Close-Up: John Akomfrah and the Black Audio Film Collective
Monad, Database, Remix: Manners of Unfolding in The Last Angel of History

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Abstract

Black Audio Film Collective's The Last Angel of History *(1996) sketches the artistic and intellectual movements that have come to be called Afrofuturism, which argues that since the great rupture of the Middle Passage, African diaspora people have been doing science fiction, assembling futures from fragments of the past. The film's creative and intellectual energy lie in its manners of unfolding, that is, forms of historiography that would make sense of perceptible artifacts. This essay examines several manners of unfolding, including aniconism, unfolding from fragments, unfolding from a database, fabulation, and unfolding deep history.*

There's something seductive, thrilling, enigmatic about the Black Audio Film Collective's *The Last Angel of History* (1996). Dimly felt ideas take form. Images flash over your retinas too quickly to grasp mentally, so you feel them, in goose bumps, in fixed attention. You feel your capacities enlarge. Maybe you feel afraid, for things you thought you knew are coming undone. It's tempting to try to master this very smart film by being just as smart as it is: to use a couple of recurring characters from Parliament Funkadelic, by being the Sir Nose D'void of Funk to the film's Star Child. But I found that briefly renouncing the academic Sir Nose approach so as to pay attention to the feeling of my hairs standing on end alerted me to the moments when *Last Angel* was performing something particularly deft. I shall refer to these performances as *manners of unfolding*.[1]

The Last Angel of History gives a sketch of the artistic and intellectual movements that have come to be called Afrofuturism, in which Black musicians, writers, and artists argue that since the great rupture of the Middle Passage, African diaspora people have been doing science fiction.[2] People who have lived the legacy of slavery are time travelers. As Greg Tate, Ishmael

Reed, Kodwo Eshun, and numerous others argue in the film, ever since Africans were kidnapped, forced onto slave ship holds and plantations, and forbidden to use their languages, their descendants have survived and created in this alienated, dislocated state. They have done so by assembling futures from fragments of the past, preferring to disdain the present that accords them less than human status or, at best, offers "inclusion" in a humanity not of their design, and using technology and art to invent when historical research fails to yield anything useful.

John Akomfrah and Edward George picked up on critic John Corbett's observation of the uncanny similarity between Sun Ra, Lee Scratch Perry, and George Clinton, Black musicians respectively in jazz, reggae, and funk: all of whom, while unaware of each other's practices, deployed the captivating discovery that they came to Earth from another planet on a spaceship.[3] As Clinton says in the film, "Space for Black people is not something new. I really believe we've been there, we're returning to there, and the consciousness of Black people, of all humankind, is striving to return. Whether somebody gave us our intellect genetically by cloning, or that we're descended from the stars." Hieroglyphs, diagrams of insects, and an ultrasound of mysterious tissue accompany his words.

Black science fiction invents manners of unfolding—that is, forms of historiography that would make sense of perceptible artifacts. One manner of unfolding that the film decisively abandons is a belief that the present arises continuously from the past and that the past is fully available—a luxurious falsehood that some people who occupy global positions of power still indulge, and an ideology that lulls dominated people, too. Instead, African diaspora science fiction unpacks fragmentary artifacts that indicate a buried past, modeling history on imaginations of the future. It mourns pasts that can never be recollected, and incorporates unknowns when facts do not serve. *The Last Angel of History* is thrilling and releases energy in spectators not only because of the Afrofuturist topic, but also because the Black Audio Film Collective artists have devised manners of unfolding that match its driven creative energy. The rest of this essay will describe some of them.

Unfolding New Embodiments

The contagious rhythms and overwhelming bass sounds of the Black techno musics featured in *Last Angel* make their arguments by making you dance. They demand that your body discover new feelings to go with the unnatural new sounds. This embodied anti-naturalism is what Alexander Weheliye values in Black phonography: the inextricability of sound and writing in recorded music.[4] Kodwo Eshun describes the way breakbeat music redesigns

the body through "impacts at levels barely explicable in the normal languages of sensation," with sounds that create intensities that are received not by the mind but by the nervous system, the "brain distributed across the entire surface of the body."[5] This of course is a shout-out to Gilles Deleuze's concept of the Figural, an emergent image that does not draw on preexisting knowledge but makes the body anew, through rhythm.[6]

In the 1970s disco replaced the soulful sounds of R&B and the self-righteous transcendentalism of rock music with mechanical beats. As Richard Dyer wrote in 1979, rock used percussion in a thrusting, phallic way, while disco released rhythms that caressed the whole body into dancing. In Mississauga in 1978, my nerdy teenage self, up to then troubled that I just couldn't get into rock music, felt liberated moving to the easy, seductive, mechanical beats of disco and the booty-bending "Aquaboogie" and doing the Freak in a multi-human snake around the darkened high school cafeteria.

Transcendence offered a good solution to people who didn't want to dance, or felt they couldn't dance or shouldn't dance, like Funkadelic's "Mr. Nose." Disco abandoned transcendence. Appreciating this, Dyer also put a novel spin on the shallow glamour of disco that somehow condemned it as more commercial than "serious" rock:

> Disco's celebration of materiality is only a celebration of the world we are necessarily and always immersed in—and disco's materiality, in technological modernity, is resolutely historical and cultural—it can never be, as most art claims for itself, an "emanation" outside of history and of human production.[7]

Detroit techno in its turn abandoned God, soulfulness, and "keeping it real." "Techno . . . says nothing to the Lord, but speaks volumes on the dance floor," Stuart Cosgrove noted in 1988. "Derrick May's revolutionary backtracking on the Technics decks and Santonio's Yamaha drums are stripped of any sense of emotion: they just percuss you out."[8]

Unfolding from Ruins

The Last Angel of History is composed around ruins and palimpsests. These qualities indicate one manner of unfolding: a view that history is almost entirely lost to us, unless one can seize on the briefest of clues as they flash in the rubble. One of the first things you notice about the film—from the very first shots of Edward George, playing the Data Thief, surveying a flooded landscape—is that it is composed around ruins. This scene of devastation returns several times: shacks and a mobile home all deep in water, abandoned, in an image saturated with bronze light.[9] The other scene of ruin is Detroit,

once grand buildings empty and painted with graffiti. The Data Thief character explores these ruins in search of clues, the voice-over (also George's) tells us. Sometimes the Data Thief carries a dowser, an instrument of montage that makes the earth speak. The film takes up the motif of the ruin by creating ruined images, palimpsests, layered so that parts of each layer are revealed, parts obscured. Striking among these layers is an image roughly in the shape of the African continent that appears to be a large piece of rust.

In this introduction the Data Thief (never facing the camera, as though to preserve the impression that he is not of the same space-time as the places he visits) relates the story of musician Robert Johnson, who sold his soul to the devil at a crossroads in exchange for a "secret technology": the blues. We receive the first clue that the characters in this movie are time travelers and that time, according to this movie, does not stretch forward and backward smoothly but is fractured, discontinuous, and folds up to permit certain characters to travel in time. The Data Thief says,

> Rumour has it that before Robert Johnson made his deal with the devil at the crossroads, he couldn't play to save his life. He sold his soul, in return he got the secret. Our thief from the future gives up the right to belong in his time—in order to come to our time, to find the Mothership connection. The thief becomes an angel—an angel of history.

The filmmakers evoke Walter Benjamin's "Theses on the Philosophy of History." Their title derives from Benjamin's heartbreaking meditation on Paul Klee's *Angelus Novus*, a big-headed, snaggle-toothed angel rendered in Klee's scratchy etching with many curlicues, its useless wings rising like surprised hands. Benjamin proposes that this angel is powerless to intercede and can only be blown backward into the future, further away from Paradise. "Where we perceive a chain of events, he sees one single catastrophe which keeps piling wreckage and hurls it in front of his feet."[10] Here is a manner of unfolding, devastating to contemplate, that says history constitutes no progress but only devastation. Benjamin kills any Hegelian virus that still infects Marx's historical materialism, to which the theses elsewhere devote themselves. The immobilized angel recognizes that human "progress" consists of catastrophe: yes, that is the correct perspective on the mass-scale abduction, enslavement, murder, and knowledge theft by Euro-Americans of African peoples in order to capitalize on growing global markets for sugar, cotton, tobacco, and indigo.

Benjamin's well-known sixth thesis states, in part: "To articulate the past historically does not mean to recognize it 'the way it really was' (Ranke). It means to seize hold of a memory as it flashes up at a moment of danger." This oft-quoted invocation continues, less familiarly, to state that both the content

of tradition and the people who receive it are in danger of becoming tools of conformism and of the ruling class. "Only that historian will have the gift of fanning the spark of hope in the past who is firmly convinced that *even the dead* will not be safe from the enemy if he wins. And this enemy has not ceased to be victorious" (Benjamin's emphasis).[11] Mining the past for flashes is a fraught and essential exercise. The past might not be rediscovered at all. Or, Benjamin warns, it might be homogenized into a dominant narrative of history that serves the ruling class: a concept that remains entirely relevant. Deftness, surprise, and the ability not just to reveal but also to conceal their findings will be crucial if Akomfrah and his colleagues are to enact a Black science fiction that refuses to be incorporated into any triumphalist or otherwise linear narrative.

Unfolding from Monads: Montage

The true picture of the past flits by. Memory flashes up at a moment of danger. If you don't catch those pictures deftly, you may lose them forever; and if you fail to catch them, the enemy will blend them into a bland, psychologizing, Spielbergian homily or a mediocre pop tune. *Last Angel* draws inspiration from Sergei Eisenstein (and from others who practice Eisensteinan montage, including Ousmane Sembene). Eisenstein did not trust cinema to produce truth even by observing the world long and patiently, but argued that it must *cut into* the observable world. These ideas inspire filmmakers to elicit those moments of flashing, where an unbidden artifact cuts into the present: that is montage, a skeptical manner of unfolding. Montage should produce contrasts—between shots, between image and sound, and within a shot—whose rhythm releases an energy that the spectator's body absorbs.[12]

Last Angel uses montage in two distinct ways. One is montage within the frame, especially in stationary shots that contain multiple contrasting images: these occur on the screens of the Data Thief's three computers and in the slits of his sunglasses, a different image fleeting across each eye (fig. 1). In an interview with Kass Banning, Akomfrah demurs cinematographer Arthur Jafa's suggestion that the essence of Black cinema resides in rhythm, or the cut, and says that it may reside instead in the frame.[13] So montage within the frame, holding the contrasts together like the points of multiple folds, seems to be an important strategy for Akomfrah.[14]

The other is a decidedly noncognitive montage in which worlds of images speed by our own eyes, too fast to comprehend. Watching *Last Angel* in real time, you don't see these sequences as much as feel them, bypassing your brain to go straight to the nervous system, intense streams that raise your energy a quantum. I experienced this nervous flow in viewings over numerous

years, and began to distinguish some patterns. Then I finally used the pause button to try to scrutinize these sequences frame by frame, with limited success. Here are some of them:

The Data Thief instructs himself to find the crossroads where Robert Johnson sold his soul for the blues. Flashing on one of the computers: are these ancient religious deities? A four-armed figure—Hindu? A wide-browed, naturalistic figure, possibly Persian or Armenian. An Egyptian relief carving. A phallus-headed entity. An African female figure. Another female figure, vulva dilated, giving birth. A winged creature cupping her breasts—Babylonian? (Note the uncomforting fecundity of these beings.) A big-eyed Greek-looking head. These give way to a rotating vortex that spins out into text (hard to read, but it looks like critical race theory). The Data Thief concludes with a clue, the phrase "Mothership Connection," that leads him to George Clinton.

Later: the Data Thief is, as he says, "surfing the Internet of Black culture." Old photographs flit by, scanning views of each intercut with others. There's a poster advertising Beulah Poynter performing at Havlins Theater; a group of Asian women in uniform; Black sailors; four smiling Black soldiers, one on a bicycle; a group of Aboriginal people, waiting outside a tent; well-dressed people c. 1900 scrambling over the rubble of ruined buildings; a group of Black men taking a rest on the porch of a 1930s gas station, the white proprietor seeming to share a joke with them. There occurs the figure of an eagle, composed—could it be?—of hundreds of people standing in formation; Richard Nixon, gesturing palms down; a massive Klan rally. There are funeral wreaths. Plump-cheeked women wearing babushkas. There are Black soldiers carrying a missile inscribed with some message to Adolf Hitler. A Black man holding his child, who is pointing with fascination at something off-frame. White soldiers in fancy uniforms doing acrobatics. Dozens of oil wells. From the 1940s, six pretty Black women all lipstick and gams. Schoolchildren at their desks. This is no stereotypical archive of Black culture, though there's a strong emphasis on African-American military service. Something more is going on.

At another point, Derrick May says, "Detroit techno came from Juan Atkins's idea to infiltrate the music industry as a Black artist doing electronic music. Nobody was doing it." Atkins says, over outer-space sound effects, "I wanted to land a UFO on the track." Flashing on one of the computers: anatomical drawings of insects; an animal that looks like a primitive rhinoceros; Chinese text; an astrolabe; diagrams of the cosmos labeled in Arabic. These pictures, streaming by too fast to really see, aren't illustrating what May and Atkins say. What are they doing?

These subliminal montages do not confirm what the speaker is saying; they take it in another direction, dig into the strata. We get a sense that the

Data Thief's computers are mining and mixing universal knowledge, unearthing fragments that may turn out to be connected.

Watching *Last Angel* in real time, the unseeable archival photographs operate like knives: they startle; you feel them as a wound or a shock. Does this bodily response elicit embodied knowledge or some other communal memory? What is the "moment of danger" that causes them to flash up?

Montage turns up a monad. Weheliye, in an inspired comparison of Ralph Ellison's *Invisible Man* and Benjamin's theses on history, notes that in both, "the past monadically flares up . . . which opens a different series of doorways to the crinkle of the past while suggesting a nondogmatic and elastic arrangement of temporal confluence." The term *monad* is used in Benjamin's sense: The historical materialist "only approaches a historical entity when it confronts him in the form of a monad":[15] a breach in the seemingly inevitable progression of time. Weheliye proposes that these monads can also be considered opacities, in Édouard Glissant's sense, and as folds in Deleuze's sense. In Gottfried Wilhelm Leibniz, the monad is a soul that perceives the entire universe from its point of view, some parts clearly, some indistinctly. But since Benjamin is considering the monad to be an interruption, he has clearly departed from Leibniz's embracing totality in which each monad knows its place and reverentially discloses the (closed) universe as well as it is able. Benjamin's monad interrupts the totality. Apparently Benjamin never got to explain exactly what he meant by "monad," which features in his unfinished Arcades project. He likely meant a point that concentrates a great deal of historical knowledge, similar to his concept of aura. In contrast to progressivist history, this conception of monad indicates that history is discontinuous, rhythmic.

Fabulation: Inventing Folds

Sometimes the lack of images and total loss of the past leads to another manner of unfolding: fabulation, making up folds.[16] Ruth Mayer notes this turn to fiction in the work of Carrie Mae Weems and Haile Gerima, which show that "the project of excavating an African past will invariably deviate from its anthropological and historiographical premises and venture into the realm of fantasy and myth to compensate for the lack of concrete and indubitable material."[17] *Last Angel*'s account is a fabulation truer than reality, for it tells a truth about the African diaspora, testified by multiple witnesses, that people who have been abducted and genetically altered, denied their rights and belonging in the present, have privileged access to knowledge of a future time.

And what's the appeal of an outer-space origin? It allows African-diaspora people, as Edward George writes, to "finally have done with this God. To
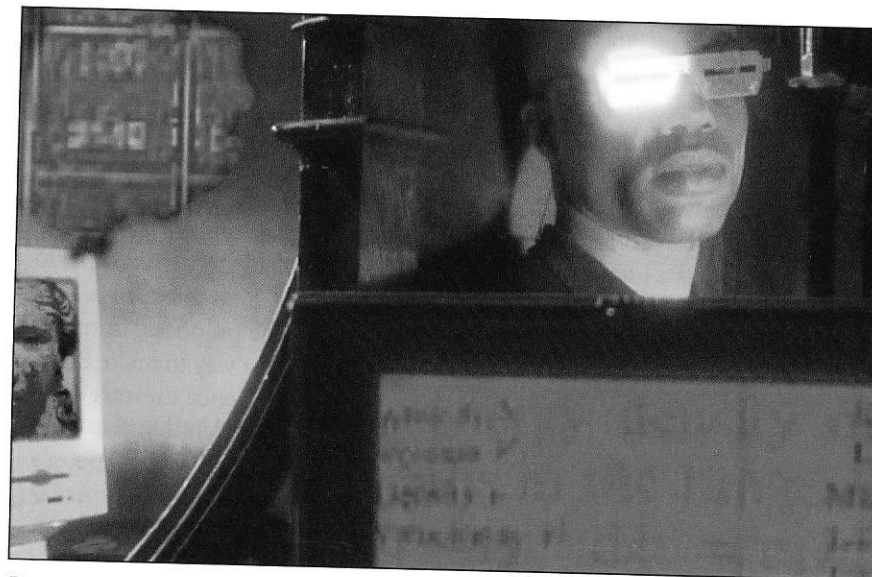
Figure 1. Montage within the frame: the Data Thief in *The Last Angel of History*.

Figure 2. A Guy Called Gerald in *The Last Angel of History*.

finally abandon the search for a place in this world. To become something other than human, here and now, while also hailing from some far away land, from ancient Egypt, Africa before the slave trade, and from somewhere out there too, from deep in the harsh winds of Saturn"[18]—the origin Sun Ra privileges over his terrestrial birthplace of Birmingham, Alabama. Afrofuturism asks, what's so great about being human? Humanism defines the liberal subject as sovereign, free from the will of others.[19] It means less to people who, during the Golden Age of humanism, were considered animals or possessions by Euro-American colonizers—yet who, in the manner of the master-slave dialectic, possess a knowledge of the totality inaccessible to their "owners." As Weheliye argues, too, technological mediation poses no threat to people considered not quite human anyway. Phonography, he proposes, is an appropriate model for African American historiography, a way to make Black people appear in history that erases them otherwise. Hence the ease with which Black people adopted and transformed recording technologies.

Even a reversal of humanism, that claims African (and diaspora) people are *more* human than other earthlings falls claim to a lame essentialism. Eshun, at his most vividly withering, puts it thus:

> Today's cyborgs are too busy manufacturing themselves across timespace to disintensify themselves with all the Turing Tests for transatlantic, transeuropean and transafrican consciousness: affirmation, keeping it real, representing, staying true to the game, respect due, staying black. Alien Music today deliberately fails all these Tests, these putrid corpses of petrified moralism; it treats them with utter indifference; it replaces them with nothing whatsoever.[20]

Fabulation, then, rejects a humanist notion that it is possible to tell stories truthfully, that if you're real enough you will receive justice. It's a controversial strategy, seeking not truth and reconciliation but powers of the false, having done with judgments of truth that insert you into the status quo in order to make room for ungovernable new forms of life.

A further step of fabulation is the moving and enigmatic myth of the Black Atlantis. In 1997, a year after *Last Angel*, the Detroit techno band Drexciya, in the liner notes to their CD *The Quest*, speculated that African peoples may have survived the Middle Passage to construct an underwater civilization. Maybe the pregnant women who were thrown overboard during that harrowing journey did not perish but gave birth to children with gills, who could live underwater. This mythological island under the sea features in Parliament's song "Deep": Clinton sings, "We need to raise Atlantis from the bottom of the sea, dancing 'til we bring it to the top." This aquatic civilization inspired the most aniconic film dealing with the unspeakable disaster of the Middle Passage, the Otolith Group's *Hydra Decapita* (2010). The terribly

beautiful dream of a watery civilization born of murdered slaves could make a ripping science-fiction movie. But *Hydra Decapita* shows almost nothing but the surface of dark waves . . . the dawn over a shoreline . . . anti-auratic close-ups of reproductions of J. M. W. Turner's *Slavers Throwing Overboard the Dead and Dying—Typhoon coming on* of 1840 . . . and the view of sand and sky from within a cave. White light picks out the ripples; in freeze-frame, they suggest hieroglyphs, signals floated up from the deep. Someone speculates that an extraterrestrial civilization might have populated Earth in interplanetary liquid flows. We hear a terrible story: John Ruskin's description of the Turner painting, sung in Anjalika Sagar's beautiful, throaty voice. The sound of this voice is as close as *Hydra Decapita* gets to any kind of redemption.

Refusing to Unfold: Aniconism

Given the concerted effort of American slavers to eradicate the culture of African slaves, to hope for some kind of African communal memory seems like a desecration of the dead. As Samuel Delany, who is interviewed in *Last Angel*, writes,

> Every effort conceivable was made to destroy all vestiges of what might endure as African social consciousness. When, indeed, we say that this country was founded on slavery, we must remember that we mean, specifically, that it was founded on the systematic, conscientious, and massive destruction of cultural remnants. That some musical rhythms have endured, that certain religious attitudes and structures seem to have persisted, is quite astonishing, when you study the efforts of the white, slave-importing machinery to wipe them out.[21]

Aniconism, or the avoidance of figurative image-making, is yet another manner of unfolding that operates in *Last Angel of History*: a strategy of denying images (and sounds) altogether, causing them to remain entirely enfolded. Aniconism seems the best response both to the lost knowledges of Africans and to the drawn-out calamity of slavery that caused the loss. To try to soothe the wound with holistic fictions does violence all over again.

The Last Angel of History makes wounds, that is for sure. A question for the aniconic strategies of *The Last Angel of History* is, do the wounds make a place where knowledge might enter later—Benjamin's monads? Is the Data Thief come from the future to wound African diaspora peoples so that he can graft their lost knowledge back into them? Are these unseeable images compressed like pills, to expand only after they are ingested? To protect them meanwhile from merely curious eyes?

Aniconism is at work in this as in many of BAFC's films: refusing to show the image, concealing it as though in a deep fold that the film stretches open for one-twenty-fourth of a second. An ontological kind of question arises: are these images concealed inside folds, as I just suggested, or fissures? These sound like metaphors but they yield different ways of thinking about history, different manners of enfoldment. A folded universe, like that described by Leibniz, is fundamentally connected, and someone with perfect knowledge—a God—would be able to unfold it all and see how each part connects to every other. In such a universe there are not disconnected fragments but peaks of folds. But a fissured universe, or more rightly a fissured history of the world, like that described by Michel Foucault, sees earthquakes, the formation of sedimentary layers, tsunamis of destruction that utterly bury and disconnect its parts. In this kind of universe, the fragment surfaces, if it ever does, quite alone.

This second ontology seems to more properly describe the universe the Data Thief travels in and explains his necessity. Only a hard-working time traveler might be able to fit the parts together.

This is a good point to mention that many of the musicians the film presents as protagonists of Afrofuturism interviewed in the film are hard to see, though Akomfrah's characteristic framing and lighting for interviews sculpts the speakers in chiaroscuro, giving them authority and beauty. Juan Atkins, majordomo of Detroit techno, looks a bit ill at ease. British jungle musician Goldie, framed at the right of the image, looks in that direction as if he'd like to flee. A Guy Called Gerald looks rather forlorn—though he patiently explains, in a cross-cut to an annoyed Derrick May, the origin of the term "jungle" (fig. 2). A smiling Keith Tucker does a cartwheel on a Detroit lawn and literally vanishes. Their enfoldedness suggests that electronic musicians prefer to be known through their sounds.

Unfolding from a Database

The reason we cannot really see the images in *Last Angel*'s subliminal montages is that the film is not really showing us images: it is showing a database. The clicking sound we hear as the images flash by suggests a future researcher clicking through a mass of information that takes the shape of a database—that is, an organized ruin. As though the researcher of the future knows no history, neither the official version of progressive history nor the fractious alternatives, and so can only patiently scroll through the archive. The Data Thief is collecting *all* possibly relevant fragments into a vast database, of which we perceive only a very few entries. The Data Thief begins to seem like a Benjaminian redeemer, armed with a mega-computer and, we can image, algorithms for sorting and extrapolation. Here *Last Angel*'s ani-

conism takes an additional significance: it doesn't show images, or "content," but the means for managing content: databases and algorithms. Thus the images fold up and recede away into a database that, the film makes us hope, someone may be able to interpret. (Who and where is this tech-savvy redeemer? We can't count on the Data Thief to do everything.)

In this way *Last Angel* in 1996 expresses a truth of contemporary power that most cinema cottoned to only later: namely, that power operates not by manipulating individuals and representations but by "modulating" them algorithmically.[22] BAFC was one of the first to reject the critique of representation at a time, the mid-1980s, when many minority filmmakers were enthusiastically (and sometimes sophisticatedly) elaborating it. Akomfrah points out that in the 1980s BAFC "did not have the luxury" to be hostile to identity politics;[23] instead they developed a layered, fractured concept of identity that transformed the image into an archive (or database). BAFC knew that manipulating representation was an old power game, and for filmmakers of color to engage in it would be to waste energies in old skirmishes needed for an imminent war. Now, in the light of the 2013 revelations about the U.S. National Security Agency, it is abundantly clear that power can do perfectly fine without "content." It only needs to track when the content was generated, where it comes from, and where it is going: time and trajectory. It's not the content that matters but the metadata.

Eshun addresses this issue in his 2003 essay "Further Considerations on Afrofuturism":

> In the colonial era of the early to middle twentieth century, avant-gardists from Walter Benjamin to Frantz Fanon revolted in the name of the future against a power structure that relied on control and representation of the historical archive. Today, the situation is reversed. The powerful employ futurists and draw power from the futures they endorse, thereby condemning the disempowered to live in the past.[24]

Those futurists shape the present quite literally. They are no longer employees either, as the reluctant futurist Jaron Lanier points out, but megacomputers owned by financial investors, insurance companies, giant online stores, social-media networks, search engines, and intelligence agencies that "calculate actions for their owners that reduce risks and increase wealth and influence."[25]

If we accept that those entities owning the most powerful computers are going to win absolutely—that is, economically—that tricksterism and brilliant critique will not save the multitude (that is, the majority of people in the world who do not hold shares in those companies), and that the futurologists have targeted Africa to suffer the most in the coming economic, medical, and environmental disasters, we can only fall into despair. "These

powerful descriptions of the future demoralize us; they command us to bury our heads in our hands, to groan with sadness."[26]

Here's a simple approach to a solution that might cheer us. Considering that the databases and algorithms are products of human labor; considering further that most of the "contents" of the databases are created or extracted from nature by humans; then, reconnecting the profits to their sources, we must suppose that when those humans are not properly remunerated, profits will begin to fall. Simply to retain profits—this is no revolutionary scheme—the kind of companies listed above will need to find a way to pay "content providers"—software writers, composers, filmmakers, thumbsuppers, tweeters, people who pose unwittingly for security cameras, etc.—every time their content is viewed, re-tweeted, or otherwise made use of.[27] This naive and silly-sounding scheme to monetize the information economy, which Lanier proposes and which I find very appealing, will return later in this essay in the content of music remixing.

Eshun urges people to be smart about futurism. Science fiction is concerned with "engineering feedback between its preferred future and its becoming present" as much as the financial analysts are. African and African-diaspora artists intervene in all those smug futurisms by disturbing temporal linearities of progress, and also of inevitable decline.

Unfolding Counter-discursive Fragments

Another manner of unfolding that *The Last Angel of History* engages is Foucauldian historiography. Akomfrah has emphasized several times that BAFC was interested in Foucault's ideas of counter-memory, a memory that opposed official memory but was fissured with gaps. "You could not present the fullness of memory; you had to evoke the interruptions and those interruptions spoke as eloquently as the speech, the silences became as important as the voices."[28] BAFC's archaeology of the image considers the archive to be not only partial but to be constructed in the available terms of the discourse of its time, so that to excavate a counter-memory it's necessary to look for what the archive is unable to show.[29]

Last Angel presents us with images from actual photographic archives: national archives, archives of media companies, university archives. Through these pictures (that flash by almost too quickly to see) the montage hints at all kinds of enfolded histories. A Foucauldian archaeology, more than the Benjaminian mood of danger and disaster, invites us to roll up our sleeves and do research, to follow the clues left by BAFC's researchers themselves—Eshun, Edward George, and Floyd Webb—from their journeys in these actual archives.

Figure 3. The Lincoln Memorial under construction in *The Last Angel of History*.

In another of those subliminal montages that touches on labor in the early twentieth-century United States, you might recognize those pictures of a child working in a textile mill and workers hauling bananas from another film of counter-memory, *The Wobblies* (dir. Deborah Shaffer and Stewart Bird, 1979). That film unearthed the history of the International Workers of the World, who in the early twentieth century fought for the rights of temporary, "unskilled," and non-white workers that the American Federation of Labor would not represent. These images of exploited laborers make it clear that *Last Angel* is not a documentary of "inclusion," a cheering assurance that blacks and immigrants are integral to building the American Dream. They counter two rather awkward interviews. One is with the African-American astronaut Bernard A. Harris Jr., a sweet fellow who avows being "an original Trekkie" and recalls partying a lot in college to Parliament's *The Mothership Connection*. Another is Nichelle Nichols—Lietenant Uhuru from *Star Trek*!—elegant and earnest, describing an inspiring visit to a newly multicultural NASA. It's great to see them and to know that Harris flew a composite flag of African nations on the moon, but you get the feeling Akomfrah's heart is not in these interviews. As Octavia Butler's critique in the film suggests, if inclusion means being part of the military-industrial complex, angels would prefer to be excluded from this particular history.

Mulling over those pictures of the White House and the Lincoln Memorial under construction (fig. 3), I receive another gift from the archive. Benjamin Banneker (1731–1806), the free African American mathematician, astronomer, surveyor, and antislavery activist living in Maryland, worked on the land survey for the construction of Washington, DC, in 1791. During that time Banneker wrote the first of several almanacs for the coming year based on his astronomical observations. The first of these, which corrected errors in two existing almanacs, he sent to Thomas Jefferson, secretary of state under George Washington. In the accompanying letter Banneker eloquently deconstructed the state's reliance on slavery. Recalling the statement in the Declaration of Independence, "We hold these truths to be self-evident, that all men were created equal," Banneker wrote:

Here sir, was a time in which your tender feelings for yourselves had engaged you thus to declare, you were then impressed with proper ideas of the great valua-

tion of liberty, and the free possession of those blessings to which you were entitled by nature; but, sir, how pitiable it is to reflect that although you were so fully convinced of the benevolence of the Father of mankind, and of his equal and impartial distribution of those rights and privileges which he had conferred upon them, that you should at the same time counteract his mercies, in detaining by fraud and violence so numerous a part of my brethren, under groaning captivity and cruel oppression, that you should at the same time be found guilty of that most criminal act, which you professedly detested in others with respect to yourselves.[30]

We can celebrate the achievements and influence of Banneker, the self-taught son of freed slaves, with positivistic ease. In a mood of "variantology" we can also read with pleasure the observations in his almanac about the seventeen-year locusts and appreciate his mathematical puzzles. Banneker will return to this essay soon as the protagonist of yet another manner of unfolding.

Unfolding Deep Time

More images on the Data Thief's computer: typewritten equations, spare diagrams, geometric and curvilinear. Drawings of strange animals, as though observed by a medieval visitor to some foreign land; astrolabes inscribed in Arabic; splendidly ornate North African mosques; Chinese text. I recognize no sub-Saharan African artifacts, but still the montage gives a sense of ancient technologies and cultural sharing. As the images compress down to text and diagrams, I get a sense of knowledges compressing as they travel history. The computer-science concept of "logical depth," the amount of calculating time implicit in a message, is relevant here: "The value of a message is the amount of mathematical or other work plausibly done by its originator, which its receiver is saved from having to repeat."[31] *Last Angel*, by flashing all these images at us, is suggesting that contemporary math, science, and technology have deep, but implicit, cultural roots.

Not long ago, the idea that modern science, math, and technology had roots in Chinese, Indian, African, and other non-Western cultures provoked howls of consternation. Some of this is summarized in the debate over *Black Athena*, the title of Martin Bernal's three-volume work (1987–2006), which argued that much of the Greek mythology that Europeans claimed as their cultural heritage arose in Africa. Bernal showed that the myth of Greek origins for European culture dates to the late eighteenth century, before which time Europeans commonly acknowledged the Greek debt to Egyptian cul-

ture.[32] These ideas arose quite a bit earlier than Bernal's work—in Frederick Douglass's research on the Upper Egyptian and Nubian origins of predynastic Egyptian culture, for example, or in Sigmund Freud's suggestion that Moses was an Egyptian and adapted his monotheism from the worship of Akhenaton, or in W. E. B. Du Bois's research on the earliest world civilizations along the Nile delta. Now that the acrimonious confrontation between Euro- and Afrocentrists has settled down somewhat, solid scholarship proliferates. For example, Bernal offers linguistic confirmation for Herodotus's equation of Apollo with the Egyptian god Horus, and Patrice Rankine carefully speculates that the oracle of Delphi was an Ethiopian figure.[33]

Islamic philosophy also gives precedence to an African origin over the much later Greek one. The Iranian seventeenth-century philosopher Mulla Sadrā wrote that philosophy began with Adam; and "The great Hermes disseminated it [philosophy] in the climes and in the countries and explained it and gave benefit of it to the people. He is the father of philosophers and the most learned of the knowledgeable. . . . As for Rome and Greece, philosophy is not ancient in those places as their original sciences were rhetoric, epistolatory and poetry . . . until Abraham became a prophet and he taught them the science of divine unity." Mulla Sadrā says it was Thales, who philosophized in Egypt and then migrated to Miletus, who introduced philosophy to Greece.[34]

Still, a sting of resentment characterizes these scholarly struggles over the African origins of Western civilization. This has to do with the very purpose of historiography. What kind of unfolding is it? Let us consider specifically the history of science and technology. Insofar as the search for origins seeks to insert forgotten ancestors into a linear and causal model of history, it is beholden to the Enlightenment progress narratives that have justified oppression and slavery. On the other hand, we can value other knowledge systems that may or may not get pulled into royal science, value "minor science" for its own local relevance.[35]

In these flickering pictures of ancient technologies, *Last Angel* is beginning to unfold those things whose elision constitutes logical depth. Let us suspend questions like "but what does African mathematics signify *now*?" that demand we prove the influence of ancient African knowledge on contemporary thought. Instead we can cultivate curiosity about the inventions Africans made in the past without having to justify them in terms of the present. Siegfried Zielinski calls such a generous, curious attitude toward the history of technologies "variantology," for it seeks not trends but variations. Zielinski criticizes linear, survival-of-fittest historical narratives, such as those that see past technologies as "anticipating" present ones. This manner of Foucauldian archaeology searches into history in order to release crea-

tive energies from past key moments.[36] Similarly, Isabelle Stengers refocuses attention not to the results of experimentation but to the proliferation of experimental practices.[37] The past is richer than the present. It is full of virtualities that we can actualize now: this is another way to describe *Last Angel's* manner of unfolding.

For example, in its provocative flashes of ancient technologies on the Data Thief's computers, the film invites a "variantology" of the history of computing. Here is a variant that is satisfying to explore: the African history of binary mathematics, which ethnomathematician Ron Eglash succinctly summarizes. Geomancy, calculated in base two and using sixteen figures, is usually attributed an Arabic origin, in turn learned from traders returning from East Asia. However, Eglash points out that base-two calculation is an ancient and ubiquitous practice in Africa, while most world mathematics calculate in base ten. Eglash studied the base-two divination practiced by Bamana of Senegal that, through a series of iterations made using shells or marks in the sand, result in one of sixteen divination symbols. This binary mathematics became one of the many syncretic North African Muslim practices, termed in Arabic *'ilm al-raml*, science of the sand. The translator Hugo of Santalla introduced binary divination in Spain in the twelfth century, apparently in a translation of a work by an "unknown Tripolitan" referred to as Alatrabuculus.[38] It was quickly taken up by alchemists, hermeticists, Rosicrucians, and others. The thirteenth-century Franciscan missionary, translator, and writer Ramón Llull adapted Arabic cryptography to create a combinatorial logic that would influence many Renaissance thinkers. Deep-time scholars have been excavating Arabic and Jewish sources of Llull's combinatorics,[39] but a little more research might shed light on the pre-Islamic African roots of the process that Eglash suggests.

Folds within folds. Geomancy was considered an occult art in the Renaissance, so it is not surprising that its origins were effaced. Nevertheless, Llull's binary mathematics returned to legitimacy (and got whitewashed of any Arabic, let alone African, sources) in their influence on Leibniz's binary logic in the *Dissertation de arte combinatorial*. Leibniz is usually credited for the invention of the binary language of Boolean algebra, on which the logic gates of computer circuits are based.[40]

Here's a more open fold. Benjamin Banneker composed mathematical puzzle-poems. Our friend Eglash, in a brief but deeply researched article, notes that these puzzles revolved around base-two calculations. Eglash postulates that Banneker's inventions arose not only from his innate intelligence, "talented tenth" style, but from his African ancestry. Banneker's father Robert came from an area of West Africa ("Guinea") in which people cultivated binary numerology. Banneker's grandfather "Banneky" was of royal Wolof

origin and may have been the one who taught Banneker about the quincunx, a cruciform amulet widely used in Senegal.[41] These connections suggest that African mathematical knowledge, deeply enfolded in binary logic, was likely also remembered and practiced in the diaspora.

Unfolding as Remix

As Rinaldo Walcott points out, *Last Angel* is structured in a cut-and-mix form appropriate to diaspora aesthetics.[42] Remix and bricolage constitute aesthetics, epistemology, and historiography: a manner of unfolding that snatches up fragments from whatever stratum it wants and crashes them together with fissile power. In the film Paul Miller and Goldie celebrate the freedom remixing gives the composer to take sounds from wherever he wants. That's true of many early sampling musicians, and DJs before them: legendary DJ Grandmaster Flash mixed "white boy music like the Steve Miller Band and Spooky Tooth, Jeff Beck and Steely Dan . . . talk about righteous beats! Crazy beats from the Philippines and India with sounds I didn't know a human being could make."[43] In their landmark 1988 and 1990 albums, Public Enemy collaged dozens of samples into an overwhelming sonic rapture, before licensing laws made such music financially impossible.[44]

In *Last Angel* Goldie says, "Time is irrelevant, cuz we can take music from any era." And Greg Tate calls sampling "digitized race memory," allowing people without formal musical training to access musics from all places and times, if these have been recorded. (This remark is accompanied by shots of the Data Thief fiddling with the innards of a discarded computer, in bewilderment). From a majoritarian point of view, the idea of remixing history sounds capricious and irresponsible; but not so for Afrofuturists. The remix manner of unfolding takes a point of view from the underside of majoritarian history and perceives the power of the remix to release energy from hitherto unimagined connections.

Appropriation and deracination were issues at the time the film was made: the ease of electronic sampling got people worried that recorded sounds would be separated even further from their sources (in the psychological condition R. Murray Schafer called schizophonia, hearing sounds from another space and time embedded in one's own) and that the original would not be credited.[45] Yet as we know, the history of modern popular music is a history of white appropriation of African-American innovations. Black techno music, like its predecessor R&B (as well as jazz and disco, though these never lost their African-American associations), got adopted by white musicians who reached large white audiences, to the point where its Black

origins became effaced and forgotten. Beverly May recounts how this happened with the techno music invented by Black musicians in Detroit. In the early 1990s Detroit techno got taken up by European audiences at the same time that the Detroit scene faded, partly because of the rising popularity of hip-hop, losing radio support, as well as its major venue, the Music Institute. For a while a network of independent record labels thrived, especially on the "Detroit-Berlin axis" of techno music. Techno fed the European and North American rave culture. Unlike the reportedly drug- and alcohol-free Detroit techno scene, raves were indissociable from drugs and liable to police raids on the illegal venues where they were held; May relates that these, the increasingly white, suburban crowd, and the faster, colder sounds that ravers wanted alienated a lot of African-American audiences and musicians.

Techno's Black origins got sucked up by the increasingly commercial alt-techno vortex. Beverly May asked Derrick May if he still characterized techno as "Kraftwerk and George Clinton stuck in an elevator." He replied gnomically: "Kraftwerk got off on the third floor and now George Clinton's got Napalm Death in there with him. The elevator's stalled between the pharmacy and the athletic wear store."[46]

Giving credit and getting paid also remain concerns for the session musicians and backup singers whose infectious hooks and sublime vocalizations often *made* the song. When musicians sample Clyde Stubblefield's performances on James Brown's *Funky Drummer* and *Cold Sweat*, the licensing fees go to James Brown's record label. Merry Clayton's vocal improvisation drove home the sublime terror of the Rolling Stones' *Gimme Shelter*, but no royalties go to her.[47]

Despite these problems, worries about musical theft have waned—at least for musicians on the few remaining big labels whose armies of lawyers can track down samples and make the samplers pay.[48] Aesthetically, remix differs from plagiarism in that it refers to its history in the recognizability of its sources, as Eduardo Navas notes.[49]

Remixing is a sonic, not visual, theory of montage, and thus especially sensitive to the way montage is received and realized in the body. So if we give a little more credit to the audience, we can respect how they complete the creativity of the remix, as they follow samples, hooks, styles, remakes and remixes back to their sources and unfold them while listening, dancing, and reading. Returning to Jaron Lanier's proposal to monetize the information economy, we can also imagine a way that at least some creators will continue to be rewarded for their creations as they recirculate. A remix manner of unfolding authorizes the historian to play DJ. So let us enjoy inventions, as May invites us to in *Last Angel* with his disarmingly simple recipe for remix: "You just take a little salt, a little pepper, mix it up and you've got a nice piece of soup."

This essay has unfolded just a few of the shimmering monads in *The Last Angel of History*. There remain many more, that likely lead in all kinds of unforeseeable connections. I ask my fellow admirers of this film, John Akomfrah, and Black Audio Film Collective to abstain from being scholarly Sir Noses and be Star Childs instead. Instead of interviewing Akomfrah yet again to ask him what the movie is about, let us feel it for ourselves and unfold accordingly.

Notes

1. See chapter one of Laura U. Marks, *Enfoldment and Infinity: An Islamic Genealogy of New Media Art* (Cambridge, MA: MIT Press, 2010), for a discussion of enfolding-unfolding aesthetics.

2. Afrofuturism, a term attributed to Mark Dery, took form as a movement on a listserv founded by Alondra Nelson in 1998, a couple years after *The Last Angel of History* was released. It draws on innovations in literature, music, scholarship, and popular culture that rose up independently at different times.

3. John Corbett, *Extended Play: Sounding Off from John Cage to Dr. Funkenstein* (Durham, NC: Duke University Press, 1994).

4. Alexander G. Weheliye, "Reading Sonic Afro-Modernity," *Phonographies: Grooves in Sonic Afro-Modernity* (Durham, NC: Duke University Press, 2005).

5. Kodwo Eshun, "Virtualize the Breakbeat," *More Brilliant Than the Sun: Adventures in Sonic Fiction* (London: Quartet Books, 1998): 71.

6. Gilles Deleuze, "Painting and Sensation," *Francis Bacon: The Logic of Sensation*, trans. Daniel W. Smith (Minneapolis: University of Minnesota Press, 2002): 31–38.

7. Richard Dyer, "In Defence of Disco," *The Faber Book of Pop*, ed. Hanif Kureishi and Jon Savage (London: Faber and Faber, 1995): 526.

8. Stuart Cosgrove, "Seventh City Techno," *The Faber Book of Pop*, 679–80.

9. The credits say that it is filmed in the southern U.S. The scene harks forward to Hurricane Katrina of 2005, which revealed Southern state governments' criminal disregard for their poorest populations, overwhelmingly Black.

10. Walter Benjamin, "Theses on the Philosophy of History," *Illuminations: Essays and Reflections*, ed. Hannah Arendt, trans. Harry Zohn (New York: Harcourt, Brace, and World, 1978): 257.

11. Ibid., 255.

12. Sergei Eisenstein, "A Dialectic Approach to Film Form," *Film Form: Essays in Film Theory*, ed. and trans. Jay Leyda (New York: Harcourt, Brace, 1949): 45–63.

13. Kass Banning, "Feeding off the Dead: Necrophilia and the Black Imaginary," *Border/Lines* 29/30 (1993): 28–38.

14. See Jean Fisher's discussion in "In Living Memory . . . Archive and Testimony in the Films of the Black Audio Film Collective," in *The Ghosts of Songs: The Film Art of the Black Audio Film Collective*, ed. Kodwo Eshun and Anjalika Sagar (Liverpool: Liverpool University Press, 2007): 24.

15. Cited in Weheliye, "Reading Sonic Afro-Modernity," 79. For an excellent comparison of Benjamin's and Deleuze's conceptions of the monad, see Timothy Flanagan, "The Free and Indeterminate Accord of 'The New Harmony': The Significance of Ben-

jamin's Study of the Baroque for Deleuze," in *Deleuze and the Fold: A Critical Reader*, ed. Sjoerd van Tuinen and Niamh McDonnell (Basingstoke: Palgrave Macmillan, 2010): 46–64.

16. Gilles Deleuze, *Cinema 2: The Time-Image*, trans. Hugh Tomlinson and Barbara Habberjam (Minneapolis: University of Minnesota Press, 1989): 149.

17. Ruth Mayer, *Artificial Africas: Colonial Images in the Time of Globalization* (Hanover, NH: Dartmouth College Press, 2002): 243.

18. Edward George, "(ghost the signal)," in *The Ghosts of Songs*, 205.

19. N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999).

20. Kodwo Eshun, "Operating System for the Redesign of Sonic Reality," in *Audio Culture: Readings in Modern Music*, ed. Christoph Cox and Daniel Warner (New York, London: Continuum, 2004): 157-159.

21. Quoted in Mayer, *Artificial Africa*, 242, note 71.

22. Gilles Deleuze, "Postscript on the Societies of Control," *October* 59 (Winter 1992): 3-7.

23. "An Absence of Ruins: John Akomfrah in Conversation with Kodwo Eshun," *The Ghosts of Songs*, 132.

24. Kodwo Eshun, "Further Considerations on Afrofuturism," *CR: The New Centennial Review* 3, no. 2 (2003): 289.

25. Jaron Lanier, "Fixing the Digital Economy," *New York Times*, June 8, 2013, SR1.

26. Eshun, "Further Considerations," 292.

27. Lanier, "Fixing the Digital Economy."

28. "An Absence of Ruins: John Akomfrah in Conversation with Kodwo Eshun," in *The Ghosts of Songs*, 131.

29. See chapter one of Laura U. Marks, *The Skin of the Film: Intercultural Cinema, Embodiment, and the Senses* (Durham, NC: Duke University Press, 2000) for a discussion of Foucauldian archaeologies in the films of BAFC, including Akomfrah's *Handsworth Songs*, *Seven Songs for Malcolm X*, and *Who Needs a Heart?*, and Reece Auguiste's *Mysteries of July*. To Foucault's categories of "seeable" and "sayable" I add the "sensible," for an archaeology of sense memory.

30. *Memoir of Benjamin Banneker, read before the Maryland Historical Society, at the Monthly Meeting, May 1, 1845, by John H. B. Latrobe, Esq.* (Baltimore: John D. Toy, 1845): 15–16. Jefferson replied most cordially and told Banneker he had forwarded his almanac to M. de Condorcet of the Academy of Sciences in Paris. We can surmise that Banneker influenced Jefferson's role in the movement to abolish slavery.

31. Charles H. Bennett, "Logical Depth and Computational Complexity," in *The Universal Turing Machine—A Half-Century Survey*, ed. Rolf Herken (Oxford University Press, 1988): 227-57.

32. Martin Bernal, *Black Athena: The Afroasiatic Roots of Classical Civilization*, vol. I, *The Fabrication of Ancient Greece, 1785–1995* (1987); vol. 2, *The Archaeological and Documentary Evidence* (1991); vol. 3, *The Linguistic Evidence* (2006; all New Brunswick, NJ: Rutgers University Press).

33. Patrice D. Rankine, "Black Apollo? Martin Bernal's *Black Athena: The Afroasiatic Roots of Classical Civilization*, Volume 3, and 'Why Race Still Matters,'" in *African Athena: New Agendas*, ed. Daniel Orrells, Gurminder K. Bhambra, and Tessa Roynon (London: Oxford University Press, 2011).

34. Mulla Sadrā, *On the Incipience of the Cosmos*; cited in Sajjad Rizvi, "Mulla Sadra," *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, June 9, 2009, http://plato.stanford.edu/archives/sum2009/entries/mulla-sadra/, accessed November 29, 2014.

35. Gilles Deleuze and Félix Guattari, "1440: The Smooth and the Striated," *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (Minneapolis: University of Minnesota Press, 1987): 486. On theories of science historiography see, for example, Roshdi Rashed, "The Notion of Western Science," in *The Development of Arabic Mathematics: Between Arithmetic and Algebra*, trans. A. F. W. Armstrong (Dordrecht, Netherlands: Kluwer, 1994): 335–48; Isabelle Stengers, *The Invention of Modern Science*, trans. Daniel W. Smith (Minneapolis: University of Minnesota Press, 2000); Sandra Harding, *Is Science Multicultural? Postcolonialism, Feminism and Epistemologies* (Bloomington: Indiana University Press, 1998); and Sandra Harding, ed. *The Postcolonial Science and Technology Reader* (Durham, NC: Duke University Press, 2011).

36. Siegfried Zielinski, *Deep Time of the Media: Toward an Archaeology of Hearing and Seeing by Technical Means*, trans. Gloria Custance (Cambridge, MA; MIT Press, 2006). See also the edited volumes of *Variantology* published by Walther König.

37. Isabelle Stengers, "Making History," *The Invention of Modern Science*, 89–107.

38. Ron Eglash, *African Fractals: Modern Computing and Indigenous Design* (New Brunswick, NJ: Rutgers University Press, 1999): 99–101; Charles Homer Haskins, *Studies in the History of Mediaeval Science* (Cambridge, MA: Harvard University Press, 1924): 77–78.

39. Zielinski, *Deep Time of the Media*, 79–83, 118–20: Florian Cramer, *Words Made Flesh: Code, Culture, Imagination* (Rotterdam: Piet Zwart Institute, 2005); David Link, "Scrambling T-R-U-T-H: Rotating Letters as a Material Form of Thought," *Variantology 4: On Deep Time Relations of Arts, Sciences and Technologies in the Arabic-Islamic World and Beyond*, ed. Siegfried Zielinski and Eckhard Fürlus (Cologne: König, 2010): 215–66.

40. Eglash, *African Fractals*, 101. See also William Russell Bascom, *Sixteen Cowries: Yoruba Divination from Africa to the New World* (Bloomington: Indiana University Press, 1980); Philip M. Peek, *African Divination Systems: Ways of Knowing* (Bloomington: Indiana University Press, 1991), and the large bibliography on ethnomathematics.

41. Ron Eglash, "The African Heritage of Benjamin Banneker," *Social Studies of Science* 27, no. 2 (April 1997): 307–15.

42. Rinaldo Walcott, "The Sight of Sound: *The Last Angel of History*," in *Fluid Screens, Expanded Cinema*, ed. Janine Marchessault and Susan Lord (Toronto: University of Toronto Press, 2007): 167–71.

43. Quoted in Kembrew McLeod and Peter DiCola, *Creative License: The Law and Culture of DJ Sampling* (Durham, NC: Duke University Press, 2011): 55.

44. Ibid., 22–26.

45. R. Murray Schafer, *The Soundscape: Our Sonic Environment and the Tuning of the World* (Rochester, VT: Destiny Books, 1993). For a critique of Schafer see Jonathan Sterne, "Hello!" *The Audible Past: Cultural Origins of Sound Reproduction* (Durham, NC: Duke University Press, 2003): 1–19.

46. Beverly May, "Techno," in *African-American Music: An Introduction*, ed. Mellonee V. Burnim and Portia K. Maultsby (New York: Routledge, 2006): 342–48. The interview with Derrick May is undated but took place sometime between 1995 and 2000.

47. Morgan Neville's *20 Feet from Stardom* (2013) tells the stories of backup singers like Clayton, predominantly African American women, who remain mostly unknown

though everyone recognizes their voices. The film weighs individual musical stardom against a less valued collective authorship, grounded in the gospel choir.

48. See Kembrew McLeod and Peter DiCola, *Creative License: The Law and Culture of DJ Sampling*, for a page-turning history of famous lawsuits.

49. Eduardo Navas, *Remix Theory: The Aesthetics of Sampling* (Vienna: Springer-Verlag, 2012): 67–68.