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HISTORY FROM WITHIN? Contextualizing the New Neurohistory and Seeking Its Methods

Jeremy Trevelyan Burman
York University

"Histories from below" sought to give voice to those ordinary folk whose social position had failed to afford them great power, wealth, or responsibility: the neglected undocumented. Now, Lynn Hunt (2009) calls for a revolution that would task historians with giving voice to *feelings*—what I will call a "history from within." This is what led her to endorse Daniel Lord Smail's (2008) suggestion that historians appeal to neuroscience and thereby construct a "new neurohistory." The purpose would be to introduce a common factor to all human stories: a tool to think with when describing *what it was like* (cf. Nagel, 1974). If successful, this would be quite powerful: in Hunt's view, such a project could lead to a universalization of human rights. But the program is not without challenges, one of which is to provide an acceptable explanation for the type of looping causation that applies to *bio-cultural kinds*. Smail's solution involves an appeal to evolutionary theory, but how this solves the problem of causation is not clear. Here, therefore, an attempt is made to clarify his solution. Smail and Hunt's views on the role of evidence in history are also made plain. The paper then concludes by importing related ideas from the recent history of philosophy. If one is going to have a brain-based view of felt-history, then the neurohistorian's task is to situate historical individuals in contexts of shared experience—to not just read evidence through lenses of intellectual "thought collectives" (generalized from *paradeigma*), but also through "experiential" or "moral categories" (*aisthánomai*).

Keywords: causality, evidence, evolutionary epistemology, mind-brain, philosophy of history

Hunt's (2009) essay on "the experience of revolution" argued not only for a new way to think about the French Revolution, which is her specialty, but also for a new way to think about history in general. She asks historians to try to engage with *what it was like* in the past, rather than just engaging with historical texts. What makes this a concern of special relevance to historians of psychology, and especially "psychologist-historians" (Vaughn-Blount, Rutherford, Baker, & Johnson, 2009), is her turn toward a brain-based historiography. This paper therefore considers her problem definition, as well as her solution in endorsing what has elsewhere been called *the new neurohistory*: the proposal that knowing something about human nature, and especially about the brain, will allow us to tell new and different stories about our shared past.

What follows is first historical, and then philosophical. It is intended to contextualize, and then highlight some internally consistent sources from which to construct a coherent method by which "feeling" might be "read in" to history. Yet what follows does not attempt to present an exhaustive appraisal of the underlying neuroscience, nor does it assume anything regarding the value to be gained by historians

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Correspondence concerning this article should be addressed to Jeremy Trevelyan Burman, Department of Psychology, York University, 4700 Keele Street, Toronto, Ontario, Canada M3J 1P3. E-mail: jtburman@yorku.ca

who choose to adopt a brain-based approach.[1] The purpose here is rather somewhat more straightforward: to articulate the arguments, and—where necessary—to address some of the areas of potential misunderstanding before they are read into the foundations of the resulting debate. The hope is that this will then provide the basis for those at the intersection between history and psychology (or history and neuroscience) to contribute to Hunt's search for a new kind of historical method, in which feeling plays a role.[2]

The intent of the proposal Hunt endorsed, the new neurohistory, reaches beyond that of previous attempts to blend history with psychology (reviewed by Manuel, 1988; Staeuble, 1991). The goal is to find a way to inject into the interpretation of historical evidence new possibilities for meaning-making; to help historians understand what it felt like to be *there*, *then*; to encourage historians to ask new questions. It is thus intended to augment present contextualist approaches and, in a strong sense, seeks to offer a means of universalizing the resulting stories. For, after all, every historical actor has had a brain, so—argue the proponents of neurohistory—why not use that common factor as a means to make the resulting narratives commensurable?

Yet neurohistory itself is not our focus here. Instead, our review begins with a discussion of the problem Hunt hopes to address. We then turn to her endorsement of Smail's (2008) arguments in *On Deep History and the Brain*. From the resulting excavation, the full proposal is made explicit: not only what the new neurohistory is intended to accomplish, but also why it might be able to contribute to the sort of felt-history that Hunt envisions. This is then reworked using related discussions from evolutionary biology and "neurophilosophy," while at the same time updating the foundations on which Hunt and Smail both build.

To be clear: the focus here is not the brain. Nor will we review the spread of the "neuro" prefix in the humanities. Instead, the focus is on Hunt's call for a revolution in historical method; the purpose is to see how it might be possible to construct, from this, what I will call a *history from within*.

The Problem

Hunt, in addition to her writings on the French Revolution, has also written several important commentaries on the doing of history—especially of cultural history (see e.g., Bonnell & Hunt, 1999; Hunt, 1989). More recently, however, she has turned her attention to a different kind of question: *What happens when two cultural periods are so different that it becomes difficult to piece together a coherent, consistent, and complete narrative*?

The typical historian's answer is simply, "read more." Within the archival regolith, the answers are to be found. Yet, as Hunt (2009) points out, the excavation of historical meaning is not just a question of finding the right document. Memory can fail—documents can be destroyed, lost, or damaged—but, more disastrously, so too can the logics we use to order the remembered world. In such cases, "read more" can actually accomplish less.

Discontinuity of Meaning

When meaning fails, does history end? For Hunt, the answer—perhaps surprisingly—is

[1] Smail's (2008) book has been the focus of several reviews (e.g., Cook, 2008; Richards, 2008; Sepkoski, 2008). Instead of following them directly, however, this essay tries to leapfrog ahead and thus advance the discussion in ways that are consistent with the interests in the various disciplines and sources touched upon. In this way, for example, we have side-stepped Reddy's (2010) critique of Smail's "functionalism," which was published while this essay was undergoing review and revision, through a clarification of Smail's appeal to the "biological turn" and by importing a multilevel "functional structuralism" from contemporary evolutionary-developmental biology. (This, broadly, is the view that [a] all active structures have higher-level functions that can be observed, [b] structures are selected for at the level of their functions, and [c] functions interact in systems which rely causally on the lower-level structures but can themselves have higher-level effects.) Primarily, though, this essay attempts to build on how Hunt (2009) proposes that Smail's argument be used and why.

[2] There is a vast literature related to various aspects of this interest. For a recent review of some of the historiographical components, see the articles collected in the "focus section" in *Isis* devoted to the discussion of emotionality as a counterpoint to objectivity. The closest one of these articles comes to where Smail (2008) seems to want to take the new neurohistory is Dror's (2009) section-reflecting discussion of "the adrenaline structure of experience." Yet, since our focus here is on Hunt's (2009) goal, rather than on Smail's (2008), limitations of space prevent this and other related material from being reviewed in detail.

yes. The mere accumulation of archival records is insufficient: evidence without interpretation. In addition, in her presidential address to the American Historical Association, she suggested that the histories told from these records can also become framed by *false* implication. The French Revolution is now thus, for historians and populists alike, "the harbinger of violence, terror, totalitarianism, and even genocide in the modern world" (Hunt, 2003, p. 1). These qualities are "read in" to the regolith from which the historian's empirical evidence is extracted; their implications frame the meaning of whatever is found.

Hunt explains her position by way of reference to the notion of a "paradigm," which she uses in the sense of Thomas Kuhn's (1962) highly influential book, *The Structure of Scientific Revolutions* (see Downs, 2003, p. 16). There, building on his earlier work, Kuhn argued that what-it-is-which-makes-meaning is not limited to the evidence at hand. Rather, the act of interpretation is embedded in a cultural framework. In other words, for Kuhn, interpretation is a function of projecting evidence through an implicit a priori "thought collective" and then reading the implications (see also Kuhn, 1979). For Hunt, this poses a potentially serious problem: paradigms fail.

Hunt (2009) now argues that there is no acceptable lens through which to read the French Revolution. The old ways—inspired by Marx, Tocqueville, Foucault, and Derrida—are no longer productive. As a result, she calls for her own revolution.

Evidence of Experience

Hunt's (2009) call revolves around the recognition that the microhistories now *en vogue* are essentially histories of personal experience in context. She suggests that the microhistorian's task is therefore to interpret the evidence of *what it was like* for an historical self *to be* at the moment of interest.

The present approach to this problem involves reconstructing the context in which that self was embedded, then projecting psychological intuition through the resulting framework to cast an historical shadow. For Hunt, however, to follow this approach blindly risks biasing the outcome. We are thus led to a question: *How do historians "project" intuition*? Here, Hunt diverges from her Kuhnian roots. In tracing Hunt's other influences, however, we find another philosopher of history: R. G. Collingwood.[3]

Collingwood (1946) distinguished between two kinds of historians: the first, which he dismissed as following a "scissors-and-paste" model of history, simply gathers past statements—published or otherwise—and organizes them to form a narrative. (No projection of intuition is necessary, beyond where to look to find the required sources.) The second, on the other hand, uses the existence of statements as an indication of *something else*; something of a significance greater than the statements themselves; something that changes the nature of the findings from their affordance of a neat story into a more meaningful insight. Indeed, it is in this sense that Collingwood argues that history can be like a science:

> The scientific historian does not treat statements as statements but as evidence: not as true or false accounts of the facts of which they profess to be accounts, but as other facts which, if he knows the right questions to ask about them, may throw light on those facts . . . The scissors-and-paste historian is interested in the content, as it is called, of statements: he is interested in what they state. The scientific historian is interested in the fact that they are made. (p. 275)

In other words, Collingwood here argues that the projection of scientific-historical intuition enables the inference of *unremarked-upon existence* from the observation of *remarked-upon phenomena*. Such a thing, *y*, can be inferred to exist from observing a set of related phenomena, *x*.

[3] In his later works, Kuhn argued that historians must learn the language of the age about which they would like to write; that they need to be able to translate "meaning" from the lexicon of one world into that of another. But he did this in reference to understanding "old texts" (see, e.g., Kuhn, 1991/2000, p. 93). Since Hunt seeks an approach that doesn't privilege texts, she instead pointed to the body of literature that emerged in response to Kuhn's work. Specifically, she cites—as the starting point for such discussions regarding meaning and experience—Scott's (1991) contribution to a special issue of *Critical Theory* devoted to updating Collingwood's theory to follow advances made following Kuhn. Here, rather than following Scott directly, we follow the editors' expressed intent: that which led them to invite Scott to contribute her paper (see Chandler, Davidson, & Harootunian, 1991). Hence, we turn to Collingwood's discussion of how evidence is used by historians. This then informs the exposition that follows.

For Hunt, in her call for a new paradigm, this *y* is *feeling*. Asking the question—*Can y be defended as having existed*?—leads to a different kind of history than that afforded by seeking and collecting statements discussing the existence of *x*. New things can be treated as evidence. And this poses a dilemma if one is used to collecting, cutting up, and then pasting statements together: either everything is relevant, or nothing is. Hence, Collingwood's observation: "In scientific history anything is evidence which is used as evidence, and no one can know what is going to be useful as evidence until he has had occasion to use it" (p. 280). The challenge in finding meaning, therefore, is in defining ahead of time what the found-evidence will be good for. This is the role of the historical hypothesis; the question brought to bear as a lever; the means by which the scientist-historian pries into the past.[4]

For Collingwood, the question is the key tool of history. Without it, the historian is relegated to the potentially never-ending task of information-gathering. Asking *the question* enables an historian to become something more than an eccentric collector.

> Question and evidence, in history, are correlative. Anything is evidence which enables you to answer your question—the question you are asking now. A sensible question . . . is a question which you think you have or are going to have evidence for answering. (p. 281)

The goal of historical research, from this perspective, is not to gather random facts which by their collection seem to suggest a story; it is rather to tell the best story that can be told using the best evidence that can be found—to "read well," rather than just "read more."

Seeing is Believing

We can see Hunt's (2009) purpose reflected in Collingwood's philosophy: current approaches to the history of the French Revolution have been led by their style of questioning to obscure evidence that she has found by other means. Yet Hunt does not respond by calling for more of the same, done differently. Instead, she suggests we move beyond methods driven by the privileging of *statements*, as evidence, toward something more broadly representative of the human experience.

> We should replace the text or linguistic metaphor for the social, the cultural, and the historical that has so influenced research for the last generation . . . The world is not just discursively constructed. It is also built through embodiment, gesture, facial expression, and feelings, that is, through nonlinguistic modes of communication that have their own logics. (p. 674)

Hunt's goal, in other words, is to find a method by which to augment the work produced under old paradigms with a new way of thinking. And she attempts to do this by appealing to *the visual*. What is more interesting for our purposes, however, is *why* she does this. For that, we return to her appeals to Kuhn.

In introducing his notion of the "paradigm shift," Kuhn (1962) relied on a visual metaphor: *the gestalt switch*. His purpose was to highlight the two-way connection between seeing and believing. Yet focusing on this switch did not provide so clear an example as he might have hoped. The focus on a change in what is interpreted from an image—as in the perceptual shift between rabbit and duck in Joseph Jastrow's (1899) double figure, made famous by Wittgenstein (1953/2009)—can be misleading: "Scientists do not see something *as* something else; instead, they simply see it," explained Kuhn in *Structure* (p. 85).

Colloquially, though, the expression does seem to apply: what we believe, we see. And the same could certainly be said for the historian looking across a rupture: "What were ducks . . . before the revolution are rabbits afterward" (p. 111; see Figure 1). Indeed, in this usage, the rabbit-duck gestalt switch highlights something of what Hunt (2009) wants historians to look for.

The best contemporary example I know of what Hunt seeks, in this connection, is hinted at by Alaĉ's studies of meaning-making in the interpretation of fMRI scans (see esp. Alaĉ,

[4] The phrase "scientist-historian" is used here following Collingwood's meaning of the term. It is therefore not interchangeable with "psychologist-historian" as *someone who works at the boundary between history and science or clinical practice* (Vaughn-Blount, Rutherford, Baker, & Johnson, 2009). Rather, for Collingwood, a scientist-historian is someone who adopts a scientific attitude in interpreting historical evidence. That said, however, the two—scientist-historian and psychologist-historian—are not incompatible: working at the boundary between disciplines does not prevent a scholar from adopting such an attitude. Overlapping the two views of historical practice simply requires that the resulting endeavor be neither scientifically naïve (e.g., "naïve empiricism"), nor historically naïve (e.g., "scissors-and-paste").

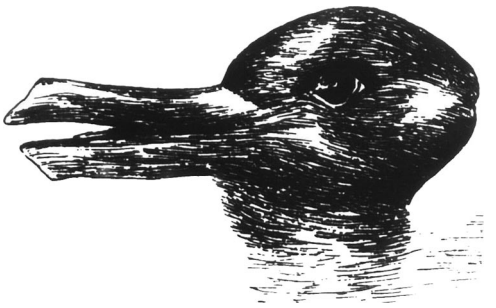

Figure 1. Jastrow's (1899) original caption read: "Do you see a duck or a rabbit, or either?" (p. 312)

2008; Alaĉ & Hutchins, 2004). This is not "neurohistory," of course, but the studies do illustrate an important aspect of what Hunt is looking for. They also push the boundaries of the gestalt switch metaphor.

Alaĉ does not focus on visual meaning, but rather on its construction. She describes how researchers use their bodies in a process of meaning-making:

> The gestures, together with practitioners' talk, gaze, and body orientation turn the physical space occupied by the practitioners into a field of meaning production. The way in which the images are aligned with the gestures, body orientation, gaze, and talk suggests an action-oriented, publicly available, and intersubjective character or seeing. (Alaĉ, 2008, p. 493)

In other words, brain scans aren't just "read." Instead, workers in a fMRI lab use their physicality in order to project signification onto their objects of interpretation, and "correct" them, only after which do they then become evidence of a specific neurological state. This is how the workers embody their training in the discipline; how they manifest their science; how they made the implicit-social explicitly visible. (How they project meaning to make evidence.)

To make the appeal of Alaĉ's work totally clear, in connection with Hunt's goals, it seems to follow that comparing the results of Alaĉ's studies with earlier interpretive representations of the brain would provide a kind of genealogy. Indeed, we find something reminiscent of this goal in the history of objectivity produced by Daston and Galison (2007). Yet Hunt is careful to point out how her new paradigm would be different from the present historiographic standard: the point is that these histories are the product of embodied individual feeling, not of texts. (Rabbit, not duck.) The focus of any resulting genealogy would therefore not be on the atlas as an image of objectivity, for example, but on *how the artists made the meanings* that then went into the atlas: how the meanings were felt into being.

Inventing a Feeling

Hunt's present desire to focus on historically situated "individual feeling" is derived from her work on the history of human rights (Hunt, 2007). Her challenge in that earlier book was in justifying a claim that the appearance at the end of the 18th century of an interest in universal rights was *causally tied* to the emergence, as a result of reading by the mass public, of socially-directed individual feeling. That new experience then afforded a broadening of what Hume and Smith at the time called "sympathy" or, using a related term that is more consistent with my reading of Hunt's larger argument, of what Lipps and Titchener later called "empathy"—concern for the "Other," but felt as deeply as if it were concern for oneself or one's family (see Jahoda, 2005).

To make Hunt's case simply, since that background is tied intimately to her present call, we will begin with the less controversial of her two claims. In short: a new form of writing was invented in the late 18th century that enabled readers to enter into a sympathetic relationship with a fictional protagonist. This new invention, the epistolary novel, provided the means for the reader to directly experience the contents of another's mind by making visible—in the form of diary entries and letters—the contents of that Other's consciousness. This new visibility of feelings encouraged an abstraction (a mental leap), which led to the identification by the reader with that character's emotional and mental states: the reader was made to feel morally commensurable with the Other whose "mind" they read, enabling them to "project" themselves into that Other's experiential milieu. The advance made by the epistolary novel was therefore to cause a shift, among readers, from emotional solipsism and the chauvinism of tribal ties to a kind of intersubjectivity writ large.

Hunt's (2007) suggestion is not that "empathy" was invented as a result of the appearance of this new literary form. Rather, her suggestion

is that the epistolary novel enabled the universalization of a pre-existing predisposition to feel; that the new literary form parasitized an already-existing human capacity and extended it to apply beyond the circle of close relations; that it provided a new way to make felt individual meaning at the social level. This expansion, she argues, is what then enabled the 18th century extension of human rights to all Others. To wit: if you are like me, brother, then we should both be free and treated equally—*liberté, égalité, fraternité*.

Her larger claim, however, is unthinkable under the current historiographic paradigm. And she recognizes this: "there is no easy or obvious way to prove or even measure the effect of new cultural experiences on eighteenth-century people, much less on their conception of rights" (p. 32). There is, in other words, a lacuna in method. As a result, she has no way to defend from skepticism the implication that this new way of reading "had physical effects that transplanted into brain changes and came back as new concepts about the organization of social and political life" (p. 33). It is this interest that led to her endorsement of an attempt to bring the brain, as material cause, into history.

The Endorsement

What Hunt ultimately calls for is a historiography of felt meaning, rather than of *the doer* or *the done-to*. Yet this is not so much an expansion of the call to do "history from below" as it is for a new kind of history; what I am calling "history from within." And although this seems like it would produce results reminiscent of Alain Corbin's (1982/1986) wonderful examination of the relationship between olfaction and the social imagination, Hunt calls instead for a history of the experiencing individual self: "An historicization of sensation, if you will" (my translation of Hunt in Downs, 2003, p. 21). The challenge, however, is to find a set of methodological tools that could bind these changing experiences together in an historical narrative. This, she suggests, is where neuroscience might add value: it would provide a pivot around which meaningful individual experiences could be understood to change in context.

Hunt (2007) thus summarizes her purpose in plain language: "I am insisting that any account of historical change must in the end account for the alteration of individual minds" (p. 34). As she interprets its value for historians, a neurological approach to history might offer a way to do this: a way to speak about past events that takes into account the biological underpinnings which in any given context cause the feeling of *what it was like*.

The goal of her incorporation of brains into history is, in a sense, to give historians a new tool to "read" the minds of Others; a way to interpret historical evidence from the perspective of *what it would have been like* to *feel it*. But this is not a strictly brain-based proposal. Indeed, its success or failure will be driven primarily by how readers understand the underlying appropriation from evolutionary theory, as well as its reliance on some additional philosophical arguments (viz., a means of overcoming Kuhnian incommensurability).

The Argument

The new neurohistory proposal was first discussed by Hunt in November 2006 as part of her Natalie Zemon Davis Lectures at the Central European University in Budapest (published as *Measuring Time, Making History* [Hunt, 2008]). There, she referred to an argument presented in a then-unpublished manuscript by Smail. (This later became *On Deep History and the Brain* [Smail, 2008].) And, indeed, Smail's argument is so intimately tied up with Hunt's present call for revolution that it is worth reviewing in detail. Our question: *What was in Smail's manuscript that might have led Hunt to endorse it*?

Underlying Smail's argument is a view of evidence that is similar to Hunt's (and Collingwood's). Indeed, for Smail, it is the evidentiary *trace*—not just texts—which makes historical studies empirical. Archaeology, he explains, treats sedimentary layers as if they were an archive: evidence can be dated, extracted, and "read". The same standards apply to genetics. Some of the resulting found objects are inherently meaningful. Others are not (see Bazar, 2010).

Evidence, Again

If, at the top of the hierarchy of evidence, we replace documents with traces in general, then we widen the scope of the kinds of stories

history can tell. Yet, doing so requires only that we eliminate *omniscient* intentionality as an historical virtue. Since this is already underway in some quarters, such as through the banishing of Great Man histories, Smail's (2008) purpose in this respect can be achieved simply by making his point explicit:

> as most historians recognize, documents are not necessarily used only for what authors intend to put in them. Some of the richest historical information comes from documents that are made to reveal the information they unintentionally possess. There is very little distinction between documents and the sorts of unintentional traces examined by archaeologists and geneticists when the information is handled in this inferential way. (p. 59)

The result is a small shift in how we interpret historical objects: from what an object *says* to *what it implies*. By this shift, trace evidence becomes fuel for the engine of historical inference. To understand this insight fully, however, we must return briefly to Collingwood.

Coupled with Smail's (2008) move away from the privileging of documents, Collingwood's (1946) definition of evidence as *that which answers an historical question* greatly expands the possibilities for historical enquiry: every found object is potentially revealing of something, but becomes meaningful only in relation to the historian's question. This is consistent with Hunt's (2009) turn to the visual. But Smail goes further: in his search for the source of a new way to think about evidence, he turns to the material cause underlying both vision and interpretation—the brain. And he does so in the context of what he sees as the "biological turn" (advocated for by Fitzhugh & Leckie, 2001, p. 79; cited by Smail, 2008, p. 114).

Evolutionary Epistemology

Smail (2008) suggests that the implicit biological model underlying most historical scholarship was provided originally by Lamarck. His theory of evolution through the inheritance of acquired characteristics proposes, in broad strokes, that natural change occurs as a result of passing down the effects of past effortful actions. (The famous caricature: giraffes have long necks because their ancestors were forced to stretch to reach the leaves on the tallest trees, so the habit and its associated structures got passed down.) Such a position is useful, historiographically, because it allows for individual agency and unintended consequences. At the same time, however, it is also inconsistent with the historian's aim because—as Smail explains—it is driven by a fundamental presentism: "if there *has* been progress, then that progress can be explained by virtue of the inheritance of acquired assets" (p. 83; emphasis in the original). When one is trying to move away from explanatory appeals to omniscient intent, or intelligent design, this circularity is a problem.

In his approach to history, Smail skirts around the implicit Lamarckism. After this, and recognizing that culture is the primary source of human behavioral change, the question then becomes one of determining what it is that culture *is* biologically: *What is it that historians are really talking about when they reconstruct the contexts in which their actors act*? (Or, in terms more consistent with our examination of Hunt's goals: *What conceptual framework ought to inform the intuition used to read historical experiences*?)

In attempting to engage such questions, Smail dismisses the popular misunderstanding of memes as idea viruses (see Burman, in press). Instead, he endorses Dawkins' (1982/1999) later proposals regarding what he called "the extended phenotype." (This is the idea that the effective reach of genes extends beyond the individual body; that all behavior—and its material and cultural products, including their effects on different species [in both symbiotic and parasitic relationships]—can be viewed as a consequence of natural historical processes.) In Smail's (2008) reading, this then becomes justification for the claim that cultural phenomena can have biological effects: "Certain species of parasites that hijack the neural pathways of their hosts provide the classic examples in biology, but the principle extends to other kinds of interactions, such as birdsong" (p. 97). Yet Smail then also connects this to an evolutionary model that, in its historical form, appears decidedly non-Dawkinsian: "exaptation."[5]

Exaptation?

Exaptation provides the biological foundation for Smail's argument. It also provides the necessary justification for Hunt's turn toward

[5] See Sterelny's book, *Dawkins versus Gould* (2001), for a review of why and how the two positions—and the larger systems in which the extended phenotype and exaptation became thinkable—are understood to be in conflict.

the brain. To understand both sides of the story fully, therefore, we must also understand this. (Indeed, encouraging a new look at exaptation is probably the most valuable contribution made by the entire neurohistorical project thus far.)

The term itself was introduced in 1982 by Gould and Vrba to distinguish between subtypes in the category of natural phenomena called "adaptations." The reason for its introduction follows from two assumptions: (a) the generation of structures is driven, in evolution, by natural selection. But (b) present use is driven by functional value irrespective of origins: inherited structures are used for whatever they are good for now, not for whatever reasons led to their inheritance. Gould and Vrba therefore suggested that this co-opted present use (b) be recognized—when it is unrelated to the causes of its generation (a)—as a subject worthy of examination in its own right. So they gave it a name (Gould & Vrba, 1982; see also Gould, 1991).

The value of making the distinction between exaptation and adaptation, when encountering apparently adaptive features, is that it reopens debate. Indeed, the very recognition that something is an exaptation—that natural change occurs with more nuance than what is usually understood from the phrase "blind variation and selective retention" (Campbell, 1960)—enables the asking of new questions. And that is exactly how Smail (2008) uses the idea.

Smail proposes that we adopt what I will call *the exaptive stance* in examining the relationship between the human brain and human culture.[6] Briefly, then, the brain did not initially evolve *in order to produce* culture. (Many more creatures have brains than have culture.) Following Gould and Vrba, in other words, culture is not—formally—an adaptation. Rather, it is an exaptation that came to be selected-for, and then became "entrenched" (see also Wimsatt, 2007). Human brains and human culture thus coevolved, shaping each other through a process that is more familiarly called "the Baldwin Effect" (cf. Deacon, 1997).

The Baldwin Effect, in its simplest form, is the process whereby behavioral changes (such as those caused by a learning brain) in turn cause a change in selection pressures, which are themselves understood to cause evolution by natural selection. The result is a kind of looping: if individual learning can be shared through teaching, or more simply through imitation, then the imitating-learning-teaching population moves further and further away from its original pressured position. This has been advanced as the explanation for a huge number of natural changes that would otherwise be difficult to explain. (But that is a story for another time [see esp. Weber & Depew, 2003].)

Ultimately, that Smail makes the connection between the Baldwin Effect and exaptation is what justifies Hunt's (2007) claim that reading could, by its impact on the imitating-learning-teaching brain, lead to the universalizing of human rights: "The feelings that wash through your body when you read a particularly good novel . . . are entirely exaptive" (Smail, 2008, p. 128). Less obliquely, this is because—as an extension of the human phenotype, following Dawkins—culture serves to modulate and regulate the brains of others. Smail (2008) then provides the connection back to our larger discussion:

> The exaptive capacity of the human brain-body system to be modulated by behaviors of this kind is central to the idea of neurohistory. Behaviors and the institutions that accompany them are crucial components of any human culture, though the institutions clearly vary from one culture to the next. The human capacity to have culture, to this extent, has been built on neurophysiology. (p. 128)

To put it another way: the combination of exaptation and the Baldwin Effect provides the means for high-level effects (culture) to shape low-level causes (brains) in a way that then

[6] If we accept this stance, even if only as a way to ask new questions, then the human brain can also be reconceived as a kind of exaptive mechanism: it spins off evolutionarily unintended consequences almost constantly (i.e., the brain is "creative"). And this, in turn, has two interpretations. Following Dawkins, these productions are simply extensions of the human phenotype; uninteresting consequences of the long reach of the gene. From this first perspective, therefore, exaptive spin-offs can be reduced and dismissed. Since no structure can emerge except through natural selection, it is unnecessary to be concerned with functions, and therefore with the brain's role in history. Events simply unfold, following a pattern determined by natural selection. Following Gould and Vrba, however, it is the brain's (and evolution's) tendency to produce unintended consequences which makes a nondeterministic history possible. And that is very exciting indeed: the observable structures of culture are not *necessary*, except with respect to how they have had functional value and thereby became entrenched (i.e., they are "pseudonecessary"). This then aligns our biology with our epistemology (following Burman, 2007).

becomes causal of future effects. From this perspective, the new neurohistory proposal offers a new way to think about the sort of causality implied by interacting systems of what I will call *bio-cultural kinds*.[7]

What Does This Contribute to History?

Histories based on texts tell stories about the activities of minds. But such stories do not tell the complete history of humanity. That history goes deeper, into the earliest sedimentary layers of our existence as feeling creatures. Recognizing this, Smail attempts to transcend the disciplinary division between history and not-history (e.g., archaeology) by transcending Cartesian dualism: by recognizing that the mind, the producer of history, is *what the brain is doing*.[8]

From this perspective, microhistories of the mind are necessarily about brains in context. Yet Smail (2008) is also explicit in making clear that he does not argue for the emergence of an evolutionary psychohistory: "evolutionary psychologists, working in the manner of Sigmund Freud, have tried to explain behaviors that otherwise seem inexplicable or pathological" (p. 141). His purpose is not to diagnose biological problems through their manifestation as cultural phenomena (*contra* Ione & Tyler, 2003). In fact, in advancing a "new" neurohistory, Smail (2008) follows our new conception of causality among bio-cultural kinds to completely reverse the old reading of the biological-cultural divide:

> Culture is made possible by the plasticity of human neurophysiology. With this insight, we can finally dispense with the idea, once favored by some historians, that biology gave way to culture with the advent of civilization. This has it all backward. Civilization did not bring an end to biology. Civilization *enabled* important aspects of human biology. (p. 155; emphasis in the original)

In other words, culture affords new opportunities for high functioning. Culture makes *value* possible, thereby making different structures possible to select for naturally (or sexually, etc.).

That culture enables biology is an effect of exaptation: culture makes functional different biological structures at different times and in different ways. Thus, for Smail, that which makes it possible to incorporate the brain into history also affords new ways to think about culture and the human condition that has arisen therefrom. Culture itself—not just texts—is therefore the source of constraints in this new historiographic paradigm, expanding the evidentiary possibilities well beyond what one would normally find in the usual regolith examined by disciplinary historians.

To summarize: As selection pressures change (through the imposition of the Baldwin Effect), different biological predispositions are exapted for use. These exaptations not only then change our biology in ways that are consistent with the shifting of the extant selection pressures, but—in so far as they affect the brain—they also provide the lenses through which changing contexts are read and have meaning. The value proposition of neurohistory for historians is therefore in using these insights to engage critically with the implicit folk psychologies we bring to our interpretation of evidence. At this point, however, we are without a means to do

[7] Changes in context alter the milieu that individuals inhabit, to which they then respond and thereby contribute to the construction of a new context which further alters their milieu (ad infinitum, through development and evolution, in a loop that operates simultaneously at multiple timescales). Elsewhere, with specific reference to education and the history of developmental theory, I have called this "chaperoned . . . adaptation" (Burman, 2008). Other variations include "niche construction" (Laland, Odling-Smee, & Feldman, 2000) and "generative entrenchment" (Wimsatt, 2007). For more on this theme, but with specific reference to the general notion of "human kinds," see Hacking's (2007) recent summative presentation of his "dynamic nominalism." Yet it is important to note, in this connection, that Hacking now disavows the term—"human kinds"—and the meaning it has acquired since he first introduced it; he now endorses "interaction," but disagrees that there is any meaning to such a thing as an "interactive kind." I therefore use the idea in complete awareness that it may be so full as to be empty, but do so in order to draw attention to the dynamism of the coconstruction involved. Neurohistory, in my view, is not just about the brain; it's about the brain in context (cf. Gergen, 2010; Toren, in press).

[8] For those readers trained in contemporary neuroscientific approaches to psychological phenomena, this assumption will seem entirely reasonable. It can also be useful, if we adopt the exaptive stance: it allows us "to see" previous attempts to construct something like a neurohistory (e.g., Peterson, 1999). Yet others will find it problematic. Regrettably, there is no space here to delve into this as a metaphysical disagreement. Interested readers are directed instead toward Vidal's (2009) suggestion that "brainhood" is a modern ideology, as well as Klein's (in press) discussion of "neuroskepticism." My own position is closer to Gergen's (2010) and Toren's (in press), namely that discussions about brains are also about the embeddedness of brains in history and context.

this formally: neurohistory, as it is reflected in the writings of Hunt and Smail, is an ideal. If disciplinary historians are to benefit, there must be a neurohistorical method to implement.

Toward Method

The promise of neurohistory for Hunt's (2009) new paradigm is in its provision of tools for thinking about *the feeling of what happened*, and more generally, in what it affords for storytelling. But if we are to cash this out, and thereby use neurohistory to *do* history (rather than just talking about doing it), these tools must be made explicit. So far, however, very little progress has been made in that direction.

Rather than chasing the vivid imagery presented in the conclusion of Smail's (2008) recent book, which is still sketchy in many of its details, a more conservative approximation of an explicitly neurohistorical method can be read out of one of his earlier works: *Imaginary Cartographies* (Smail, 2000). This book presented a tool for thinking about late-medieval Marseillaise property records, which would seem on its face to be unrelated to the present concern. Yet Smail (p. 6) did in fact make a connection to the brain: he appealed to an argument from evolutionary psychology suggesting that the predisposition toward mapping is a human universal resulting from how the brain works. This earlier book can therefore be tied to the present discussion, and "read in" to the new neurohistory, as we attempt to follow the implications of his argument as it has developed.

Maps and Language

Since there was no map of Marseille in the 14th and 15th centuries (or at least none we would presently recognize), Smail constructed an "imaginary cartography" from the language used by different groups to describe similar locations (cf. Kuhn, 1962, pp. 109–112). The divergences between these descriptions then made visible the territories of social conflict: incommensurable language became a guide to cultural clash (cf. Burman, 2009).

This can be read as if it were as a result of taking a late-Wittgensteinian (1953/2009) approach to history: different groups play different language games. And this, in turn, is consistent with the late-Kuhn: the playing of different games implies the existence of different operational logics, and thus also of different conceptual "worlds" (see esp. Kuhn, 1989/2000a, 1991/2000b). It was therefore not necessary, a priori, to adopt a neurohistorical perspective in order for such a story to have become thinkable. But, since Hunt wishes to move beyond textually driven language games toward something more grounded in experience, such a perspective can help us to see these older approaches from a new angle (i.e., adopting the exaptive stance can help us to ask new questions).

In taking this position, we can reread Smail's (2000) old argument through his new proposals. In doing so, his basic insight can be reconceived using the terms excavated above: the invention of illustrated maps came through the exaptation of a pre-existing cartographic lexicon. Before there were maps, therefore, there were names for places that reflected not only their location in space but also their social use. But then how can this be made consistent with our updated view of the biological turn?

From a Dawkinsian perspective, both language and maps are an extension of the human phenotype; an artifact of genes selected for the reproductive advantages they provided to ancestors now long-dead. From a Gouldian perspective, however, mappish phenomena become something more: they can be understood as having been built upon (i.e., exapted from) an evolutionarily older system for abstracting world logics. In other words, despite there being many kinds of *langue*, they must all therefore derive their deep grammar from an inherited adaptation: the brain's prelinguistic action-oriented order system, exapted and ultimately used both for communication and for mapping (and for music, etc.).[9] Thus, although there are uncountably many possibilities for the production of meaning, the implication is that the *deep*

[9] This is how I read Koechlin and Jubault's (2006) review of the neurophysiology underlying the bilateral cortical areas that, in the left hemisphere, is occupied in Broca's area by language and, in the right, by music (see also Patel, 2003). This interpretation is supported by simulations run by Christiansen, Chater, and Reali (2009), which led to the conclusion that early humans' ability "to language" evolved from a pre-existing biological substrate that was exapted for a new use. (Although not relevant to historians, strictly speaking, the response to Hunt's and Smail's appeals to neuroscience suggests that a minimum amount due diligence on the brain side is necessary here.)

structure underlying representation in general has a universal physiological basis (cf. Hauser, Chomsky, & Fitch, 2002), and that this inherited biological predisposition is made manifest and shaped to form particulars through use in social interaction (cf. Tomasello, 2003).

This provides a sketch of a reasonable brain-based hypothesis describing the cause of Smail's conflicting cartographic *paroles*. Although they are similarly constrained, different groups have different histories, different vocabularies, and different intentions. But, more usefully, it can also be used to approach Hunt's goal of producing a history from within: if there is a grammar of meaningful interaction, then statements perceived as ungrammatical will push one's interlocutor *off the shared map*. And indeed, such an experience—if we follow the found connection between maps, language, and music (note 9)—has a *what it is likeness* with which we are all familiar: dissonance. In this, however, we have come to the limit of what can be read out of the earlier work. To go further, we will have to leave the Hunt-Smail lineage of problem-endorsement-argument-implication and instead engage with the problem Hunt inherits from Kuhn: *What is the sharing of meaning, as the external shaper of "the experience of revolution," but viewed from the perspective of the brains that make it*? This then carries us back into the history of philosophy, but not back so far as Collingwood.

Enter Neurophilosophy

The attempt to bring the brain into history can be compared to a similar project that has since been largely successful in philosophy. In 1986, P. S. Churchland introduced an extended argument about the brain's relevance to discussions of the mind in an attempt to eliminate the implicit folk psychology that had to that point dominated philosophy. This book, *Neurophilosophy*, has since become a classic. Yet it does not provide a method that would be useful to historians, nor does it really explain what "meaning" is. Instead, it lays out the foundations for a new paradigm in philosophy, albeit one with obvious parallels to the ideal future to which Hunt appeals.

Churchland (1986) defended neurophilosophy using language similar to Collingwood's dismissal of the scissors-and-paste method of doing history. She proposed that neuroscience be used to inform the production of new questions:

> According to the inductivist [scissors-and-paste] strategy, one first gathers all the data, and only then can one set about theorizing. Progress in science is seldom made that way, but is made instead by approaching Nature with specific questions in mind, where the questions are spawned in the context of a hypothesis. (p. 404)

Here, in reflecting on the justification of a turn toward neurohistory, we see a similar argument being made from a different perspective: bringing in the brain is useful insofar as it allows us to ask useful questions. More recently, Smail (2008) said something similar:

> The relevance to history is less obvious, since very few hypotheses deriving from neuropsychology could ever be testable in a historical context. But that's not the point. The point is that historians habitually think with psychology anyway. We are prone to making unguarded assumptions about the psychological states of the people we find in our sources . . . . Whole works can be shaped by psychological assumptions . . . . Historians have to make psychological assumptions. (pp. 159–160)

Despite this parallel, however, it is clear that many of the ideas of neurophilosophy—indeed, much of neuroscience itself—is irrelevant to the historian's task. Thus we must ask: *Which ideas are relevant?*

A Brain-Based Approach to Meaning

Neurophilosophy moved a lot closer to providing what historians would need, methodologically, when P. M. Churchland (2001/2007) built upon his wife's new paradigm to examine "meaning." Indeed, his work in "neurosemantics" attempts to address the same sort of philosophical problems as those which underlie Smail's (2000) comparison of the languages informing his imaginary cartographies: if such attempts are to highlight differences accurately, then the mappings must otherwise "preserve sense, meaning, or semantic identity across the pairings" (Churchland, 2001/2007, p. 126). Of course, Churchland's purpose goes well beyond what we would need to abstract a neurohistorical method, but—because it allows us to side-

step the Kuhnian problem of incommensurability[10]—it will be useful for our larger discussion of Hunt's (2009) goal to review some of his discussion.

Churchland's goal is to replace the old perspective of the process of meaning sharing (illustrated in Figure 2 by the dashed lines) with a new one derived from his and his wife's studies in neurophilosophy (solid lines). In other words, he aims to replace the "representation" of objects with the "translation" of their meaning. And he does this by examining the idea that, when observing a stimulus, interpreted meaning is a function of concepts that have already been mapped in the networks modeled by the brain's activation patterns. (Meaning, for Churchland, is a function of history, embodied.)

Churchland's proposal rests on an argument regarding the identity of the networks constructed in each mind, as a shared concept-map, despite their different developmental histories. Meaning can be shared without loss or corruption, from his perspective, by the endogenous activation of the features in this shared map. Objects and features, in the world, are therefore seen through the same interpretive lens in each mind (or, more accurately, through the activation of functionally isomorphic networks in each brain). The result, however, is not a commensurability of structural brain states; it is rather a commensurability of functional semantic states implemented in brains.

Such a perspective supports Hunt's (2007) argument about the universalization of human rights, but only if her narrative is reframed to be about the construction of commensurable *mind* states. Churchland's discussion makes it clear that we cannot make any conclusion, in Hunt's case, regarding the similarity of *brain* states. We can conclude only that it is possible that the new form of reading might have made new connections between semantic (implicative) networks *implemented* in brains; that reading about feelings changed how the readers felt (cf. Mar, Oatley, Djikic, & Mullin, 2010). This, however, has the same effect as what Hunt seeks to achieve. The projected felt meaning of moral selfness could indeed have expanded to include, in its formerly tight-knit category, all distant Others as a result of the invention of a new vicarious way to feel. (The earlier "mental leap," in this conception, thereby becomes the simple equivalent of hooking-up two previously unconnected and already-developed mental structures.)

Churchland's contribution to neurohistory, from this perspective, is to support the Kuhnian intuition that the sharing of meaning is tied to the degree of similarity between the semantic networks implemented by individual brains in context. This tells us nothing about *what it was like* to be in that context, of course, but it does give us license to speak about different groups of people as having had nearly identical experiences so long as it can also be reasonably argued that they had nearly identical semantic maps. And since *what it was like* for *this* individual is, in large part, indistinguishable—historically—from the experience of any other person in the same group, Churchland's neurosemantic model justifies broadening our use of evidence in ascribing feeling. Any context-consistent description of *what it was like* for one person in the category (cf. "thought collective") will likely do as an approximation for a description of someone else's feeling. Where this doesn't apply, however, is: (a) when that second individual is categorically different; and (b) when the context changes, such that the relevant someone (or something) *becomes dissonant* relative to

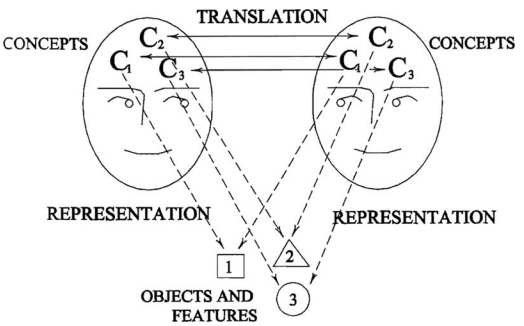

Figure 2. Paul Churchland's (2007) original caption read, in part: "What is the relation that maps identical conceptual frameworks across individuals?" From *Neurophilosophy at Work* (p. 127), by P. Churchland, 2007, Cambridge, United Kingdom: Cambridge University Press. Copyright 2007 by Paul Churchland. Reprinted with permission.

[10] Briefly, for Kuhn, incommensurability is an incompatibility of worldviews. This can manifest as a language problem, but really it is a problem of conflicting world logics: there is no common factor that can be used to fully translate one worldview into the other. For a more formal definition, as well as a related discussion of how to conceive of conflict between epistemic groups, see Burman (2009).

their previous categorical state. Then the previously acceptable narratives need to change.

Conclusion

The historical imagination—and thus historical research programs in general—can be understood, from this perspective, to be constrained in two ways: (a) by what can be extracted from "trace" evidence and (b) by our interpretation of what those traces imply. If new evidence is discovered that conclusively falsifies an interpretation, then a new narrative must be constructed. A new narrative can also be required when an interpretation is deemed to be either impossible or incomplete as a result of either a conflict of implication or the demonstration of a gap in understanding. These anomalies lead to calls for change, such as those made by Churchland, Hunt, and Smail.

That said, however, I think that bringing the brain into history involves much more than did its earlier introduction into philosophy. In this case, it is not so obvious an importation. As a result, the choice of name—"neurohistory"—is unfortunate. The use of this prefix sets off too many alarms among the group of skeptics generated by the very success of the Churchlands' program (see note 8). Yet it seems clear that the problems with which Hunt and Smail are engaging go well beyond simply adding "the brain" to "history." This is a different sort of venture than it appears. Or rather, it could be.

Hunt's (2009) call for revolution encourages historians to tell stories of situated, feeling selves. Here, however, we have also been led to the conclusion that there is no distinct *what it was likeness* except for that provided by our shared maps; no historical self beyond embodied, situated neurophysiology. Although I am not disputing whether the people of the past had consciousness (a subjective "I"), it seems to me that treating the undocumented as feeling individual selves does no historical work: from the perspective of the kinds of history Smail wants to tell, there will typically be insufficient evidence upon which to base an individual's story. But Hunt's sought-after new paradigm, and her endorsement of Smail, can be conceived as calling for the broadening of how we use evidence in *approximating* feeling across *groups of individuals* in order to ask new kinds of questions.

To extract a sense of *what it was like* to be in a particular context, the neurohistorian must first place the relevant historical self in context. (This is the standard method of cultural history.)[11] Once this is accomplished, it then becomes possible—following Kuhn, Wittgenstein, and the neurosemantic model—to treat *categories* of individuals in context *as if* they would have identical orienting responses (i.e., as if they all belong to the same "feeling collective"). In this way, categorical groupings of evidence can be constructed; the documentation of feeling (via diary entries, letters, court documents, etc.) read from one historical author's hand into the minds of others in the same rigorously reconstructed evidentiary category.[12] This can then afford new insights, which might lead to new questions and new projects.

These sketches of method do not yet achieve Hunt's and Smail's hopes of a history built from a new kind of evidence. Potsherds do not provide evidence of *feeling*, except perhaps in cases where they have been treated as a canvas. But the sketches do allow for some new uses of the old kinds of evidence. The result is not so much a history based on seeing, as Hunt hoped; rather, it is a new way to see—not so much a

[11] I recognize that it may be controversial to link the two together, neurohistory and cultural history. Yet this is fully consistent with Smail's (2008) intent. As a result, I think his comments are worth including: "A neurohistory is a deep cultural history, offering a way out of the increasingly sterile presentism that constrains the historical imagination" (p. 156). That cultural history includes an implicit presentism follows as a result of drawing inferences from the historian's projecting of their folk-psychological notions through reconstructed context. (There is no such thing as a historicist folk-psychology.) Of course, critics will recognize that neuroscience is not historicist either. Its addition to the historian's toolbox simply constrains intuition in a way that fits the present aesthetic. Again, here's Smail: "A neurohistorical approach does not change the objects of study. What it offers is a new interpretive framework" (p. 185).

[12] Again, this might be seen as controversial. Here, though, is Smail (2008) on the use of categories: "Comparison cannot take place without broad categories, so to deny the utility of such categories is to deny that there is much point to writing a deep history. For any deep history to succeed, the use of such categories is a necessary evil" (p. 197). The challenge, for the historian who chooses to take this approach, will therefore be to avoid constructing misleading categories (see Hacking, 2007, on "human kinds"). Indeed, Teo (2008) suggests that such a misreading of evidence can have more harmful implications than simple miscommunication; he suggests that when categories are constructed of the Other, and these include negative connotations, then the result can be "epistemological violence." This is an important caveat for those who would follow such an approach.

conception of history based on the Kuhnian "paradigm" as one based on what we might call shared "*aisthánomai*" (perceiving by the bodily or moral senses). From this new perspective, in other words, the quality of experience is shaped not only by what is known, but also by its consistency with the dominant group aesthetic; by ideas, but also by what is fashionable given the extant "moral economy" (cf. Daston, 1995). And, in helping to diagnose the dissonances that separate groupings, nondocumentary evidence can play a role.

The result might seem to some like a gloss of Foucault's (1966/1970) "*épistémè*." Indeed, Piaget (1968/1971) described Foucault's epistemological theory as providing a more general view than Kuhn's (see the discussion in Burman, 2007). In this connection, however, Hunt is clear: even as she follows Kuhn, what she seeks also goes beyond Foucault.

> Although Foucault gave subjectivity an historical dimension, he, like many social and cultural historians, always construed historical meaning in cultural and linguistic, that is, collective terms. He portrayed subjectivity as the virtually automatic outgrowth of culture and discourse. He left virtually no space for a willing, desiring individual to shape his or her own destiny, in short, little space for the self as active agent. It is not surprising, therefore, that the many historians inspired by Foucault have fastened on the body, not on the self, even though Foucault himself argued that the body became the subject of regulation because it provided access to the self. (Hunt, 2002, p. 347)

In other words, Hunt can be understood to be seeking a way to speak about the *regulation of the meaning-full self*. Her call therefore leads in the familiar neo-Foucauldian direction of power and govern-mentality, but from the perspective of individual experience (cf. Rose, 1996). Hunt's call thus has the effect of inverting the kinds of stories historians would tell. And indeed, the result is necessarily a psychological project, even while historical. From one perspective, therefore, "history from within" is about the possible ways of being a self (cf. Hacking, 2007). From another, it is about the ways in which experience can be shared across the members of a group (cf. Gergen & Gergen, 1984).

This, ultimately, may be the new neurohistory's most immediate contribution. If you find evidence of an object or event, but it is not meaningful (or if you hear a joke and you do not find it funny), then you either have not understood its intellectual implication (generalized from *paradeigma*) or you have missed something of its aesthetic quality (*aisthánomai*). Neurohistory therefore offers a new perspective of an old lesson: the quality of a reaction can be made to do work, historically, because of what it tells you about how to read the people involved (cf. Darnton, 1984). That said, of course, grouping people in order to access their "experience" is not new either (see Thompson, 1963, on "class"). Only the justification is new, although the resulting groupings will also almost certainly be tighter.

In terms of what this new approach to history could add to psychology, the most immediate contribution is our new view of causality among interacting bio-cultural kinds. That we now have a suggestion regarding how brains and cultures "talk" in a way that is consistent with other views of natural change is potentially very useful. The neodualist separation between "mind states" (functional) and "brain states" (structural) is also helpful, in terms of side-stepping the Kuhnian incommensurability problem, since it highlights how the same meaning might be shared across several different brains. And, finally, the discussion surrounding neurohistory provides a new entrée into discussions regarding how minds are situated in their contexts, elsewhere also called "historical psychology" (see esp. Connelly & Costall, 2000, pp. 159–165; Staeuble, 1991). Whether an actual brain-based approach to history itself ought to survive beyond these contributions, however, is a question that will no doubt continue to be debated.

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