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In "The Cloud": Figuring and Inhabiting Media Milieus

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Introduction: Media Figure

Our discussions of digital media are full of figures. Most of our online interaction takes place on webpages that we visit by entering an address, or platforms that we access through portals. These services circulate data on networks and interact with one another using interfaces. Moreover, these services were once hosted on local machines known as servers; now, the data they process resides in a place we call the cloud. The hierarchical information architectures that underpin these services are known as stacks. Sometimes, we think of the encompassing system of data, devices, interfaces, and services—"the internet," in other words, as it's actually lived—as an ecology or an ecosystem, which is to say, a self-governing, self-organising, holistic, and emergent system that we, in some sense, inhabit. Other times, we just call it life—work or leisure, productivity or entertainment, self-expression or data capture.

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These terms, and others like them, make up the language that we use to denote, describe, and engage with contemporary media. Many of these terms have specific meanings in technical fields, like computational science and human-computer interaction: interfaces allow users to communicate with soft- or hard-ware (Hookway 2014); platforms are a type of computational system organised around the decentralisation of content production and the recentralisation of data capture (Helmond 2015); cloud computing provides off-site computational resources, software services, or storage to customers on demand, obviating the need to maintain systems and services on their own premises (Hu 2015). But they are also woven through the vernacular language we use to help us make sense of the vast, complex, distributed, and encompassing media systems that underpin life today. These systems operate at speeds and extend across scales—both vast and microscopic—that exceed embodied human perceptual and cognitive capacities. They are made up of media technologies that are otherwise imperceptible to their users. This is where figures come in to play. Interface, platform, cloud—each is a technical, computational term, but each is also a figure. In this chapter, I want to formalise the role that these figures—and others like them—have in our engagements with media. In brief, the proposition I want to develop in this chapter is this: figures provide a means for making sense of how complex, distributed, and opaque media-technical systems inform, condition, and shape contemporary life.

This proposition relies on a somewhat-idiosyncratic understanding of its key terms: figure, inhabitation, and media. Rather than conceiving of figures as symbolic phenomena—as representations, metaphors, or figures of speech—I want to argue that figures make media inhabitable: that they are the means by which media can be lived with, lived through, and lived in today. The point of departure for my conception of figures is Donna J. Haraway's hugely influential claim that we ought to understand figures as "performative images that can be inhabited" (1997: 11). For Haraway, this claim sits within a theoretical framework designed to undermine distinctions between the world and our symbolic representations of it: understood as "material-semiotic processes," her figures become a critical means for both understanding the world as it is, and for actively *making* new worlds that are inhabitable by—and amenable to—a

variegated "menagerie" of human and non-human beings (see Giraud et al. 2018). Drawing on Haraway's work, I want to retain the idea that figures can be "inhabited." But I want to revise this inhabitation's terms. I want to focus on "worlds" constituted—conditioned and shaped—by large-scale media-technical systems.

Haraway's vision of reality is messy, hybrid, and multiple. For her, there is not one world, but many; these worlds are not just populated by *us*—that is, by humans—but by collectives of beings that undermine distinctions between nature and culture, or humanity and its others (Thiele 2021). In invoking the category of "materiality" to ground these multiple messy worlds, Haraway nevertheless tacitly acknowledges that worlds are conditioned by a fundamental "ground": *the* world, our Earth, which is the ultimate source of, and limiting condition on, their potentiality. It follows that as the world changes, so too must our conception of figures. Drawing on Benjamin H. Bratton's concept of "planetary-scale computation" (2015), I want to argue that ubiquitous media have changed the nature of the "worlds" that figures can figure by establishing a new, globalised ordering regime and by providing us with a new technical means to perceive the world itself as a large-scale system. These worlds are different in kind: we still require figures to render them inhabitable, but the modes of inhabitation they engender are different.

This proposition relies on a broader and rather more ecumenical conception of media and technology than typically circulates in the humanities and social sciences. Drawing from recent work in media theory, I want to argue that media's networked distribution, their ubiquity, and their automated capacity to collect and process huge amounts of data mean that, in the aggregate, they also constitute *milieus*. In broad terms, a milieu is an environment, territory, or ecosystem—and, as media theorists like John Durham Peters (2015) and Antonio Somaini (2016) argue, it can also be profitably extended to media. Conceiving of media as milieus provides us with a conceptual means of recognising that, at scale, media constitute places that can be inhabited. Milieu literally means "middle place" (Peters 2016: 47): extending the concept of "milieu" to encompass media provides us with a conceptual language to articulate their capacity to not only organise work or leisure but engender the mediated environments in which contemporary life increasingly takes place.

Conversely, though, I also want to emphasise the crucial role that figures play in rendering such environments inhabitable at all.

After outlining Haraway's concept of figures, this chapter will illustrate how they make media inhabitable by analysing one of contemporary media's key figures: "the cloud." For marketers and computer engineers alike, the cloud refers to computational services that are accessed remotely using networked technologies rather than being run by a user, customer, or company on-site. Over the past few decades, though, this term has expanded into something much more encompassing. Depending on one's dispositions, attachments, and responsibilities, life is increasingly lived *in* "the cloud." Haraway's concept helps us to understand what this means. What links how "the cloud" is used now and how it was used by early systems administrators and engineers is its capacity to capture and articulate aspects of computation that are otherwise difficult to represent. This point is crucial: digital media are often characterised by their complexity, distribution, and opacity—above all, the imperceptibility of their operations to those who use them. Though they might shape worlds, their operations are not straightforwardly commensurable with representational epistemologies. The computational figure of "the cloud" is therefore the latest in the line of cloud-figures that mark out the limits of what can be represented (Damisch 2002). The transition from *a* cloud to "the cloud" is one from a delimited and specific symbol for a computational network to an articulation of distributed, complex, and encompassing technical condition of contemporary life that might only be accessed intermittently, but which nevertheless shapes what it means to live in the world today—a mediated milieu.

As figure, "the cloud" transfigures what is heterogeneous, complex, and unrepresentable—media-technical systems that operate at speeds and scales beyond *human* perception (Mackenzie and Munster 2019)—into what can be lived with and lived in. This, I want to argue, is precisely why we need figures: to compass the gap between what is in excess of representation yet nevertheless conditions a life lived with, through, and in media.

Figure, Inhabitation

Haraway's concept of figures emerges from a mode of intellectual enquiry conducted as a *practice*: one that's dedicated to thinking through the divisions that pattern dominant—rationalised and masculinised—modes of knowledge production that are founded on the diminution of nature. Though it has proven to be hugely influential across the humanities and social sciences—and in particular for feminist science and technology scholars—it requires some explication, because much of its substance is articulated in her critical engagements with what she calls "technoscience"—the institutionalised and industrialised practice of conducting scientific research and producing technological innovations for profit (1997). While we no doubt associate this practice and the figure most closely with her most influential piece of writing—"The Cyborg Manifesto" (1985)—she comes closest to articulating what figures are in later works.

In *When Species Meet* (2008), Haraway conceives of figures as "material-semiotic nodes or knots in which diverse bodies and meanings coshape one another" (4). This claim bears further unpacking, and it helps to read her statements at the start of this book with some at the start of another. In *Modest_Witness@Second_Millennium. FemaleMan_Meets_OncoMouse: Feminism and Technoscience*, Haraway characterises figures as "tropes." Playing on this word's implicative richness and its capacity to evoke both figurative use of language and, given its origin in the Greek word *tropos*—that is, "to turn"—a sense of spatiality, movement, agency, and worldly instantiation, Haraway bends figures into world-making contrivances (Phan 2019: 24). Her figures are precisely *not* "representations or didactic illustrations," or semiotic phenomena that operate in a symbolic register, as do metaphors, analogies, or allegories, but conjunctive entities in which "the biological and literary or artistic come together with all of the force of lived reality" (2008: 4). It's hard to resist falling into a poetic register when trying to articulate what figures are because they gain so much conceptual traction through this reactive meeting of modes. Their tropic quality—their tendency *to figure*, in the active sense—can only be understood conjunctively, as an "implosion of sign and substance, a

literalness of metaphor, the materiality of trope, the tropic quality of materiality" (Haraway quoted in Hughes and Lury 2013: 795).

Grasping the tropic plenitudes contained within figures helps us to understand Haraway's oft-quoted proposition, that figures ought to be understood as "performative images that can be inhabited" (1997: 11). "Inhabitation," here, doesn't construe figures as *containers* for other—hybrid—entities. These figures are real and actual entities (Hughes and Lury 2013: 795), but they don't exist outside of the tropic plenitudes that they gather. They shape and are shaped by these plenitudes, constantly turned by them even as they turn them otherwise—towards other figures. This gathering—or figur*ing*—is what invests figures with their actuality and what takes them beyond being strictly semiotic entities. Haraway makes this clear in *Modest_Witness@Second_Millennium*:

> [f]or example, think of a small set of objects into which lives and worlds are built—chip, gene, seed, fetus [*sic*], database, bomb, race, brain, ecosystem. This mantra-like list is made up of imploded atoms or dense-nodes that explode into entire worlds of practice. The chip, seed, or gene is simultaneously literal and figurative. (1997: 11)

Figures can be used as pivots that articulate worlds that are made in and through the messy and hybrid practice of doing and living. These worlds are entangled in relations that don't respect epistemological distinctions, like nature versus culture or, indeed, theory versus practice. So, for Haraway, to "inhabit"—understood, in the broadest sense, as *being*, played out by all kinds of entities through what they *do*—is to figure and be figured.

Herein lies the figure's double function. When Haraway claims that "[w]e inhabit and are inhabited by such figures that map universes of knowledge, practice and power" (1997: 11), she makes figures diagnostic tools for understanding how worlds are put together. The titular "modest witness," for instance, figures a mode of scientific knowing underpinned by a self-effacing—hence "modest"—scientific subject who guarantees scientific knowledge by witnessing its production through demonstrations (1997: 32). As Haraway notes, the right *to* witness belonged to those gendered male, raced as white, and of a moneyed elite. But what

has made Haraway's figures so influential and suggestive for critical thinkers is that their world-making capacities can be used creatively as well as diagnostically (see Dawney, this volume; Bastian 2006). Because figures make worlds, one can make alternate worlds by making alternate figures. They aren't just maps *of* worlds; their tropic qualities mean that they actively *map* worlds, drawing them together in their wake.[1] Figures promise their proponents not only a means of understanding how worlds cohere but also a means to conjure alternate worlds that might just harbour more equitable, more just, or more sustainable ways of being-together.

While acknowledging that the creative potential Haraway invests figures with has been influential, I want to emphasise her claim that they can be "inhabited." What makes Haraway's figures—and, arguably, figures *per se*—such useful and efficacious theoretical tools is their capacity to render complexity something that can be lived with, lived through, or lived in. Recall the "mantra-like list" of chip, gene, seed, foetus, database, bomb, race, brain, and ecosystem. Construed as figures, these things become points of conjunction from which worlds emerge. To reduce them to representations not only re-introduces the separation between symbolic and material that figures are designed to dissolve, it also eschews the basic theoretical insight of this conception of being. Inhabitation—being and living—must necessarily be understood as being-*with*. So conceived, "inhabitation" is not a state that one simply chooses to adopt for a time before choosing another. Figures have more agency than this: they embroil *us*—conceived, broadly, against distinctions like those between humans and their others—in their worlds. This is where the claim that figures are "actual" gains its force.

Here, though, we also butt up against the limits of Haraway's conception of figures. We can explain how by asking a reflexive, epistemological

[1] We need to attach a caveat to this invocatory power: figures, as commentators like Astrida Neimanis have noted, are rife with "dangers" (2013: 26), because one doesn't always know whether the worlds actualised through the tropic figure will be for the good. We see this most clearly in Haraway's most influential figure, the cyborg (1985). This figure started out as a means of reclaiming technology for feminist ends and in opposition to "technoscience"; almost four decades later, though, it has arguably been recuperated by these very same forces to figure hyper-commodified, masculinist technological futures that reinstitute economic and racial hierarchies (Phan 2019; Cave and Dihal 2020).

question: what are figures *for*? That is, what *problem* does Haraway's critical-theoretical practice respond to? The force figures contain has its own epistemological efficacy. Ultimately, thinking with figures is counterposed to modes of thought premised on distinctions: nature and culture, male and female, human and non-human, and so on—right through to the ontological distinction that figures themselves challenge, that between the material and the symbolic. Figures don't attempt to dissolve these basic categories, but rather demonstrate how holding them in tension can engender an endlessly productive practice. The "string figures" that recur again and again in her thinking figure this aspect of figures (Haraway 2016). The gestures they invite—tying, folding, knotting, forming, and unravelling—dramatise a mode of being and doing in which distinctions-between—here, hand and string, but equally, material and symbolic—are stretched and tested, but never actually undone. Without these distinctions, figures arguably lose their epistemological efficacy, that is, their capacity to make worlds appear.

In saying this, I don't mean to imply that Haraway's figures are essentially idealist. Far from it. My claim is that they are designed to respond to a particular kind of (material-semiotic) problem: to show us messiness where we want to see distinctions; to, in other words, unspool relations from seemingly discrete objects. The problem I want to use Haraway's conception of figures to think through is simpler. Instead of using figures to demonstrate the arbitrariness of inherited distinctions, I want to use them to explicate how otherwise-incompatible *things*—understood, broadly, to encompass not just discrete objects but also systems, processes, and configurations—*become* inhabitable. What I want to propose is that we use figures' capacity to make worlds in order to live in, through, with the complexity that characterises contemporary media.

I'm interested in a particular case: what I've been calling large-scale media-technical systems. Before turning to the example of "the cloud" to illustrate how figuring renders such systems inhabitable, though, I want to spend some time translating Haraway's concept into a media-theoretical register.

Mediated Worlds: Milieus and Non-representability

Figures find a particular kind of efficacy in large-scale media-technical systems. Using Haraway's conception as a basis, the proposition I want to make is that figures are necessary intermediaries between worlds made by media and their inhabitants. The point of departure for this proposition is an intuition: digital media are full of figures because figures render otherwise-unrepresentable technical ensembles apprehensible and, therefore, inhabitable. This proposition relies on three interrelated lessons that I want to draw from media theory and related disciplines.

First, our contemporary situation invites us to expand what we mean by "media"—and consequently, how we understand their capacity to make worlds. Setting aside canonical debates about whether media theory ought to focus on technical devices themselves or on the people, practices, or societies involved in an instance of mediation (see Peters 2010), we can say that, in general, media are typically conceptualised as means of communication: as "middles" that join senders and receivers across time and space (see Guillory 2010). As scholars like John Durham Peters and Antonio Somaini have recently argued, however, this dominant conception of media has always been shadowed by another: the idea that media constitute environments. Peters and Somaini both note that the concept of "media," which comes to the English language via the Latin word *medium*, is the product of a bad translation of Aristotle's work from Ancient Greek. The source of the word "medium" is a Greek word, *metaxy*, which is not only an intermediary substance or thing but an intermediary *place*: a "middle ground" (Peters 2015: 46; Somaini 2016: 30; see also Kittler 2009). For Peters, the word "medium" has always contained the potential to be understood in an expansive sense, encompassing not just the discrete device, the means, or the middle, but the "element, environment, or vehicle in the middle of things" (2015: 47). Peters recovers this alternate sense of media using the word "milieu," which means "middle-place." This concept gives us a way to understand how media can constitute worlds. In Peters' work, such worlds need not be digital; the spread of calendrical techniques, for instance, also makes

worlds (2015: 176-184). But it does give us a particularly useful concept for understanding how ubiquitous digital media establish milieus that can be inhabited.

Second, I want to propose that we use the concept of the media milieu to signal a distinction between different kinds of worlds harboured by different kinds of figures. The worlds assembled by the "chip" or "database"—to recall two particular, media-technical figures invoked by Haraway—are not necessarily of the same order as those assembled by "gene or seed." On the one hand, Haraway's conception of figures is capacious enough to encompass some categorial splicing. It doesn't matter if the world unfurled from the "gene" intersects or overlaps with the world harboured by the "chip," because "worlds" arise in and through practices and modes of relational being that reorder the kinds of distinctions one might be tempted to make between, for instance, pre-industrial farming techniques and an industrialised agriculture that relies on computational infrastructures for its logistics. On the other hand, there's an argument to be made that large-scale media-technical systems engender a novel *kind* of world.

We can express this in concrete terms. Benjamin H. Bratton has recently proposed that computation has reached such a degree of complexity and distribution over the past few decades that it now operates at what he calls a "planetary scale" (2015). He explains this by pointing to the transformation of computation from a technical process—something conducted by specific machines on specific problems—into a "global infrastructure" that supports all kinds of operations in all kinds of spheres (14). The overarching point he wants to make is that the emergence of planetary-scale computation challenges sovereignty: today, he argues, the global order is organised not only by interactions between nation-states or by the workings of globalised markets but by computational infrastructures—namely platforms—that now rival states and markets for power and influence (see 327-31). But we can also translate his assessment of contemporary computation into the language of figures.

Amongst its many uses, this global infrastructure provides new tools to model the world itself. Bratton notes, for example, that planetary-scale computation is a precondition of contemporary climate science, which uses world-wide data collection and huge collaborative modelling

projects to understand climate change and to predict the future world it might engender (2015: 305-6). By giving us new tools to model the world, this infrastructure gives us a means of conceiving of the world in its entirety and as a—concrete and material, rather than ontological—limit-condition for life itself. Planetary-scale computation institutes a historical break: all "worlds," to re-introduce Haraway's language, subsist in or on *this* one. Does this mean that all "worlds" supervene on computation? Not necessarily. Insofar as all "worlds" supervene on an actual and material *world*—which is how I understand the irreducible "material" part of Haraway's "material-semiotic" couplet—perhaps what it does mean is that those that do supervene on computation are no longer of the same order as the worlds figured by Haraway even a few decades ago. As the world changes, so, too, does the material from which figures can be made.

Bratton's concept of planetary-scale computation provides us with a way of qualifying what the claim that media are ubiquitous actually means: media are ubiquitous not only because they are everywhere or because they pervade daily life, but because they constitute new ways of conceiving, and so inhabiting, *the* material world. By referring to worlds figured in, by, or as media as "milieus," I mean to signal this distinction in kinds of world. At first blush, it might seem as though the revision of Haraway's concept of figures I'm proposing amounts to an entirely different concept: if mediated worlds are made of distinct stuff, and if we interpose "milieus" for her concept of "worlds," are we not simply slipping her figures into a different conceptual register? Just as Haraway's figures can be revised using lessons drawn from media theory, though, media theory can also be revised using lessons drawn from Haraway.

In her explication of figures at the beginning of *Modest_Witness*, Haraway makes a claim that perhaps isn't always given full weight: "[a]ll language," she says, "including mathematics, is figurative, that is, made of tropes, constituted by bumps that make us swerve from literal-mindedness" (1997: 11). In her conception, figures pervade the languages we—humans—use to make sense of the world around us. Haraway's claim that figures are actual material-semiotic things that can be inhabited can be read as a limited claim, referring to particular instances of figuring. But it also contains the potential to be extend much more

broadly. My claim is that that media theory actually *needs* figures to make media both inhabitable and conceptualisable. Figures translate media's otherwise-incommensurable operations into a (conceptual) language that can be used to grasp the conditioning effects they have on our environments and, thereby, on contemporary life. Rather than demonstrating that (ontological) distinctions contain multitudes and messy relations, then, the particular, media-specific instance of figuring that I'm indicating here does something else entirely: it draws heterogeneity—the objects, systems, processes, infrastructures, and configurations that constitute planetary-scale computation—into worlds.

This mode of figuring is necessary for media theory, finally, because—and this is the third lesson I want to draw from media theory—contemporary digital media and the worlds they engender are incompatible with a particular epistemological operation: *representation*. Scholars who have been working on machine learning and artificial intelligence, and the platforms that operationalise these techniques, have explained this incompatibility in a number of instructive ways. In many cases, it's impossible to reverse-engineer the automated processes these systems implement. This is not only because they operate at a scale that exceeds representation or that the algorithms they use are proprietary—though these barriers are real and difficult to surmount—but because they employ computational techniques that are often correlative and inductive. Once implemented, machine learning techniques of the kind that underpin computational processes—like sorting, ranking, categorising, recommending, and so on—incorporate recursive and self-optimising techniques that will produce different outcomes when trained on or applied to different sets of data (Mackenzie 2017). It is difficult—or often even impossible—to directly observe what these media do without tools to render them *observable* (Mackenzie 2018; Rieder and Hofmann 2020). For Louise Amoore, these media-technical systems represent a change in data processing's organising "paradigm" from "observation, representation, and classification" to what she calls "perception, recognition, and attribution" (2020: 41). That is, although the problem presented by media-technical systems premised on large-scale data processing is often presented in phenomenological terms—these systems are difficult to conceptualise because they exceed human representation (Mackenzie and

Munster 2019)—it's better conceived of as a problem of un/non-represent*ability* or a problem engendered by such systems' complexity and the consequent challenge they pose to efforts to render them not only observable to non-machinic modes of perception but also, as Amoore points out, *actionable* by non-machinic entities (2020: 50; 55).

This is why we need figures to be able to conceptualise media. Per Haraway, figures are much more than "representations or didactic illustrations." As tropes, they tug at actual relations, demonstrating how they hold together and pulling them in to other and new configurations. The figure of the "milieu" that's gained traction in recent media theory articulates mediated worlds that are not directly representable, and which emerge in the wake of changes to *the* world brought about by the emergence of planetary-scale computation, but which can nevertheless be inhabited. In other words, this means of figur*ing* allows us to make sense of how complex, distributed, and opaque media-technical systems inform, condition, and shape contemporary life.

To illustrate how this works, I want to shift registers and turn now to a central figure of contemporary media—"the cloud."

In "The Cloud"

In 2011, the National Institute of Standards and Technology—a laboratory that reports to the United States Department of Commerce—prepared a document outlining an official definition of "cloud computing":

> Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. (Mell and Grance 2011: 2)

Pared down to the minimum words needed to assure institutional uptake, this is a bare technical description of what's meant by the term "the cloud." But before it became a standard regulating government procurement, "cloud computing" began in marketing. Antonio Regalado

traces the term to policy documents produced in 1997 by Compaq—later acquired by Hewlett Packard—that pre-empted the shift that IT companies would eventually make a decade or more later from selling discrete products, like software programmes or computers, to selling distributed storage, computational capacity, or subscription-based software packages hosted on remote servers (Regalado 2011; see Kaldrack and Leeker 2015). According to the likely progenitors of the term who Regalado interviewed, it originally derived from the drawing of a cloud that engineers would use to represent networks between computers (2011). Whether or not these Dotcom-era tech workers are visionaries for coining the term "cloud computing" is a moot question. What makes this anecdote interesting is that it registers the epistemic shifts that this term has undergone between 1997 and 2011 and between 2011 and now.

Let's start by enumerating the different ways "the cloud" figures and is figured. First, there's the figure as conceived by computer scientists and systems engineers. Tung-Hui Hu suggests that this particular figure was first used by those responsible for computer networks to locate the computers they had "direct knowledge of" in "the same epistemic space as something that constantly fluctuates and is impossible to know," which is to say, the entire system on which such networks rely, but over which they have no control: "the amorphous admixture of the telephone network, cable network, and the internet," amongst other things (2015: x). Second, there's the figure as conceived by the marketers whose progenitors Regalado was so interested in tracking down. This cloud figures a promise: computation recapitulated not as hard- and soft-ware that has to be administered, maintained, and configured (see Spencer, this volume), but as a service that can be accessed on demand. We're used to the imagery of this particular figure of "the cloud": airy, dreamlike, light-filled scenes in which computation is a breeze (see Cramer 2013).

Yet while "the cloud" finds a certain degree of necessity in these figures of, respectively, an unknowable epistemic space and a service that is accessible as and when one needs (or can afford), they aren't the primary figure that I want to focus on here. There is a third figure of the cloud that's of particular interest to us. This figure renders "the cloud" inhabitable for a heterogeneity of users by exploiting clouds' capacity to figure indeterminacy. The institutionalisation of "the cloud" by the National Institute of

Standards and Technology didn't stop cloud computing from being a marketing buzzword; rather, it gave it new legal and fiscal purchase on procurement decisions made by the U.S. government and by companies influenced by their standard-setting role (see Mosco 2015). When Tung-Hui Hu describes the cloud as "mute piece of infrastructure" that is "just there, atmospheric and part of the environment" (2015: ix), he captures the figure's gradual transformation from vision statement to banal application with wide-reaching effects. The proliferation of "cloud"-based computing services has turned an invocatory idea into the environment in which we conduct knowledge-based work.

Let's say contemporary life takes place in "the cloud." In my home, we pay for water, gas, electricity, and internet, but we also pay for access to software like *Creative Cloud*, Adobe's suite of image editing tools, and *Evernote*, a note-taking programme, whilst also getting access to Microsoft's *Office 365* suite through our respective employers. These services, which we would once have purchased and owned and run locally on our machines, have been transformed into subscription-based services that we pay a fee to access remotely. In economic terms, this transformation represents the extension of a "rentier" model (Christophers 2020) to software: access to computational processes is often no longer secured by ownership, but must be accessed intermittently. One consequence of this transformation is that software has been further "platformised" (Poell et al. 2019; Kaldrack and Leeker 2015). While "the cloud" captures this economic transformation, it also captures the effect that changing access to computation has on contemporary life.

To do work and to engage in leisure increasingly requires access to media. The differential nature of this access refigures our relationship *to* media and, by extension, to the means by which contemporary life is lived. The relocation of software from local machine to "the cloud" has transformed not only our economic relationship to the means of work or leisure, but the "worlds" in which work and leisure can take place. Renting access to software—via subscription or, indeed, by allowing one's data to be collected and monetised—establishes specific and limited relations between users and "the cloud," understood as distributed milieu. What "the cloud" therefore captures is the imbrication of everyday life *in* media, as modulated by access to systems and services that are not only out of

our control but beyond our comprehension. But it also figures the transformation of these systems' distributed operations from "mute infrastructure" into media that *are* inhabited through multiple quotidian acts of accessing: sending and receiving, requesting and resolving, loading and reloading, streaming and buffering, refreshing and exiting. The accumulation of these (minor) figures of access in users' everyday lives images a distributed milieu. Conversely, the unequal distribution of access—to bandwidth, data, particular information, or certain media—images a milieu that's not distributed equally.

What "the cloud" arguably figures, then, is the capacity for media to constitute a milieu that can be inhabited *despite* being difficult to apprehend *as* media and as source of mediation. "The cloud" often seems a condensate of nominally opposed qualities. An abstraction that transmutes a network of computational devices and their infrastructural supports into "logical objects" that can be apprehended and acted upon (Hu 2015: x). An energy-and-water-intensive, polluting, world-spanning material infrastructure that is computation's determinate site (Cubitt et al. 2011; Hogan 2015; Velkova 2021). A triumph of marketing, recapitulating computation, once something one owned and managed, as something one can outsource and hire in when needed. A means for turning real qualities into datafiable quantities, conferring on us a "promise," as Louise Amoore puts it, that "everything can be rendered tractable, all political difficulty and uncertainty nonetheless actionable" (2020: 55; see also Franklin 2012). "The cloud" is able to articulate these nominally opposed qualities precisely because it's so all-encompassing.

This *prepositional* quality, or the capacity to figure place or environment, is crucial to what "the cloud" is and does. Conceiving of media as encompassing milieus helps us understand what's at stake in figuring large-scale computational systems as akin to a natural phenomenon. In the figure of "the cloud," old problems of representation merge with cutting-edge media technology. In his analysis of the use of clouds in Renaissance and Baroque paintings, Hubert Damisch uses the figure of the cloud that recurs in so many paintings of mythological, divine, and secular scenes over these periods to propose an idiosyncratic theory of representation. Clouds are curious figures precisely because they are an "unstable formation with no definite outline or colour," but nevertheless

possess "the powers of a material in which any kind of figure may appear and then vanish" (2002: 31). Alongside a general point about the limits of linear perspective, Damisch's analyses conceive of the cloud as a figure that "reveals only as it conceals" (61) and, in doing so, figures "the limit of representation, of what is representable" (56).

This is what "the cloud" figures today. This figure doesn't undo a distinction or show us complex relations inhabited by heterogeneous things where we once saw discrete objects—replacing the figure of the "chip," to recall Haraway's mantra one last time, with a figure of distributed computation. Rather, figures like this allow us to grasp how a distributed and heterogeneous process that is otherwise difficult to represent can nevertheless constitute one of contemporary life's integral sites. In lieu of revealing oppositions between form and matter or artifice and nature, "the cloud" condenses an-other place in which inhabitation becomes possible, turning heterogeneity into a differentially accessed—and so always partially apprehensible—milieu. Access marks out the limits of understanding traced by limits of representation. We use media and are mediated by them, without necessarily being able to make sense of, experience, or apprehend them in their totality. Or: because we're in "the cloud," our differential access to its particular services only ever gives us glimpses of it entire.

On one side, we have computational systems that shape contemporary life: platforms that are designed to deliver services and which incorporate recursive and self-optimising modes of organisation. On the other side, we have these systems as they produce effects in the world. For the users of these systems, this distinction collapses: there are services, and there is their source, "the cloud," which ultimately amount to the same thing. Rather than acting to "obfuscate" what really goes on behind our screens, Amoore argues that the genius of "the cloud" that it "render[s] perceptible and actionable (almost seeing) that which would otherwise be beyond the threshold of human vision" (41). This is Damisch's cloud logic in twenty-first-century guise: instead of *putti*, the Virgin Mary, Christ, or pillars of cloud representing the divinity, our symbology represents where the work of mediation takes place.

In "the cloud," all we can see is that we're enveloped. Or all we're given to see is that which we can access, at this time and with a given set of

resources. Pointing to the ground and declaiming that this, in fact, is where computation happens—indicating its material and/or infrastructural ground—misses the point: constituting a milieu, computation happens everywhere and nowhere. Its location is wherever it's needed to live.

Conclusion: Indeterminate Linings

Figures run over. Commenting on the proliferation of "the cloud" in technology marketing, Peters notes that though this figure may have originally been taken up "in engineering diagrams of networks," it "almost instantly took to the sky, taking selective advantage of the surplus and residue of the term" (2016: 61). "The cloud" is, amongst other things, a marketing buzzword, a technical term for computer scientists and systems engineers, a promissory invocation of a technical utopia just around the next bend in the fibre-optic cable—and, woven through each of these, a figure by which media become inhabitable in the present. As concept, "the cloud" might not hold together. But as figure, "the cloud"—with its prepositional quality and its promissory lining—is able to articulate what it means to live in and through computation precisely *because* it is indeterminate. In this case, "the cloud" has visual connotations, but they're overwritten by an epistemic function: to make computational systems apprehensible as mediate technologies constitutive of milieus that can be inhabited, differentially, as, how, when they're accessed (or rendered *accessible*).

Figures are not only inhabitable, per Haraway; they are also necessary for making sense of contemporary places of inhabitation that are shaped and conditioned by unrepresentable media-technical systems. Rather than thinking of "the cloud" as a technical conduit or a neutral container for a networked, technically mediated contemporary culture, we would do much better to think of it as more akin to what Peters calls "climate"—specific, localised, and subject, for each of us, to constant change (Peters 2015: 253-4; see also Horn 2018). In it, we have found a figure that encompasses the unrepresentability of technical systems that, in their large-scale distribution and their platformised indeterminacy, are beyond us. Earlier, I outlined this problem as one of representability, but my

argument has been that rather than operating as metaphors, figures like "the cloud" respond to the problem of representing otherwise-unrepresentable media-technical systems as milieus.

It's important to note, by way of concluding, that the example of "the cloud" that I've used to illustrate the conception of figures throughout this chapter could, equally, have been substituted for others, like portals, interfaces, platforms, networks, or data farms. As an example, questions of commensurability—that is, how unlike things are rendered comparable using metrics (Espeland and Stevens 1998; Van der Vlist 2016)—also operate by producing figures. As Caroline Gerlitz and Bernhard Rieder argue, the interface used to access a computational platform "channel[s users'] activities into predefined forms and functions" (2018: 530). They explain this process by drawing on Phillip Agre's concept of "grammars of action," which decompose the uses of computational systems into discrete actions that can be logged and counted as they are undertaken. The "grammar of action" is also a kind of figure of speech and/or arithmetic that *re*composes discrete actions as numbers. This is how computational systems figure the qualitative actions of *users* into themselves (Agre 1994). As "lively" metrics that have situated functions that are hard to extricate from their computational contexts (Gerlitz and Rieder 2018: 544), these operations also use figures to reduce complexity—only, their figures are of a numerical kind. Construed as means for making sense of how complex, distributed, and opaque media-technical systems inform, condition, and shape contemporary life, the figure finds methodological purchase in this media situation, too: we can use it to apprehend how computational systems construct a situated and contingent mode of inhabiting platforms by becoming habituated to their techniques of commensuration. This, I think, is the methodological imperative contained in figures. Let's call this operation "figuring"—understood as a method for thinking media through the figures that make their operations inhabitable.

But we end in the clouds. "Clouds," Peters says, "resist ontology" (2015: 260). Elsewhere, he also says that "[o]ntology, whatever else it is, is usually just forgotten infrastructure" (2015: 30). In the epistemological space traced by these two statements lies a conception of mediation and figuration for the present. In their complexity and their mutability, the media that constitute what we call "the cloud" aren't always amenable to

the kinds of specification promised by contemporary theory and philosophy's taste for ontological modes of theorisation, or for (new) materialism. It matters little if we point to a data centre and say that the cloud is *there*. Between how we figure it and how it figures us, though, we find atmosphere, climate, milieu, *life*—work and leisure, productivity and entertainment, self-expression and data capture. Figures rendered habitable, in other words, as media—and media rendered not just liveable, but *thinkable*, in all their complexity, by figures.

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