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Human Disease - Unintended Globalization

Christopher J. Dellana
Gettysburg College

Description
Before man was exchanging goods and ideas, he was exchanging germs. As such, the spread of infectious disease constitutes the first truly global phenomenon and, therefore, marks the beginnings—primitive though they may have been—of what today we have finally termed 'globalization.' The global spread of disease, then, proves that globalization is not new and that its origins were the result of a different narrative than the ones we read from globalization theorists; it further demonstrates that the modern conception of the phenomenon is only now so well recognized because the accelerated and efficient processes that inform its daily activities have heightened our conscious acknowledgement of its existence.

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Christopher J. Dellana

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INTRODUCTION

In 1976 a novel virus appeared in Zaire. In a region traditionally afflicted by the maladies of vector-borne diseases such as malaria, typhus, yellow fever, and Lassa virus, the initial cases of strange hemorrhagic fever raised no immediate alarms, author of *Spillover* and field writer/researcher for *National Geographic*, David Quammen noted (Quammen 69). Mankind's ever-expanding geographic sprawl, indeed, has pushed the boundaries of the known world since the beginnings of our evolution; we were, as a species, born into wanderlust. This continual encroachment into the unknown has brought us, inevitably, into contact with untold numbers of infectious microbes. The sudden emergence of the hemorrhagic fever in central Africa was therefore not, in the abstract, something that human society had never seen before.

The novel virus was analyzed in CDC labs far from Africa and named for the river Ebola, where the first known cases had originated. It soon appeared in other African states—Kenya, Gabon, the Democratic Republic of Congo (Quammen 117-118)—and was even reported, albeit in laboratory settings, in then-Communist-controlled Russia and the United States (Quammen 100-104). Ebola remains an elusive pathogen: there is no vaccine, there is no cure. Researchers and medical experts alike still do not know where the virus hides in nature. Yet, "disease patterns" have always been defined in terms of "roving parasites and opportunistic microbes" (Barnes 33). This passage in Ethne Barnes' work, *Diseases and Human Evolution*, speaks to the nature of the relationship between microbes and human beings. The brief excerpt suggests that the history of interaction between both groups has largely been the result of infectious pathogens making the most of advantageous situations in which to jump from one animal species to another (i.e. humans) or to cross from one human population to another. Such "opportunistic behavior"

has helped pathogens emerge from obscurity in animal reservoirs[1] to reach endemic prevalence in human societies. The Ebola virus appears to be no exception. Since February 2014, a new outbreak has cut swaths through villages in Guinea—the first time the virus has ever appeared in that region, has reached Conakry, the capital city—the first time the virus has crept beyond the edges of the wilderness to a highly populated area, and has spread to neighboring Liberia, killing over 142 people as of the time of this writing (Falco).

The relatively recent emergence of this pathogen is not unique; instead, it is illustrative of a larger trend of humankind's history with microbes. In the current era of globalization, acceleration is among the most salient characteristics of the phenomenon; Thomas Hylland Eriksen, author of *Globalization: The Key Concepts*, writes about the theme of a world on fast-forward: "everything," he says, "happens faster and faster, bringing disparate parts of the world closer to each other" (Eriksen 34). Every infectious pathogen requires hosts to survive, as such, the accelerated interconnectedness that modern globalization entails is ideal for microbial self-preservation because it increases opportunities to find new hosts. In transitioning from hunting and gathering to animal husbandry and agricultural practices, the changes in our "behavior toward the environment" have irrevocably "altered disease patterns" (Barnes 51). Microbes, given this perspective, have followed our evolutionary footsteps very closely since the beginnings of civilization. The new pattern of accelerated globalization has, therefore, merely raised our consciousness of the globalization phenomenon that is, in actuality, very old. Laurie Garrett, author of *The Coming Plague,* fellow at Harvard's School of Public Health, and Pulitzer Prize winner for her reports on the Ebola Virus, echoes that the "catastrophic epidemic events in human history [are] the ironic result of humanity's steps forward" (Garrett 6). As the human

[1] Usually a living being that an infectious microbe can reside within, causing limited harm to it, until an opportunity to move to a different host arises.

population expands beyond seven billion, humankind is increasingly moving into areas previously uninhabited and venturing into habitats never before disturbed. In his work, *Plagues in World History*, John Aberth—academic dean at Castleton State College and professor of history—alludes to this "density-dependent" (Alberth 2) factor in disease propagation. This means that the prerequisite for microbial proliferation relies on the reproductive success and geographical dissemination of host bodies—*Homo sapiens* in this case. In order not to "consume…its opportunities among susceptible hosts," writes David Quammen, "there's a critical minimum size of the host population, below which [an infectious pathogen] can't persist indefinitely as an endemic, circulating infection. This is known as the critical community size (CCS)" (Quammen 129). Density-dependent infectious agents, then, can only survive given a proper critical community size. As human societies have grown, many populations now exceed their CCS by generous margins, allowing more rapid disease transmission. Novel, zoonotic diseases—those diseases passed from animals to humans—have become endemic in human populations by this same process throughout our history; all that has changed is the alarming pace with which infectious microbes now jump from their animal reservoirs to human hosts. In the time frame spanning from 1940 to 2004, a study examined 335 disease events that revealed "60 percent of these events were related to zoonoses" and that in 132 countries, during just a three year time frame (1998-2001), 578 disease outbreaks occurred (Skolnik 242-243). By the same token, the globalizing processes that brought about disease spread among human societies is as old as our first contact with animals carrying zoonotic pathogens. Globalization, a result of the ever-greater spread of humankind, is inseparable from our relationship with infectious pathogens.

Globalization is a phenomenon that had its beginnings in human activity. It is today understood to encompass such a volume of processes, meanings, ideologies, and interactions that the phenomenon is difficult to concisely define. That is not to say, however, that there have not been many laudable attempts to do just that. Manfred Steger introduced the word "globality" as a substitute for globalization, meaning it to represent the phenomenon as a condition rather than as a process; he took it to mean "a social condition characterized by tight global economic, political, cultural, and environmental interconnections…[making] borders and boundaries irrelevant" (Steger 8). Social anthropologist Thomas Hylland Eriksen and sociologist Anthony Giddens both allude to the "complex set of processes" that comprise globalization and how such processes "operate in a contradictory or oppositional fashion" (Giddens 13) and how globalization is "not a unidirectional process" (Eriksen 9). Amartya Sen, an economist, views globalization as contributing to the developments and advancements of human society "through travel, trade, migration, spread of cultural influences, and dissemination of knowledge and understanding" (Sen 16). Anthropologist Angelique Haugerud offers her sense of globalization as referring to "accelerated flows or intensified connections—across national and other boundaries—of commodities, people, symbols, technology, images, information, and capital" (Haugerud 104). Sociologist John Urry, author of *Globalization and Citizenship*, identifies globalization processes, rather tautologically, as being "non-coterminous with the boundaries of nation-states" (Urry 315) and defines it by one of its most important consequences: the decline of the nation-state and dissolution of citizenship, which are themes echoed by Susan Strange in *The Declining Authority of States*. The struggle to define the processes of social, political, economic, and cultural interconnectedness that have reached a global scale attests to the complex nature of globalization and why its origins and implications are contested.

Of course there are many other social scientists, popular authors, and theorists—among others—that have advanced their own theses grappling with the globalization phenomenon, but the small selection above should offer at least introductory insight into the scholarship of globalization. Common themes raised both by the social scientists and authors from other academic disciplines were the acceleration of global interconnectedness, the complexity and multidirectional nature of globalization, and its ability to make geo-political boundaries irrelevant. While the worldwide processes that constitute globalization link human societies to one another by the activities in which they participate, disease links human societies across the globe to one another and similarly links humankind to the environment and animals which surround us. After all, at a biological level, "infectious disease is a mortar, binding one creature to another" (Quammen 20). Notably, within this discussion of globalization, not all of the sources recognize global disease as being among of one of the most important consequences of a shrinking world. And, interestingly, those sources that do contain reference to global disease often fold the phenomenon into an existing conceptual discussion rather than introduce human disease as a standalone topic. In Eriksen's work, for example, besides a paragraph about the Black Death along with fleeting references to HIV/AIDS, SARS, and unspecified global disease, his discussion on vulnerability (in the 2007 edition)[2] has no dedicated section to pandemics or disease, but rather addresses other vulnerabilities at length, such as the contemporary threat of terrorism, instead. In further examples, John Urry does address global disease, but does so almost dismissively in just a single bullet point among a list of 17 other emerging global concerns. Angelique Haugerud vaguely mentions "declining living standards" and the "curtailment of social expenditures" (Haugerud 104) as important issues overlooked by popular

[2] In the 2014 edition of *Globalization: The Key Concepts,* there is an entire section dedicated to "The AIDS Epidemic and Globalization."

writer Thomas Friedman in his book *The Lexus and the Olive Tree*; while these references could be proxies for assessing global disease, Haugerud fails to elaborate on it or mention disease specifically anywhere else in her critique. While the definitions of globalization may vary in their nuanced interpretations, there seem to be prominent characteristics representative of the wider scholarship on the topic—global disease, nevertheless, does not seem to earn the attention it merits as a global phenomenon.

Before humankind was exchanging goods and ideas, we were exchanging germs. As such, the spread of infectious disease may very well constitute the first truly global phenomenon thereby marking the beginnings—primitive though they may have been—of what today we have finally termed 'globalization'. From the outbreaks of bubonic plague that afflicted Ancient Greece, the Roman Empire, and Western Europe to the H1N1 influenza pandemic of 1918 and toward contemporary experiences of contagion, our human-driven dissemination of disease and the reaction to it by nations and peoples over the course of history demonstrates our awareness of its important global implications. The global spread of disease, then, strongly suggests that globalization is not new, that our contemporary consciousness of its existence is merely heightened, and that its origins were the result of our earliest interactions with our environments, making it a different narrative than what other globalization theories intend to convey.

THE LEGACY OF GLOBALIZATION AND DISEASE

Finding evidence for globalization's beginnings is perhaps just as difficult as defining the phenomenon itself. It has been acknowledged that, lexically, the term is indisputably new (Rantanen 64), arising only around the time of the 1980s (Giddens 8). Since that time, its various political, social, economic, and cultural manifestations have been the focus of inquiry

and debate. Certainly during no other time in recorded history has humankind been so hyper-connected; the latter 20th and beginnings of the 21st century have been characterized by interconnectedness that is, unlike transcontinental/transoceanic human relationships at any time in our past, instantaneous. This simultaneity has intensified interactions and linked human societies in more profound and meaningful ways across the globe. Giddens admitted to Terhi Rantanen in an interview that he began using the "G-word"—globalization—when he "felt that the existing words were not dealing with the issues properly," as, for him, it was "really kind of development of the modern" (Rantanen 64). Indeed, Giddens claims in his work that globalization, as a conjunction of political, technological, cultural and economic phenomena, "has been influenced above all by developments in systems of communication, dating back only to the late 1960s" such that "globalization, as we are experiencing it, is in many respects not only new but revolutionary" (Giddens 10). Interestingly, Thomas Eriksen says both that the notion that globalization began in the 1980s "betrays the beholder's poor knowledge of history" yet claims, simultaneously, that, in a cultural sense, "globalization is recent" and "as a form of consciousness, [it] is new as a mass phenomenon" (Eriksen 5). Eriksen's stated caveat speaks to the complexity of globalization and the difficulty that arises in trying to orient its beginnings chronologically. Both Eriksen and Giddens allude to globalization as a recent occurrence, borne out of accelerated interconnectedness, deterritorialization, and technology, but they both qualify the implications of their assertions; in other words, Eriksen claims that globalization is new given a cultural lens or understood as arising from our own consciousness of its existence while Giddens insists that it is a new phenomenon only insofar "as we are [currently] experiencing it." These subtle disclaimers would appear to suggest that Eriksen and Giddens recognize that

globalization cannot be entirely new; another camp of authors, social scientists, and globalization theorists argues just this.

The position that holds globalization to be "a long-term process" (Steger 19) cite various reasons justifying the existence of globalization throughout history. Eriksen mentions the "time-space compression" (Eriksen 35)—a term he borrowed from geographer David Harvey—as integral to the globalization process and the importance of this is not lost on those who seek to refute the notion of globalization as new occurrence. Prominent economist Amartya Sen claims that "over thousands of year, globalization has contributed to the progress of the world through travel, trade, migration, spread of cultural influences, and dissemination of knowledge and understanding" (Sen 16), Roland Robertson, sociologist and theorist of globalization, highlights "four major focal points of the dominant globalization processes since the sixteenth century" and underscores the time-space compression to which Eriksen makes reference in what he calls "the take-off period of modern globalization…from 1870…to the mid-1920s" (Robertson 93), and Manfred Steger claims that the process of globalization has "over many centuries…crossed distinct qualitative thresholds" (Steger 19). While each of these theorists avoids placing globalization within an overtly-specific time frame, they all, nonetheless, allude to its old roots. Globalization, for these authors, arose from the past and the view that understands such a process as new is a "misdiagnosis" of a phenomenon that is "neither new nor necessarily," as Giddens would believe, "Western" (Sen 16-17). According to Jan Aart Scholte, professor of international studies at the University of Gothenburg, Sweden, however, "both of these perspectives are flawed. The 'all-change' thesis" or that globalization is new, "suffers from historical myopia. The 'all-continuity' thesis," that holds globalization to be an ancient phenomenon, "suffers from insensitivity to proportion" (Scholte 62). Scholte believes globalization to have arisen in

primitive form as a result of "global consciousness" borne "half a millennium ago" (Scholte 62). Perhaps, then, globalization may be a function of human consciousness, such that without our recognition of its occurrence, globalization could not exist. As Eriksen indicated earlier and as Robertson affirms: "the intensification of consciousness of the world as a whole" (Robertson 88) in recent decades may be responsible for the inclination to identify globalization as new. Yet no global phenomenon throughout the millennia of human existence has exhibited greater capacity for rousing human consciousness toward global awareness than disease.

Global disease is one of, if not the most important consideration in globalization. An unhealthy population cannot attend school regularly, work consistently, or live sustainably. Any economy operating given such a reality would not function properly and no government could long endure without a working economy. Disease has the capacity to unravel the very fabrics of global exchange and cripple its infrastructure; globalization, then, like any other man-made institution, is at the mercy of disease. Though some—such as Giddens and Eriksen, as noted above—maintain that the globalization phenomenon is novel in human experience, the pattern of communicable disease proliferation from early history up until the modern era demonstrates that contagious pathogens and our reactions to them were the first activities and behaviors that were shared by all people. While populations from distinct cultural traditions may respond differently to the exact same diseases, the important part is that they react to disease and are thereby united in this reaction. Whether this reaction constitutes 'coming to peace' with the presence of illness (as often happens when one ascribes physical ailment to the will of divinity) or arises out of a desire to fight against it—all societies have encountered and reacted accordingly to communicable disease since the beginnings of recorded history.

Thomas Eriksen's work highlights several concepts that draw attention to the concerns of contemporary globalization. To illustrate the accelerated nature of globalization today, he recalls the example of the "ILOVEYOU" (Eriksen 33) virus—a virus for computers. Because of the 'contagiousness' with which certain malicious computer programs can 'infect' an otherwise 'healthy' computer, we have termed such programs 'viruses,' which ostensibly parallels our experiences with biological infectious agents. Eriksen, by highlighting computer viruses as a uniquely 21st century version of a viral pandemic, allegorizes the time-tested battle between human societies and infectious microbes. Yet, as previously mentioned, biological microbes are not the focus of any specific subsection in Eriksen's work. Human disease perhaps escaped this analysis because it is such an embedded facet of the human experience that we pay it little heed when it is not immediately threatening; this leaves one to ponder why pandemics appear as prevalent topics in science fiction. One possible explanation might be the ability of global disease to instill wonder and fear, without threatening immediacy; that is to say that the last truly devastating worldwide pandemic was almost 100 years ago, and all would-be pandemics in the post-modern age—SARS, Swine Flu, Bird Flu, and, to some extent, HIV/AIDS—have either been snuffed out by proactive public health measures (Skolnik 242) or have otherwise been contained from surreptitiously spreading to unknowing patients, as in the case of the education/prevention programs of HIV/AIDS. In the 21st century, more modern globalization-borne threats, such as terrorism and climate change, have incrementally overshadowed the threat of disease. Eriksen's analysis, then, raises the issue of globalization-associated vulnerability, which is perceived more acutely in the modern age as a result of our increased awareness of global interconnectedness.

Several other authors reference the concept of global risk, a condition synonymous with vulnerability, as being a central tenet of globalization processes. John Urry enumerates some of the implications of globalization, wherein he highlights the "breaking down of the coherence of national economies" (Urry 316) as a principal result of globalization. Furthermore, Urry identifies the "collapse of power of the national society through the development of apparently new global risks" of which he names "the development of diseases carried across national borders by travelers" (Urry 316) as an example of globalization's consequences. Here, Urry seems to imply that the risks we perceive in a globalized society are blamed on the accelerated processes of interconnectedness that we observe in contemporary life (as evidenced by his choice of words: "apparently new"). He appears to argue that the risks to which he makes reference stem from deeper historical precedents and, indeed, may have been around for much longer than a post-modern interpretation of globalization might lead one to believe. Anthony Giddens, in *Runaway World*, concurs with Urry, despite his stated belief that globalization is a novel phenomenon in the human experience, claiming that "the idea of risk appears to have taken hold in the sixteenth and seventeenth centuries" (Giddens 21). He further elaborates on the "manufactured risk" (Giddens 28) that globalization entails. His definition of this concept—as "risk created by the very impact of our developing knowledge upon the world…[such as] a stored up disaster to health" (Giddens 26)—resonates with Ethne Barnes' earlier-cited commentary on the evolution of disease patterns. Barnes, a paleopathologist, and Giddens, a sociologist, come to the same conclusion in their respective works: global activity of mankind has instigated contact with disease. Eriksen, in undertaking Giddens' notion of manufactured risks, similarly concludes that "the high population densities of cities makes [*sic*] it easy for disease to spread" (Eriksen 125). These sparse references, however, are among the only

allusions to global disease in the works by the respective authors and yet they, as noted previously, function simply as anecdotal case-in-point justifications for broader arguments.

Globalization, given this view, seems to have heightened our perception of risk. Yet, this feeling of vulnerability is not new. Disease has always been framed by a narrative of dread. Philip Alcabes, director of the Public Health program at Adelphi University and author of *Dread*, claims that hysteria about a disease can, itself, be independent of any actual disease outbreak (Alcabes 223). Disease, since the early history of international relations, has dictated state policy by means of an 'us versus them' dichotomy. The comprehension of risk in the advent of the Europe's Black Plague outbreak led governments to enact a variety of protectionist measures at the expense of rejecting all things foreign for the sake of domestic health interests. Nations formed "health cliques" (Harrison 31), or primitive health and sanitation boards, where information was gathered by "network correspondents across Europe" (Harrison 19) on the health status of other countries as part of an increasing international awareness of the epidemiological interconnectedness created by cross-country trade. This practice has been maintained, with a slight shift in emphasis, as a cornerstone of international policy ever since: "there is a…focus," in 21st century politics, "on surveillance and communication in order to fight new outbreaks before they can become pandemics" (Youngerman 209). Given chronological anecdotes that span over 2,500 years—since the first recorded plague in Ancient Greece during the Peloponnesian Wars of 430BC to the modern pandemics of novel influenza viruses and HIV/AIDS—it, perhaps, seems apparent that as global transport and travel became more modernized, the human race has become ever more susceptible to the diseases of the globe.

In terms of disease, modern globalization has not heightened our risk, but, rather, has contextualized it. While it is important to note that "many different forms of vulnerability have

been globalized" (Eriksen 125), this "fear that modernity has heightened our vulnerability" (Alcabes 217) is not entirely well-founded. Though it is true that the post-modern advent of technology and global trade/travel has accelerated certain processes, human disease and illness have been around as long as humankind (Aberth 2). Perhaps this is why, as Eriksen stipulated in his section on vulnerability, we prioritize relatively new global risks of terrorism and climate change over the danger of a pandemic. Disease, Mark Harrison writes, is an "aspect of human history which is too often neglected" (Harrison xiv). The legacy of the Spanish Flu, for example, was all but lost to history in the decades following its sudden abatement in the late winter of 1919 (Davis 19). Human disease, as experienced from our earliest history through epidemics and pandemics, has imprinted a sense of vulnerability on the psyche of human societies across the globe which has manifested in varying reactions to its specter. This consciousness has roused our awareness of the threat posed by disease and has framed our understanding of an increasingly globalized human experience—beginning in ancient times.

DISEASE AND EARLY GLOBALIZATION

Recorded history only details a fraction of *Homo sapiens*' existence on the planet. While diseases can sometimes leave lingering clues on bones as evidence of their presence—such as the marks of smallpox and polio on the preserved skeletons of Egyptian mummies (Aberth 4)—it is otherwise difficult to discern what diseases may have affected mankind during different episodes of history (Youngerman 200). That said, just as Robertson delineated a brief history of globalization according to its "major focal points" and "take-off period[s]" (Robertson 93), so too does the global narrative of human disease lend itself well to specific periods in history when disease heightened our perception of the "time-space compression" (Erisksen 35) phenomenon that has characterized the globalization of our contemporary world. Beginning with epidemics of

bubonic and pneumonic plague in the earliest recorded accounts of disease, the potential of disease to affect populations on a global scale was first recognized. After the Middle Ages, beginning with the explosion of maritime exploration, global horizons expanded substantially and the potential for globalized disease transmission was reinforced in the exchange of diseases between the New World and the Old World, in an event known as the Columbian Exchange. At the turn of the 20th century, as global connectivity began to proliferate, a war initially confined to Western Europe reached a worldwide scale; as a consequence of the rapid increase in global travel, an opportunistic outbreak of influenza ravaged the world population. Each of these provides evidence for the contention that disease is a global phenomenon and that globalization itself is largely a conception rooted in our consciousness of it.

Epidemics of plague have tormented human populations throughout history and across the globe. Around 430BC, the Athenian chronicler Thucydides observed what has since become known as the Plague or Epidemic of Athens. In Barry Youngerman's *Pandemics and Global Health*, a compilation of primary source documents, he cites Thucydides as he recounts the Lacedaemonians invading Attica and spreading an unknown disease, supposed to have originated in northern Africa (Youngerman 195). John Aberth, in tracing the important causes and consequences of global disease throughout history, also cites Thucydides' text as comprehending the Athenian Plague to be "worldwide in its scope…it started in Ethiopia," he recalled, "and progressed from there northward and westward…and eastward to the Persian Empire" (Aberth 8). According to Thucydides' description, the epidemic stretched from Northern Africa, through Greece, and into the eastern domains of Mesopotamia. It is believed that this pestilence, as described by Thucydides, was the black plague.

Another plague-like illness was also described in accounts of the Plague of Justinian, occurring in 541-544AD. Notably, the pestilence during this era was documented by Procopius of Caesarea, a prominent scholar and historian of the battles of Emperor Justinian. He claimed that "the whole human race came near to being annihilated" (Procopius); in actuality, the plague—albeit devastating—only encompassed the Mediterranean, Western Europe, and parts of the Byzantine Empire. For Mark Harrison, Director of the History of Medicine at Oxford, this instance of contagion constituted "the first pandemic in which trade played a major role" (Harrison xiv). Emperor Justinian, envisioning a return to the glory days of the Roman Empire, sought to conquer all of the territories of the Mediterranean. But a virulent microorganism, believed to have been the bubonic plague, just as in the Plague of Athens, ravaged the dominions of his empire, crippling his designs.

In the 14th century, as Western society clambered out of the Dark Ages and as lucrative trade between Europe and Asia intensified, *Yersinia pestis* appeared again on the international stage. Returning to the continent almost 900 years since its last appearance—this time coming from Asia—the bubonic plague appeared first in Italy before making its way across Europe. Barry Youngerman terms the occurrence of plague in the 14th century "a pandemic [which] spread throughout the civilized world…probably a combination of bubonic and pneumonic plague" (Youngerman 197). The plague's ravages left millions of dead in its wake such that a third of the European population would die and "it would take 150 years for Europe's population to return to its former size" (Sherman 69). Part of the horror of the Black Death—another name for plague—was its ubiquity. Ibn Khaldoun, a witness to the plague in Florence, wrote that "civilization decreased with the decrease of mankind" as the plague seemed to affect "the entire inhabited world" (Youngerman 198). These epidemics of plague tormented early human

societies during very different time periods, yet all were characterized by an acute awareness of globalization.

The discussion of plague in the accounts of Thucydides, Procopius, and Khaldoun, taken together with Youngerman's perspective, raise interesting points with regard to the globalization of disease. At an implicit level of analysis, Youngerman's syntax—i.e. his choice of the words "civilized world"—seem to posit globalization as a phenomenon only among civilized culture. Khaldoun's commentary seems to reinforce this; whether intentionally as hyperbolic as Thucydides and Procopius was or otherwise ignorant, Khaldoun's assertion that "the entire inhabited world" was affected by plague nevertheless speaks to the geographic understanding of globalization that likely prevailed during the time. Procopius' point of view, maintaining that the bacteria "spread over the whole world" (Procopius), echoes the distorted geographic understandings of Thucydides and Khaldoun, and vice versa, despite their accounts each being separated by nearly 1,000 years. Taken as a group, these evaluations of the plague suggest that it has been interpreted and understood—both during ancient times up through the 14th century and toward modern times—as globalized, regardless of its true geographical distribution. Though lexical innovation had not created the word 'globalization' by the 14th century, contemporary and historical accounts, from the Plague of Athens, through the Plague of Justinian, to the Black Plague, demonstrate that the *Y. pestis* disease was undoubtedly a facet of early globalization.

At the end of the following century, the next epidemiological shift came with transoceanic exploration. In 1492, the Castilian monarchs Ferdinand and Isabella defeated the remaining Arab stronghold in the country in al Andalucía, ending an occupation that had lasted since 711AD (O'Callaghan 669). In that same year, a Genoese man by the name of Christopher Columbus sought financial assistance to find an oceanic route to East Asia. Instead, Columbus

stumbled upon the American continents and, unwittingly, set in motion a swapping of germs between previously separated populations—a momentous epidemiological incident known as the 'Columbian Exchange.' The Columbian Exchange introduced the ravaging diseases of the Old World, namely smallpox, measles, typhus, and cholera, into Native American populations while it resulted in the transmission of syphilis eastward back to Europe (Harrison 17). The consequences of these diseases were profound—resulting in the destruction of previously powerful Mesoamerican empires such as the Inca and Aztec. The Old World diseases are estimated to have "caused devastation far exceeding that of even the Black Death" (Nunn 164). This interaction between previously separated continents also resulted in worldwide consequences: "the effects of the Columbian Exchange were not isolated to the parts of the world most directly participating in the exchange: Europe and the Americas…Africa and Asia" (Nunn 164) were also involved. In this instance, global exploration and transoceanic transmission of disease heightened awareness both of a shrinking world and of the increasing interconnectedness of peoples in different areas of the globe, thereby fueling the globalization phenomenon.

In 1918, the world was entering its fourth year of mechanized total war. No war had mobilized so many of Europe's armies since the days of Napoleon and no war had ever before reached a global scale. Western Europe was cut with deep scars in the earth where trenches snaked across the hallowed deserts of mud, barbed wire, and uncollected corpses. As the spring approached, the death toll was approaching perhaps as many as 10 million people (Crosby 11). The German High Command issued their Spring Offensive as a last-gasp hope to overrun the allied forces before the United States sent troops overseas. In the beginning, the plan worked. Territory that had been the site of stalemates for years was now won by leaps-and-bounds in a matter of weeks (Churchill 824). Back in the United States, however, millions of soldiers had

mobilized for war and preparations were underway to cross the Atlantic. Hundreds of thousands passed through one of the principal barracks in the country at the time, Camp Fulston, Kansas (Trilla 669). Some at the base came down with a strange sickness that seemed to progress with surprising tenacity, but the looming troop departures that summer into fall quickly overshadowed the then-insignificant malady.

In Europe, the first cases of what has since become known as the Spanish Flu appeared in both belligerent and neutral states, passing through army encampments and civilian settlements alike. There were three waves of the H1N1 flu strand which made its way first through Europe and then through the rest of the world, reaching every continent (Barry 87). Historians debate the origins of the flu and the chronology of its spread, but one thing remains free of doubt: the virus reached the far-flung corners of the world not by coincidence, but by the great movement of people that World War I had created (Beiner 502). Before the Spanish Flu struck war-torn Europe and ravaged an unprepared world, author John Barry, recognized by the U.S. National Academies of Science for his reporting on the deadly influenza pandemic, wrote that "never had there been a time so exciting in medicine." (Barry 28). But as the death toll climbed precipitously to as much as ten times the mortality estimates for the war—or as many as 100 million people (Echeverri 175)—the practitioners and scientists of the day rapidly became, in the eyes of historian Alfred Crosby, "participants in the greatest failure of medical science in the twentieth century or, if absolute numbers of dead are the measure, of all time." (Crosby 10). This appalling loss of human life witnessed in the Spanish Flu pandemic, just as it has been with every major pandemic scenario, has been the result of increased human contact with populations, animals, and areas that they might not otherwise have come into contact with—a phenomenon in the post-modern age that we have termed 'globalization.'

DISEASE AND MODERN GLOBALIZATION

Given the hyper-connectedness of 21st century globalization, any given zoonotic transmission scenario could quickly become a worldwide pandemic. In revisiting the earlier discussion of *Yersina pestis*, the plague did not simply disappear from human society following the calamities of the 15th century in Western Europe and Asia. In 1855, plague again appeared in Asia, on the border between China and India, and it "took only a few years to reach every continent" (Echenberg 431). This pandemic, known uncreatively as 'The Third Pandemic,' demonstrated the accelerating rate of global interconnectedness. Where other outbreaks of the plague in earlier time periods had been confined to relatively limited geographic areas in Europe, Africa, and Asia, the Third Pandemic reached a global scale in a short duration, thanks, in large part, to increasing global connectivity. The other part of the equation that ensured the sustained global spread of the pandemic well until the 1950s was human interaction with the environment. "Indeed," writes Echenberg, professor emeritus at McGill University, "all cities visited by plague between 1894 and 1901 had been transformed by the forces of industrialization, world trade expansion, and immigration" (Echenberg 433). This echoes the assertions by Garrett, Quammen, and Barnes which contend that ever-changing human interaction with our environments has created a situation of intensified contact with infectious microbes. With modern air transportation—termed by Laurie Garrett as "the great globalization of humanity" (Garrett 569)—a previously rare and geographically-isolated disease could, therefore, depending on its incubation period, reach a global scale in a matter of hours to days. David Quammen and Irwin Sherman both allude to amplifier hosts in the process of zoonotic disease transmission. Quammen clarifies what he means by an amplifier:

> It is a creature in which a virus or other pathogen replicates—and from which it spews—with extraordinary abundance…the amplifier host becomes an intermediate link between a reservoir…and some other sort of victim. (Quammen 36)

These amplifiers have made diseases such as the Spanish Flu in 1918 to modern day Swine and Bird Flu possible. An infectious pathogen, living inside a certain species of animal and makes its way to another animal, by which it mutates—or amplifies—and becomes pathologic to humans. These amplifiers are biological in nature, yet offer a curious parallel to what might be termed 'phenomenological amplifiers.' These amplifiers are factors that have facilitated, accelerated, or amplified the effects of globalization—in Garrett's eyes, for example, air transportation would be the prime example. Other types of high-speed travel, communication, and various types of technological innovation may also be considered part of this amplifying effect. This effect has increased global interconnectedness such that our awareness of globality has similarly increased acutely, which perhaps accounts for the flawed perspective held by social scientists and other authors that globalization is new. What such amplifiers have done, nevertheless, is exponentially intensify the "time-space compression" (Eriksen 35) of modern globalization, creating the illusion that such impressive shrinkage of the world must be a new phenomenon. Yet, as Laurie Garrett ultimately concludes, in the 21st century, "we live in a globalized world, filled with shared microbial threats that arise in one place [and] are amplified somewhere else through human activities that aid and abet the germ" (Garrett 22). This "globalized world" to which she makes reference has, nevertheless, risen out of social and historical precedent dating back millennia.

Between the destructive pandemics that gained notoriety in human history, there have been many other maladies that human populations have endured in silence in the endemic

regions of the planet. These are the diseases that, unlike viruses like Ebola, have become endemic among human societies. Centuries after the fall of Rome, "epidemic diseases that had once haunted the Roman Empire…became endemic to most of Europe" (Barnes 270). Malaria was one such disease; once confined to regions in Africa, Malaria continually spread through the circulatory system of growing intercontinental trade until, in the 21st century, the malaria-causing *Plasmodium* parasites have reached pandemic status and now the blood disease covers endemic areas that span half the globe (Skolnik 256). Malaria continues to kill 1 million people annually (Skolnik 256), and climate change, according to the World Health Organization, is projected to broaden the geographic distribution of the disease (Githeko *et al.* 1142). In the 1940s, the spraying of DDT in endemic regions drastically reduced the spread of the disease, but after DDT use was banned, the incidence of malarial infections worldwide again grew; of further concern is that "chloroquine, fansidar, and mefloquine," typical drugs used in the treatment of malaria, now "face growing levels of drug resistance" (Skolnik 256). The resurgence of the mosquito population after chemical suppression in the mid-20th century and the biological adaptation of drug resistance among malarial parasites demonstrates that disease is and always has been global, indicating that, as a phenomenon, it is a central component of the human experience.

CONCLUSION

Humanity has been well-trained in the exercise of dealing with disease. Even "the plagues of the later Middle Ages" (Harrison 16)—occurring during a time when Europe was in the first throes of a "pandemic" (Aberth 19) scenario not seen since the Plague of Justinian—were simply "the latest episodes in a process which had been underway, albeit intermittently, for

millennia" (Harrison 16). This interpretation suggests that the concept of globalization, as a consciousness of interconnectedness, was not new to humanity when trade allowed nations to explore the benefits of a young, globalizing world in the mid-14th century, yet nor was it new even before that, in the time of the Peloponnesian Wars or during any point in human history. The global, or perceived-global spread of infectious disease offers strong evidence that globalization—as a phenomenon that we consciously experience—is not new in human society. Even as far back as 430BC, Thucydides of Ancient Greece was perhaps the first, but certainly not the last, to recognize the global scale of disease. Although his assessment of the Athenian Plague as being "worldwide" might be slightly hyperbolic (just as the other witnesses to plague epidemics were) given a modern understanding of geography, the key takeaway is not in a literal interpretation of the word, but, rather, that the spread of the plague—like any other human disease—could only be as globalized as known civilization.

Human disease is linked to our interactions with the environment. In the case of the Black Plague, the rodents that carried the infectious fleas "took advantage of human intrusions into their territory…and as the number of human intrusions increased, rats adapted to people and followed them to other locations" (Barnes 239). The adaptive behavior of the wild rodent populations, nevertheless, attests to the versatility of nature—not simply microorganisms—in adjusting to environmental change. More recently, "developmental activities, expansion of agriculture, and deforestation have the potential," notes Barry Youngerman, "for increasing anopheline mosquito breeding sites" (Youngerman 187), which is the species of mosquito responsible for spreading tropical diseases such as malaria or lymphatic filariasis. These diseases originated in Africa but "came to Europe…because of closer contact between Europeans and the people of Asia Minor" (Sherman 132). Mark Harrison, echoing these authors, similarly

emphasizes the "important factor" in narratives of global disease as being related to "environmental change" (Harrison 20); then, referencing the 1700s "London physician Richard Mead," Harrison points out that the doctor spoke with wisdom beyond his time when he blamed the growth of civilization and commerce for the spread of disease (Harrison 21). Laurie Garrett, though slightly more sensationalist in her provocative claims, asserts similarly that, during the 1980s, virologists examining the novel HIV/AIDS epidemic noted that urbanization and other increased human activity had created environmental conditions "from which 'virtually anything might arise'; rain forests were being destroyed, forcing disease-carrying animals and insects into areas of human habitation" and the "lethal, mysterious microbes" which they carried with them had the potential, feared some scientists at the time, to "imperil the survival of the human race" (Garrett 6). David Quammen concurs with and nicely summarizes the positions expressed by the other authors: that modern globalization and "mankind's activities are causing the disintegration…of natural ecosystems at a cataclysmic rate" (Quammen 40). What is of crucial importance in this excerpt from Quammen's work is his emphasis on the 'rate' with which this change is occurring. Author Manfred Steger notes that the changes in globalization's pace over the course of history provide us with "a good sense that globalization is as old as humanity itself" (Steger 19). The acceleration of modern globalization, to which Steger—among others—makes reference, is a key facet to the phenomenon and has become a driving force in the geographic dissemination of disease since the origins of humanity. Acceleration, as noted, is the phenomenological amplifier for disease propagation on a global scale and, given that "microbes no longer remain…confined to remote ecosphere or rare reservoir species" (Garrett 571), rapid distribution of harmful disease across the globe could have damaging and enduring consequences for humankind. Importantly, therefore, contagion could not occur without the expansion of

human populations into new geographic areas or without contact between other societies and individuals. Just as "the history of disease, of course, is very old" (Aberth 2) so too is the history of globalization—the two are nearly synonymous. The first global phenomenon, therefore, was not economic, political, social, or cultural—it was biological. Thus, globalization did not begin with the advent of modern communication, nor was it borne from interconnectedness facilitated by improved global transportation or the collapse of the Berlin Wall; it began, instead, with contagion among the first human societies.

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