



THE MUSEUM OPENS

JOHANNA DRUCKER

FOREWORD | This speculative fiction narrates the experience of a virtual museum environment in the near future. The description extends current capabilities of linked data, visualization, and computational analytics while adding features of virtual and augmented reality. The essay takes a skeptical view of the increased spectacularization of cultural memory experience even as it explores the potential for enriched research, pedagogy, and public knowledge that emerging technological platforms may provide.

Within fifteen minutes of entering the Muse@um, I had dashed through my favorite galleries, unlocked nearly a dozen display cases, and loaded my cart with the bust of Nefertiti, a Ming dynasty vase, an Igbo statue, a Rembrandt drawing, a wampum belt and a whole set of 18th century metalwork including rare silver serving dishes and battered chains from nautical vessels.

As I put them all onto the sensor grid of a small staging area, the screen panels next to the platform lit up with options: provenance history, material analysis, documentation and acquisition records, and maps of the many places each of these artifacts had passed through on its pilgrimage to a final site scrolled appeared an index. But I engaged directly with the objects. I ran my hands over the rough wood of the Igbo carving, held the Rembrandt drawing up to the light to check the watermark on the paper, and scraped at the rust on the weather-worn iron chains, putting the sample into a vial to run through the lab program. The vase was cracked, but even when I dropped it onto the specimen table, it did not shatter, just broke in two, its halves rocking independently against the surface.

These treasures were unrelated to the real work I had come to do, but the pleasure of being able to touch these ancient objects and appreciate their qualities up close never went away. My Muse@um visits always began with these encounters, as I educated my eye, hands, touch, and hearing to the qualities of human artifacts. My appreciation deepened every time, and even now, putting the pieces of the vase back together and restoring it to virtual perfection, I felt an awe at the connection the contact forged across time and space. The aura of the object persists even in this optical-haptic illusion.

Museum. The word once invoked memory and collections, hushed spaces and secular precincts set aside for contemplation of rare objects arranged in careful display. I used to wander among the quiet cases in half-empty rooms, sinking into glaze-eyed absorption, taking in the multiplicity of artifacts and images from each era and every area of the globe. The experience would conjure a rush of nostalgia for imagined pasts—or a frisson of excitement encountering some rare species or unimaginable specimen of a distant ecosystem. At once attentive and overwhelmed, focused and sated, I processed only bits and pieces of what passed before

my eyes. And I could not touch these things, only stare at them through the glass.

Frequently, a wave of realization would break through this dreamy mood. The artifacts would suddenly appear in a radically different light—as the plunder of the world. I would see them as the evidence of histories of oppression. I would sense the violence involved in their making, removal, appropriation, and display. The mood would shift dramatically. The quiet rooms would fill with the recollected noise of protest and cries of violence indexed to certain artifacts. I would grasp, for a moment, that these artifacts contained the history of the world. Each—any—of them was a node in the living network of experience, shared and private, that comprised the larger record of human memory. The rush of associations was overwhelming. But this was all in my head. The objects remained silent and the reverent hush of the secular memory palace remained undisturbed. That was the museum in the last generation. Now, as we have seen, much has changed.

The Muse@um Portal launches and while it boots up, the whirring sound, a nod to the spinning disks of the historical past, hums through the air. A rapid-fire series of images previews recent exhibits while the navigation system comes into focus. The site promises access to the collections of the world. Its mythic ideology offers an illusion of complete omniscience without the guilt of possession or plunder. The knowledge base of the memory inventory incorpo-

The screen disappears as the hologram brightens. With a light swipe, I slide the time marker to the mid-17th century. I touch the hot-spots on the map of England. Then I land on the apron of pavement in front of the newly established Ashmolean Museum in Oxford. The bustling sound of people and vehicles moving on Broad Street and the blur of motion at the edge of my peripheral vision only add to the august impression made by the columns and architectural details of the Ashmolean's façade.

I am in the presence of one of the first major museums in Western culture, and it lives up to the image one expects of such a monument. Dignity, grace, and a sense of magisterial abundance are signaled by the carved relief of fruit and the large marble escutcheon in the tympanum of the highest cornice. The stone florets in the arch above the door, the wreaths in the entablature stretching above the Corinthian capitals, and the motif set into the architrave all suggest a noble pedigree for the building within the terms of a once-unquestioned paradigm. Awed, intrigued, but also cognizant of the distance from the assumptions of that historical past, I mount the entry stairs. They narrow at each step toward the heavy front doors whose wood patina is warm and welcoming. They creak as they swing open on their beautiful brass hinges. The interior hall streams with light from the high windows, and the cases shine with reflections in polished glass.

I'm dazzled. Everywhere I look, objects of fascination appear, some looming from a shadowed corner, others set out like jewels. An air of scientific inquiry combines with an aura of antiquarian mystery. In the midst of the gallery, an installation of a section of the original "Ark" bequeathed by the Tradescant family to Elias Ashmole offers its treasure trove of curiosities.¹ A hawking glove that belonged to Henry VIII lies on an open shelf. I reach for it, touching the soft leather palm and worn seams. The thick

“My view unfolds into multiple explorations.”

rates multiple perspectives into the inexhaustible legacy of human communities. Documents, records, artifacts, even enactments of intangible heritage practices are all accessible through a variety of interpretative frames. Where to start?

padding constricts the interior, but I slip my hand into the fingers, holding the glove aloft, sensing the protective layers of its construction. When I place it back on the velvet cloth, the glove shifts and realigns with its original placement, awaiting the next curious visitor. The tactile illusion is complete, replete.

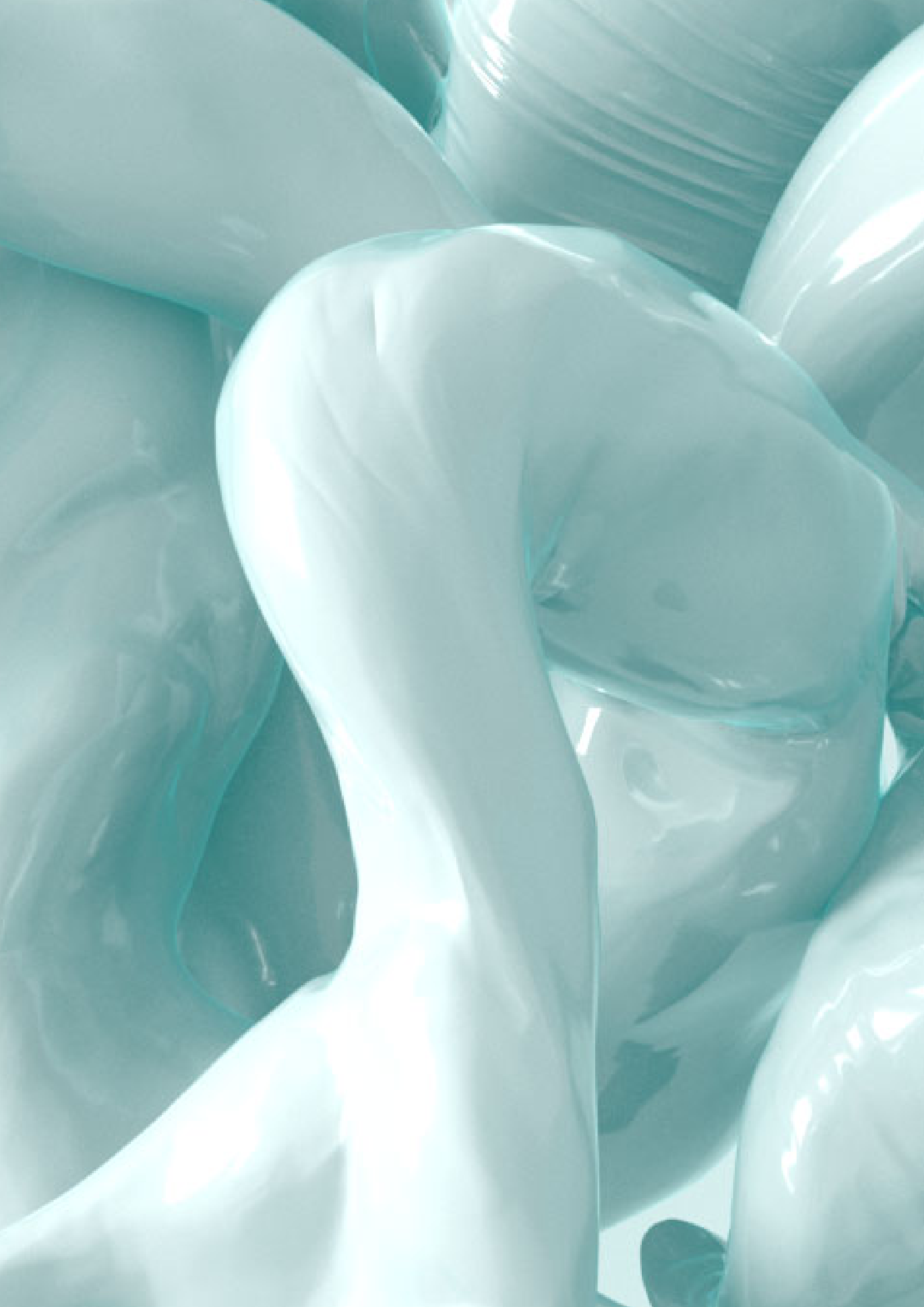
The portrait of Elias Ashmole beckons.² The slight inclination of his head, a small gesture of his hand, and I feel invited to approach. A heavy gold chain snakes around the edge of the book on which his right hand rests. I run my fingers over it, indulging in appreciation of the luxurious weight of the braided metal. The medallion that hangs off the table bears inscriptions and images I cannot read, but my swipe lifts a tiny gloss into view that explains its significance. A bright arrow offers to lead me down a path of associations, to other medals, medallions, and symbols. I ignore it.

Ashmole's left hand has returned to his hip, but the other points to a document case below the frame. Deeds of gift, original documents from John Tradescant the Younger are all there. Faded, barely legible, the documents are written in a secretarial hand, their official character reinforced by signatures, dates, and seals. The paleo-lupe™ parses the elaborate script and renders it legible. Ashmole's quarrels with Hester, Tradescant's widow, are clearly documented, but the language of the lawsuit is still decorous, the struggle for control of the collection bequeathed to Ashmole couched in the polite terms of a court of Chancery. I'm intrigued, and for a moment, I hesitate—the idea of following the trail of Hester's history and struggles is tempting. Images array themselves around the document tray as a response to my query. But her portrait discourages attempts at acquaintance. The face is dour, the glance punctuated by dark eyebrows knitted together in a cheerless expression. No doubt she had her troubles. I find my interests drawn elsewhere, towards the cases of antiquities and specimens of natural history she

almost sold for immediate gains. Luckily, Ashmole won his case, and they are preserved into the present.

My view unfolds into multiple explorations. An enormous bone in one deep drawer turns out to have been mislabeled at its original discovery, attributed to a fanciful gryphon-like animal. A tap on the chalky surface displays two alternate taxonomies, one that maps the creature to its assumed place in the animal kingdom, the second to the modern understanding of the species. Nearby I spot a hybrid object with fangs, wings, and horns clearly stitched together from multiple parts. I move closer. The teeth are part from the jaw of a cobra, the wings from a bat, and the horns from a young goat, while the scales of the skin stretching over the body are those of an African Nile crocodile. Though the dates of the specimen parts are roughly contemporary, all captured and taxidermied in the late 16th century, the provenance of the object is surprisingly complex. It was not acquired by the museum until the 19th century, and came to the collections as part of a curiosity cabinet that had sat in a country house for decades, admired by all, but attended to by none. The interior of the specimen, it turns out, had been hollowed to store some precious jewels during the period of the Glorious Revolution. Family superstition maintained that the item had great powers. The jewels, however, are long vanished and the slit in the belly of the beast still reveals the moment of theft since the rent in the dried skin curls inward where it was improperly repaired.

My touristic session at the Ashmolean could go on for days, but I have more serious business to pursue. Also, a school group has just populated the site, and though my settings allow for privacy and contemplation, the traffic on the system slows it just enough to make it slightly unstable. As I turn my attention elsewhere, I see the profiles of the eager young ones pressed against the virtual glass, their hands moving rapidly in manipulation of a set of well-worn medieval torture instru-



ments and relics. Children engage so readily in the fantasy of other times and places.

Back at the entry Portal, I search the object index for the Phaistos Disk. I move through the Artifact Galleries, looking for visual cues and searching keywords. One of the more enigmatic remnants of ancient writing, this clay disk was first excavated in 1908 by Luigi Pernier, an Italian archaeologist working in a Minoan palace site. I'm curious about the excavation notes, and the extent to which they document the condition of the site at the time of the discovery. The famous Piltown man "discovery" in 1912 planted false clues into the study of evolution, the same year that Wilfrid Voynich purchased a famous (and spurious) weirdly erotic alchemical manuscript. These events are both close in time to the discovery of the Phaistos disk, and clearly a vogue for mysterious antiquities was in the air. The authenticity of Pernier's most famous find has been disputed, though never disproved. Neither the iconography nor the purported content of the disk provokes occult curiosity, but the object bears intriguing signs made by stamps that left identical impressions.

The clay disk is *sui generis*, and its location in the Heraklion Archaeological Museum in Crete makes it readily accessible in the "highlights of the collection" area of their site. Mounted on a custom-fitted brass stand, the disk offers both sides for view, spotlighting the iconic spiral with its parade of signs. The features of the disk beg to be compared with Minoan and Mycenaean glyphs that appeared at least a millennium before the alphabet migrated across land and sea into the Aegean region. A research array calls up the studies of Michael Ventris and Arthur Evans. The substantive scholarship on Linear A and B can be searched by glyph, object, period, and language—and displayed in parallel with known, available, translations. But

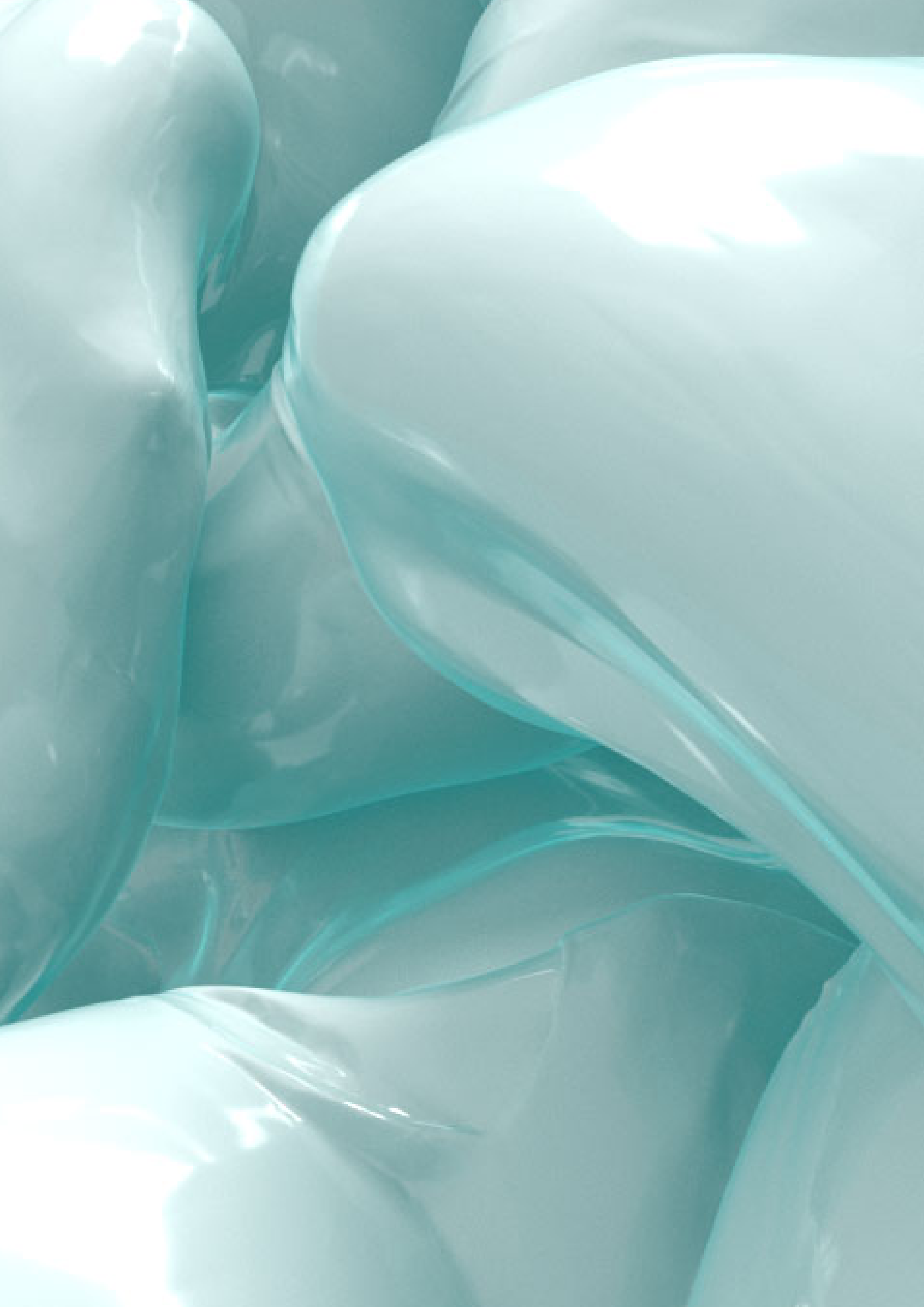
the forty-five distinct Phaistos signs have almost no relation to other signs made in the region.

When I touch the individual glyphs on the Phaistos disk, an array of other signs appears, each linked to (possibly) related individual artifacts. I'm intrigued, and track these into geographical references. A map shows all spots where early, pre-alphabetic, writing appeared. An animated sequence shows lines of cultural exchange and transmission along trade routes. Interruptions to these routes are marked by events—wars, floods, earthquakes. The cartographic trail follows the spread of alphabetic knowledge into Ethiopia and the Arabian Peninsula. I am curious about Ge'ez and current scribal practices. My timeline marker races forward into modern day Ethiopia.

The scene before me is a village. By muting the option to interact, I can walk into it without disturbing the inhabitants. The villagers also control which settings are available. The intellectual property of the holograms is individually owned. I look around, on the floor of a modest house a man sits with a goatskin manuscript on his knees. He is writing, dipping his pen into the homemade ink whose recipe has been passed down through generations. He is copying carefully in what is left of the daylight in the room, making each mark deliberately to avoid errors. Outside, the yard contains several racks on which goatskins have been stretched, scraped, and left to dry. Next to the scribe, a pan with soot, grain, and plant materials is being prepared for storage, the first phase of ink production.³

This is happening in real-time, at a distance, in a moment synchronous to my own. The algorithms advance the site to keep pace with the present. The life of the village unfolds around me. I have no wish to interfere, or intervene, and the

Figure 1-5. The editors of DAHJ chose an artwork series to accompany the essay of Johanna Drucker. Artist Marc Gumpinger exclusively contributed five artworks titled „Dop Network 1013_1-5“, 2019.



entire scene plays out as the sun sets and night falls. The neural net and emergent systems generating the display continue to morph and mutate the scene, programmed with enough information to know that night will bring on cessation of certain activities and the onset of others. The air fills with the smells of cooking, sounds of domestic life, and I exit the scene before the fires are banked and beds unfolded to receive the weary.

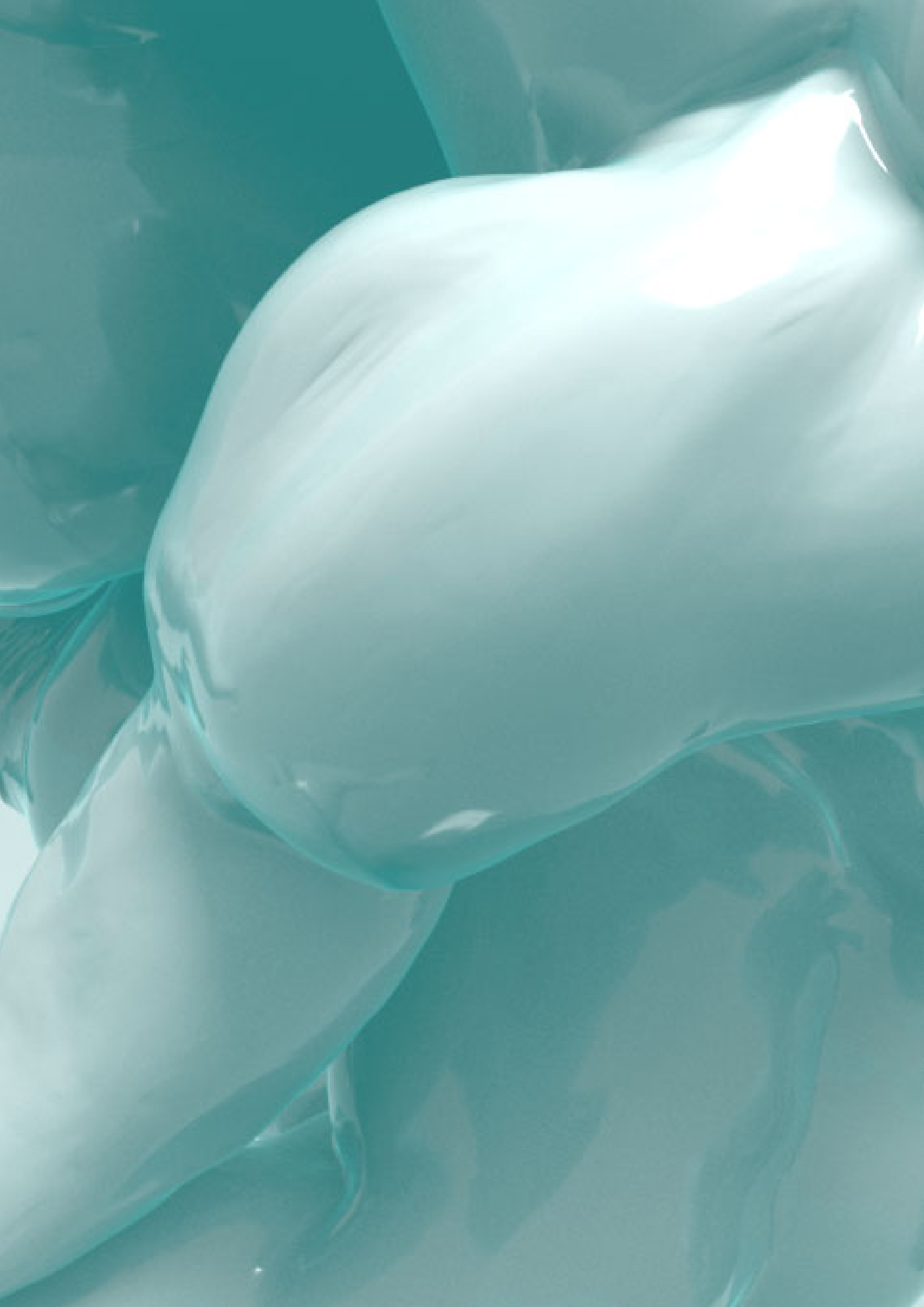
I have gotten distracted since my encounter with the Phaistos disk. I feel some pressure to get on with my research. My tasks are bibliographic as much as they are exploratory. I'll go into the resources of the Portal to see how the multiple inventories of ancient inscriptions have changed over time. The artful studies of Bernard de Montfaucon, Jean Mabillon, Athanasius Kircher, and other early antiquarians appear in an index with many similar works. I sit down with these volumes in a small alcove and begin to take notes. The engraved plates contain images of artifacts. Each is referenced, and its current location is displayed in a pop-up window. The collections link to house museums and libraries, to auction houses and estate sales. Provenance histories clock forward and also backward, until I am in the universe of excavation sites and ancient monuments. I can choose to look at schematic models of archaeological digs or opt for an immersive experience, studying these places from the birds-eye view or flythrough, or walking through the ruins or their restorations.

So many options appear I hardly know what to choose, but I get distracted by a collection of Paleolithic remains. A warehouse of flints and axes, handles and blades, knives and other hand tools shelved by site, by date, by type. Each facet of the inventory becomes a means to sort the display. I can delve into the deep storage spaces and exhume every scrape and flake of human artifacts, or turn around and enter an interpretative exhibit. In one museum of Paleolithic

remains, a replica of the skeleton of Lucy has been placed next to a Neanderthal reconstruction. Size, shape, distance in evolutionary progress are given an explanation as the features of the two figures light up to illustrate the lecture. In the transformation from primate to hominid, the course of human evolution is located within changing frameworks of understanding. Beginning with the comparison of skeletons, the exhibit ends with the study of DNA evidence of Neanderthal ancestry of European peoples. Microscopic images of tangled threads of genetic code sift across a calibrated field. I am invited to spit into a fresh slide and see where I fit among the strands, but I am not in the mood. Every inventory of artifacts seems to come with its own system of classification and naming. No single unified system absorbs all of the many ways the history of human culture has been identified and put into a typology. For a while I get lost in these meta-systems of information going through lists of lists and using the COT, Comparative Ontology Toolkit, to do some basic analysis.

When I am weary of these high-level abstractions, I stand up, and go back into the Muse@um Portal. There one arch after another stretches before me and in the halls on all sides I see the panoramic views of other cultures, moments, and eras. I get lost staring at the animals of the Savannah and Serengeti, listening to their cries, then take a respite in the period rooms, feeling the furnishings of the austere Shakers and the minimal foodstuffs of their daily diet in all of its embodied reality.

I pull a ledger from the shelf in their rather basic but functional kitchen, and get a sense of the daily economy of the family, its privations, hardships, occasional luxuries and regular austerity. The handles of spoons and much-used pots, and the dented plates and curled tines of the forks, all speak of wear and familiarity. The setting of the table imprints the hierarchy of the family, the surveillance of the father, sitting in his hard seat at its head.



But the records I want to read are not here, they are elsewhere, and I follow another hallway to the reference room where files and shelves are filled with the acquisition catalogues of every collection I might imagine. I opt for the “Antique Reading Room” setting before I begin to take notes. Lamps with incandescent bulbs and green glass shades appear at a long wooden table. My chair is thickly padded leather. Steeped in comfort and cushioned against noise and distractions, I focus on the catalogues. They are handwritten, the entries thick with annotation. I find the vocabulary fascinating and again take advantage of the processing that has been done to model topics for multiple decades, sites, locations, and institutions. This is knowledge configured for legible engagement. The differences and distances between points of cultural encounter are vividly expressed in the vocabularies used to describe the collections. The anthropological distinctions of indigenous, native, and original peoples appear alongside terms like “primitive” and “barbarian,” no longer much in use.

So much of collecting and knowledge production carries the imprint of colonial networks of abuse and exploitation. Even respectful study was often built on the back of routes established for heinous trade and the trafficking in wretchedness. The past cannot be remade, only redressed. The task of unearthing knowledge as a system, a product of forces and conditions, rather than as a study of things and their description becomes evident. The collection catalogues are overwhelming, and the theater of display of so many possibilities engulfs me in a mournful weariness contemplating the loss of many ages past and the challenges posed by what will be required to preserve so many to come.

At the largest level, the Museum is a site for production of the archaeology of cultural identity across time, place, perception and misperception. The presentations put forth a faceted understanding of selves and others through

shifting frameworks of value. But my ability to grasp ritual and symbolic values is still limited by my own historical conditions. I cannot understand the great wampum belt of Powhatan, only understand it vaguely. And even if I appreciate the spectacular skill of the artist who carved Nefertiti, I can't really appreciate how she appeared to her contemporaries. Great gifts of vision and insight produced these works. But no explanation ever exhausts the incredible richness of experience embodied in the objects. As I leave the room, I pass a case with a fine Amerindian axe. Oddly enough, the figure of Pope Pius IV rises ghostlike behind it, since he had been one of the first European owners of the object. The label on the case makes clear that the striking weapon had made its way into the collection of the Archduke Ferdinand of Tyrol as a gift from a Count, Jakob Hannibal von Hohenems, and each of these once-powerful individuals also looms ghostlike in the background of the case.⁴ Their presence gives the provenance history many dimensions, but I am eager to explore other realms than the gift exchanges that forged political alliances among these princely men.

I move into one gallery after another, eyeing precious objects and then handling them. Their pedigrees become apparent, their histories and contexts of origination, valuation, and use. The treasures of Troy include the magnificent headdress that Heinrich Schliemann put onto the head of his Greek wife so that she could be photographed as the very epitome of that mythic past. I fondle the beads, in their virtual embodiment, trying the necklaces and earrings as well, letting them fall on my shoulders, feeling their weight, but also, the heaviness of history and the incredible resonance they bear. Time collapses and expands. I feel immediately present to that moment of excavation, feel the German's excitement as he unearths the evidence he sought as justification of his belief. Troy, indeed, had been real, not just a figment of literary imagination. He turned over ancient soil and held in his hands the actual remains of that mythic



past. The layers and strata of the site read as the thick pages of some historical book, but with all the caveats that attach to avoiding explanations of simple causality. The earth also has its history, and shifting layers of sites and the rearrangement of evidence must be mapped and charted as well. In the present, the shining beads and gold surfaces all glitter with the same power that must have absorbed attention to them in the past. The classical Greeks? A recent critical gloss suggests they were an invention of the Germans seeking an ancestry for themselves independent of the African and Semitic cultures of older Mediterranean civilizations. Crowd-sourced responses offer the full range of affirmations and rebuttals.

The claims of the treasure palaces are no longer exclusive. Museums of memories, wraith-like and ephemeral, take their place beside the stone and glass monuments. And tributes to experience, the records of misery and joy, also contribute to the trove of shared culture. Some chambers and files are sealed, as they must be, and remain mute to our inquiry, markers of what should remain private. But if these documents of human experience are corked and stored like vintage harvests, waiting for the right moment to be opened, other exhibits continue to take full advantage of the vivid multi-sensory and imaging technologies of the present.

Back in the Portal, I select the Tunnel Museum in Sarajevo. Its cramped space provides the visceral experience of life in a war zone. The planks on the floor of the hand-dug span dull my footfalls. The tree trunk timbers reinforcing the structure look like plane trees, their girth about the same as that of a man. Hard to imagine the conditions of its construction, or the role it played in the siege of the city by Serbian forces in the early 1990s. The reification of recent historical events is more disturbing than the sight of ancient remains. Without temporal distance, the process of historicization and memory are very raw, the scars fresh. I leave the space in a somber mood, the image of rails disappearing into the darkness deeply

impressed on my mind. I have been spending too much time alone in these places, I realize. So I join a tour of the discovery of Tutankhamun's tomb—always a popular site. The program replays the excitement of the find, and I am lowered into darkness along with fifteen other “adventurers” with a light on my helmet shining into the royal chamber ahead of me.

Back in the antechamber, I help a team of others lay out the mind-boggling treasures, organizing them as well as we can to mimic the arrangement that had been preserved for centuries. We use drawings and photographic records to assist us, and soon we have created a plausible layout of the royal burial chamber. With another lively group, I visit the costume room in the National Museum of Indonesia in Jakarta. The garments are all animated by videos of ritual dances and music, vividly portrayed. The crowd around me sways and moves with the rhythms. Life breathes into the woven textiles and beadwork. We call up a backdrop of local architecture, picking from models and richly rendered mock-ups to scale. The decorative traditions are wonderfully preserved and I run my hand over the textured surface of the carved wood lintels and posts, appreciative of the long apprenticeship required for such skilled work.

Next, my browsing takes me through the entry of the Prado, and into its upper galleries, where Goya's fantastic imagination is on view. That most monstrous of images, Saturn Devouring his Son, finished around 1823, holds central place. The ghoulish figure looming against the dark background never fails to affect me. The lighting in the gallery is perfect, and the thickness of paint, the deft gestures of the artist recorded for all time in those strokes of pigment that make up the bloody arm and terrifying anatomy of Saturn, are all fully evident. I zoom in for a closer look at the hands, the fingers grasping the son's flesh so hard they are edged in blood. The fantastically terrifying act is made all too believable in Goya's canvas.



Back at the Portal I scroll again through the list of options. Should I visit the museum of archaeology in Kermanshah, examine its collection of clay fertility figures from almost ten thousand years ago? Or spend an afternoon in Tuol Sleng, in the sobering halls of the Genocide Museum? Or am I tempted by the maritime museum in Szczecin, Poland, or a visit to the rooms of the Medical Humanities exhibits in Taipei? The open-air museum of King Oscar II near Oslo? A museum guide from 1888 points out that this was the first such open-air museum, founded in 1881. Its purpose? To showcase the way the people of Norway had lived in the centuries leading to that modern moment. Or are my inclinations more antique?

I may want to visit one of the oldest museums in Mesopotamia, created by the royal princess, Ennigaldi-Nanna, sometime around 530 BCE, where the original labels were bi-lingual, written in an ancient Semitic language and also modern Sumerian—and all the didactic materials were made of cuneiform inscribed in clay. The Neo-Babylonians had a keen sense of history, and of their own past. Leonard Woolley, who first discovered the site in the 20th century, noted that many inscriptions had been deliberately inflected to include phrases and forms of writing from the past, incorporating their own history. Why not? Charlemagne would collect and cherish relics of early Christianity. Roman emperors created private collections and debated whether or not to make them public. Chinese scholars had their own cabinets of paintings and calligraphy, sometimes systematically organized by province of origin. The list could go on and on, with every culture and historical moment containing evidence of the way we hold on to our past through memory practices—or onto our knowledge of the natural world through amassing vast collections of specimens, like the King of Bavaria and his endless herbaria. The list of individual instances could go on and on. Humans have long constructed their ideas of history through collections that reflect their own identities and imaginations.

In the Muse@um, everything I touch connects through an array of images, a list of resources, a case of like or unlike things. The shifting contexts produce a dazzling impression of the treasures of the world. Among them, from time to time, some object like the Phaistos disk stands out as an anomaly, uninterpretable, and yet so carefully deliberately made that its meanings have to be able to be revealed and understood in some framework of interpretation yet ahead. In the future, who knows what alien inventories will appear among the already tagged and listed things, what new encounters with past or possible present—with other cultures, other species, even other minds—will become available for study, contemplation, and analysis.

In the last moments of a visit to a Gallery of Amazing Things, I catch hold of a glistening bauble from a Mayan grave site. I am surprised by the workmanship. The object is finely made, exquisitely crafted. It calls to me across the ages and I opt to have a replica constructed. The printer whirrs and the sequence of casting, finishing, and plating kick into gear. By the time I have finished my check-out, the item is available for me in the re-materialization chamber. I slide open the glass door and take it into my hands. Mine. The replica is perhaps a bit too shiny, too newly fabricated and without wear, but I fasten it to my neck and feel the response of my skin, sweat and oils already rubbing off and changing the patina. The object is of course a mere imitation of the unique treasure of the past, but now it circulates again in another way to become an element of this cultural moment.

My day of cultural memory tourism is coming to a close. I leave the Portal and log out. I settle my bill with a Quik-Credit swipes and Rapid/Retinal/Authorization.

Then I pause, suddenly horrified and appalled. I reflect on all of this experience. Is spectacularization the new appropriation? Does the period-ride, the entertainment approach, to the richness of the cultural record threaten to trivialize it, turning

costume into accessories, sites into opportunities to pose and role-play, objects into items to replicate in holograms or n-dimensional printers and take home? The history of ideas, rituals, and values seems exposed as a giant networked warehouse and department store in which everything is on display, available for duplication and licensing.

Digitization has long surpassed mere image-making, and now full-cognitive capture offers multi-dimensional experience, haptic and auditory as well as ergodic, and the ethics of possession seemed to be resolved by a long-standing leave-it-in-place policy. All of the tenets of 21st century decolonization have been observed. The design of the environment has been carefully considered, brought into line with all due obligatory nods to cultural correctness, but also, sincere engagement with progressive intellectual property laws, fair use, and protection clauses. Everything aligns with the guidelines administered by the extended UNESCO heritage committee on international cultural memory practices, UHC-ICMP (an acronym that sounds a bit too much like a hiccup when pronounced aloud). Dark web trade in illicit and unlicensed materials continues, still too swift and clandestine to be fully traced or controlled. But in legitimate institutions, the practices of cultural memory preservation and use are becoming unified and standardized. All looks rosy. The promise of borderless museology, the long-celebrated Museum without Walls notion put forth in the old-fashioned 20th century by André Malraux, with its democratizing principles (envisioned when faith in democracy still prevailed) seems to be fulfilled by this colossal networked resource for cultural heritage. The old vision of an INCH (Infrastructure for Networked Cultural Heritage) has become a MILE (Museum Infrastructure for Lived Experience), in the Muse@um, that I can access at any time.

But I can't shake the feeling that I have just been through a theme park. That in spite of all of the apparent richness

and variety, some unifying principles are violating the true diversity of human experience and its records. Is any aspect of the experience genuine? What value do simulation and phantasm have in the face of the real? I wonder if illusion or delusion is the outcome, or whether this is the opportunity to contribute to the single most forceful instrument for cultural memory production ever conceived.

I turn away from the Portal, feeling the need for a break from the seductive scenes it proffers endlessly. As I do so, a huge panorama of an idyllic countryside draws itself. On the virtual glass, my reflection floats, like wisps of a dissolving simulacra drifting in the air. Meanwhile, among the soft hills, high clouds, and distant horizons imaginary sheep, whole herds of them, miniaturized to fill the middle distance, swarm as if they are bees in a rare flock of woolly creatures. Worlds are blending. Code hybridization is rippling through the files. The lines between one domain and another are breaking, seeping. File pollution threatens the integrity of cultural memory as it rewrites itself in rapid refresh without any control. The parsing function is overwhelmed. Rampant corruption occurs. And in the bright and shining spaces of the past, the future emerges, a virulent, raw force uprising.

In this unforeseen but no doubt predictable moment of apocalyptic chaos, we see the dark side of encoded knowledge in a system gone awry. The unintended consequences of creating systems whose complexity may extend to exceed the original design have to be factored into the creation of any program that has emergent potential. The dependence on digital code and algorithmic management of culture introduces new risks and responsibilities. A newly fragile ecology of digital conditions and co-dependencies may prove more ephemeral than the tradition modes of preservation and custodianship, display and interpretation, within physical museum spaces. In order for cultural memory to be preserved against unforeseen risks and possible loss, the continuity of

traditional practices has to be balanced against the costs and benefits of innovation. What investments in infrastructure are worth making, and which are not, and how, within the larger concerns of global sustainability (environmental, social, political, economic) should we make ethical decisions about how we plan to remember the past in and for the future.

NOTES

¹ <http://britisharchaeology.ashmus.ox.ac.uk/collections/history-17thcentury.html>.

² <https://www.ashmolean.org/portrait-elias-ashmole>.

³ Denis Nosnitsin. "Ethiopian Manuscripts and Ethiopian Manuscript Studies. A brief Overview and Evaluation." *Gazette du livre médiéval*, n°58. 2012, fasc. 1. pp. 1-16. <https://doi.org/10.3406/galim.2012.1993>, https://www.persee.fr/doc/galim_0753-5015_2012_num_58_1_1993.

⁴ Isabel Yaya. "Wonders of America." *Journal of the History of Collections*, vol. 20, no.2 (2008) pp.173-188; p.178.

JOHANNA DRUCKER is the inaugural Breslauer Professor of Bibliographical Studies in the Department of Information Studies at UCLA. She is internationally known for her work in the history of graphic design, typography, experimental poetry, fine art, and digital humanities. In addition, she has a reputation as a book artist, and her limited edition works are in special collections and libraries worldwide.

Her titles include *SpecLab: Digital Aesthetics and Speculative Computing* (Chicago, 2009), and *Graphic Design History: A Critical Guide* (Pearson, 2008, 2nd edition late 2012). She is currently working on a database memoir, ALL, the online Museum of Writing in collaboration with University College London and King's College, and a letterpress project titled Stochastic Poetics. A collaboratively written work, *Digital Humanities*, with Jeffrey Schnapp, Todd Presner, Peter Lunenfeld, and Anne Burdick is forthcoming from MIT Press.

Correspondence e-mail: drucker@gseis.ucla.edu

MARC GUMPINGER'S artworks focus on the dialog between man and technology. They are a distillation of his many years of experience in the software and tech field: After initial steps on his C64 at nine years old, while still at school in the early 90s he published computer and games graphics along with 3D visualizations. Afterwards, he developed industry-leading image processing software, graduating in business administration and earning his PhD in human biology with a focus on information technology and statistics.

Following the introduction of the iPhone, Marc founded a start-up for creative gaming components, which he turned into the world's biggest mobile gaming network, which was acquired by BlackBerry in 2011. Since 2015 he has been merging his experience and creativity in artworks, visualizing the aesthetics of this new technology-shaped generation. His works are in collections such as the Allianz Art Collection throughout Europe, USA and Asia. To render his motives

For the artwork series "Dop Network 1013" Marc Gumpinger uses bleeding edge technology from algorithms to procedural visual effects software. In his general practice he turns these motives into oil paintings. For DAHJ he made the exception of providing the raw rendered motives.

Correspondence e-mail: m@marc-gumpinger.com