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Aspects of Human Historiographic Explanation: A View from the Philosophy of Science

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Abstract

While some philosophers of history have argued that explanations in human history are of a fundamentally different kind than explanations in the natural sciences, I shall argue that this is not the case. Human beings are part of nature, human history is part of natural history, and human historical explanation is a species of natural historical explanation. In this paper I shall use a case study from the history of the American Civil War to show the variety of close parallels between natural and human historical explanation. In both instances, I shall argue that these explanations involve narrative descriptions of causal mechanisms. I shall show how adopting a mechanistic approach to explanation can provide resources to address some important aspects of human historiographic explanation, including problems concerning event individuation, historical meaning, agency, the role of laws, and the nature of contingency.*

1. Introduction

While some philosophers have suggested that explanations of events in human history are of a fundamentally different kind than explanations of natural events, I shall argue that this is not the case. Human beings are part of nature, human history is part of natural history, and human historical explanation is a species of natural historical explanation. This view is sometimes called naturalism, and its converse is called anti-naturalism or exceptionalism.

My case for naturalism starts from a rather general view about the science and nature. Briefly put, that view is that natural phenomena, including human and social phenomena, are all (or at least nearly all) produced by the operation of structures called mechanisms, and that scientists explain phenomena by describing the mechanisms that are responsible for these phenomena. This “new mechanismism” or “new mechanical philosophy” has received considerable discussion in the last decade (Glennan 1996; Machamer, Darden, and Craver 2000; Bechtel and Abrahamsen 2005). For purposes of this paper the differences amongst the new mechanists are inessential. My main supposition is widely shared and relatively non-controversial: namely that (most) scientific explanations are causal and mechanistic rather than based upon laws of nature.

* Forthcoming in *Explanation in the Special Sciences - The Case of Biology and History*, edited by Andreas Hüttemann, Marie I. Kaiser, and Oliver Scholz. New York: Springer.

In a recent paper (Glennan 2010b) I have considered the implications of this view for the explanation of historical events, claiming that these events, both natural and human, are typically the products of *ephemeral mechanisms* – mechanisms whose organization is fleeting and one-off in character -- and that what historians call narrative explanations are in fact descriptions of these mechanisms.

This paper will extend the case for naturalism by considering how the mechanistic approach can be applied to the explanation of a particular event in human history, the battle of Antietam, which occurred during the American Civil War. The exploration of this case will show how the mechanistic approach to explanation works in historical cases and demonstrate that various supposedly exceptional features of human historiographic explanation have close analogs in the explanation of non-human phenomena.

Because of the many uses of the term ‘history’ it will be helpful to clarify at the outset some terms connected with history, historiography and explanation. In the first place, it is essential to distinguish history, the actual events and processes that have occurred in the past, from historiography, which is the activity of discovering, describing and explaining those events. The relation between historiography and history then is analogous to the relation between science and nature. The next question though, is the history of what? In popular parlance the term ‘history’ is often synonymous with human history, and indeed recorded human history (as opposed to prehistory). Nonetheless, all things in this world, from humans to other species, geological formations, continents and galaxies, have their histories; but the people who study non-human history have typically not been called historians or historiographers but scientists. Given all of this I shall use the term ‘history’ broadly to refer to events in the past, and will contrast human historiographic explanation from natural historiographic explanation. Human history is a part of natural history, but I shall reserve the term ‘natural history’ to refer to the history of non-human things. To be strictly proper we might use the term ‘natural historiography’ and ‘natural historiographer’ to refer to those sciences and scientists that are concerned with non-human natural history – but unless context demands, I will live with the more standard ‘natural science’ and ‘natural scientist’.

If history is the collection of past events, then historiographic explanation is the explanation of past events. And while the fact that historiography focuses on *past* events is epistemologically significant, from the point of view of explanation the important point is that historiographic explanation is the explanation of *events* – that is, singular occurrences situated in particular places and times.¹ These historiographic explanations can be human and socio-cultural -- explaining why Henry VIII split from the Roman church -- or natural, explaining why Pangaea split into the modern continents some 175 million years ago. Human or natural, this

¹ Historical explanation can also explain facts and states of affairs, which are things that are somewhat different than events, but all of which crucially are “local” – that is, holding at particular places and times.

form of explanation is causal. To ask why Henry split from the Roman Church or why Pangaea split into the modern continents is to ask what caused these things to happen.²

Causal explanation of single events is not the only kind of explanation that historiographers (human or natural) engage in, but it is arguably the primary one. It is also the sort of explanation which distinguishes historiographical explanations from scientific explanations of patterns or regularities. Accordingly, it is this kind of explanation that will be the focus of this essay.

Any answer to questions about the relationship between historiographical and scientific explanation will presuppose certain views about scientific explanation and about the nature of science more generally. My view, and it is a common one (e.g., Cleland 2008; Danto 1985; Kuhn 1991) is that the debate over the relation between historiography and the sciences over much of the last century has been misdirected, because it starts from an image of natural science that is fundamentally mistaken. That image suggests, among other things, that scientific theories are collections of laws, that scientific hypotheses are falsifiable, that observation can be separated from theory, and that social and cultural presuppositions can at least ideally be eliminated from science. In the fifty years since the publication of Kuhn's *Structure of Scientific Revolutions*, this image of science has been extensively revised and has reached a point in which many of the features that supposedly distinguished the natural sciences from the social sciences (including historiography) have vanished.

While it is difficult to summarize all of the features of this revised view of the nature of science, two important developments are (1) that philosophers of science have come increasingly to understand science as a search for mechanisms as opposed to laws of nature, and (2) that scientists typically explain natural phenomena by providing idealized models of those mechanisms that cause these phenomena as opposed to complete theoretical descriptions that invoke laws of nature. This shift is important because much of the supposed distinction between explanations of natural phenomena and of human action depend upon the claim that natural phenomena, but not human actions, are law-governed.

2. The Battle of Antietam – a brief Narrative

I will use the battle of Antietam as my central case for examining aspects of historiographic explanation, so it would be helpful to begin with a brief summary of the

² Tucker (2008) has suggested that philosophical approaches to causation in human history can be divided into two kinds. Unificationist approaches suggest that causes in human and natural history are of the same kind, while exceptionalist approaches suggest that human causes are of a different kind, or perhaps that human action cannot be understood causally at all. Given that historiographic explanations are causal, the debate about the supposed distinctiveness of historiographic explanation is closely bound to this question about causation in human history, which in turn is connected to more general questions about the nature of causation.

circumstances of that battle.³ The battle took place near the village of Sharpsburg, Maryland, some 60 miles north of Washington DC on September 17, 1862. The battle, which pitted about 75,000 men of Union General George B. McClellan's Army the Potomac against 55,000 men of Confederate General Robert E. Lee's Army of Northern Virginia, stands as bloodiest single day of United States history, with around 23,000 dead and wounded.

Earlier in 1862, the Union had appeared poised to defeat the Confederate Army. McClellan had invaded Virginia and had brought a powerful army close to the Confederate capital of Richmond. Largely because of Lee's leadership and McClellan's excessive caution, that campaign ended with the retreat of the Union Army. After McClellan's retreat, Lee went on the offensive. At the end of August, Lee's army defeated another Union Army, the Army of Virginia, under the command of General John Pope in the Second Battle of Bull Run. This opened the way for an invasion into the state of Maryland, a border slave state that had sided with the Union but which had important pockets of Confederate sympathizers. McClellan's army (which had absorbed the remnants of Pope's army) pursued the Confederate Army, catching it near Antietam Creek.

Although McClellan's forces outnumbered Lee's, a lack of coordination and initiative on the part of McClellan and his commanders prevented them from bringing their full forces to bear. In the end, the battle was a stalemate with neither side claiming the field. Nonetheless, from a strategic point of view, the battle of Antietam is considered a decisive Union victory. Lee's losses were such that he had to retreat from Maryland, ending the threat to the northern states. The effects of this cascaded in a number of important directions. It had a significant impact on midterm congressional elections, allowing Lincoln's Republican Party to maintain its majority in Congress. It made the British and French governments, which had been on the verge of recognizing the Confederacy as a sovereign state, decide not to intervene and call for negotiations. Most importantly, it gave Lincoln a victory that he felt he needed in order to announce his Emancipation Proclamation – the order by which he freed all slaves within the rebellious states. This act changed the war. What had started as a war to suppress a rebellion became a war to free slaves.

One advantage to the battle of Antietam for our case study is that the basic facts about what happened are well known. The events of the American Civil War are relatively recent, participants in and proximal observers of these events were highly literate and documented these events extensively, and the American Civil War has been a subject of sustained historical investigation. This fact allows us to focus on the question of how historians explain those facts. In making this choice, I do not want to suggest that knowing the facts is easy. In some historical investigations there are profound difficulties with establishing the most basic facts, and even in

³ Information in this essay about the battle and its context in the American Civil War is drawn from (McPherson 2002).

cases where the basic facts are well-established, explanation may rely upon discovering hitherto unknown but causally relevant facts. Nonetheless, in what follows I shall take the facts for granted and focus on the question of how historians assemble facts into explanatory relations.

3. Mechanisms & Historical Explanation

The model of explanation I am defending suggests that human historical processes are mechanistic and that narrative historiographic explanations are ultimately descriptions of these mechanisms. In order to specify the content of this claim, we must say something about what mechanisms and mechanistic explanations are. Advocates of the new mechanicism have sometimes disagreed about just what constitutes a mechanism, but there seems, notwithstanding the details, to be something of a consensus about the basic features that all mechanisms share. Illari & Williamson provide a sort of minimal definition that captures this consensus:

A mechanism for a phenomenon consists of entities and activities organized in such a way that they are responsible for the phenomenon (Illari and Williamson 2012)

A paradigmatic example of a mechanism like a clock consists of a collection of entities (gears, watch hands, crystal, battery, etc.) whose activities (turning, vibrating, etc.) are organized in such a way that they produce some phenomenon, e.g., the turning of the hands at a constant speed. While such paradigmatic examples count as mechanisms on this definition, so do many other things. The sorts of things that can count as entities and activities in mechanisms extend far beyond what appears in classical machines; entities can include anything from molecules to globular clusters, and activities can be anything from the chemical interactions of neurotransmitters, the flowing of rivers, the erupting of volcanoes and the play of children.

While the new mechanists have argued for the primacy of mechanisms and mechanistic explanation over laws and nomological explanation, laws, or at least non-accidental generalizations, do play an important role in the characterization of mechanisms.⁴ Generalizations have two important roles in relation to mechanisms. On the one hand, activities of and interactions between parts of mechanisms can be described by generalizations. If, for instance, two gears interact within some mechanical device, there is a non-accidental generalization that will describe how a change in the position of one gear will produce a change in a position of the other gear. These are so-called change-relating generalizations. On the other hand, generalizations can be used to describe the behavior of mechanisms as a whole. For instance, Mendel's laws, which describe relationships between the distribution of genes in parents and offspring, describe an aspect of the behavior of reproductive mechanisms. Such laws (if we are to call these laws) are **mechanically explicable**. Mechanically explicable laws or

⁴ The relationship between mechanisms, laws and other sorts of generalizations is widely discussed in the mechanisms literature (Glennan 2002; Glennan 2011; Andersen 2011; Leuridan 2010).

generalizations, while descriptively essential, are not at the metaphysical heart of the matter, since these laws obtain only in virtue of the existence of mechanisms.

A final important feature of mechanisms is their hierarchical organization. The entities and activities of mechanisms are typically themselves complex, where lower-level mechanisms may explain the properties of these entities and activities. This means, among other things, that the generalizations describing activities and interactions of the entities that are parts of a mechanism will themselves be mechanically explicable. So for instance, if the clock contains a battery that generates a current within the system, the generalizations about how the battery behaves will themselves be explicable by examination of the parts of the battery and the activities and interactions in which they engage.

The term mechanism is sometimes used to refer to systems or structures, while at other times it is used to refer to processes (Glennan 2002). Systems are complex “things” – organized collections of entities that act in regular and repeatable ways. Clocks, synapses and stomachs and legislatures are all mechanical systems. Processes on the other hand are most easily thought of as sequences of activities, interactions and events. Many processes can be thought of as resulting from the operation of mechanical systems – for instance stomachs are one of the systems involved in the process of digestion. However not all processes derive from the operation of a system. Here is a process: I swing a golf club, striking a ball lying on a tuft of grass; the ball travels through the air 150 yards, slicing to the right, landing on the ground whereupon it rolls down a hill into a bunker. There are entities (me, the golf club, the ball, the grass, the bunker,...) and activities (swinging, slicing, rolling..) but there is no system here. For one thing, the particular combination of the ball’s lie and place on the course is, more-or-less, unique. For another, my swing is (sadly) not repeatable so that two swings will not produce the same results. A process like this that is not the product of the operation of a stable system is an ephemeral mechanism. More specifically, an ephemeral mechanism is one in which the way entities and activities are organized is the result of chance or exogenous factors and in which that organization is short-lived, non-stable, and not an instance of a multiply-realizable type (Glennan 2010a).

Historical mechanisms are typically best understood as processes rather than systems, and these mechanical processes are to a large degree ephemeral. Indeed one way of understanding the distinction between historians and social scientists, is that historians are concerned with the particularities of processes that lead to particular outcomes at particular places and times, whereas sociologists, political scientists or economists are concerned with systems that give rise to stable and repeatable processes (cf. Gaddis 2002, chapter 4).

There is a close connection between mechanistic and narrative explanations. Narrative is the principle mode of explanation of singular historical events (cf. Danto 1985; MacDonald and MacDonald 2008), and it is often thought that the use of narrative explanation is one of the marks that distinguishes historiography from the natural sciences. A mechanistic explanation

characterizes entities and activities, describing how their organization in space and time gives rise to some phenomenon. This is in essence a narrative.⁵

McPherson's (2002) account of the events on the day of the battle is a typical narrative. Let us consider how this narrative fits within the paradigm of mechanistic explanation. McPherson's account seeks to explain many things about the battle of Antietam, including the circumstances that led to the battle, the decision and indecision of commanders in the battle, the effects of technology, training and terrain on tactical outcomes, the downstream effects of the battle upon the emancipation question and on the national elections, and so on. To illustrate the ways in which this narrative describes a mechanism, let us focus on a singular explanatory question: what explained the tactical outcome of the battle, conceived primarily as the final positions of the armies at the end of the day's fighting, along with the casualties that each army suffered? McPherson's narrative describes the various entities involved the battle, which are for the most part the various military units and their commanders. These are the entities. McPherson also describes the activities and interactions in which these entities are engaged: deliberating, giving and receiving orders, marching, shooting, suffering casualties, retreating, etc. The narrative pays particular attention to the organization of these entities' activities in space and time; for it is upon this that the battle turns. For instance, the casualty rates in a part of the battlefield depend upon the position, orientation and size of opposing forces. If McPherson and other historians are correct, much of the explanation of the failure of the Union to achieve a more complete victory had to do with their failure to appropriately time their attacks and concentrate their forces. This example illustrates how an event like a battle has all of the key features of a mechanism – entities, activities and interactions, and organization – and how a historical explanation describes these things.

4. Selected Problems of Historiographic Explanation

Using this basic framework of historiographic narrative as mechanistic explanation, I turn now to a selective discussion of some important problems in the theory of historiographic explanation. This discussion will show that the mechanistic approach provides some important resources for thinking about these problems. It will also allow us to see some often unappreciated parallels between explanatory practices in human historiography on the natural sciences that collectively bolster the case for naturalism.

⁵ One way of understanding the place of narrative explanation within natural science is to distinguish historical natural science (or natural historiography) from experimental natural science (Cleland 2008). According to this approach, natural historiography is concerned with the representation of past events of natural history and their causes, and so, like human historiography, explains via narrative descriptions of these processes. Experimental science on the other hand is concerned with repeatable and law-governed phenomena and, accordingly, uses different forms of explanation. Interestingly, however, the mechanistic approach suggests that even the phenomena studied by experimental science are in fact susceptible to narrative explanation. Regular and repeatable phenomena are simply the products of the operation of widespread and reliable mechanisms. Descriptions of these processes form generalized narratives (Glennan 2010a; Wise 2011).

4.1. Problems of Object and Event Individuation

Causal relations are most commonly understood as being relations between events. To offer a causal explanation of an event then involves identification of other events that cause the explanandum event. If the battle of Antietam is an event, it will be explained by events in its past and may help to explain events in its future. This conception of causal explanation however raises many questions about the nature of events and their descriptions. The central challenge for an advocate of a naturalist and realist approach to causal explanation is to square a broadly ontic conception of explanation – one in which explanatory relations obtain between events that exist independent of mind and theory – with the evident fact that the description of events, and explanatory practices more generally, are deeply dependent upon a variety of pragmatic factors.

Let us consider the battle of Antietam as an event. What makes it the event it is and distinguishes it from other events? Historians do not, to my knowledge, find this question too problematic. The battle is an aggregation of smaller events – marching, shooting, killing, fleeing... -- taking place within a well-defined region – a couple of miles around Sharpsburg for around 12 hours beginning at dawn on September 17, 1862. But how clear is this? Why for instance do we delimit the battle at 12 hours, as opposed to including a preliminary skirmish that occurred the evening before or occasional shots fired the day after? A related question concerns how much the identity of an event depends upon its properties and constituents. Had one brigade arrived later on the field than it did, or for that matter one cook arrived later to breakfast, would it have been a different battle? Such questions do not have clear answers, and reflection on them can lead one to the sort of skepticism exemplified by Louis Mink, that it is not the case that “there is a determinate historical actuality, the complex referent for all our narratives of “what actually happen,” the untold story to which narrative histories approximate” (quoted in Ankersmit 2008, 202)

If Mink’s skepticism is actually warranted, then we should have similar concerns about natural history. Here is one example: Speciation events may have different sorts of causes, but it is generally believed that many speciation events occur as a result of the operation of the mechanism of allopatric speciation. In such cases, a population of individuals belonging to a species become geographically isolated from other members of that species to a point where interbreeding becomes impossible. Over time, genetic drift and differential selective environment lead to genotypic and phenotypic divergence between populations, to the point where a new species is formed.

How exactly does one describe and individuate a speciation event? As with other historical events, there are clearly times before and after the event, but it is difficult to identify when exactly the event begins and ends. Using the biological species concept, populations are members of distinct species when they no longer have the potential to interbreed. But what counts as having the potential to interbreed is a vague and theoretically difficult question. Again, as in the case of Antietam, it is difficult to say how different things would have to be for an event

to count as the same speciation event. In allopatric speciation a population often becomes isolated through the creation of a geographical barrier. For instance, flooding might create a boundary between two parts of a population. But which individual organisms end up on which side of the barrier can be a highly contingent affair. Had the organisms that formed the population and its gene pool been slightly different than those that actually did, would it really have been the same speciation event?

So Mink's skepticism, if it is warranted, is as much a problem for natural history as it is for human history. The difficulty is to find a way to answer these questions about how one describes historical objects and events that both recognizes the pragmatic dimensions such descriptions while saving our intuition that the events in question have a reality independent of those descriptions. This problem has been much discussed by advocates of the new mechanicism, and something of an answer is already implicit in the characterization of mechanisms discussed above. Here again is Illari and Williamson's characterization:

A mechanism for a phenomenon consists of entities and activities organized in such a way that they are responsible for the phenomenon.

It is key that there is no definition of a mechanism as such, but only of a mechanism *for a phenomenon*. The point (cf. Glennan 1996) is that decompositions of mechanisms into parts can only be carried out in light of a description of what a mechanism is doing. To take a simple biological example, consider all of the various phenomena produced by human bodies – pumping blood, sweating, eating, excreting, moving, playing tennis, writing books, etc. The entities and activities that produce these phenomena can be quite different, and the boundaries will overlap. There are various systems –e.g., pulmonary, digestive, muscular-skeletal, nervous, cognitive – which are productive of different behaviors – and which divide up a human body and its activities in different ways. We can make a similar point about a system that might be a matter of historical investigation like the United States Congress. The Congress can be decomposed into entities and activities of different and overlapping kinds – by states, by committee affiliation, and by party affiliation to name a few. Different activities undertaken by Congress (different phenomena) will be explained by different causal mechanisms that appeal to these different entities and to the activities in which they engage.

In a causal-mechanical explanation, identification of a mechanism's phenomenon is identification of the explanandum. And as is widely understood, the identification of explananda is dependent upon the context in which explanation is being sought. But this context-dependence need not suggest either that choices of explananda are arbitrary or that the resulting articulation of entities, activities and events do not refer to real things.

Consider more closely some explanatory questions surrounding the battle of Antietam. To seek an explanation is to ask a why question, and there are many different such questions that have been of interest to historians. A basic question is this: Why did the battle of Antietam

occur? This question is most commonly posed in the context of the strategic situation during the summer of 1862. The way in which the occurrence of the battle is characterized will be quite course grained, because the explanation is essentially contrastive, and the implied contrast class involves very different sets of events. So the question of why the battle of Antietam occurred might be cashed out in this way: What caused Lee to invade Maryland and what caused McClellan to chase him and to seek out a battle? The answer to this question will individuate the battle quite coarsely – as a battle taking place between Lee’s and McClellan’s armies in Maryland in the late summer of 1862. From this strategic perspective, fine grained descriptions of the time, place and entities involved is irrelevant. The battle (and its explanation) would still be the same if it had taken place a few days earlier or later, if a few regiments more or less had taken part, or indeed if the battle had taken place some miles away from Antietam Creek. The description that we are really operating under is something like “the battle that occurred in which McClellan attempted to halt Lee’s invasion of Maryland.” Other questions will individuate the battle more finely. For instance, one might ask why the Battle was fought at Antietam Creek as opposed to a few miles away or why it occurred on the 17th of September instead of the 16th.

Once the explanandum is identified, there will be non-arbitrary reasons for articulating the parts of the mechanism responsible for producing the event to be explained. The articulation of the mechanism responsible for the coarse-grained explanation will involve description of various agents whose perceptions and decisions were responsible for the Confederate decision to invade Maryland and the Union response – people like President Lincoln, General McClellan, Confederate President Jefferson Davis and General Robert E. Lee. At the strategic level, the two armies can be treated as unitary entities. If the explanatory question turns to explaining something like why the Battle took place on September 17 the articulations of entities and their activities and their interactions will have a higher resolution. Reference must be made to individual corps, divisions and regiments within the army, their specific locations within the vicinity of the battle, and the various activities and interactions of the numerous commanders and staffs.

While in some sense there is no privileged set of explanatory questions surrounding an historical event, historians have good reasons for choosing a particular question and grain given their larger explanatory interests. The reason, for instance, to focus on the course-grained strategic description of the battle of Antietam, is that it was on this course-grained outcome that so much of the subsequent history of the American Civil War appears to have depended. In explaining the historical significance of the battle, it likely does not matter that the casualties were 6500 instead of 5000 or that the battle occurred at Sharpsburg rather than Frederick. What made a difference strategically was, among other things, that the invasion of Maryland was halted, that the battle’s outcome changed the electorate’s attitude toward Lincoln and the Republicans, that it enabled Lincoln to emancipate the slaves, and that it persuaded the British not to intervene in the war.

4.2. The Problem of Historical Meaning

Arthur Danto famously argued that historiography has a different character than science because of its use of narrative forms and particularly of a particular sort of description he called a narrative sentence. The distinguishing mark of narrative sentences is that they fix the referent to entities and events that occur in the past by means of events that occur further in the future. An example of such a sentence is the claim “The commander of the Army of Northern Virginia in the Maryland Campaign was born in Virginia”. Such a claim describes the birth of Robert E. Lee, but it does so in a way that not even an omniscient “ideal chronicler” could describe at the time that it occurred. The birth of Lee was not the birth of the commander of the Army of Northern Virginia until many years later.

Danto (Danto 1985, 182) thought that the prevalence of such references in historical sentences showed that historiography was not science, but if one includes in science those fields like astronomy or evolutionary biology which study the origins of particular things, the problem is far from unique. Events of non-human history obtain their historical meaning retrospectively just as do those of human history. Consider again the idea of allopatric speciation. Suppose a group of animals crosses a river, leaving some of their brethren behind. Subsequently the river floods, creating a boundary. Over time natural selection operates on the different populations to such an extent that the descendants of the population become a new species. The ideal chronicler couldn't have identified this population as the founding population of a new lineage at the time that it split off, because at that time there simply wasn't a new lineage.

The concept of historical meaning, while not uniquely applicable to human history, can be quite helpful to understanding the grounds for non-arbitrarily identifying explanatory questions and explanandum events. In the discussion above I emphasized that the most common way to characterize the event known as the battle of Antietam was coarse grained, because it was the event at this grain that was of strategic significance. “Strategic significance” is but another way of talking about historical meaning. The primary reason why historians care about the battle of Antietam is that it appears (retrospectively) to be a turning point in American history. (McPherson's history of Antietam is in fact part of a series from Oxford University Press called “Pivotal Moments in American History.”) The battle is both an event to be explained and an event that is crucial to the explanation of future events. For the historian, the essential characteristics of the battle are not the particular place, time or participants, but the set of characteristics that allowed it to play this causal role.

4.3. The Problem of Agency

Probably the most familiar argument for taking a non-naturalistic and exceptionalist position towards human historiographic explanation has to do with human agency. Human agents cause things to happen in the world, and if the actions of these agents cannot be woven into the naturalistic fabric of causes and effects, then indeed explaining events in human history would be a very different kind of matter. Philosophers have sometimes suggested that human agents and actions have a number of special properties that make it impossible to integrate them

into a naturalistic model of causation and explanation. The actions of human agents are said to be free and undetermined; they are based upon reasons, which cannot be causes; they are not governed by laws.

It is not possible to delve too deeply into these matters in this essay. Suffice it to say that some of these claims about human agency are clearly incompatible with the naturalist thesis. What I would like to argue, however, is that a naturalistic approach to human historiographic explanation need not deny the importance of human agency. In fact, successful mechanistic explanations of human events must take into account certain special properties of human agency; but none of these special problems are genuinely incompatible with a causal and naturalistic approach.

What are these special properties? All of them are connected in some way or other with intentionality. Human agents have beliefs and desires, and the explanation of human action is (in practical terms at least) impossible without them.⁶ This is in large part because an agent's actions are not responses directly to what is happening in the world, but to the agent's beliefs about what is happening in the world. Thus, causal explanations of events produced by human actions must appeal to these beliefs.

This feature of human action is especially salient in military history, because the actions of both generals and common soldiers are based upon their beliefs about their enemies, and these beliefs are often mistaken in ways that make big differences to outcomes. The army with better reconnaissance or with officers who are smarter (or luckier) in their guess about the dispositions of their enemies will often be victorious. The battle of Antietam provides numerous examples. During the Maryland campaign, Lee's invading Confederate army had approximately 55,000 men, while the Union Army had more than 75,000 men. To compound this numerical disadvantage, Lee had divided his forces and, by great good fortune, McClellan had learned of Lee's plans. Notwithstanding these facts, McClellan substantially overestimated the forces arrayed against him and accordingly was slow to press his advantage. McPherson describes McClellan's behavior in the days before the battle:

On the 16th McClellan had 55,000 troops on hand with another 14,000 within six miles. Lee's force had not yet increased to much more than 25,000. Having informed Washington three days earlier that he would crush Lee's army while it was separated, McClellan had missed his first opportunity to do so on the 14th. He missed his second chance on the 16th as he spent much of the day planning an attack on September 17—by which time all of the Army of Northern Virginia would be united except for A. P. Hill's division. Without Hill, Lee had 36,000 men, which McClellan tripled in his mind (McPherson 2002, chapter 4).

⁶ There is a vast literature in philosophy of psychology, of which (Fodor 1989) and (Dretske 1988) are representative, that has been directed at developing a naturalistic account of these intentional properties. My analysis assumes that some such account is on the right track.

When McClellan finally attacked on September 17, he still held a two-to-one numerical advantage, but he believed he was outnumbered and so held one third of his forces in reserve. Most historians believe that McClellan's failure to commit these reserves, along with similar caution on the part of some subordinate commanders, prevented the Union from achieving what could have been a decisive victory. This was Lincoln's conclusion as well, as he relieved McClellan of command after McClellan failed to pursue the retreating Confederate army.

What this example demonstrates is that what caused the particular outcome at Antietam was as much McClellan's beliefs as the soldiers' weapons. Thus a narrative explanation of the outcome will inevitably describe those beliefs and what caused them to be formed. Because such large consequences can follow from individual judgments, political and military history make the dependence of human action on beliefs especially clear, but the phenomenon is ubiquitous.

The appeal to beliefs (including false beliefs) is an essential feature of narrative explanations of human historiography, but many explanations in natural science and natural historiography have similar features. In the first case, representation and misrepresentation are essential to explaining many aspects of non-human animal behavior. In some cases this behavior will involve states that have many of the same features as human intentional states. For instance, it is difficult to formulate an explanation of many animal behaviors without referring to a predator's beliefs about their prey. Even animals that don't have anything like the mental capacities of humans or other cognitively advanced predators will utilize representations. Bees and ants for instance have internal information bearing states that allow them to return to their nests.

The applicability of semantic concepts to the explanation of biological systems in fact goes far beyond their use in the study of animal behavior. Much has been made in the last decade of the concept of information in biology. Genes are often thought of as coding molecular information and developmental information. Adaptations can be seen as representing information about the environment. Critics of gene centered views of evolutionary biology do not deny that genes carry information, but instead argue that information (and with it, misinformation) is widely distributed across "developmental systems" (Oyama 1985). All of this is just to say that there is no obvious conflict between naturalistic and causal explanation on the one hand and semantic and intentional explanation on the other. The entities and activities studied by natural scientists, as much as by human historians, may have various semantic properties. And while it is clear that we are far from understanding exactly how to think about such properties, it is equally clear that they are part of the natural world.

4.4. The Problem of Laws

As has been widely noted, one of the chief reasons to take an exceptionalist attitude towards historiographic explanation has had to do with the suspicion that laws do not figure in historiographic explanation in the way that they do in scientific explanation; to the extent that philosophers of science have in recent decades discredited nomological approaches to scientific

explanation, this argument against naturalism has lost much of its force. Nonetheless, it is implausible to think that either scientific or historiographic explanations do not rely in important ways upon generalizations that express non-accidental regularities.

As indicated in our preliminary discussion of mechanisms, generalizations play a twofold role in the description of mechanisms – they can describe the behavior of a mechanism as a whole, or they can describe the character of the entities, activities and interactions that produce that behavior. Let us focus first on this latter role by considering some generalizations that play a role in the explaining events surrounding the battle of Antietam.

An ephemeral mechanism is one whose arrangement of parts is fragile, short-lived and one-off, but in which the activities of and interactions between those parts – given their relatively stable properties and dispositions – will be robust and regular. To take a simple example, the circumstances that might lead a single gun crew to fire a round at a particular moment and place in a battle will be ephemeral, but the interaction between a match and loaded cannon is quite robust and regular, as is the interaction between a cannonball and its target. An effective narrative explanation will show how these various pieces came together, and how, given this organization, the stable dispositions of the parts interact to produce the outcome.

One set of generalizations that is important in the explanation of human historical events are generalizations describing human dispositions. These can be generalizations about the behavior of human beings generally, about the behavior of specific groups of human beings (e.g., mid-19th century West Point-educated officers), or about the behavior of specific people. Let us consider some generalizations about the behavior of specific people that are relevant to the explanation of events at Antietam. The two commanding generals, McClellan and Grant, had rather different dispositions as commanders, and it is possible and informative to form generalizations about them. McClellan, as alluded to above, was very cautious and was inclined to overestimate the strength of forces arrayed against him. Lee, on the other hand, was a risk taker, inclined to leave certain areas unprotected so that he could go on the attack and keep his opponent off balance. Generalizations like this are crucial to explaining the generals' actions, and with them the outcome of the battle. Consider this narrative of events in the center of the battlefield during the afternoon of September 17:

The broken Southern brigades fell back in disorder almost half a mile. Lee's center was wide open except for some artillery and a handful of dazed infantrymen that Confederate officers including Longstreet desperately scraped together back along the Hagerstown Pike. "There was no body of Confederate infantry in this part of the field that could have resisted a serious advance," wrote a Southern officer. "Lee's army was ruined," added Longstreet's artillery commander melodramatically, "and the end of the Confederacy was in sight." Now was the time for McClellan to send in his reserves. Longstreet himself later said that if 10,000 fresh Union troops had been put in at that juncture, the Confederates would have been swept from the field.

McClellan had those 10,000 available in Franklin's corps, and several thousand more in Porter's. The normally cautious Franklin pleaded to be unleashed. But Sumner, who was still shocked by what had happened to Sedgwick's division, counseled against it. Fearing that Lee must be massing his own supposedly abundant reserves for a counterattack, McClellan accepted Sumner's advice. ...So the opportunity passed (McPherson 2002, chapter 4)

A crucial point in explaining the outcome of the battle is explaining McClellan's failure to commit troops to exploit the Confederate retreat. What caused McClellan to make this choice was the evidence and advice presented to him, in combination with his own dispositions and judgment. His disposition to caution was robust and stable. On multiple occasions in the battle of Antietam, as well as in earlier battles during the peninsular campaign, McClellan had failed to exploit opportunities because of a tendency to overestimate the forces arrayed against him. Thus McClellan's decision at this point is predictable and explanatory.

It would be odd to call this generalization a law, but it is invariant in the sense of Woodward (2003) and it is mechanistically explicable. The generalization is simply a description of McClellan's dispositions. McClellan does not act as he does because of the generalization; rather the generalization holds true because of the particular psychological structures which constitute McClellan's personality, and these in turn have a history of particular causes.

There are many other generalizations besides generalizations about the psychological dispositions of agents that may play a role in historical explanation. In military engagements, for instance, there are numerous explanatory generalizations about the ways in which opposing forces might interact – e.g., of the susceptibility of certain kinds of infantry formations to artillery fire, of the favorable or unfavorable effects of terrain, or of the amount of casualties that typically will lead to the destruction of unit cohesion. These generalizations can be explanatory and also predictive. It is indeed their belief in the truth of these generalizations that explains why commanders made the choices they do. Confederate commanders chose to concentrate their forces around a bridge over Antietam Creek because of their beliefs about the defensive advantages of such a position. Such generalizations describe real regularities, but these regularities arise because of the similarities across particular mechanisms.

The fact that generalizations are mechanistically explicable helps to explain their *ceteris paribus* and exception-ridden character. Mechanistically explicable generalizations only hold true in the right context. Given violations of certain background or boundary conditions, the mechanism will break and the regularity the generalization describes will fail. For example, artillery batteries are mechanisms for firing cannon balls, and there are non-accidental generalizations describing this behavior, including such properties as range and rate of fire. But these generalizations hold true only in virtue of a wide variety of background conditions. The rate of fire depends, *inter alia*, on the location and availability of munitions and on the health, level of fatigue and psychological state of gun crews.

There is nothing special that distinguishes how generalizations figure in human historiographic explanations from how generalizations figure in natural historiographic explanations, except for the fact that some of the generalizations that figure in human historiographic explanation will be generalizations about intentionally driven human behavior. For the sake of comparison, consider some generalizations involved in explaining the outbreak of a forest fire. The particular circumstances that explain the ignition of a forest fire will be ephemeral – a chance lightning strike, or a wind gust that ignites the embers of a passing backpacker’s campfire. But there are many generalizations that will figure into explaining how likely a fire is to occur in an area, how far a fire spreads, how hot it burns, and when it ends. Those generalizations will reference things such as the climatological conditions like wind speed and humidity, the kind of growth in the forest, the rainfall in that year, and so on. And while these generalizations can help both to predict and explain the progress of a forest fire, they are not laws in the realist sense, but simply descriptions of the various mechanisms involved. Ultimately what causes a forest fire is the local interactions of the various parts, single sparks, individual trees, and very local weather conditions.

4.5. The Problem of Contingency

Finally, let us consider the role of necessity and contingency in mechanistic explanations of human history. While the idea of contingency is often associated with indeterminism, especially indeterministic interpretations of human freedom, I will follow Ben-Menahem, who suggests that “contingency and necessity be understood in terms of stability, that is, sensitivity or insensitivity to initial conditions and intervening factors” (2008, 121). Contingent events are, on this view, just as causally determined as necessary events. Events are contingent when small changes in causal antecedents lead to significant changes in outcomes. A simple physical example will illustrate the difference. If I drop a marble anywhere inside a hemispherical bowl, it will, regardless of where it landed inside the bowl, eventually settle at the bowl’s center; if I turn the same bowl over and drop the marble on top of it, the marble’s final resting place will vary widely depending upon exactly where the marble landed, as well as its spin and velocity. The former outcome is necessary while the latter is contingent. Contingency in this sense is a familiar feature of non-human natural history. The historical conditions which give rise to planets, geological formations or species may be highly contingent. The degree to which the shape of “the tree of life” is contingent is in fact a widely discussed problem (Gould 1990; Beatty 1995). The notion of historical contingency is closely related to the ephemerality of historical mechanisms. Mechanisms are ephemeral to the extent that the organization of entities and activities is contingent.

The events leading up to the battle of Antietam provide a spectacular example of contingency. As McPherson narrates, on September 12, 1862

the Army of the Potomac marched into Frederick greeted by delirious citizens waving flags, kissing McClellan, and hugging his horse. The 27th Indiana stopped that morning

in a farm field outside of town. Corporal Barton W. Mitchell flopped down in the shade of a tree along a fenceline to enjoy a welcome rest. As he relaxed, however, Mitchell noticed a bulky envelope lying in the grass. Curious, he picked it up and discovered inside a sheet of paper wrapped around three cigars. As a comrade went off to hunt for a match so they could smoke their lucky find, Mitchell noticed that the paper contained writing under the heading “Headquarters, Army of Northern Virginia, Special Orders, No. 191” (McPherson 2002, chapter 4).

Special order 191 contained Lee’s orders dividing his forces into four parts. The orders were passed on to McClellan, and based upon them, McClellan issued orders to move his army to catch Lee’s portion of the divided force. These troop movements led, five days later to the engagement at Antietam.

Corporal Barton’s fortunate discovery illustrates the interplay between necessity and contingency that is characteristic of ephemeral mechanisms. While the events leading to Barton’s picking up the orders were highly contingent, the consequences of that event were not. The parts of the Union command and control mechanism functioned as expected and the order was passed on until it reached McClellan. McClellan’s staff, in keeping with their professional training, made efforts to authenticate the document and correctly judged the orders to be genuine. McClellan, reflecting his professional training, recognized that this information could be decisive in bringing about his goal of defeating the Confederate army. Reflecting his famed excess of caution, however, he was methodical in his preparations to move his army, and he did not get his troops moving until 18 hours after he saw Lee’s order. Lee, by another stroke of good fortune, received intelligence on the 14th that his plans had been compromised and, being Lee, moved very quickly to concentrate his forces, mitigating considerably the advantage McClellan had gained.

It is cases like these that lead historians to emphasize the unique character of historical narratives. But necessity is a matter of degree, and different historical processes will have greater and lesser degrees of contingency. Compare the Ronald Reagan’s electoral victory over Walter Mondale in the US presidential election of 1984 with the President George W. Bush’s victory over Al Gore in 2000. Reagan’s victory was a landslide, carrying 49 states and winning the popular vote by nearly 20%. In contrast, George Bush won a disputed election, losing the popular vote and only gaining the slightest edge in the electoral vote. The outcome of the latter race was highly contingent, depending ultimately (it appears) upon a 5-4 vote of the US Supreme court.

While there are, objectively speaking, more or less contingent historical processes, contingency also depends upon the grain at which explanandum events are described. The coarser the grain, the less contingent outcomes appear. That the Union and Confederate armies met on September 17 near the village of Sharpsburg, Maryland, was highly contingent upon operational details, including most notably the discovery of Order 191. That the Union and

Confederate armies met that fall somewhere in Maryland was considerably less contingent. McClellan was under orders to pursue and engage the Confederate Army, and it likely, given the imperatives under which the various commanders operated, that a major battle would necessarily have occurred sometime that fall -- “necessarily” in Ben-Menahem’s sense of stability.

Reflection on this case shows that there are very close parallels between issues in human and natural history. Just as with a case like Antietam, some events may be more contingent than others, but judgments of contingency will be connected to explanatory grain. Also, in both areas of inquiry, there are good reasons for explanatory pluralism – looking both for detailed and more contingent narratives about particular individuals and events and for coarse-grained but stable historical patterns (Sterelny 1996). It is tempting to argue that human affairs are more contingent than other parts of natural history, but this is likely an artifact of perspective. We naturally identify imaginatively with individual human beings, and life-changing events for individual human beings are, as we know too well, highly contingent. If though we were to take a personal interest in a single grain of sand on the beach, I expect we would find a degree of contingency not unlike that which characterizes our individual lives. But we don’t worry about the individual grain of sand, choosing instead to focus on the predictable long term changes to the beach.

5. Conclusion

Philosophical thinking about human historiography has frequently involved articulating reasons why there is something special about human history, something which demands special methods and modes of explanation. I cannot think of a better way to counter this view than to show that some important and putatively special features of human historical explanation in fact have close parallels in the explanation of natural events and phenomena. In saying that human historiography is not special, I am not suggesting that there are or should be no differences between the explanatory practices of historiography and the natural sciences; I am only saying that the variations between these practices are no greater than one finds within the practices of the natural sciences themselves. Reflection on parallels between human and natural history and historiography not only helps make the case for naturalism; it also reminds us of the many historical questions we find within the traditional domains of natural science.

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