaning of the City*, which he described as a "theologically based study of the great city as the supreme achievement" of human technology.[7]

In his exegesis of the biblical image of the city, Ellul concludes that the meaning of the city is that it is a curse. Ellul reads the story of Cain's establishing the first city as act of rebellion against God, a "counter-creation" that "breaks with the divine nature of creation." And, in creating the city, humans create "an autonomous power" that is "something stronger than [themselves]." A city becomes an artificial, autonomous, and adversarial system with its own objectives: control, certainty, closure, and commodification. The diabolical human city, Ellul concludes, "cannot be reformed" or redeemed; it must be "replaced" by God at the "end of time, but absolutely not by any human effort."[8] The New Jerusalem Ellul sees at the end of the Apocalypse of John is a rejection of human artifacts and artificial agency. The judgement of the final human city in the Apocalypse, Babylon, is a "*double* condemnation" of "all cities," past and present, which are not in "contact" with New Jerusalem. "New creation, which is absolutely new, comes only through judgment and destruction … There is no continuity." New Jerusalem "is not a work of our hands."[9]

---

[4] Greg Woolf, *Life and Death of Ancient Cities: A Natural History* (Oxford: Oxford University Press, 2020), xii–xiii., 13.
[5] See Michael J. Paulus, Jr., *Artificial Intelligence and the Apocalyptic Imagination: Artificial Agency and Human Hope* (Eugene, OR: Cascade Books, forthcoming in 2023), chapter 1.
[6] Jacques Ellul, *The Technological Society* (New York: Alfred A. Knopf, 1964), xxv, xxix, 135, 428f.
[7] Matthew T. Prior, *Confronting Technology: The Theology of Jacques Ellul* (Eugene, OR: Wipf and Stock, 2020), 164.
[8] Jacques Ellul, *The Meaning of the City* (Eugene, OR: Wipf and Stock, 2003), 35, 50, 52, 54, 57, 59, 63, 70, 77, 102f., 109, 154, 163, 176, 178f., 182.
[9] Jacques Ellul, *Apocalypse: The Book of Revelation* (New York: The Seabury, 1977), 26, 59, 196f., 214f., 223.

Ellul provides a helpful diagnosis of the asymmetrical powers of artificial agency in cities and the technological society. Cities both create and solve problems, and in history and imagination the status of the city is often ambiguous—it is a technological site of ingenuity but also iniquity, of innovation and injustice, of prosperity and inequity, of inspiration and desperation. One reading of the judgement of Babel in Genesis is that it is a rebuke of a self-securing and self-serving—perhaps even an imperial—autonomous agency.[10] But in the Apocalypse of John, a greater agency, both divine and human, disrupts and constructively transforms artificial agency. Ultimate hopes are revealed in and through the technological city.

In the Apocalypse of John, cities are central in and for the narrative. The Apocalypse includes pastoral letters to seven first-century churches, which address present conditions in each church and city. The book also opens up readers' (and hearers') imaginations to the presence of two spiritual cities that are present in every city. One of these cities, most powerfully manifested in the imperial city of Rome, is called Babylon. The Apocalypse announces that this evil city is doomed and falling, and that the good city of God—New Jerusalem—is arriving and will be established permanently. John's overall message to the churches is to turn their attention and redirect their agency away from the diabolical Babylon and participate in the reality of New Jerusalem. Although initially written for ancient cities, the Apocalypse is concerned with the destiny of every city—and how new creation is situated in and being realized through them. Technologies, deformative as well as transformative, are part of this narrative. The Apocalypse includes ethical critiques of technologies and suggests strategies for resisting and reforming them. But is also focuses attention on how technologies in and of the city may participate in the realization of the ultimate city. As Brian Blount points out, the Apocalypse presents the city "as part of God's *good* creation and as the locus of God's grand re-creation."[11]

2. The Meaning of the Library

Like other apocalyptic literature, the Apocalypse of John is filled with books. John sees numerous books (in the form of scrolls) opened, and the information in them forms the narrative. John shows dependence on an earthly library, including books from the Hebrew Bible, but these inspired books are derived from and supplemented by a much larger heavenly library.[12] A library is much more than a metaphor for revelation—it is an agent of it. By the third millennium BCE, urban information agencies created information artifacts such as administrative records and literary books (initially in the form of tablets) to communicate across space and time.[13] By the second millennium BCE, libraries emerged as information and attention management structures and systems to provide immediate and long-term access to information.[14] Since then, libraries have been defined by three primary functions: (1) an intention to configure and represent a particular cultural order through textual expressions of knowledge; (2) the selection and

---

[10] See Walter Brueggemann, *Genesis: Interpretation, A Bible Commentary for Teaching and Preaching* (Louisville, KY: Presbyterian, 2005), 46, 100.
[11] Brian Blount, *Revelation: A Commentary*. Louisville, KY: Westminster John Knox, 2009), 376. See Paulus, *Artificial Intelligence and the Apocalyptic Imagination*, chapter 3.
[12] See Garrick V. Allen, "Libraries, Special Libraries, and John of Patmos," in *Reading, Writing, and Bookish Circles in the Ancient Mediterranean*, ed. Jonathan D. H. Norton et al. (New York: Bloomsbury, 2022), 183–203.
[13] See Michael F. Suarez and H. R. Woudhuysen, *The Book: A Global History* (Oxford: Oxford University Press, 2013), esp. 3–5.
[14] See Kim Ryholt and Gojko Barjamovic, eds., *Libraries before Alexandria* (Oxford: Oxford University Press, 2019).

collection of texts judged worthy of attention; and (3) the mediation of access through social and technological systems.[15]

Libraries became indispensable agents for most religions. In *The Literary Imagination in Jewish Antiquity*, Eva Mroczek points to "the perpetually unfinished nature of writing as it seemed to some of its ancient creators."[16] In early Judaism, human books often transmit what is contained in heavenly books. The book of *Jubilees*, from the second century BCE, emphasizes throughout its narrative the textual transmission of divine knowledge though angels to historical figures. *Jubilees* introduces itself as a revelation to Moses on Mount Sinai: In addition to "the two stone tablets of the Law and the commandment," he received information from heavenly tablets about "both what (was) in the beginning and what will occur (in the future)." Moses, who is situated in long line of commissioned writers, is told to write what he learns in a book so that God's people might see that God has not abandoned them but continuously communicates with them "from [the day of creation until] the day of the new creation" (1:1, 4-5, 29).[17]

Enoch is identified as the first human to learn "writing and knowledge and wisdom" and to be entrusted with communicating knowledge about God's eternal work from a vast divine library (4:16). Enoch is also the last writer, protected in the Garden of Eden where he continues to write the history of humanity through Judgement Day (see 4:23). Interestingly, *Jubilees* discloses that writing and information artifacts can be dangerous. It records the fate of one of Noah's descendants, Cainan, who while seeking a place to build a city finds ancient writing engraved on stone. He reads and transcribes it and sins, because the writing contained evil divination practices (8:1-4). But certain patriarchs are identified as "scribal heroes": they are shown heavenly books, they transcribe them, and they entrust their copies to their descendants to be preserved. These books "have lives of their own as they are taught, invoked, and transmitted through time." In *Jubilees*, Mroczek observes, "the relationship between God and Israel is embodied in the writing that make up its imagined library."[18]

Other writers, such as those at Qumran associated with the Dead Sea Scrolls, drew from and added to this earthly library, participating in textual practices in which "both human agency and ongoing divine intervention are key." These practices are recorded in their creators' texts, which "testify to the constant renewal of divine communication." Some of these texts came to be read as "*Scripture*: they were considered divinely inspired and fundamentally relevant to human life, full of moral instruction and hidden meanings." According to Mroczek, "The imagined library of sacred writing was vast and its catalog somewhat vague, with no established list or particular number of works that it could accommodate." The earthly library functioned as a form of artificial agency within a system of writing "that traveled from its divine origins, and became … 'earthbound,' partially instantiated in concrete scribal projects."[19]

Initially, libraries were technologies of and for kingdoms and empires. To shape the temporal record of his earthly reign, the scribe-king Ashurbanipal arrogated the record-keeping power of the Mesopotamian goddess Belet-seri and created a library. A few centuries later, Alexander the Great's successors in Egypt, the Ptolemies, imagined manifesting in a library the

---

[15] See Yun Lee Too, *The Idea of the Library in the Ancient World* (Oxford: Oxford University Press, 2010), 4–5, 175, 188, 242–43.
[16] Eva Mroczek, *The Literary Imagination in Jewish Antiquity* (Oxford: Oxford University Press, 2016), 187.
[17] *Jubilees*, in *Old Testament Pseudepigrapha, Volume 2: Expansions of the "Old Testament" and Legends, Wisdom and Philosophical Literature, Prayers, Psalms, and Odes, Fragments of Lost Judeo-Hellenistic Works*, ed. James H. Charlesworth (New York: Doubleday, 1985).
[18] Mroczek, *The Literary Imagination in Jewish Antiquity*, 151.
[19] Mroczek, *The Literary Imagination in Jewish Antiquity*, 135, 151, 154f., 188.

Aristotelian ambition to order and classify the world in order to control it. So great was their ambition that myths of the size and significance of the Alexandrian library are coextensive with the library itself. The Letter of Aristeas, from the second century BCE, connects the origin of the Septuagint with Alexandrian ambition to collect, "By purchase and translation … if possible, all the books in the world."[20] The letter uses an improbable volume count of five hundred thousand books. By the end of the fourth century, Paulus Orosius, a student of Augustine and collaborator on *The City of God*, claimed there was no great library in Alexandria. The Library of Alexandria fell into oblivion, but its legend created the enduring image of the library as an agent for the creation of knowledge.[21]

In the first-century CE *Testament of Moses*, Moses instructs Joshua to arrange, anoint, and deposit in jars the books entrusted to him "in the place which (God) has chosen from the beginning of the creation of the world, a (place) where his name may be called upon until the day of recompense when the Lord will surely have regard for his people (1:15-18)." This earthly library, with its artificial agency, is incomplete. But every library is incomplete. As Mroczek observes, the "dream of comprehensiveness" is an impossible one. Yet it is pursued regardless. A library is a witness to the reality that "more has been revealed than has ever been collected or read."[22] A library also witnesses to an artificial agency beyond its creators as it invites—and enables—future writers to augment it.

3. Libraries and the Newest Form of Artificial Agency

Ancient libraries provided models and methods for structural agency that have advanced cultural development for millennia. Within the last few hundred years, as information artifacts, libraries, and literacy increased, libraries have transformed diverse societies and established themselves as one of our most important cultural institutions. For academic libraries, an important turning point arrived with the development of libraries to support the research university model. Reacting to a loss of authority and human agency in the overloaded information environment of the Enlightenment, German reformers organized the pedagogical and scholarly technologies of the research university to form people who would engage with knowledge in disciplined ways. University libraries moved intellectually—and often physically—to the center of campuses, providing resources, services, and spaces necessary for the formation of scholarly agency.[23]

Another significant turning point in library history was the public library movement of the mid nineteenth century. Public libraries initially focused on providing resources, services, and spaces for "self-education agency," but what most readers wanted from their libraries was access to popular fiction—not only for entertainment, but also because it empowered "white women, people of color, and the lower classes to rethink societal roles others assigned to them" and to "imagine different social environments and situations." The public got what it wanted and public libraries now have a reputation for empowering the agency of individuals as well as communities. Wayne Wiegand observes that by providing useful information, public spaces, and

[20] Letter of Aristeas, in *Old Testament Pseudepigrapha*, 12.
[21] See Richard Ovenden, *Burning the Books: A History of the Deliberate Destruction of Knowledge* (Cambridge, MA: Belknap, 2020), esp. 44.
[22] Mroczek, *The Literary Imagination in Jewish Antiquity*, 187f.
[23] See Chad Wellmon, *Organizing Enlightenment: Information Overload and the Invention of the Modern Research University* (Baltimore, MD: Johns Hopkins University Press, 2015).

transformative reading experiences, public libraries "satisfy self-designed needs of multiple groups and at the same time help individuals make sense of their worlds in myriad ways."[24]

It was clear to many librarians by 1970 that libraries were part of a new information environment with new needs, media, and means of access. At the 1962 Seattle World's Fair, a "Library of the Future" exhibit by the American Library Association showed how libraries were integrating "machines into an environment of books."[25] The exhibit included a UNIVAC (a universal automatic computer), microformats, fax machines, and other electronic devices alongside more traditional reference, adult, and children's books as well as reference and readers' advisory services. By the 1960s, libraries were automating many technical operations: cataloging, acquisitions, serials control, and circulation. In the 1970s, they additionally focused on the development of networked automated processes though collaborative consortia.

Marshall McLuhan and Robert Logan described the library of the 1970s as "an old figure in a new ground." As new audial and visual media entered mainstream library collections, and as librarians began to help people reproduce and reassemble information with photocopiers and computers, the role of the library was shifting from a more "passive distributor of the information artifacts of others to that of the manufacturer of information on par with a publisher, a filmmaker, or a broadcaster." McLuhan and Logan claimed: "We are moving into an age in which information is becoming the prime concern of mankind, the key to survival in a complicated environment." Libraries, they observed, had a key role in shaping the emerging information environment. Libraries also had a role in cultivating the information agency needed in and for a new information age.[26]

In the 1980s, libraries began offering new automated user services through online public catalogs and the searching of remote databases. By the end of twentieth century, they were providing online access to local as well as global resources. But libraries also were empowering people to search for, use, and create information in new ways. Libraries have always helped people access and use information by helping them engage with it, and in the 1970s the concept of information literacy was introduced to capture the competencies needed to navigate a new information environment shaped by automated information processing. Building on an earlier notion of bibliographic instruction, information literacy involves identifying an information need and then being able to find, evaluate, and use information to fulfill that need. These information competencies have advanced along with information artifacts and technologies, and they now include data, AI, and other digital literacies that cultivate reflective, critical, and ethical uses of information.[27] From the beginning of our current information revolution, libraries have been developing information technologies as well as related formative information practices to advance the augmentation of human intelligence and agency.

Libraries, therefore, are well positioned be direct participants and leaders in constructively shaping our AI ecosystem. Managing the asymmetry between the amount of

---

[24] Wayne A. Wiegand, *Part of Our Lives: A People's History of the American Public Library* (Oxford: Oxford University Press, 2015), 5, 18, 21, 29, 55, 268.

[25] Irving Lieberman, "Library 21: The Dynamics of Recorded Knowledge and Information," *Book News* 16:8 (April 1962): 93–94.

[26] Robert K Logan with Marshall McLuhan, *The Future of the Library: From Electronic Media to Digital Media* (New York: Peter Lang, 2016), 4, 77, 81, 180.

[27] For an example of AI literacy, see Amanda Wheatley and Sandy Hervieux, "Separating Artificial Intelligence from Science Fiction: Creating an Academic Library Workshop Series on AI Literacy," in *The Rise of AI: Implications and Applications of Artificial Intelligence in Academic Libraries*, ed. Sandy Hervieux and Amanda Wheatley (Association of College and Research Libraries, 2022), 61–70.

information available and what human intelligence is capable of processing is an ancient problem: as it says at the end of Ecclesiastes, "Of making many books there is no end, and much study is a weariness of the flesh" (12:12). But in an information environment being shaped—and increasingly malformed—by both human and artificial agents, the intentional cultivation of human attention and agency is more important than ever. Libraries began as, and continue to be, human-focused and human-scaled interfaces for accessing information artifacts, and they remain exemplary information agents through a few key functions. First, libraries exist with the intention to enable the use of information and augment knowledge. This is a future-oriented end that, ideally, does not ignore but looks beyond present concerns. Second, through the process of selection, libraries attempt to define a collection—or a context for discovery—for a particular community. This helps people discern what information is worthy of attention. Third, libraries mediate access to and facilitate use of their resources by cultivating formative information practices. Library agency is for the agency of others, and so both social and technological methods of access center human values and goals.

Prioritizing people requires an acknowledgement of and attention to human limits—not just of understanding, but of our existence in space and time. We are embodied, even when we are online, and our physical conditions constrain our ability to be omniscient, omnipresent, and omnipotent. Large-scale search engines, sophisticated algorithms, and powerful technology platforms can tempt us into thinking we may transcend our attentional and agentic limits. But these commercial tools and systems often do not respect the protections that the vulnerabilities of human existence require: personal data protection, humane software design, non-manipulative and explainable algorithms, and safe and secure spaces for information discernment and information agency. Libraries' long history of designing human-centered information infrastructures for human ends can inform alternative and better futures with AI.

Automated and autonomous information processing technologies challenge human limits—our autonomy from them, our attention independent of them, and our agency beyond them. But, like every other useful technology, AI also can help us transcend our limits. The automation of intelligence has great potential for human cultural development. Generative pre-trained transformers (GPTs), for example, could—if connected with good information resources and practices—augment human knowledge and agency in significant ways. They could enable us to discover new questions and answers, imagine and realize greater hopes, and make better decisions. Some libraries see such possibilities and are "on the cusp" of a dramatic change connected with AI, and many are hopeful they can adopt and adapt this technology to advance their millennia-long history of augmenting human knowledge and agency.[28]

Conclusion

Amazon's Alexa's name, or "wake word," is an homage to the legendary Library of Alexandria. Like a library, Alexa is an interface for accessing and engaging with information. But libraries, from Alexandria to every local public library today, have been primarily shaped by humans selecting and mediating information to cultivate human attention and agency. Even as libraries have increasingly automated operations and become dependent on automated information processing, they have continued to prioritize human-scaled access and human formation informed by community and professional values. Alexa, an assemblage of AI applications

[28] Brady D. Lund et al., "Perceptions toward Artificial Intelligence among Academic Library Employees," *College & Research Libraries* 81:5 (July 2020): 865–82.

interacting with other globally networked AI applications, is a synecdoche of commercial AI systems that depend on furtive data extraction and surveillance to realize commercial ends. If these AI systems are to be less like Ellulian Babels and more like Alexandrian Libraries, AI needs to be managed within an environment that prioritizes human values and hopes. Libraries have been constructively participating in our current information environment for decades—collecting information artifacts, cultivating critical information practices, and developing human-focused infrastructures for a better information environment designed for both natural and artificial informational agents. Libraries are a model for how new forms of artificial agency may be used to enhance cultural development.