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Uncertain certainties: an analysis of the American response to the 2014-2016 West African Ebola epidemic.

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UNCERTAIN CERTAINTIES: AN ANALYSIS OF THE AMERICAN RESPONE TO THE 2014-2016 WEST AFRICAN EBOLA EPIDEMIC

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B.A., Johns Hopkins University, 2014

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ABSTRACT

UNCERTAIN CERTAINTIES: AN ANALYSIS OF THE AMERICAN RESPONSE TO THE 2014-2016 WES AFRICAN EBOLA EPIDEMIC

Kelly Carty

July 24, 2018

This project examines the construction of scientific facts surrounding the 2014-2016 West African Ebola outbreak as well as the subsequent uptake and transformation of those facts by the United States government. While the *Ebolavirus* ravaged the communities of Sierra Leone, Liberia, and Guinea, the incidence of the virus in other countries was very low. Nonetheless, the United States spent $576 million on domestic preparedness and response. This study addresses this mismatch in the context of the reinvigorated interest among rhetoricians into writing and science. Applying and expanding the methodology of Jeanne Fahnestock, this study analyzes Ebola-related statements in scientific articles, webpages of the Centers for Disease Control and Prevention (CDC), and governmental documents. Not only does this answer Fahnestock's call to use her technique to investigate the use of scientific information by political groups, but it uncovers a way in which neo-colonial discourses and actions can emerge from scientific accommodations.

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INTRODUCTION

This thesis will examine the construction of facts surrounding the 2014-2016 West African Ebola outbreak as well as the subsequent accommodation of those facts into action by the United States government. In particular, the analyses in this thesis will illuminate the ways in which scientific statements can be used and modified by those in power to enact or reinforce political and social violence. In this study, I intend to combine elements of rhetoric, philosophy of science, and critical theory to analyze statements in scientific papers, webpages of the Centers for Disease Control and Prevention (CDC), and documents published by the United States government. By analyzing statements from these three genres, this study addresses both the uncertainty undergirding scientific and political facts as well as the reinvigorated inquiries among rhetoricians into writing and science, as evidenced by the special issue planned for January 2019 by *Written Communication* on writing and science and the recently published special issue of *Rhetoric Society Quarterly* on Bruno Latour's uptake by scholars of rhetoric. Moreover, by addressing these trends through an examination of fact-related statements, this thesis will answer a call made by Jeanne Fahnestock in her 1986 landmark essay "Accommodating Science: The Rhetorical Life of Scientific Facts" to use her technique of analyzing statement types to investigate the "use of scientific and technical information by political factions and lobbying groups" (292).

From 2014 to 2016, the Ebola virus devastated communities in Liberia, Sierra Leone and Guinea. According to the World Health Organization (WHO), Ebola, specifically the *Zaire ebolavirus* strain of the Ebola virus, now called EBOV, caused more than 25,000 cases in these three countries between 2014 and 2016 ("Ebola"), more than all previous Ebola outbreaks combined. The virus, named after a river in the Democratic Republic of Congo that is close to the location of the first documented case of Ebola virus disease (EVD), acts quickly, progressing from a fever to severe gastrointestinal symptoms, such as nausea, vomiting, and diarrhea, to unexplained bleeding within a couple of days (Lyon; Chertow et al.; CDC "Signs and Symptoms"). EBOV may be the most virulent strain of the virus, as it can cause death just days after the onset of - symptoms (Chertow et al.). In Liberia, Sierra Leone and Guinea, this short timeframe was particularly catastrophic because many people had to travel a significant distance to reach the nearest healthcare facilities and, once they reached a facility, it was likely already overburdened with an influx of patients and not enough supplies. The fatality rates in these three countries were strikingly high: 28% in Sierra Leone, 45% in Liberia, and 67% in Guinea (WHO, "Ebola"). Heart-wrenching photographs of healthcare workers in full-body protective gear standing over or carrying dead or near-dead bodies flooded the world as the epidemic raged.

Outside of these three West African countries, the story of Ebola mostly stayed inside of these photographs. Although confirmed cases of and deaths from Ebola were documented in other countries in Europe, North America, and other parts of Africa, the incidence beyond Sierra Leone, Liberia, and Guinea was very low. The fourth highest number of documented cases occurred in the Democratic Republic of Congo with 66

recorded outbreaks (WHO, "Ebola"). Only four cases of Ebola, one of which was fatal, were documented in the United States (WHO, "Ebola"). Despite this strikingly low number of physical Ebola cases in the U.S., a psychological Ebola epidemic swept across the country. In Maine, an elementary school teacher was put on leave after attending a conference over nine miles away from the Dallas hospital where two nurses contracted EVD (Yuhas). In Texas, a two-year college chose not to accept international students from countries with documented cases of EVD for the 2015 school year (Ahmed and Mendoza). In Pennsylvania, a high school soccer player from West Africa had to endure an opposing team's chants of "Ebola" during a game (Ahmed and Mendoza). The hysteria was not confined to the general public, however. Under the Consolidated and Further Continuing Appropriations Act of 2015 and the Department of Health and Human Services' Public Health and Social Services Emergency Fund, the U.S. government, through the CDC, spent $1.79 billion on Ebola preparedness and response (CDC, "FY"). $576 million of this was earmarked for domestic preparedness and response (CDC, "FY"). Although this exorbitant amount of money may have helped prevent Ebola cases in the United States or curb the ferocity of the virus in West Africa through American research and development, the amount of spending seems disproportionate to the number of cases documented in the United States.

This mismatch between the reality of the virus's presence in the United States and the response of the general population, as well as the U.S. government, is an example of what Bruno Latour calls a *hiatus*, "interruptions we typically call 'controversies,' 'crises,' 'dilemmas,' or even 'karoi'" (Walsh 407). Hiatuses, for Latour, signal the crossing of two modes (Walsh 407) or ways of being in the world. In the Ebola situation described above,

there is a scientific mode, which describes the position in the biochemical and biomedical characteristics of the virus are of interest, and a political mode, which describes the position in which national security and international relations are of interest. In order to solve the incompatibilities created by crossing modes, Latour pushes against the development of a metalanguage, what he calls "a language to which all other languages can be reduced" (Rivers 430), which would presumably serve as a common language for the crossing modes. Instead, Latour thinks the rhetorical negotiation of actions, experiences, existences, and desires in a conflict requires a multiplicity of languages (Rivers 430). Crucially, this multiplicity does not reflect different perspectives on a single reality that all share; rather, the multiple languages that Latour calls for in conflicts fueled by the mixing of modes reflect distinct realities (Rivers 430).

Latour and Steve Wooglar examine the scientific mode in *Laboratory Life: The Construction of Scientific Fact*. In their book, Latour and Wooglar follow laboratory scientists as anthropologists in an attempt to describe the human element behind the creation of fact. By zooming in on human activities that underlie supposedly objective science, Latour and Wooglar push against a paradigm in which, in the words of Jenny Rice, "[o]bjectivity … [is] defined by both distance and vastness, while non-objectivity … is marked by a kind of closeness" (432). In the context of scientific activity, this paradigm links objectivity, which is a defining characteristic of science, with a personal separation from scientific hypotheses, data, experiments, and conclusions. We see iterations of this paradigmatic link in characterizations of scientists as cerebral people married to their work who are either unfeeling or have trouble expressing emotions such as Dr. Sheldon Cooper from *The Big Bang Theory* or Dr. Gregory House from *House*.

Latour and Wooglar's work pushes against this paradigm by showing the personal side of objective science. Specifically, Latour and Wooglar reveal themselves as rhetoricians "committed to the idea that truths are not self-evident but composed agonistically" (Rivers 428) among individuals.

To demonstrate this, Latour and Wooglar developed a series of statement types to categorize scientific information as it passed through this process of agonistic negotiation both in scientific publications and in the normally hidden conversations between scientists in labs. Latour and Wooglar's five statement types are as follows:

> *Type 5 statements* are "taken-for-granted facts" (Latour and Wooglar 76). Although these statements are usually omitted in scientific publications because the intended audience is already convinced of their facticity, they can be used to further an argument for the facticity of another statement.
>
> *Type 4 statements* are uncontroversial claims that are nonetheless made explicit (Latour and Wooglar 77). These statements, as described by Latour and Wooglar, have the "stylistic form '*A has a certain relationship with B*'" (77).
>
> *Type 3 statements* contain modalities, such as a reference, that indicate slightly less certainty. According to Latour and Wooglar, these are usually statements about other statements and take a form similar to *the structure of X was reported to be Y* (78).
>
> *Type 2 statements* draw attention to the circumstances affecting the basic relationship in the statement with phrases such as "what is generally known [or] what is thought to be the case" (Latour and Wooglar 78).
>
> *Type one statements* are conjectures or speculations (Latour and Wooglar 79).

These statement types allow Latour and Wooglar to classify statements about scientific information on a certainty spectrum, moving from the uncertainty of *type one statements* to the certainty of *type five statements*. According to Latour and Wooglar, as scientific facts develop, they progress from statement types of low certainty to statement types of higher certainty.

Jeanne Fahnestock, a rhetorician of science, adapts Latour and Wooglar's word-based observations of the creation of scientific objectivity in her landmark essay on scientific facts. Using Latour and a classical rhetorical framework, Fahnestock explores the transformation of information as it moves from scientific papers to popular science articles. She asks, "what happens to scientific information in the course of its adaptation to various noninitiated audiences? What, if any, changes does it undergo as it travels from one rhetorical situation to another? And how, in turn, is the discourse containing such information transformed?" (276) Fahnestock uses Aristotle's classification system of oratory to rhetorically situate scientific papers and popularized science articles. For Fahnestock, scientific papers are primarily forensic because they are "explicitly devoted only to arguing for the occurrence of a past fact; significance is largely understood" (278). Textual accommodations of science, in contrast, are epideictic; "their main purpose is to celebrate rather than validate … they must usually be explicit in their claims about the value of the scientific discoveries they pass along" (Fahnestock 279).

According to Fahnestock, information changes as it moves across rhetorical situations. Accommodated science is not merely science that undergoes the translation of "technical jargon into nontechnical equivalents" (Fahnestock 281). Because these texts must celebrate and explain the value of scientific information to an audience of non-

scientists, accommodated science "involves finding the points of interest in the topic that will appeal to readers who are not ... specialists in any life science" (Fahnestock 281). Fahnestock documents the genre shift from scientific papers to accommodated science through shifts in certainty of the information presented. Certainty is increased in statements included in accommodated science texts because of the rhetorical need to "add to the significance of the subject by claiming its uniqueness, its one-of-a-kind status" (280). This shift in certainty is evident for Fahnestock in altered wording, such as the move from "appears" (280) or "suggests" (280) in scientific papers to "the first" (282) or "only" (280) in accommodated science. The shift is also apparent in the tendency of science accommodations to "replace the signs or data of an original research report with the effects or results" (284), as that also increases the certainty of the information presented.

This study will respond to Fahnestock's call to examine the way in which political groups adopt and accommodate scientific information by analyzing the ways in which scientists, the CDC, and governmental personnel discuss the 2014-2016 Ebola outbreak. Fahnestock argues that the particular technique she uses to analyze statements of fact "could be employed in any number of subject areas so long as the researcher finds similar subject matter being communicated to dissimilar audiences" (292). To my knowledge, however, no one has answered Fahnestock's call to look into "the use of scientific and technical information by political factions and lobbying groups" (292). Rhetorically, according to Fahnestock, as "technical specifications … levitate from the engineering manual or report to the briefing memo, the white paper, the money-generating mailing … the context clearly switches from one that is fundamentally reportorial or archival to one

that is frankly persuasive" (292). This change in rhetorical context between the languages of science and politics, coupled with the general and political push to question fact, may be the culprit behind the pronounced difference between the incidence of the virus in the United States and the governmental response.

Although I was able to identify organizations lobbying politicians for Ebola-related actions and spending as well as the politicians working with these organizations, I could not find many statements about Ebola that were written or spoken by lobbyists during the 2014-2016 epidemic. Most of the identifiable lobbying groups worked through other organizations, primarily pharmaceutical companies, and, thus, the already sparse Ebola-related statements were spread across publications of the lobbying groups and their associated groups. The difficulty in finding statements wholly attached to lobbying organizations may contribute to the lack of studies responding to Fahnestock's call with respect to lobbying groups. Because of this lack, I chose to examine governmental records, such as transcripts from congressional hearings or texts of proposed laws, as these documents contained statements from politicians and sometimes from individuals working with lobbying groups. Even if these statements did not fulfill my original idealizations of "the use of scientific and technical information by political factions and lobbying groups" (Fahnestock 292), they are still suitable materials for a response to Fahnestock's work. In addition to governmental documents, I examined published scientific studies on Ebola to have a reliable source of scientific information as well as a point of comparison similar to those in Fahnestock's work for the statements in the governmental documents. I also examined statements published by the CDC, originally thinking they would serve as a middle ground between the statements of the scientific

publications and those of the governmental documents since the CDC is a public health institution run by the government and staffed with some scientists. I quickly discovered this was overly simplistic, however. Statements from the CDC were often less alarmist versions of the statements in governmental publications. In response to this observation, I changed the organization of my thesis from chapters on each genre to chapters focusing on certain statement types, which allowed the three publication types to speak to each other when necessary.

For all three genres of investigation, scientific articles, CDC webpages, and governmental publications, I restricted my search to materials published between 8 August 2014, the date the WHO declared the West African Ebola outbreak a Public Health Emergency of International Concern (PHEIC), and 29 March 2016, the date the WHO ended the PHEIC. I mined the scientific papers from *Web of Science* with the date restrictions and the search term "Ebola" using the Basic search function. The results were organized in descending order by the number of times they were cited. The top ten results, excluding those published by Public Health Organizations, were included in this study. A few scientific articles were added later for example statement types or for additional information on the history of *Ebolavirus*. I analyzed statements from all Ebola-related CDC webpages published or updated between the aforementioned dates. I included images and infographics in my analysis when text was present alongside the images. I pulled governmental documents from ProQuest Congressional using the search term "Ebola" and the same date restrictions. All statements were coded by hand based on the five statement types introduced by Latour and Wooglar and used by Fahnestock. In addition to these five statement types, I used two statement types of my own invention to

account for pervasive statements I discovered which were either not discerned or not explicitly theorized by Latour: *type zero* statements, which explicitly claim uncertainty or lack of knowledge, and *type six* statements, which are imperatives or calls to action.

The first chapter of this thesis will address statements of uncertainty (*type 0*) and speculation (*type 1*) in the examined publications. Using these statements, I will argue that, although the uncertainties and speculations address a wide range of topics, they coalesce across the three genres to form a neo-colonial discourse that frames the outbreak. In the second chapter, I will use type 2 through type 6 statements to argue that the process of factual negotiation within and between genres, particularly the loss of historical context regarding the development of facts, creates an informational vacuum that gives space to the neo-colonial discourse identified in the first chapter. I will also argue that this discourse forms a basis for the subsequent neocolonial actions taken by the CDC and the United States government to order and control West African bodies.

CHAPTER 1

EBOLA AND UNCERTAINTY:

CREATING A DISCOURSE FROM THE UNKNOWN

Uncertainty and speculation shrouded the 2014-2016 West African Ebola outbreak. The source of the outbreak was unknown. No effective vaccines, cures, or treatments were available. Observed clinical phenomena were left without explanation. In response, scientists and health professionals turned to speculation: they documented conjectures on the origin of the virus, the safety and efficacy of treatments, and the potential reach of the virus, among other things. Governmental associates took the speculations further, linking Ebola to bio-weapons and the apocalypse. Both statement types are captured by the framework outlined in the previous chapter: those that openly recognize uncertainty or acknowledge what is not known are classified as *type 0 statements* and those that present conjectures or speculations are classified as *type 1 statements*. Although these two types of statements seem wide-reaching and only related by the virus that prompted them, this chapter argues that they coalesce to form a specific discourse. More precisely, this chapter will argue that a neocolonial discourse is present and perpetuated in the uncertain and speculative statements of scientists, health professionals, and governmental personnel and associates.

To develop the argument that uncertainties and speculations form a discourse surrounding the West African Ebola outbreak, I will first discuss *type 0* and *type 1*

statements of scientific publications and demonstrate that they forward the puzzle solving activity of Kuhnian normal science. After presenting the similarities between these statements from scientific publications and those of CDC webpages, I will use Michel Foucault's theory of discourse unity to break down the barrier between these two genres and argue that they are collaboratively involved in discourse creation. I will then introduce uncertainties and speculations of governmental publications, folding them into the position of discourse creator. Once I demonstrate that this discourse contains the Ebola epidemic in times and space, I will show that the discourse bears traces of neocolonial discourses. In the following chapter, I will argue that this neocolonial discourse is transformed into imperative statements that direct the United States' response to the West African Ebola outbreak.

SCIENTIFIC PUZZLE SOLVING

Scientific papers published at the beginning of the outbreak, in the fall of 2014, acknowledge uncertainty about the source of the outbreak of Ebola Virus Disease (EVD). Although the *type 0 statements* concerning the source of the outbreak openly referenced an unknown, they also contained some known information about the outbreak's origin. For example, according to Stephen Gire et al., "The outbreak started from a single transmission event from an unknown animal reservoir into the human population" (1372). In this excerpt, Gire et al. do not express uncertainty about the single transmission event that caused the outbreak nor the fact that that transmission was from animal to human. In fact, because Ebola outbreaks had occurred before the 2014 West African outbreak, scientists were able to speculate on the source, as evidenced by the *type 1 statements* in

an article by David Pigott et al: "Whilst it has been difficult to identify the zoonotic source for the index cases of some outbreaks, a recurring theme of hunting and handling bushmeat is suspected " (3). Clearly, however, the animal source in the Gire et al. excerpt is "unknown" (1372), and the statement, therefore, openly recognizes an uncertainty. In addition to the source of the outbreak, scientists writing during the epidemic express uncertainty regarding clinical phenomena related to EVD. These uncertainties mostly concern detailed data, such as variations in case fatality rates by age (WHO Response Team 1493) and the presence of detectable Ebola virus (EBOV) RNA despite decreasing plasma EBOV loads (Lyon et al. 2407). Because of the quick onset of the West African Ebola outbreak, these specific uncertainties are somewhat expected. Scientists and medical professionals barely had enough time to collect substantial data on clinical presentations of infections or to map the source of the outbreak, leaving even less time to analyze the data.

When read as part of an isolated genre of scientific publications, these *type 0 statements* appear to forward the puzzle solving character of Kuhnian normal science. Although Thomas Kuhn is perhaps most famous for his writings on scientific paradigm shifts, this theory depends upon a specific characterization of the scientific activity that occurs between paradigm shifts. Kuhn calls this science "normal science" (14) and believes the characteristics of this between-paradigm science differentiates science from other enterprises. In his essay "Logic of Discovery or Psychology of Research," Kuhn outlines a framework in which normal science is typified by puzzle solving: scientists within a paradigm make conjectures or hypotheses and then test those conjectures with research that uses shared criteria to determine when a puzzle is solved (11). The *type 0*

statements above can be read as statements identifying the puzzles within the current paradigm that still needs to be solved. For example, the *type 0 statement* quoted above that discusses the unknown animal source of the outbreak not only signals a gap in knowledge, but also identifies a potential avenue of research for other scientists. In fact, as demonstrated by the related *type 1 statement* referenced above, some scientists are hypothesizing solutions to the puzzle, suggesting that bushmeat was the origin of the Ebola outbreak.

This puzzle solving activity of normal science is perhaps most evident in the uncertainty that persisted throughout the entire nineteen-month public health emergency, namely, the *type 0 statements* about the safety, efficacy, and unexpected effects of administered or potential EVD medications. Within the current pharmaceutically-focused paradigm, the dominant puzzle solving activity is to find a medical cure for any affliction. This paradigm-prescribed race for a cure renders medicine-related uncertainty statements more important than other, unrelated uncertainty statements. This may be the reason for the sustained inclusion of *type 0 statements* related to medications in scientific publications. In reference to Ebola, uncertainties related to a few potential medications, particularly ZMapp, which was administered to two American aid works who contracted Ebola in West Africa (Baker), attracted attention. For example, Xiangguo Qiu et al., a team that tested ZMapp at the beginning of the Ebola outbreak on non-human primates (NHPs), write, "For reasons currently unknown, the lone non-survivor (B3) experienced a viraemia of 106 TCID50 at 3 dpi, which is 100-fold greater than all other NHPs and approximately tenfold higher than that which ZMAb has been reported to suppress in a previous study" (50). In other words, Qiu et al. detected an extremely high level of

EBOV in the blood of the only non-human primate that died during ZMapp treatment. The virus level was even higher than levels reported from studies on ZMAb, a precursor pharmaceutical to ZMapp. Thus, for the situation in which the pharmaceutical intervention failed, Qiu et al. were unable to explain the associated data. From a puzzle solving standpoint, this uncertainty is significant because it identifies a case the researchers must address to ensure the efficacy of ZMapp.

Several scientific publications, including the one by Qiu et al. express uncertainty about longer-term effects of experimental treatments, thereby recognizing another aspect of the pharmaceutical paradigm puzzle solving. Qiu et al. also demonstrate uncertainty about the preventative nature of ZMapp: "whether ZMapp-treated survivors can be susceptible to re-infection is unknown" (53). This limitation may have more to do with the extent of the study rather than the time restraints, both challenges of puzzle solving within the current paradigm, because, pending institutional approval, Qiu et al. could test this uncertainty by re-exposing the non-human primate subjects to EBOV. Thus, it may just represent another step in the puzzle to cure EBOV. Similarly, Bah et al. include a *type 0 statement* about the effects of their EVD treatment: "Patients with severe gastrointestinal symptoms were also routinely treated with a finite empirical course of antibiotics with activity against gram-negative, gram-positive, and anaerobic organisms. However, the effect of this intervention remains unknown" (45). Unlike the Qiu et al. study, however, this uncertainty likely reflects time restrictions rather than study limitations. Interestingly, neither the Bah et al. nor the Qiu et al. studies express uncertainty about the safety of treatments. Such uncertainty is included in a publication by Lilin Lai et al. about their experimental vaccine VSVΔG-ZEBOV: "It is unknown if

VSVΔG-ZEBOV is safe or effective for postexposure vaccination in humans who have experienced a high-risk occupational exposure to the Ebola virus, such as a needlestick." (1254). Taken together, these uncertainties recognize puzzles that still need to be solved in the quest for a cure for EVD.

Despite the ubiquity of *type 0 statements*, *type 1 statements*, those expressing conjectures or speculations, are rare in the examined documents. Statements of this type were often difficult to tease apart from *type 2 statements*, which, as discussed in the first chapter, are also speculative, but with some acknowledgement of evidence, because authors of scientific papers typically attempt some explanation even when no evidence is available. For example, Chertow et al. write, "According to individual investigations, these infections were not attributable to any known breaches in infection-control procedures in the Ebola treatment unit; instead they are thought to be possibly related to transmission in the community where the outbreak was active" (2055-56). In this example, the authors reference uncited "individual investigations" (Chertow et al. 2055) on procedure behaviors in Ebola treatment units before speculating on the source of infections. Although the findings from the uncited investigations could rule out one potential source, it is unclear why that would serve as evidence for the speculated source. Nonetheless, the textual presentation of the two ideas, separated by a semi-colon and, thereby, grammatically linked, suggests the referenced findings could be used as evidence. A similar evidence-illusion example occurs in the writing of Henao-Restrepo et al.: "The continued enrolment, immediate vaccination, and follow-up of clusters will generate additional data about the effectiveness of ring vaccination to protect communities through herd immunity, and will hopefully help to stop Ebola virus disease

transmission in Guinea." (865). Here, the link between the vaccine trial and the ability to stop transmission of EVD is couched in the future tense. The authors need additional enrollment in their vaccine trial to generate data that may suggest that their pharmaceutical could freeze EVD transmission. Future data, however, is not data and cannot be considered evidence. As with the first example, the grammatical construction of this speculation appears to provide evidence. Furthermore, the genre convention of passive voice in scientific papers often increases the difficulty of determining whether the authors themselves are presenting a new speculation, which would classify the statement as *type 1*, or if the authors are giving voice to a commonly held speculation within the field. For example, Pigott et al. write, "Whilst it has been difficult to identify the zoonotic source for the index cases of some outbreaks, a recurring theme of hunting and handling bushmeat is suspected" (3). Although this speculation is likely based on the documented presence of EBOV in non-human primates and prevalence of bushmeat in West Africa, the authors do not cite potential sources of the speculation.

Viewed through the lens of Kuhnian puzzle solving, the lack of *type 1 statements* in scientific publications indicates either that scientists are unable to offer speculative solutions for unsolved puzzles or that they are keeping those hypotheses secret. Because the type of puzzles and the way in which they are solved are predefined by the paradigm (Kuhn 11), it seems unlikely that the scientists would be unable to offer potential solutions to specific puzzles they can recognize. This suggests that the speculations are kept secret until publication. In fact, rarity of *type 1 statements* in scientific papers on the 2014-2015 West African Ebola outbreak may reflect Latour and Wooglar's recognition that these statement types “appear most commonly … in private discussions” (79). Some

speculations and conjectures, particularly those related to the sources or components of pharmaceuticals, may have been restricted to private discussions due to the competitive nature of and potentially high financial gain in the pharmaceutical industry. The restriction of other speculations and conjectures, such as those related to the transmission and effects of EBOV, to private conversations may reflect an attempt within the scientific community to curb hysteria. Without performing sociological observations of scientists, however, it is difficult to know the content of scientific speculations and why many of them went unpublished.

In terms of content, *type 0 statements* from webpages published by the Centers for Disease Control (CDC) were very similar to *type 0 statements* in scientific papers. The CDC *type 0 statements* openly recognize the lack of knowledge about the source of the 2014 outbreak and about clinical phenomena related to EVD. On two separate webpages, the CDC uses "unknown" in reference to the outbreak's source: in an informative pamphlet entitled “Ebola (Ebola Virus Disease), the CDC claims, "The natural reservoir host of Ebola virus remains unknown"; on the Ebola "Transmission" page, the CDC similarly asserts, "Because the natural reservoir host of Ebola viruses has not yet been identified, the way in which the virus first appears in a human at the start of an outbreak is unknown." With reference to the clinical phenomena, the CDC reports, "We don’t know if people who recover are immune for life or if they can become infected with a different species of Ebola" (Q&A Transmission). Beyond this statement, which focuses on re-infection from EBOV, most of the CDC *type 0 statements* dealing with clinical phenomena address transmission of EVD. For example, the CDC writes, "It is not known if Ebola can be spread through sex or other contact with vaginal fluids from a woman

who has had Ebola" ("Transmission") as well as "We do not yet know if a pet's body, paws, or fur can pick up and spread Ebola to people or other animals" (Q&A Ebola, Pets). This inclusion of uncertainty about transmission makes sense from a public health perspective, as it would prompt the CDC's audience to avoid situations in which Ebola transmission data is unknown. In fact, following the statement about the lack of knowledge about transmission from pets, the CDC includes a *type 6 statement*, which, as discussed in the first chapter, is a call to action or an imperative, explicitly prompting avoidance: "It is important to keep people and animals away from blood or body fluids of a person with symptoms of Ebola infection" (Q&A Ebola, Pets). The CDC is responsible for the health security of the United States, as evidenced by the organization's tag line "CDC 24/7: Saving Lives, Protecting People." By matching *a type 0 statement* with a *type 6 statement,* the CDC is guiding its audience to read the uncertainty in a way that will protect public health. Thus, although the general content of the *type 0 statements* from CDC websites is similar to that of the *type 0 statements* from scientific articles, slight differences in content reveal the different purposes behind publication for the CDC and for scientists.

In addition to the *type 0 statements* in CDC publications that cite an *unknown* or include phrases like *we do not know,* a few statements reference *no evidence*. In the "Q&A Food Safety" webpage, the CDC writes, "There is no evidence in previous Ebola outbreak investigations of the virus spreading through food handled by an infected food worker" and "There is no evidence that Ebola virus is spread by coughing or sneezing." However, unlike the unknowns above that appear to prompt readers to preemptively avoid situations involving the unknown, these no evidence situations seem to discourage

avoidance. For example, immediately following the *type 0 statement* about food handling, the CDC writes, "However, any food worker with fever or illness symptoms such as coughing, vomiting, or diarrhea should not handle food" ("Q&A Food Safety"). By using "However" ("Q&A Food Safety") before reminding the reader of when a food worker should not work in a kitchen or around food, the CDC is contrasting the reminder with the no evidence statement. This suggests that no evidence is meant to quell fears about interacting with food workers or with food handled by other people. Furthermore, on the "Q&A Transmission" page, the CDC writes, "There is no evidence that mosquitoes or other insects can transmit Ebola virus. Only mammals (for example, humans, bats, monkeys and apes) have shown the ability to spread and become infected with Ebola virus." The "Only" (CDC, "Q&A Transmission") of the second sentence and the widely-known phylogenetic divide between insects and mammals, distance the no evidence animals from the animals that are known to transmit EBOV. This difference between no evidence *type 0 statements* and unknown *type 0 statements* demonstrates that, although similar in form, statements of the same type can vary widely in function.

Furthermore, although these CDC statements do not differ much in informational content from the scientific paper *type 0 statements* documented above, small changes in presentation of uncertainty demonstrates that the CDC is catering to a different audience than scientists are. For example, in the above-mentioned CDC statement "Because the natural reservoir host of Ebola viruses has not yet been identified, the way in which the virus first appears in a human at the start of an outbreak is unknown" ("Transmission"), the author explains what an unidentified natural reservoir means in terms of the Ebola outbreak. In contrast, Gire et al., in a scientific article discussed above, write, "The

outbreak started from a single transmission event from an unknown animal reservoir into the human population" (1372). Unlike the CDC statement, Gire et al.'s statement does not draw out the link between the reservoir and the start of the outbreak. This suggests that Gire et al.'s audience is more familiar with what a natural reservoir is and the significance it carries for animal-linked virus outbreaks. Thus, it seems as if, from the perspective of Gire et al., there is a *type 5 statement* or a *type 5 link* embedded in the two *type 0* clauses from the CDC "Transmission" excerpt. Although Fahnestock's adaptation of Latour and Wooglar's statement classification catches differences or movements of statement types, it does not account for differences within statement types.

The similarities in content between the *type 0 statements* of the scientific publications and the CDC webpages suggest that these two institutions are involved in discourse creation. In order to discuss the ways in which these publications create a discourse, we must first challenge the division between these two genres and, thereby, the notion that the CDC and scientists operate within separate modes of discourse. Michel Foucault proposes this type of challenge in *The Archaeology of Knowledge*, writing that genre divisions "are always themselves reflexive categories, principles of classification, normative rules, institutionalized types … [that] have complex relations with each other, but … are not intrinsic, autochthonous, and universally recognizable characteristics" (22). In other words, according to Foucault, genres are not natural divisions; they are retroactively defined by those in power and are used to classify new writing. If we operate based on this understanding of genre distinctions, the scientific publication genre discussed above would have been retroactively applied to all writing that exhibits Kuhnian puzzle solving under a paradigm. This retroactive assignment of genre means

the characteristics of that genre are not intrinsic and can be transgressed. If we look beyond the systems separating the CDC webpage genre from the scientific publication genre, we can see how they are interacting with each other to develop an Ebola discourse.

Time and Space: Defining the Bounds of Discourse

This CDC webpage-scientific publication discourse projects the West African Ebola outbreak into a definite timeline by including uncertainty statements about the origin of the outbreak. As mentioned above, Gire et al. write, "The outbreak started from a single transmission event from an unknown reservoir" (1372) and the CDC writes "the way in which the virus first appears in a human at the start of an outbreak is unknown" ("Transmission"). Although these statements recognize the uncertainty surrounding the actual source of the virus, both statements appear to take an origin of the outbreak for granted. For Gire et al., the outbreak had a starting point definable by a single event. For the CDC, there is a moment in time in which the virus "first appears" ("Transmission"). According to Foucault, this focus on origin fits into the structuring concepts of development and evolution, which

> make it possible to group a succession of dispersed events, to link them to one and the same organizing principle, to subject them to the exemplary power of life … to discover, already at work in each beginning, a principle of coherence and the outline of a future unity, to master time through a perpetually reversible relation between an origin and a term that are never given, but are always at work" (*Archaeology of Knowledge* 21-22)

Development and evolution, in other words, create a system in which discrete events are temporally ordered from origin to a future point. This coherent timeline begins to work with or is put into place by the mention of "each beginning" (Foucault, *Archaeology* 21). Thus, by referencing an origin to the outbreak, the CDC webpages and the scientific publications give birth to a master timeline in which each Ebola event will be placed. Crucially, this timeline is ordered from origin to a future unity (Foucault, *Archaeology* 21), meaning that a future is predetermined from the acknowledgement of an origin. In the context of the Ebola crisis, which emerged in the face of a multi-billion dollar biopharmaceutical industry, this means the beginning of the outbreak necessitates a pharmaceutically-aided end. This provides order to the seemingly chaotic epidemic.

The origin and end of the Ebola epidemic remain hidden. Although both the CDC webpages and the scientific publications mention an origin, the event that started the outbreak is unknown. The other end of the timeline is similarly evasive. For the West African Ebola outbreak, an endpoint aligned with the current pharmaceutical paradigm would be the eradication of EVD or, alternatively, a clear medical understanding of the best EVD treatment and prevention alongside a significant decrease in new cases. Throughout the epidemic, treatments were often palliative, and no cure was developed. Small outbreaks occurred past the end of the Public Health Emergency of International Concern (CDC, "Case Counts"), which was used as the end bound for the sources collected for this thesis. Both the CDC and research scientists acknowledged the lack of available EVD treatment options: Jing et al. write, "there is currently no definitive treatment strategy available for this disease" (1); John Schieffelin et al. write, "There are currently no approved treatments for EVD" (2093); the CDC includes "No FDA-

approved vaccine or medicine (e.g., antiviral drug) is available for Ebola" on its "Treatment" page and "There is no FDA-approved vaccine available for Ebola" on a PDF titled "What you Need to Know About Ebola." Governmental documents, the third genre of this project, also acknowledge this lack of treatment. For example, during an emergency hearing Congressman Christopher Smith said, "While there is no known cure for Ebola, both Dr. Brantley and Ms. Writebol [two Americans who contracted Ebola while delivering medical aid in Liberia] were given doses of the experimental anti-viral drug cocktail ZMapp, developed by a San Diego company called Mapp Biopharmaceutical" (160 Cong Rec E1346). Although this statement suggests the efficacy of ZMapp, it still recognizes the lack of cure. Thus, as with the origin of the outbreak, the end is kept hidden.

In addition to tethering the Ebola outbreak to a predetermined timeline, the three types of publications also constrict the Ebola outbreak to physical spaces, namely, the clinic and the lab, through *type 0* and *type 1 statements*. The connection between time and space in the establishment of a discourse is not new. Jacques Derrida also connects space and time in his project of deconstruction. This project depends heavily on *différance*, which, according to Derrida, is "neither a word nor a concept" (279), but an assemblage (280) that combines the idea of spatial distinction (i.e. differing) with temporal distinctions (i.e. deferring) (283). As *différance* moves along the axes of space and time, it produces differences (286). These differences, according to Derrida, help form the onto-theological notions we are familiar with, such as being or presence. As I will argue in the following paragraphs, scientific publications, CDC webpages, and governmental documents combine the abovementioned restriction of the Ebola outbreak in time with

spatial restriction of the outbreak. Specifically, I will argue that these publications restrict the outbreak to the clinic, the lab, and, when it breaks outside of the clinic and the lab, Africa. These restrictions of time and space provide a foundation for the resulting Ebola discourse.

The axes of time and space that Derrida unites in *différance* are also connected in the uncertainty statements of CDC webpages, scientific publications, and government documents, as all three locate the Ebola outbreak within the lab or the clinic. As mentioned above, many of the uncertainty statements in scientific publications and CDC webpages concerned clinical phenomena of the disease. For example, the uncertainties of scientific publications reference variations in case fatality rates (WHO Response Team 1493) and detectable EBOV RNA (Lyon et al. 2407). The specific mention of case fatalities and detectable EBOV RNA uses the language of the clinic, as it refers to entities that can only be measures from the position of the medical professional. More obvious references to the physical space of the clinic are evident in some *type 0 and type 1 statements*. For example, Chertow et al. refer to "the Ebola treatment unit" (2056) as a potential site of Ebola transmission. The treatment unit provides the physical space for the actions of the author's statement. Similarly, in the excerpt from Congressman Smith's comment during the congressional hearing included above, the cases of Dr. Brantley and Ms. Writebol are referenced only in so far as those two patients were "given doses of the experimental anti-viral drug cocktail ZMapp" (160 Cong Rec E1346). Because experimental drugs must be administered with close supervision, especially when used for a life-threatening disease, the mention of this "experimental anti-viral drug cocktail" (160 Cong Rec E1346) locates these cases in a clinical setting. This links the timeline

element of the Congressman's statement to a physical space. The experimental nature of ZMapp also implies work within a lab. This is echoed in another hearing when Congressman Casey asks a testifying doctor if any therapeutics or vaccines in development have clear advantages or disadvantages (Committee on Health 1). The doctor replies "No, I don't think honestly, Senator Casey, we can say that. Because apart from ZMapp and one other perhaps, they have not really been in humans" (Committee on Health 1). This suggests that most of the pharmaceuticals in development are restricted to the lab, as they are still being tested on animals. The placement of Ebola in the lab is reinforced in the above-mentioned scientific publications that mention uncertainty about the safety, efficacy, and long-term effects of Ebola pharmaceuticals. Thus, in their discourse creation, these three publications restrict the Ebola outbreak to the clinic and the lab.

In addition to locating the Ebola outbreak in the physical spaces of the clinic and the lab, *type 0* and *type 1 statements* of CDC webpages, scientific publications, and governmental documents position the Ebola outbreak in Africa. Although this may seem obvious and unquestioningly correct, I remind the reader that this claim is focused on the uncertain *type 0 statements* and the speculative *type 1 statements* not, perhaps as imagined, *type 3* or *type 4 statements* that are reporting known information about the outbreak. Statements of these latter types in scientific publications,[1] CDC webpages,[2] and governmental documents[3] commonly located the Ebola outbreak and issues associated

[1] See Pigott, Shaffer, Qiu, Shaffer, Kugelman et al. 2, and Jing 1.
[2] See "Risk"; "Review"; "What you Need to Know About Ebola "; "Fighting Ebola – and Stigma"; "Recommendations."
[3] See Wasem 10; Committee on Foreign 22; "Extended Remarks: Global Efforts to Fight Ebola" 1459; "Islamic Jihad"; Committee on Health 42; Hardin 1.

with the outbreak in specific African countries, the entire region of West Africa, and all of Africa. More curiously, *type 0 and type 1 statements* locate the outbreak and its issues in Africa as well. For example, Henao-Restrepo et al. write, "The continued enrolment, immediate vaccination, and follow-up of clusters will generate additional data about the effectiveness of ring vaccination to protect communities through herd immunity, and will hopefully help to stop Ebola virus disease transmission in Guinea" (865). In this statement, in which the authors speculate on the future benefit of their Ebola treatment, Henao-Restrepo et al. specifically reference Guinea. The inclusion of this specific country may be well-meaning, as the Ebola outbreak hit Guinea particularly hard. Nevertheless, the particularity of location is odd given that the efficacy of pharmaceuticals are typically not significantly dependent on country. Also locating the outbreak in a specific African country, Congresswoman Eddie Bernice Johnson of Texas asked Dr. Tony Merlin of the CDC in an Ebola-specific hearing for the Committee of Homeland Security "Can it not be assumed that someone comes in from Liberia that they have been in contact [with an Ebola patient]" (50)? This question suggests that everyone in Liberia should be suspect of potential Ebola transmission. The connection between the country and suspected transmission locates the disease, or at least most of the disease cases, in a single African country. On the other end of the spectrum, speculations by the CDC link Ebola to the entire continent of Africa. On its "Q&A about Food Safety" page, the CDC writes, "Ebola virus is not spread by consuming food, with the possible exception of bushmeat in (or from) Africa." In this excerpt, the use of "possible exception of" (CDC, "Q&A about Food Safety") without a related citation identifies the second half of this statement as speculative. While this link between transmission of the Ebola virus

and bushmeat mirrors the above-mentioned speculation of scientific papers on bushmeat as the source of the outbreak, it modifies the speculation a bit further. By modifying bushmeat to "bushmeat in (or from) Africa" (CDC, "Q&A About Food Safety"), this statement both restricts the Ebola risk to Africa and collapses the countries in which the outbreak occurred into the entire continent of Africa. Thus, in addition to locating Ebola within the lab and the clinic, the examined publications also locate Ebola in Africa.

A similar slippage between specific African countries and all of Africa occurred during the early AIDS epidemic and is arguably still occurring in discussions about HIV/AIDS in Africa. According to Cindy Patton, who discusses the language of AIDS in her book *Inventing AIDS*, "Africa, a continent of roughly 11½ million square miles and 53 countries,[4] is treated as a homogenous socio-political block … [but] is in fact, vastly more culturally, linguistically, religiously, and socially diverse than North America" (77). Even referring to the three-country hotbed of 2014-2016 Ebola outbreak as a homogeneous space overlooks variety between and within these countries. For example, while Guinea and Sierra Leone were both colonized in the 1800s by the French and British (Central Intelligence Agency [CIA], "Guinea"; CIA, "Sierra Leone"), respectively, Sierra Leone was settled by liberated British slaves before colonization (CIA, "Sierra Leone"). Liberia, in contrast, was never ruled from a colonizing country, but it was settled by freed American slaves by the American Colonization Society (Office of the Historian), which lends the country some historical similarity to Sierra Leone. Linguistically, the official languages of these countries are those of their colonizers or settlers, but within Guinea alone there are at least six other languages spoken by members

[4] This number increased to 54 when South Sudan gained independence from Sudan in 2011.

of various ethnic groups (Central Intelligence Agency [CIA], "Guinea"). Religiously, both Guinea and Sierra Leone are predominantly Muslim (CIA, "Guinea"; CIA, "Sierra Leone"), while Liberia is mostly comprised of Christians (CIA, "Liberia"). According to Patton, discursively collapsing these differences into a singular African continent or culture paves the way for "political and social violence" (77).

NEOCOLONIALISM AND EBOLA

According to Foucault, "in every society the production of discourse is at once controlled, selected, organised and redistributed according to a certain number of procedures" ("Discourse on Language" 149a). In other words, discourse creation is never random. Following this, CDC, research scientists, and governmental personnel and associates' placement of the Ebola discourse in time and space is not accidental. It is part of a more structured process. This structure is perhaps more evident within the genres that were purposely broken down to examine the overarching Ebola discourse. For example, as discussed above, the way in which scientific publications discuss the Ebola outbreak follows the puzzle solving activities determined by the established paradigm of research within medical biology. Because these puzzle solving activities are well defined, it is possible to identify them within the text of scientific research. Normative procedures used for the selection, organization, and redistribution of the cross-genre Ebola discourse are perhaps less clear because they do not follow the paradigm of a scientific specialty. Nonetheless, as I will argue in the following pages, there are traces of an already established discourse that structure the Ebola discussion. Specifically, I will argue that traces of a neocolonial discourse determine the framing of the Ebola narrative.

The trace of a neocolonial discourse is evident in the various publications' ubiquitous reference to bushmeat. As mentioned above, bushmeat is the supposed origin of the Ebola outbreak according to both the CDC, in the "Q&A about Food Safety" webpage, and some scientists, such as Pigott et al. However, according to Richardson et al., there is an "inordinate amount of attention focused on bushmeat and bats in radio programs, pamphlets, billboards … [because] only one of the more than 28,000 reported cases in West Africa is thought to have come from bushmeat or bats" (123). The absent presence lurking in this "fetishization of bushmeat" (Richardson et al. 123) is two-fold. On one hand, there is bushmeat's connection with HIV, another deadly virus bushmeat likely transmitted to humans (Akhtar 552). On the other hand, there is the African who hunts and eats bushmeat. To better understand the connection between these two, we can examine the creation and use of the bushmeat-eating African character in the language of AIDS/ HIV. As with the 2014-2016 Ebola epidemic, researchers were obsessed with finding the origin of HIV (Patton 83). One origin hypothesis purports that HIV entered humans from bushmeat, which refers to wild animals hunted for meat or the meat from those animals ("bushmeat"). Although wild animal hunting occurs all over the world, bushmeat specifically connotes this practice in Africa ("bushmeat"), which suggests that there is something special about the wild animals or the practices of hunting these wild animals in Africa. According to Patton,

> The blatant racism undergirding the search for a "source" of AIDS in Africa stems from the wish to discover that AIDS is an "old" disease which was confined somewhere else until technological change created contact with "isolated" peoples. Constructing AIDS as "old" (if notprimordial) and situating the virus in

"Africa" naturalize the disease, reinforcing the view that science solves problems thrown up by nature and society, and is therefore separate from both" (69)

Thus, packed into the reference to bushmeat as origin is the image of the discursive character of the bushmeat-eating African, who belongs to "'isolated' peoples" (69) closer to the wild than society and technology. This bushmeat-eating African is the mysterious Other still outside the colonizer's civilizing forces. Such characterization, according to Patton, prompts many Westerns to believe that "Africa's problems can only be solved through civilizing forces" (83), thereby reviving colonial desires.

Moreover, the above-mentioned placement of the Ebola virus in Africa by the CDC, research scientists, and governmental documents projects the epidemic outside of the United States and centralizes it in a continent an ocean away. This keeps the United States and Africa separate and the focus primarily on Africa. It almost revises EVD as an African disease. Such a revision actually took place during the early AIDS epidemic to account for the two populations heavily affected by the HIV outbreak (or to keep the different stereotypes of these populations largely intact): according to Patton, "by 1988…the World Health Organization [conceptualized] Pattern One AIDS (homosexual) and Pattern Two (*African*) AIDS" (61). This belief that the "disease and the interruption of the disease in Africa are of a different type altogether from disease in North American and Europe" (82) turned out to be wrong, of course, as both Pattern One AIDS and Pattern Two AIDS are caused by the same virus. While the discursive splitting of disease into two parts is not as evident with Ebola as with AIDS, it still seems to be present. For example, the African version of Ebola seems highly contagious, as suggested by Congresswoman Johnson's question "Can it not be assumed that someone comes in from

Liberia that they have been in contact [with an Ebola patient]" (50)? In contrast, the American version of Ebola (or the African version in an American body) seems containable, as suggested by Dr. Brantly's ability to stand in front of the U.S. Congress and say, "I'm cured from Ebola … I posed no public health risk" (Committee on Health 64). Thus, although subtle, American stakeholders in the 2014-2016 Ebola outbreak seem to inscribe a difference between African Ebola and American Ebola.

Toni Morrison theorizes a similar phenomenon of separating off the African part or the African version in critical theory in *Playing in the Dark*. According to Morrison, the influence of "a dark, abiding, signing Africanist presence" (5) has been marginalized in American criticism, making us think Americanness is separable from Africanness, because critics tend to focus on the victim, "defining [racialism] asymmetrically from the perspective of its impact on the object of racist policy and attitudes" (11). In other words, critics tend to overlook an African presence in the American because their focus is on the African in so far as his Africanness has been influenced by colonialism or racism. This seems to be happening in *type 0* and *type 1 statements*'s placement of the Ebola outbreak within Africa and the resulting projection of EVD as an African disease. To reverse this tendency and demonstrate the way in which the major components of American literature depend upon an Africanist presence, Morrison proposes we "examine the impact of notions of racial hierarchy, racial exclusion, and racial vulnerability and availability on nonblacks who held, resisted, explored, or altered those notions" (11), a concept she calls "literary 'whiteness'" (9). For our case of Ebola, this means we examine the influence this explosion of Ebola in Africa has on the United States, the space where Ebola is largely absent. In other words, we must examine the African Ebola presence where it is absent.

With eyes turned back towards America with the mysterious and potentially dangerous dark Other in mind, we see fear of losing control and of being attacked with a weapon the government cannot defend against. For example, Hardin states, "Unlike past Ebola outbreaks that have been efficiently and effectively stopped, this outbreak has spread in ways that are potentially catastrophic for the world" (1). The speculation of catastrophe projects the Ebola outbreak into a situation in which the world is left in chaos, suggesting that no one would be in control. This vision of chaos is echoed by Congressman Blake Farenthold who, during a hearing of the Committee of Homeland Security, compared the situation to the beginning of "every outbreak novel or zombie movie" (51). Although these statements do not explicitly reference a dark Other, they do envision a situation that lies outside the bounds of civilization where Europeans or Americans are no longer in power. Based on the brutal history of colonial rule in Africa, it seems that colonial powerhouses, of whom America is an ideological descendant, have viewed the dark African Other as uncivilized for hundreds of years. Thus, this fear of the Ebola-sparked catastrophe seems to align with a colonizer's fear of losing control of the colonized Other. In addition to this apocalyptic fear, Americans are afraid of an Ebola-fueled attack. This fear is best captured by a series of questions and answers during a hearing for the Committee on Health, Education, Labor, and Pensions:

> Senator Whitehouse: Is this a virus that is capable of being manipulated by humans? Could one go into it if one had a sample of the Ebola virus and meddle with a portion of the DNA strain that relates to how it's transmitted? Could somebody up to mischief try to make something that was more transmittable out of this existing virus?

> Dr. Fauci: Theoretically, you can manipulate almost any virus to change it any way you want. That's a question that always raises red flags about it, but the fact is yes. The only trouble is it wouldn't be easy for somebody to do that in their laboratory backyard. They would probably kill themselves doing that.
>
> Senator Whitehouse: It would take a nation State to do that?
>
> Dr. Fauci: Yes, it would take a state-type thing … I mentioned that our getting involved in the hemorrhagic fever viruses was part of a biodefense agenda because way back during the cold war it was clear from intelligence and proven that the Soviets were stockpiling hemorrhagic fever viruses and things like that for just the purpose that you make. (46-47)

In this excerpt, Senator Whitehouse's questions suggest that humans could alter the already deadly virus to create a bio-weapon. Dr. Fauci, remaining true to the scientific possibilities of viral manipulation, does not temper this speculation, leading the Senator to reference a situation in which a government did develop and hold bio-weapons allegedly for use against the United States. Although this exchange does not mention a dark Other or suggest that an African government would attack the United States, references to the weak infrastructures in Ebola-ravaged nations suggests that Africa is not the safest place for a potential bio-weapon. Thus, the Africanist presence, although absent, is haunting the American government.

In the next chapter on certainty and calls to action, I will discuss the way in which this cross-genre neocolonial discourse materializes into action. The physical realization of this discourse resembles the ways in which disciplinary power operates on the subject in the Foucauldian sense as an inescapable and diffuse form of structuring human

subjects that is “not the 'privilege,' acquired or preserved of the dominant class, but the overall effect of its strategic positions" (*Discipline* 550). Thus, due to the already established and historically strategic positions of medical science, the CDC, and the American government, the Ebola discourse is able to materialize in a way that ensures individuals are made into productive bodies, always-already reinforcing the space restrictions and timeline of the Ebola outbreak.

CHAPTER 2

NEGOTIATING FACTS: AMERICAN CERTAINTY AND AFRICAN EBOLA

As much as uncertainty and speculation shrouded the 2014-2016 West African Ebola epidemic, factual negotiations and certainty statements determined actions taken by the United States government in the face of the frighteningly large outbreak. Before the outbreak ended, the U.S. government created a new official, the Ebola Czar, to coordinate the country's response to the disease; dedicated millions of dollars to Ebola-related research, development, and countermeasures; and established surveillance points in West Africa and the United States for all those travelling from Ebola-afflicted West African countries. Calls for these actions by the CDC or in governmental hearings, taken in isolation, seemed to be based on certain knowledge. However, when read against related information in scientific publications, the certainty behind these actions seems grounded in statements still being negotiated by scientists. In this chapter, I will argue that the process of factual negotiation, particularly the loss of historical context regarding the development of facts, creates an informational vacuum that gives space to traces of a neo-colonial discourse used by the CDC and the United States government to undergird the neo-colonial actions necessary to order and control West African bodies. By ordering and controlling West African bodies, the CDC and the United States government ensure everything follows the predetermined Ebola timeline established in the previous chapter that runs from the virus' African origin to its pharmaceutical cure.

To argue this, I will use *type 2* through *type 6 statements* collected from the same scientific publications, CDC webpages, and governmental documents referenced in the previous chapter. I will begin this chapter by introducing factual negotiations in scientific publications and by describing the way in which these negotiations lead to a loss of information related to the historical development of facts. In addition to using the scholarship of Jeanne Fahnestock to demonstrate that, as information moves from scientific publications, it increases in certainty, I will argue against Fahnestock and Cindy Patton that this increase in certainty is based on an unchallenged reverence for science. Through a case study of statements across the three genres of interest discussing the source of the Ebola outbreak, I will demonstrate that statements from CDC webpages and governmental documents not only increase the certainty as theorized by Fahnestock, but also project those inflated certainties into the material realm by calling for certain actions. I will then use statements about the magnitude of the outbreak to argue that, by increasing the certainty of scientific statements and, thereby, blocking access to the historical development of and evidence behind those statements, the CDC and the U.S. government creates discursive space for other discourses, particularly neo-colonial discourses to seep in. When the statements of inflated certainty are imperatives, or *type 6 statements*, these neo-colonial discourses can determine the resulting actions. To conclude the chapter, I will argue that the U.S. government acted on these neo-colonial imperatives and established a system of surveillance over West African bodies.

Factual Negotiations in Scientific Publications

Although science is often equated with facticity, scientific activity is rife with factual negotiations. As mentioned in the last chapter, normal science, according to Thomas Kuhn, is typified by puzzle solving in which scientists make conjectures or hypotheses and then test those conjectures with research that uses shared criteria to determine when a puzzle is solved (11). I argued that the *type 0 statements* of scientific publications demonstrate the puzzle solving activity of normal science because, by expressing an uncertainty, *type 0 statements* are identifying the puzzles that need to be solved within the dominant paradigm. Although *type 0 statements* can help identify these puzzles and, thereby, the paradigm backdrop for the puzzle solving activity, they do not offer insights into the way the puzzles are solved. According to Kuhn, scientists hypothesize an answer to an existing puzzle and then test that hypothesis according to criteria shared among all scientists working within the same paradigm (11). If the hypothesis passes enough tests, the scientist has resolved the puzzle (Kuhn 11). If it does not, the scientist can either abandon the puzzle or recreate the puzzle with the addition of other hypotheses (Kuhn 11-12). Because of the paradigmatic shared criteria, multiple scientists or teams of scientists can simultaneously test different hypotheses or the same puzzle or recheck each other's work. This multiplicity of input often causes factual negotiations among scientists.

Type 2 and *type 3 statements*, statement types in the middle of the uncertainty-certainty continuum, capture the conversational element of science. Both *type 2* and *type 3* statements reference other statements, thereby incorporating cross talk from other scientists. According to Latour and Wooglar, *type 2 statements* draw attention to the circumstances that influence information in the statement (78). Like *type 1 statements*,

type 2 statements are speculations or suggestions, but, unlike *type 1 statements*, they point to some existing research. The existing research is often couched in phrases such as "what is generally known" or "what is thought to be the case." For example, John Schieffelin et al. write, "The EVD outbreak appears to have originated near the town of Guéckédou, which is in the forest region of Guinea and close to the borders of Sierra Leone and Liberia [3,4]" (2093). Using information from two other sources, indicated by the citations at the end of the sentence, Schieffelin et al. narrow the origin of the EVD to a small geographic location. Although this information is supported by the work of two scientists or two groups of scientists, Schieffelin et al. include the qualifying verb "appears to" (2093), which suggests that this origin hypothesis needs to be tested further before the puzzle is solved. *Type 3 statements*, defined by Latour and Wooglar as statements about other statements, often taking the form *the structure of X was reported to be Y* instead of *the structure of X is Y* (78). The references to other statements in *type 3 statements* can be explicit, as with the statement formulae above, or subtle, such as with the inclusion of an in-text citation. Thus, based on their construction, both *type 2* and *type 3 statements* incorporate elements from the work of other scientists, thereby creating a conversation between scientists.

A few *type 3 statements* from publications of the 2014-2016 West African Ebola outbreak reveal how scientists negotiate facts through published conversations. David Pigott et al. write,

> Initial analysis suggested that the viruses isolated from the current outbreak, originating in Guinea, formed a separate clade within the five *Ebolavirus* species (Baize et al., 2014). Subsequent re-analysis of the same sequences however,

> indicated that these isolates instead nest within the *Zaire ebolavirus* lineage (Dudas and Rambaut, 2014), and diverged from Central Africa strains approximately ten years ago (Gire et al., 2014). (2-3)

In this excerpt, Pigott et al. cite a study that led Sylvain Baize et al. to the conclusion that the virus responsible for the 2014 outbreak formed a new biological group within the identified *Ebolavirus* species. In the language of Kuhnian puzzle solving, Baize et al. assume their hypothesis of EBOV forming a new biological group within the *Ebolavirus* species correctly solves the puzzle of the new outbreak's viral phylogeny, or evolutionary history. Dudas and Rambaut and Stephen Gire et al., two additional groups of scientists, use genetic sequence data from the same virus to test other hypotheses and re-test Baize et al.'s hypothesis. Recognizing that these three groups are working on the same puzzle, Pigott et al. put them in conversation with each other and elucidate the negotiation process for the phylogeny puzzle. Pigott et al. seem to side with Dudas and Rambaut and Gire et al. based on their presentation of Baize et al.'s research as an "initial analysis" (2) that only "suggested" (2) a conclusion. In contrast, Pigott et al. describe the work by Dudas and Rambaut and Gire et al. as "subsequent re-analysis" (2), which suggests that there was an impetus to reexamine the work of Baize et al., that "indicated" (3), a more certain word than "suggested" (2), a conclusion. Pigott et al. provide no evidence as to why the conclusions by Dudas and Rambaut and Gire et al. were more certain than the conclusion of Baize et al. Nonetheless, Pigott et al. choose a side in the factual negotiation. The siding is also evident in a type 3 statement by Xiangguo Qiu et al.: "In the spring of 2014, a new EBOV variant emerged in the West African country of Guinea[2], an area in which EBOV had not been previously reported" (47). Qiu et al., who published

only a month after Pigott et al., exclude any mention of the first analysis, only citing a source for the "new EBOV variant" (Qiu et al. 47). Thus, both Pigott et al. and Qiu et al., through *type 3 statements* included in their publications, contribute to the negotiation of scientific findings related to the Ebola outbreak.

Interestingly, a *type 4 statement*, which expresses supposedly uncontroversial information, often taking the form *A has a certain relationship with B* (Latour and Wooglar 77), contains information similar to that of the factual negotiation above. Pigott et al. write, "The *Filoviridae*, of which *Ebolavirus* is a constituent genus, belong to the order *Mononegavirales*" (2). This statement, which presents the phylogeny of the *Ebolavirus*, neither discusses the process by which this three-tiered classification was determined nor cites an external source that forwards this classification. Rather, Pigott et al. present this classification as void of history and, thereby, void of negotiation. However, as demonstrated above, virus phylogeny can be difficult to determine and can change as scientists test and re-test hypotheses. If we assume that the classification of *Ebolavirus* genus within *Filoviridae* family and the classification of the *Filoviridae* family within the *Mononegavirales* order was still under negotiation, it seems odd that Pigott et al. would include a statement on this classification that neither includes a citation nor references any historical negotiations related to the classification. Thus, the lack of historical negotiation may suggest that the information is not actively being negotiated. Unlike the *type 3 statements* above, this statement may imply scientific consensus.

The loss of historical context in the move from *type 3 statements* to *type 4 statements* exemplifies Latour and Wooglar's discussion of the relationship between a

factual continuum and a statement's reference to its presented fact's conditions of construction. Latour and Wooglar write,

> Facts and artefacts do not correspond respectively to true and false statements. Rather, statements lie along a continuum according to the extent to which they refer to the conditions of their construction. Up to a certain point on this continuum, the inclusion of reference to the conditions of construction is necessary for purposes of persuasion. Beyond this point, the conditions of construction are either irrelevant or their inclusion can be seen as an attempt to undermine the established fact-like status of the statement. Our argument is not that facts are not real, nor that they are merely artificial. *Our argument is not just that facts are socially constructed. We also wish to show that the process of construction involves the use of certain devices whereby all traces of production are made extremely difficult to detect*." (176, emphasis in original)

Prior to the introduction of *type 4 statements*, all statement types either suggested the need for further research or analysis to construct a fact through the declaration of uncertainty or the presentation of a hypothesis or included a modality, such as a short phrase or an in-text citation, that referenced the conditions of construction behind a piece of information. According to Latour and Wooglar, these references "to the conditions of construction" (176) in statement *types 0* to *3* are necessary for persuasion. This persuasion hypothesis makes sense for statement *types 0* and *1* if the scientists writing the statements are hoping to secure funding for future research. This hypothesis also seems reasonable for statement *types 2* and *3* if scientists want to maintain credibility in the background portion of publications by providing the source of new or obscure

information or in the discussion or conclusion by adding modalities to ensure tentative conclusions do not seem overly certain. “Beyond this point”, which corresponds to *type 4 statements*, “the conditions of construction are … irrelevant” (Latour and Wooglar 176). But, as demonstrated by the example from Pigott et al. above, the conditions of construction of the information in a *type 4 statement* may not have always been irrelevant. The conditions of construction may be extremely relevant while information is still contentious, as was the case with Baize et al. vs. Dudas and Rambaut and Gire et al. from Pigott et al. presented above. Thus, the transition from a *type 3 statement* to a *type 4 statement* seems to be a function of increased consensus within the scientific community. This is what Latour and Wooglar allude to in their assertion “*facts are socially constructed*” (176). However, in the move from a *type 3 statement* to a *type 4 statement*, the reader loses the reference to context of creation. This loss is what makes “*all traces of production ... extremely difficult to detect*” (Latour and Wooglar 176).

‘I’M NOT A SCIENTIST’: POLITICAL ACCOMMODATIONS OF SCIENTIFIC INFORMATION

Accommodated science, as defined and described by Jeanne Fahnestock, also appears to hide the construction of scientific information. According to Fahnestock, as information moves from scientific publications to popular science articles, there is an upward shift in certainty prompted by “the desire to add to the significance of the subject by claiming its uniqueness, its one-of-a-kind status” (280). Fahnestock documents this shift by demonstrating the alteration of low-certainty words like “appears” and “suggests” (283) in scientific publications to more certain words and phrases like “the first” (282) and “only” (280) in accommodated science articles. This change hides hints

of uncertainty in scientific claims. Furthermore, in Fahnestock's research, "Science accommodations also show another interesting tendency to replace the signs or data of an original research report with the effects or results" (284). This not only increases the certainty of scientific statements, but also omits data, thereby masking the details of the information's creation.

Unlike the *type four statements* from scientific publications discussed above, which imply increasing consensus in the scientific community as the statements become more certain, statements from accommodated science articles that inflate the certainty of scientific information may do so in reverence and trust of scientific enterprises. According to Fahnestock, "scientific accommodations are overwhelmingly epideictic; their main purpose is to celebrate rather than validate" (279). This is reflected in the superlatives "first" (282) and "only" (280) excerpted by Fahnestock above as well as the focus on effects and results of scientific experiments in accommodated science articles. Although Fahnestock restricts this reverential increase of certainty to popular science, other scholars have noted a reification of science in other genres or rhetorical realms. Pertinent to the genres discussed in this thesis, Cindy Patton locates a belief that science is or can find truth in public policy. In her book *Inventing AIDS*, Patton writes, "Although science is often not specifically referenced, the common assumption underlying debates on public policy or the voicing of personal views about safer sex, is that science can, ultimately, answer any troubling questions" (53). In other words, parties participating in heated debates or just discussing personal preferences yield to the words of scientists. Going a bit further, Patton writes, "The knowledges of the epidemic arise and compete (most visibly in the policy arena) but it is the logic of science that anchors the power

relations which determine whose knowledge counts as 'real,' as 'objective.' Scientists rarely even need to testify "(53). Thus, according to Patton, even in the homophobic, racist height of the AIDS epidemic, information that appeared to follow scientific logic was more powerful than information divorced from science. The seemingly unspoken element of the common assumption that science can answer difficult questions and the acceptance of scientific logic as the most objective and real form of knowledge demonstrate that the understanding of science as truth is culturally ingrained.

This assumed association between science and truth, objectivity, and certainty has been challenged by postmodern theories that disrupt traditional foundations of knowledge, particularly those related to the development or proof of meaning, which advocate for methods of anti-logic and multiplicity. Jacques Derrida famously deconstructed Western metaphysics with his concept of *différance*, leaving academics without recourse to concepts such as truth, presence, or being. According to Derrida, "There is no maintaining, and no depth to, this bottomless chessboard on which Being is put into play" (133a). This explosion of the framework upon which the central tenets of Western thought operated caused theorists to search for other foundations of knowledge, notably power, discourse, culture, and signification. According to Karen Barad, the latter concept has nearly usurped fact in the realm of critical theory: "matters of 'fact' (so to speak) have been replaced with matters of signification" (801). Signification, in this context, broadly refers to the meaning of a word or phrase or the process by which a word or phrase creates meaning. These postmodern loci of knowledge are dynamic in time and space, far from the stable world of fact.

Even before the advent of postmodern theory, scientists, operating in the realm of fact itself, published mind-boggling theories that appear to defy centuries of scientific logic. For example, in 1905 Albert Einstein published his theory of special relativity, which postulates that space and time are relative. In other words, the parameters that contain our life experiences can change based on the standpoint of the observer. Additionally, in his 1911 gold foil experiment, Ernst Rutherford demonstrated that the atom, the basic unit of all material objects, is mostly empty space. Both of these theories challenged and still challenge everyday experiences, such as the constant, forward progression of time or the solidity of a brick wall or wooden chair, making it seem like historical facts were crumbling to make space for new, sense-defying facts.

Philosophers and critical theorists of science, perhaps picking up on a growing postmodernist movement as well as logic-defying scientific theories, have increasingly questioned scientific objectivity since Thomas Kuhn published *The Structure of Scientific Revolutions* in 1962. In this book, Kuhn famously attacks the idea that science progresses logically, rationally replacing theories to approximate truth. Instead, Kuhn argues that science exists within sequential paradigms, such as Newtonian, then Einsteinian, then quantum physics, that are governed by certain epistemic values. Paradigm shifts occur due in part to sociological factors, and this influence of something other than logic makes the adoption of a new paradigm inherently irrational (Kuhn). Since Kuhn, philosophers and theorists of science have turned from a abstract view of science to examine the influence of sociological factors, especially those that affect the neutrality of scientific theories or the evaluation of those theories. For example, Kathleen Okruhlik, a philosopher of science who posits a strong androcentric bias in science, argues that the

social location of a scientists can affect scientific investigations and theorization. Scientific knowledge, according to this view, is *situated* . It depends on the embodied self of the scientist and his or her emotions, attitudes, interests, and values (Okruhlik). Scientific facts, which perhaps have been the most cherished truths in the Western world since the Enlightenment, are being called into question by radical academia.

Transforming Information into Action

What happens to scientific statements, then, when science is no longer revered as the bastion of objectivity and truth by theorists and politicians? Does Fahnestock's demonstration of increased certainty of scientific information as statements move from scientific publications to accommodated science articles hold true? Is the loss of historical context with increased certainty still a function of scientific consensus or of reverence for the ability of the scientific method to achieve truth? To answer these questions and to connect the content of this chapter to the last chapter on the creation of a neo-colonial discourse within uncertainty statements, I will analyze statements from scientific publications, CDC webpages, and governmental documents that fall into two informational categories: the geographical and biological source of the Ebola outbreak and the reasons the West African Ebola outbreak became so large in magnitude. In the examination of statements related to the source of the outbreak, I will demonstrate that political accommodations of scientific information go beyond the increased certainty demonstrated in Fahnestock's article; these accommodations push the readers to act in accordance with the altered information.

Source Statements. Scientific information on the source of the 2014-2016 West African Ebola outbreak is couched in tentative *type 2 statements* and is focused on the biological and geographical characteristics of the source. Although the source of the outbreak was unknown, as mentioned in the previous chapter, data from previous outbreaks gave scientists some information to generate hypotheses. For example, Pigott et al write, "Subsequent serological surveys (Pourrut et al., 2009; Hayman et al., 2010) and evidence linking the potential source of human outbreaks to bats (Leroy et al., 2009) lend support to the hypothesis of a bat reservoir" (3). The dates of the cited evidence suggest that Pigott et al. are presenting a hypothesis based on information collected from previous outbreaks, possibly the 2007-2008 outbreak of the *Zaire ebolavirus* in the Democratic Republic of Congo. The temporal and geographic distance between this referenced outbreak and the 2014-2016 West African outbreak may be the reason behind Pigott et al.'s use of the very tentative phrase "lend support to" (3). Schieffelin et al. arrive at a similarly tentative conclusion about the animal reservoir through data from the most recent outbreak. The authors write, "Genetic similarity across the 2014 samples suggests a single introduction from an animal reservoir, with human-to-human transmission sustaining the outbreak" (Schieffelin et al. 2093). The use of "suggests" classifies this as a *type 2 statement*. Gire et al. combine data from past outbreaks and data from the most recent outbreak to support another conjecture, albeit this time about the geographical origin: "Phylogenetic comparison to all 20 genomes from earlier outbreaks suggests that the 2014 West African virus likely spread from central Africa within the past decade" (1371). The use of the modifier "likely" (Gire et al. 1371) indicates that the conclusion drawn from the data analysis is a speculation. Although the source speculations may

seem vague, referencing “a bat reservoir” (Pigott et al. 3), “an animal reservoir” (Schieffelin et al. 2093), and all of “central Africa” (Gire et al. 1371), some speculations can be quite specific. For example, Schieffelin et al. write, ““The EVD outbreak appears to have originated near the town of Guéckédou, which is in the forest region of Guinea and close to the borders of Sierra Leone and Liberia.[3,4]“ (2093). Based on information from two other sources, Schieffelin et al. narrow the origin to a relatively small geographic location. Nonetheless, the authors retain some degree of speculation, which is evident in their use of “appears to” (Schieffelin et al. 2093). Thus, although scientists include information about the source of the outbreak, this information is relatively uncertain, as evidenced by the tentative verbs and modifiers.

As we move from statements about the source of the Ebola outbreak in scientific publications to statements about the source in governmental publications, we see the same inflation of certainty that Fahnestock documents as information moves from scientific research publications to accommodated science articles. Unlike the scientific articles presented above that discuss the source of the outbreak in tentative *type 2 statements*, governmental publications rarely discuss information related to the source of the outbreak on its own. For example, Bennie Thompson, a United States Representative from Mississippi, stated in a Congressional Field Hearing before the Committee on Homeland Security, “it is incumbent upon us to work with our international partners to eradicate the virus at its origin in West Africa” (6). Ostensibly, Thompson's statement urges a certain plan of action for the United States government in response to the Ebola outbreak. This rhetorical push to action classifies the statement as *type 6*. Although Thompson mentions the geographical origin of the virus in his statement, the origin is not

crucial to the classification of the statement as type 6. In fact, it would still be a *type 6 statement* if "at its origin in West Africa" (6) was omitted from the sentence. The location of the virus's origin is delivered as a matter of fact without recourse to a citation or a modifier that lends the statement the same degree of uncertainty that is evident in the source-related statements of the scientific publications. Dr. Beth Bell, who served as Director for the National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) of the CDC during the Ebola outbreak, rereferred to the source of the outbreak similarly but more tentatively during a Congressional Joint Hearing before the Committee on Health, Education, Labor, and Pensions and the Committee on Appropriations of the U.S. Senator. Within a larger statement, Bell said, "Another issue that has been challenging is that the area, the sort of three-country area where the outbreak sort of began and has been propagating from, is an area with communities that are sometimes not very receptive to interventions by either government or by public health officials" (Committee on Health 38). Although Bell described the geographical source of the virus as the place where the outbreak "sort of began" (38), the repetition of "sort of" (38) may indicate a verbal tic that introduces unwarranted uncertainty. Moreover, even if the second "sort of" (38) was intended, Bell describes the three-country origin of the virus as he location where the outbreak "has been propagating from" (38). In other words, this three-country area is acting as the virus's origin even if it is not the factual origin. This factual slide inflates the certainty of knowledge about the source of the outbreak. Furthermore, as with Thompson's statement, this information about the source is embedded in a statement about something else. In this case, Bell is arguing that the West African Ebola outbreak was different from other Ebola outbreaks because

communities in West Africa were resistant to help from governments or public health officials.

Information related to the source of the viral outbreak seems to have been catapulted to the center of *type 6 statements* on some CDC webpages. This is best exemplified by the CDC's imperative "Do not touch bats and nonhuman primates (apes and monkeys) or their blood and fluids and do not touch or eat raw meat prepared from these animals" ("Q&A: 2014"). As mentioned in the previous chapter and above, *type 1* and *type 2 statements* from scientific publications and a CDC webpage speculate and hypothesize that the Ebola outbreak began with human contact with infected bushmeat (CDC, "Q&A About Food Safety"; Pigott et al. 3), "a bat reservoir" (Pigott et al. 3), or, more generally, "an animal reservoir" (Schieffelin et al., 2093). This jump from *type 1* and *2 statements* to a type 6 statement suggests that the CDC is either very confident in scientific speculations or believes the risk of Ebola transmission from an animal source is extremely high. Between these *type 1* and *2 statements* and the *type 6 statement* above, a corresponding *type 4 statement* on the CDC's "About" page reads, "Ebola can cause disease in humans and nonhuman primates (monkeys, gorillas, and chimpanzees)." Although this *type 4 statement* relates humans and nonhuman primates through Ebola, it does not state that Ebola can be transmitted from nonhuman primates to humans. However, the interdict against touching or eating nonhuman primates in the *type 6 statement* above strongly suggests that the transmission of Ebola from nonhuman primates to humans is possible. Otherwise, the prohibition would be unwarranted. Most of the CDC statements that provide support for the transmission of Ebola from nonhuman primates to humans are less certain. For example, the CDC writes, "However, in Africa,

Ebola may be spread as a result of handling bushmeat (wild animals hunted for food) and contact with infected bats" ("Q&A Ebola, Pets, and Other Animals") and "Ebola virus is not spread by consuming food, with the possible exception of bushmeat in (or from) Africa" ("Q&A about Food Safety"). The inclusion of "may" ("Q&A Ebola, Pets, and Other Animals") and "possible" ("Q&A about Food Safety") without evidence in these two sentences classifies them as a *type 2 statements*. Thus, the only direct backing within the CDC's website for the *type 6 statement* above is speculative.

This jump in statement types reaffirms Fahnestock's findings that information increases in certainty as it moves from scientific publications to popular science articles. However, because the CDC imperative discussed above not only increases certainty but urges readers to act in a certain way, this particular statement jump takes Fahnestock's science accommodation to a new level, demonstrating the benefit of adding a *type 6 statement* category to Fahnestock's original list. This statement breaks the fourth wall, pulling the reader into the realm of fact as if she too is an agent. From a scientific view, this bestowal of agency seems ridiculous. A new human touching or not touching a bat or nonhuman primate does not change the characteristics of EBOV, such as the origin of the virus or the way in which that virus is transmitted. In fact, even if something interesting happens in a new EBOV transmission event, it is difficult for scientists to use that information in publications because of the restrictions placed on scientific activity by the dominant paradigm. Published science needs to be testable by other scientists, and a one-time uncontained event that is not monitored is very difficult to re-create.

From a public health perspective, however, pulling the reader in as a player in the development of fact makes sense. As mentioned in the previous chapter, the CDC is

responsible for the health security of the United States. Protecting United States citizens from diseases and preventing transmission of diseases helps the CDC fulfill this responsibility. If individuals share this responsibility by protecting themselves from diseases, they make the CDC's job a lot easier. Giving the reader agency by transforming hypotheses into imperatives seems to fall under the umbrella of the CDC sharing its responsibility with individuals. If this is the case, overemphasizing potential disease vectors so people avoid them is better than underemphasizing vectors, which may cause an individual to contract a disease from an understudied source. This transformation of factual speculations into imperatives certainly complicates the similar upward shift in certainty that Fahnestock documents.

Although this increase in statement types may prevent future infections and the uncontained spread of disease, it has an unsettling effect with reference to facts. From the standpoint of scientists, operating with the *type 2* and *type 3 statements* that speculate and hypothesize about the origin of the virus, the zoonotic origin of the virus is still unknown. It is likely to be non-human primates or bats, but it could turn out to be another animal or even a mutation as the virus spread from human to human. Scientists, thanks to the shared criteria of hypothesis testing and re-testing discussed above, are open to collecting more information and revising theories on the virus's origin. The CDC, an organization made up of research scientists, also subscribes to the dominant scientific paradigm that values carefully collected and analyzable data that can be tested and retested. However, scientists working for the CDC, unlike many of the scientists publishing in scientific journals, are also beholden to the CDC's responsibility of protecting the health of United States citizens. Thus, these CDC scientists are also interested in the way in which these

speculations interact with public health protections. As discussed above, the presentation of the facts may change based on the way in which the CDC scientists think the public will respond and, in turn, whether that response will aid the CDC's goal of curbing diseases in the United States. I imagine these CDC scientists operating with the following thoughts: *Scientists think that EBOV originated in bats or non-human primates. Although we aren't sure if this is certain, we are going to tell people to avoid contact with bats and non-human primates anyway because it may prevent EBOV from spreading*. However, this whole thought is not captured in the published statement. In fact, in order to present information with the increased certainty necessary for the desired outcome on the audience, the thought history of the statement must disappear. The public, typically blocked from most scientific publications due to fees and the advanced literacy associated with academic databases and journals, are restricted to the CDC statements that inflate the certainty of scientific speculation and inhibit access to the history of those speculations. Without recourse to the original data or conclusions, the public is likely to assume that "Do not touch bats and nonhuman primates (apes and monkeys) or their blood and fluids and do not touch or eat raw meat prepared from these animals" (CDC, "Q&A: 2014") on a CDC webpage about Ebla means that touching or eating these things will or is likely to give them Ebola. Once this information reaches the public then, the scientific information is dethroned. The revised certainty of information evident in the CDC's statement makes the pubic operate *as if* the speculative information were certain. This means that the perception of what is true or certain changes as statement types transform. In other words, certainty about a piece of information can change from individual to individual.

These individually determined certainties seem to leave us in the objectivity-defying world of the postmodernists described above. Fortunately, in the case in which the CDC transformed hypotheses about the source of the Ebola virus outbreak to an imperative that prohibits behavior that may spread the virus, the changing facts are not always bad. They can promote cautious behavior and prevent epidemics of even greater magnitude. Nevertheless, as you may be able to imagine from the political excerpts above, these changing facts could become detrimental if harmful ideologies are lurking behind changes to the degree of certainty associated with certain information or if institutions use certainty alterations to amass more power. Unfortunately, the lack of historical content regarding the development of information in *type 4*, *5*, and *6 statements* aids in the inclusion of ideology-laden alterations of facts. As long as information appears to come from scientific research and does not conflict with many statements, it can usually pass as fact. Moreover, due to the recent disposition of fact by theorists and politicians, these certainty-altered statements may even be able to compete with statements directly from scientific publications. In order to uncover some of the detrimental effects of the shifting certainty surrounding the Ebola epidemic, I will examine statements from the three genres that can be classified as "source plus," those that present reasons for the alarming magnitude of the West African Ebola outbreak.

Source-Plus Statements. In addition to the conjectures about the about the geographic and biological source of the 2014 outbreak, there were a few tentative statements on why the initial outbreak became so large in scale. Because many of these statements rely on or closely relate to information about the source of the outbreak, I classified them as "source

plus" to distinguish them from statements on transmission. Pigott et al. repeat their above phrase "lend[s] support to" in another sentence, indicating a similarly speculative statement: "The ecological similarity between the past and current outbreaks also lends support to the notion that the scale of this outbreak is more heavily influenced by patterns of human-to-human transmission than any expansion of the zoonotic niche" (15). In other words, the authors do not think the non-human source of the outbreak is responsible for the magnitude of the outbreak. Rather, Pigott et al. present a "notion" based on comparisons of past and current data that something about the human-to-human transmission contributed to the eruption of EVD. Baize et al., using evidence from the recent outbreak, particularly the location of the first EVD cases, to specify Pigott et al.'s pattern of human-to-human transmission, write, "It is suspected that the virus was transmitted for months before the outbreak became apparent because of clusters of cases in the hospitals of Guéckédou and Macenta" (1424). In other words, the human-to-human transmission was undetected at the beginning of the outbreak. Although not explicitly, this statement suggests that the magnitude of the outbreak is at least partially due to the lack of surveillance of early transmission events. This lack of surveillance, in turn, suggests that the governmental and/or public health systems and infrastructures are ill-equipped to deal with sudden disease outbreaks. It is certainty possible that this statement is not intended to reflect back on Liberia, but Baize et al.'s statement could be read as a subtle judgement of that country's government. The WHO Response Team, who published in the *New England Journal of Medicine*, is more explicit about Baize et al.'s suggestion. The WHO Team writes, "We infer that the present epidemic is exceptionally large, not principally because of the biologic characteristics of the virus, but rather

because of the attributes of the affected populations and because control efforts have been insufficient to halt the spread of infection" (1487). Although this statement clearly draws the connection that Baize et al.'s statement does not, it still retains a degree of speculation because the use of "infer" (1487) suggests that the Team's connection between the size of the outbreak and the affected population as well as control efforts is not entirely certain. Thus, although the "source plus" statements from the scientific publications allude to and discuss factors that may have influenced the scale of the outbreak, they are either tentative or only subtly hint at those factors.

"Source plus" statements in governmental publications directly inculpate West African governmental institutions. According to statements made by Congressman Smith in the House hearing mentioned above,

> The Liberian government established barriers to block off the West Point slum area after a holding center for Ebola victims was ransacked and contaminated materials were taken. This quarantine was done without fully informing its 80,000 inhabitants or consulting with healthcare workers. Not only did this prevent people from pursuing their livelihoods or bringing in much needed supplies, this move created great suspicions of the motives of the Liberian government … Liberian officials assure us they have learned from their mistakes, that of the quarantine, and has [sic] alerted Liberians to the reality of the Ebola epidemic. (CFA 3).

Smith packs a lot of information into this statement. Although the Liberian government noted that it learned from the poorly handled quarantine, which likely worsened the effects of EVD for many Liberians inside the West Point slum, the government did not

comment on their failure to prevent looting inside an Ebola holding center. The pillaging of the center suggests that the Liberian government did not set up proper security for materials contaminated with EBOV. Thus, when Liberians flooded the Ebola holding center, likely looking for medical supplies, they easily contacted contaminated material, causing additional spreading of the already out-of-control disease. This suggests the Liberian government, by not following health security protocols in a vulnerable location, was responsible for aiding the spread of EVD. Moreover, Smith noted that the Liberian government alerted Liberians to the reality of the Ebola epidemic after the botched quarantine. This suggests that there was not an effective public health notice of EVD when Liberians ransacked the holding center in the slum. Although additional knowledge may not have prevented the break in and thievery, it may have prompted the assailants to act more carefully around used medical supplies. Noticeably, Congressman Smith does not cite or reference background information and, therefore loses the historical development of the information he presents. This gives him space to subtly alter information in a way that may benefit a certain ideology.

This indictment of the Liberian government is expanded to West African institutions with more certainty in a Senate Resolution and on a CDC webpage. Christopher Coons, a Representative from Delaware, writes, "although Ebola can be contained with good public health and burial practices, it continues to spread due to a lack of accurate public information, insufficient treatment facilities, limited local language capacities required for health education" (160 Cong Rec S 5512). In other words, Coons is certain, or at least packages the information in a *type 4 statemen*t, that the magnitude of the Ebola outbreak is directly related to a "lack of accurate public

information" (160 Cong Rec S 5512). This lack may result from a variety of problems, including a disorganized government, an insufficient or nonexistent public health system, inaccessibility of modes of communication that can cover large distances such as the internet or the radio, among other things. "Insufficient treatment facilities" (160 Cong Rec S 512), according to Coons, also caused EVD to spread at an alarming rate in West Africa. Dr. Pete Hotez, President of Sabin Vaccine Institute, reaffirmed this in a 2015 hearing before the U.S. House of Representatives by saying, Ebola "only occurs in the setting of post-conflict when there is massive breakdown in public health infrastructure" (Committee on Foreign 22). The West African nations of Liberia, Sierra Leone, and Guinea certainly fit this description. The Second Liberian Civil War, which killed a quarter of million people, ran from 1999-2003 (Reuters Staff). Sierra Leone experienced a decade-long armed conflict, which ended in 2002, known for its human rights abuses, particularly sexual violence against women and the recruitment of child soldiers. Guinea, although more peaceful than Sierra Leone and Liberia, was subject to overflowing violence from the two warring neighbors and political instability under President Lansana Conté in the early 2000s ("Guinea profile"). Clearly, these countries may have not had the energy or resources to maintain or improve public health infrastructure before the Ebola outbreak. The CDC echoes the Coons' accusations and Hotez's description. According to the CDC, "In some areas of the countries most affected by Ebola, the health system is either overburdened or nonfunctional" ("Recommendations"). Read at face value, it seems that both the CDC and governmental agents blame the magnitude of the West African Ebola outbreak on the governmental systems in the afflicted countries even though scientific evidence only subtly hints at these connections.

But does a specific ideology leak into the negative space created by these certainty shifts? To fully answer that question, we must examine the backdrop of the accusations against West African governments.

In governmental publications, these accusations are intensified by contrasting the situation in West Africa with the situation in the United States. Dr. Beth Bell, the Director of the NCEZID during the Ebola outbreak introduced above, said in a joint hearing before Congress

> I just want to say a word or two about what a hospital in these counties in Africa looks like, as a way of contrasting … Most of the hospitals in this region … oftentimes there's no running water, there is no soap, there may not even be beds. There may be mattresses on the floor. Every health care worker is caring for a large number of patients … They may not have the appropriate personal protective equipment …
>
> That's the environment in Africa where Ebola is currently raging. In the United States, by contrast, we have many, many protocols in place, and with these protocols most hospitals that can isolate a patient in a private room with their own bathroom and can follow very strict and meticulous infection control practices [which] will have been well outlined and which health care workers are quite aware of, can safely take care of Ebola patients. [sic] (Committee on Health 41)

According to Bell, the United States environment is completely different than the West African environment. The United States has guidelines for dealing with infectious diseases, clean rooms for sick patients, intelligent health care workers, and effective protection equipment. Based on this understanding of the United States healthcare

system, Bell, along with Dr. Kathryn Brinsfield, the Acting Assistant Secretary and Chief Medical Officer of the Office of Health Affairs in the U.S. Department of Homeland Security, and Ruth Wasem, and Immigration Policy Specialist for the U.S. Library of Congress's Congressional Research Service, thinks that Ebola poses little risk to the United States (Committee on Health 6; Committee on Homeland 18; Wasem 10).

However, Bell's depiction of the healthcare system in the United States may not be entirely accurate. Dr. Peter Hotez, mentioned above as President of Sabin Vaccine Institute, uses his statement on the state of public health infrastructure in West Africa to dispel the myth that the United States has excellent healthcare systems for all citizens (Committee on Foreign 22). According to Hotez, Americans living in extreme poverty in the Southern United States are at risk of contracting tropical diseases, a category that includes EVD, without proper healthcare coverage (Committee on Foreign 22). Thus, for Hotez, it does not make sense to blame the Ebola epidemic on West African institutional problems alone, as similar issues exist in the institutions of other countries. If the magnitude of the Ebola outbreak were dependent on undersupplied and underprepared institutions alone, then the few cases that made it to other countries with unprepared healthcare systems, such as the southern United States for Hotez, would have also ballooned into an epidemic. According to Deborah Burger, Co-President of National Nurses United during the Ebola epidemic who testified in a hearing before the Committee on Oversight and Government Reform of the U.S. House of Representatives, “Our experience with U.S. hospitals is they will not act on their own to secure the highest standards of protection without a specific directive from our Federal authorities by an act of Congress or potential Presidential executive order” (Committee on Oversight 72).

Thus, even in a stable country like the United States, the government must closely monitor and use specific measures to ensure healthcare is up to proper standards. In light of these comments, the accusations against the governmental institutions of West Africa seem overzealous and divorced from scientific information about the disease.

Overemphasizing the difference between the governmental systems and public health infrastructures of West Africa and of the United States affords the United States government an avenue of action that is perhaps best understood through Jean Baudrillard's historical examination of the Watergate scandal-effect in *Simulacra and Simulations.* According to Baudrillard, by calling the events of Watergate a "scandal," the United States government suggested that the immorality associated with Watergate has no place in government (14-15). This creates two separate categories: the moral/ political and the immoral/ non-political. According to Baudrillard, the boundary between these two categories is imaginary because immorality exists as much within the government as outside of it (15). However, by mixing truth (that the events of Watergate happened) and falsity (that Watergate is exceptional because it is a scandal), the government was able to make this boundary seem real. In other words, through "an imaginary effect concealing that reality no more exists outside than inside the bounds of the artificial perimeter" (Baudrillard 14), the government was able to secure trust in its functioning and therefore power. Practically, this means the government has somewhat of a free ticket because the voters will either accept the actions in their uncritical trust of the government or the government will redeploy the "scandal-effect" (Baudrillard 14).

If we read Baudrillard's theory up against the characterizations of the West African and United States governments described above, we see that these

characterizations build an imaginary (or at least overemphasized) boundary between the developed, precise United States government with a responsive and well-supplied public health system and the disorganized, undersupplied African governments with ineffective public health systems. This re-establishes the imperialist divide between the imperial country, "the metropole from which power flows, and the colony or neo-colony … the place which it penetrates and controls" (Loomba 1103). Although Liberia, Sierra Leone, and Guinea are not formal colonies of the United States[5], Loomba's description accurately describes the power differential between the United States and Liberia, Sierra Leone, and Guinea. Not only does this differentiation leave Africa open to the supposedly civilizing, imperialist forces of the United States, it makes most actions taken by the United States in West African countries afflicted by Ebola seem necessary and beneficent. Perhaps unsurprisingly, many of these types of actions were proposed in governmental documents. Coons, the U.S. Senator from Delaware, called for "President Obama to designate an official to manage our country's response both overseas and here in the United States, including preparing us for the remote chance this virus might reach American soil" (Cong Rec 5531). Obama answered by appointing a former chief of staff, Rob Klain, to the position Ebola Response Coordinator (Eilperin and Nakamura). Christopher Smith, a U.S. Representative from New Jersey proposed the End Neglected Tropical Diseases Act, which would have established a policy in the United States "to support a broad range of implementation and research and development activities to achieve cost-effective and sustainable treatment, control and, where possible, elimination

[5] Liberia was colonized by free blacks under a resettlement program overseen by the American Colonization Society. The country declared independence in the mid-1800s, so it has not been under colonial rule for over 150 years.

of neglected tropical diseases" (160 Cong Rec E1346). Although this law never passed the House, Public Law 113-164, a Joint Resolution of Congress, appropriated $58 million, to remain available until 30 September 2015, for "expenses necessary to support acceleration of countermeasure and product advanced research and development" and $30 million, available until 30 September 2015, for "expenses necessary to support the responses of the Centers for Disease Control and Prevention … to the outbreak of Ebola virus in Africa." Focusing more on on-the-ground action, Brantly, the American doctor who contracted Ebola while working as a medical missionary for Samaritan's Purse in Liberia, asked the U.S. military to establish and "maintain [an] air bridge to deliver critically needed personnel and medical supplies and to continue bringing in more resources in the future" (Committee on Health 2). In addition to the aforementioned Public Law that may have provided finances for future medical resources, there were reports shortly after Brantly's testimony of the U.S. military ferrying medical supplies into Liberia and developing plans to construct 17 more Ebola treatment units in the country (Dawson). Thus, it seems that the American government used the Baudrillardian scandal effect to take action for and in the West African countries afflicted by Ebola.

This relationship between the United States and West Africa establishes a uni-directional flow of power from an identifiable location. However, in the previous chapter, I argued that the hyper-focus on the origin of the virus in the uncertainty statements of scientific publications, CD webpages, and governmental documents made it possible to generate a master timeline that always already organizes the dispersed events. This timeline, I argued, ran from the unknown origin to the still unrealized eradication of EVD or, alternatively, a clear medical understanding of the best EVD treatment and prevention

alongside a significant decrease in new cases. This means that each case of EVD must be placed within the timeline; each case must be made into a productive step towards the ultimate end. Such productivity requires more than the unidirectional power of imperialism. It requires Foucauldian discipline that is not possessed by the privileged few, is not centralized from the top down, but is productive and useful, operating as a "permanent, exhaustive, omnipresent surveillance" (Foucault, *Discipline* 560). To understand the way in which this Foucaudian discipline developed and operated during the 2014-2016 West African Ebola outbreak, we must examine another transformation of scientific information by governmental documents in the "source plus" category.

In addition to amplifying the certainty of statements linking the magnitude of the Ebola outbreak to problems in West African governments and public health systems, documents of the United States government expand upon and increase the certainty of the WHO Response Teams' inference that "the present epidemic is exceptionally large ... because of the attributes of the affected populations" (1487). Statements from governmental documents are much more direct in their Ebola-related accusations of the West African people. Brantley said during a hearing of the U.S. Senate's Committee on Health, Education, Labor, and Pension, "we know that many Ebola positive people are staying home and even hiding after they become infected, because of fear and superstition their families either abandon them, or they lovingly care for them in ways that almost always result in infection of the caregivers" (Committee on Health 2). Christopher Smith, a Congressman from New Jersey, echoed this statement during a House hearing a day later: "Families in Africa tend to help one another in times of need, an admirable trait that unfortunately increases the risk of infection … Burials that don't

involve strict precautions to avoid direct contact with highly contagious corpses make transmission of this deadly disease almost inevitable. Burial traditions make avoidance of infection problematic" (U.S. House of Representatives Committee on Foreign Affairs (CFA 2). Although these behaviors, particularly acting out of fear or caring for sick relatives, may seem universal, these statements cast them as behaviors of West Africans. Brantly restricts the behaviors he speaks of to "many Ebola positive people" (Committee on Health 2). Although this may seem to be universalizing, the subject of Brantly's statement is a more coded reference to West Africans. By September 16th, 2014, the day Dr. Brantley spoke to the Senate, there had been 4963 documented Cases in Sierra Leone, Guinea, ad Liberia (CDC, "Case Couts"). Although EVD cases had been documented outside of these three countries, all of the cases were confined to West Africa (World Health Organization) until October of 2014 ("Ebola: Mapping the Outbreak"). In other words, the behaviors Dr. Brantley reported were those of West Africans. Smith overtly refers to West Africans by adding the locator "in Africa" (CFA 2) to the families he discusses. Thus, according to both Brantley and Smith, the spread of Ebola was directly related to the behaviors of West Africans.

The behaviors described above, of course, would also cause Ebola to spread in the United States. In fact, in response to the question "How do I protect myself against Ebola?" (CDC, "Q&A: 2014), the CDC lists risky behaviors that Americans should avoid, such as having "contact with the semen from a man who has recovered from Ebola (for example, avoid having oral, vaginal, or anal sex)" ("Q&A: 2014). Some of the imperatives on this list, such as "Do not touch the body of someone who has died from Ebola" (CDC, "Q&A:2014"), match the imperatives the CDC asks Liberians, Sierra

Leoneans, and Guineans in the United States to relay to their families and friends in West Africa ("What to Know … Liberians"; "What to Know … Sierra Leoneans"; "What to Know …Guineans"). However, although governmental agents have no problem connecting EVD in West Africans to these behaviors, as demonstrated above, discussions about Ebola afflicted Americans rarely link the infection to the behavioral faults of the victims. It is quite the opposite. Brantly is praised for his "courage and selflessness" (Committee on Health 11) in front of Congress. Daniel Varga, the Chief Clinical Officer and Senior Executive Vice President of Texas Health Resources, describes the situation in which two nurses in Dallas, Texas contracted Ebola from Thomas Duncan, a Liberian traveling in the United States, as follows:

> At 10:30 p.m. on September 25th, Mr. Duncan presented to the Texas Health Presbyterian Dallas Emergency Department with a fever of 100.1, abdominal pain, dizziness, nausea, and headache, symptoms that could be associated with another illnesses. He was examined and underwent numerous tests over a period of 4 hours … He was discharged early on the morning of September 26th …
>
> On September 28th, Mr. Duncan was transported to the hospital by ambulance. Once he arrived at the hospital, he met several of the criteria of the Ebola algorithm. At that time, the CDC was notified. The hospital followed all CDC and Texas Department of State Health Services recommendations in an effort to ensure the safety of all patients, hospital staff, volunteers, nurses, physicians, and visitors. Protective equipment included water-impermeable gowns, surgical masks, eye protection and gloves. Since the patient was having diarrhea, shoe covers were added shortly thereafter … In conclusion, I would like to underscore

> that we have taken all the steps possible to maximize the safety of our workers, patients and community. (73-74)

Although Thomas Duncan features prominently in the story, neither Nina Pham nor Amber Joy Vinson, the two nurses who contracted Ebola while treating Duncan, are mentioned. They have no actions in the story. This lack of incriminating actions by the nurses is reflected elsewhere in Varga's testimony when he states "it is clear there was an exposure somewhere, sometime" (73). He presents the only two U.S. cases of locally transmitted Ebola as subject-less. The only action Varga attributes to Pham and Vinson in his testimony is "courageously car[ing] for My. Duncan" (72). During questioning from members of Congress, other, more risky actions taken by these two nurses came to light, but they were always qualified. For example, although one of the Ebola infected nurses took a flight to Cleveland after showing symptoms, it is noted that she "call[ed] the CDC and ask[ed] for guidance on boarding a commercial flight" (80), ensuring she was not putting other American citizens at risk. The lengths to which individuals in the Congressional hearing went to protect the nurses from blame were quite drastic. When asked by Congressman Steve Scalise if protocols were breached in the transmission event, Tom Frieden, the Director of the CDC during the Ebola outbreak, dodged the question at least for times (141). Thus, unlike West Africans, Americans, as characterized by governmental publications, do not contract Ebola from behavioral issues.

Moreover, the American Ebola patients are individualized, while the West African Ebola patients are reduced to bodies. Brantly was pushed into the limelight soon after his Ebola recovery. He testified before Congress, excerpts from which appear in this chapter; appeared in interviews for NPR, ABC News, NBC News, and other networks;

and was honored as *Time Magazine*'s Person of the Year in 2014. Brantly's experience in Liberia and recovery from Ebola are also highlighted in *Facing Darkness*, a documentary now available on DVD and through Netflix. The individualism of the two nurses who contracted Ebola from Thomas Duncan in Dallas was ferociously defended by Bill Long, a U.S. Representative from Missouri, during the abovementioned hearing before the Subcommittee on Oversight and Investigations: "today... people on the panel, people up here have referred to Nurse One and Nurse Two ... to refer them as Nurse One and Nurse Two just doesn't sit well with me .. I would like to state that the first nurse to contract Ebola was Nina Pham, and the second nurse was Amber Joy Vinson" (135). In contrast, the West Africans known by name, Thomas Duncan and Patrick Sawyer, are usually discussed only in relation to their disease and the way in which they infected others. The CDC feigns an attempt to individualize the West African cases by country in their "What to Know About Ebola" booklets. Although the CDC created booklets entitled "What to Know About Ebola for Liberians Living in the United States," "What to Know About Ebola for Guineans Living in the United States," and "What to Know About Ebola for Sierra Leoneans Living in the United States," the text and images of these booklets are almost identical. The only difference is the name of the country and demonym when they are mentioned and the emergency number to call if Ebola symptoms develop.

This lack of individualization in discussions of West African Ebola cases alongside the inculpation of West Africans in the spread of Ebola allows the United States to act as if West Africans are homogeneous bodies part of an ill and threatening block. This understanding of homogeneity, in turn, allows for a slew of actions that commit and reinforce social and political violence. Lisa Lowe, in her essay

"Heterogeneity, Hybridity, Mulitiplicity: Marking Asian American Differences," argues that the link between homogeneity and social and political violence held for Asian peoples hoping to immigrate to the United States. According to Lowe, "Throughout the late nineteenth and early twentieth centuries, Asian immigration to the United States was managed by exclusion acts and quotes that relied upon racialist constructions of Asians as homogeneous" (1035). We see a gesture towards something similar in a question from Congresswoman Johnson that is excerpted in the last chapter: "Can it not be assumed that someone comes in from Liberia that they have been in contact [with an Ebola patient]?" (50). This would assume that the experience of one Liberian body, namely, an Ebola-infected one, is the experience of all Liberian bodies. Such thinking led other members of congress to call for action by the United States that scarily resembles the exclusion acts described by Lowe. According to Blake Farenthold, a U.S. Representative from Texas during the Ebola outbreak, "we have got the obvious countries that we really need to be suspect of. Short of an absolute travel ban on these countries or canceling commercial flights, you know, an interim step is substantially enhanced screening and maybe follow-up screening every few days after they arrive" (Committee of Homeland 51). Tim Murphy, a U.S. Representative from Pennsylvania, called for something similar: "The steps we must take begin with erecting a strong perimeter of defense" (Committee on Energy 2).

The American government enacted measures following these calls for action by politicians. Although Wasem, the Immigration Policy Specialist for the U.S. Library of Congress's Congressional Research Service, writes, "In the context of the current Ebola outbreak in West Africa, CDC has emphasized exit-based airport screening from areas of

the source, not POEs [ports of entry] screening in the United States" (10), a CDC webpage states that "People who have recently traveled to West Africa are screened when they get here and watched for symptoms for 21 days" (Fighting Ebola – and Stigma). Moreover, according to Michael McCaul, a U.S. Representative from Texas, during a field hearing before the Committee on Homeland Security, President Obama implemented "enhanced screening measures … at JFK Airport … Dulles, O'Hare, Newark, and Atlanta … airports [that] receive more than 94 percent of all travelers from Liberia, Sierra Leone, and Guinea" (3). These measures attempt both to contain the Ebola outbreak in the African continent, or, if necessary, the African body entering the United States, and to subject African bodies to strict surveillance.

When viewed as a collective, the actions taken by the United States government described in this chapter established the Foucauldian disciplinary system pointed to in the last chapter. By increasing the certainty of scientific statements, and thereby blocking access to the historical development and evidence of the presented information, the government created space for neo-colonial ideologies to resurface amid seemingly scientific discussions of Ebola. These neo-colonial ideologies, in turn, allowed the United States to place actors in West Africa, at exit points from West Africa, next to points of entry into the United States, and over the lives of those traveling from West Africa for weeks following entry or re-entry into the United States. This, from the West African perspective, may be the Foucauldian inescapable and diffuse form of structuring human subjects that is "the overall effect of its strategic positions" (Foucault, *Discipline* 550).

CONCLUSION

Based on the analysis of *type 2* through *6 statements* in the second chapter, scientific statements increase in certainty when adapted by political or politically affiliated organizations. This analysis answers Fahnestock's call to investigate the “use of scientific and technical information by political factions and lobbying groups" (292), while the findings reaffirm a broadened version of Fahnestock's conclusion that scientific information increases in certainty as it moves from scientific publications to genres that accommodate science. Nonetheless, more could be done to record and analyze the uptake of scientific information by lobbying groups. Such investigations may provide further insights into why and how scientific information increases in certainty as it moves from scientific publications to politically-charged documents.

Type 0 statements, my addition to the catalogue of statement types developed by Latour and Wooglar and used by Fahnestock, allow for further analysis of the rhetorical life of scientific information, specifically the life when that information is unknown. By analyzing these uncertain statements with the already established, speculative *type 1 statements* in the first chapter, we could see how traces of other discourses fill the gaps in knowledge. With respect to the American statements about the 2014-2016 Ebola outbreak, this penetrating discourse was neocolonial in character, painting Ebola-afflicted West Africa as a dark Other. American speculations on the epidemic exposed fears of losing control to the dark Other, potentially leading to a bio-weapon attack. Although the hidden neocolonial discourse may be identifiable through *type 1 statements* alone, *type 0 statements* connect these speculations to the body of available scientific knowledge or

lack thereof. Without specific references to the unknown, the speculations may have appeared to be even less substantiated. However, by identifying that which is unidentified or unexplained, such as the origin of the virus, through *type 0 statements*, speculations are given questions to answer and, thereby, a rhetorical home in the overall conversations.

Moreover, based on the conclusions drawn in the first chapter, the examination of *type 0 statements* can illuminate ways in which the unknown can be productive. Using Foucault's insights on development and evolution in *Archaeology of Knowledge*, I demonstrated how the type 0 statements concerning the origin of the virus helped establish a timeline the United States uses to give order to the Ebola outbreak. In other words, the unknown origin helps structure what would otherwise seem chaotic. I also demonstrated, as mentioned in the paragraph above, that *type 0 statements* provided space for traces of a neocolonial discourse to bleed into the Ebola discussion. Thus, with the addition of *type 0 statements*, the unknown is no longer empty space in a world of facts; it is the linguistic space from which other statements can be structured and the linguistic beginning of discourse creation.

In the second chapter, I argued that the process of factual negotiations within and between genres, evident in *type 2* through *4 statements*, leads to a loss of historical context regarding the development of and degree of certainty associated with certain information. This loss of historical context creates an informational vacuum that gives further space to the same neocolonial discourse present in the uncertain and speculative statements examined in the first chapter. By introducing *type 6 statements*, which, like type 0 statements, are my addition to the Latour and Wooglar statement catalogue, I was able to demonstrate that this neocolonial discourse formed the foundation for certain

actions taken by the CDC and the United States government in response to the West African Ebola outbreak.

Based on the conclusions drawn in the second chapter, *type 6 statements* seem to benefit rhetorical analyses in two ways. First, because *type 6 statements*, when phrased as imperatives, grant agency to a text's audience, they provide a linguistic focal point for studies on dialogues between a text and that text's audience. As demonstrated in my analysis of the CDC's imperative "Do not touch bats and non-human primates" ("Q&A: 2014"), the text-audience interplay can be complicated. The text may hide contextual information, such as the degree of certainty attached to the data in the statement, that may influence the way the audience accepts or otherwise responds to the imperative. Second, *type 6 statements* link text to action. Although this link has been discussed since at least the 1960s, following J. L. Austin's publication of *How to Do Things with Words*, the formalization of this connection in type 6 *statements*, which fit in a catalogue of statement types used to discuss facts, allows for more directed analysis of the particular connection between words about scientific facts and actions.

In addition to offering tools that may enhance future studies on science and writing, this thesis offered insights for the ways in which scientific statements can be used and modified by those in power to enact or reinforce political and social violence. With reference to the Ebola outbreak, the CDC, personnel of the United States government, and, to a lesser degree, scientists, molded scientific uncertainties and factual negotiations to re-cast Africans as dangerous Others that needed to be controlled. Traces of the resulting neocolonial discourse influenced calls for action within the examined documents that led to measures by the United States government to contain the Ebola

outbreak in the African continent, to prevent African bodies from entering the United States, and to subject any of those African bodies that made it through border control to strict surveillance. When viewed as a collective, the actions taken by the United States government establish a Foucauldian disciplinary system that allowed the government to contain and control West Africa and West Africans at every position: at exit points from West Africa, next to points of entry into the United States, and in healthcare centers in both West Africa and the United States.

The enactment of social and political violence following the onset of a disease that appears to unequally affect certain populations is not new. In 1990, Cindy Patton wrote, "The scientists, policy-makers, and media tycoons have the power to produce masks of otherness which create discrimination against people with HIV and AIDS" (96). Ebola, given its African origin, supposed connection to semen (CDC, "Q&A: 2014"; CDC, "Q&A Food Safety"), and explosive transmission, could have easily become a disease as naturalized and as discriminated against as AIDS. Despite the relatively swift Ebola containment, Ebola-fueled discrimination against West Africans must have progressed far enough for the CDC to publish the following notice in a webpage titled "Fighting Ebola – and Stigma": "It's also important to remember … People from West Africa are not more likely to get Ebola than anyone else. Viruses cannot target a specific group of people. Just because a person traveled to West Africa, it doesn't mean they were exposed to Ebola." The latent disease-African-otherness connections seem to have been quickly reawakened by the2014-2016 Ebola outbreak.

Moreover, given the United States' history of acting against non-nationals at the border, the hyper focus on controlling the borders of West Africa and the United States is

disconcerting. As mentioned in the second chapter, throughout the late nineteenth and early twentieth centuries, the United States managed Asian immigration through exclusion acts (Lowe 1035). More recently, President Donald Trump signed Executive Order 13780, which restricts travel from Iran, Libya, Somalia, Sudan, Syria, and Yemen and suspends travels of refugees into the United States (United States, Executive Office of the President [Donald Trump]). This order revoked and replaced a similar order, Executive Order 13769 (Trump), which was colloquially called the Muslim Ban because it, like Executive Order 13780, restricted travel from countries that are predominantly Muslim. Moreover, even when non-nationals are allowed to reach the United States border, the United States often has invasive, or even inhumane practices, in place. In response to the Ebola crisis, the United States screened people who had visited West Africa for 21 days, three entire weeks, after entry or reentry into the United States (CDC, "Fighting Ebola – And Stigma"). More recently, in April 2018, Attorney General Jeff Sessions instructed border control agents to follow a zero-tolerance policy that included separating parents from their children (Domonoske and Gonzales). When combined with the United States' historical treatment of Africans and African-Americans, these border control practices are even more worrying.

As I have attempted to argue in this thesis, some of these actions, particularly the United States' control and surveillance of West African people in response to the Ebola outbreak, begin with the seemingly innocuous language of fact. This dangerous connection between language and action makes me question the meaning behind statements like the following from Christopher Coons, a United States Representative from Delaware: "although Ebola can be contained with good public health and burial

practices, it continues to spread due to … limited local language capacities required from health education" (160 Cong Rec S 5512). Are the local languages, which total more than 40 in Guinea alone (Sen Nag), truly unable to facilitate health education or is something else going on? It is almost as if those in power understand this connection between language and action. It is almost as if they know that, to use Cindy Patton's words, "Western ethics loses control at precisely the moment African subjects articulate their own social and ethical categories: Western discourse cannot speak its own language and that of the 'Other' without giving up its claim to be totalizing, metaethical discourse" (86). Language is beautifully versatile: although it has been used as a tool for the powerful, it can also be reconstructed as a weapon of resistance.

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