

Humanities

Medicine as a Tool of Empire: How Medical Developments Advanced European Imperialism in the Late Nineteenth and Early Twentieth Centuries

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Significant research and historical analyses have been performed regarding the driving factors of imperialism in the years preceding World War I, but the role of medicine in enabling imperialism during the late nineteenth and early twentieth centuries has been comparatively understudied. Additionally, existing analyses focus mainly on specific imperial-era medical and public health measures, such as the development of quinine for malaria or the establishment of schools for tropical medicine. This analysis synthesizes much of the research that has been done on medical developments during the Age of Imperialism to explore the various ways in which disease and medicine intersected with colonial rule. Primary sources and secondary historiographical perspectives suggest that medical developments advanced imperialism by both facilitating colonial arrival and cementing European colonial power in developing regions. Furthermore, they support the assertion that developments in medical technologies and infrastructures were more important than economic, military, political, humanitarian, and religious motives in advancing imperialism.

INTRODUCTION

Imperialism is defined as “an expansion of economic activities...beyond national boundaries, as well as the social, political, and economic effects of this expansion” (Waitzkin and Jasso-Aguilar, 2015). Historians typically divide imperialism into Old Imperialism and New Imperialism. The former describes the first colonizers—the Spanish and Portuguese—and their motivations, particularly their desire to spread Christianity, acquire riches, and attain fame during the sixteenth through mid-nineteenth centuries. Old Imperialism transitioned to New Imperialism around the time of the Second Industrial Revolution in Europe as technological developments fueled European economic growth and their desire for expansion into foreign markets (Ward, 1994). Whereas Old Imperialism focused on exploration, global trade, and small settlements, New Imperialism prioritized establishing administrations to dominate a specific region and promote the agenda of empire. Under New Imperialism, powers like Germany, the United States, Italy, Japan, Belgium, and Russia began establishing colonial rule in pursuit of imperial

hegemony, with Britain being the most dominant.

This analysis examines the various causes of New Imperialism to determine the extent to which medical developments advanced European imperialism during the late nineteenth and early twentieth centuries. The methodology comprises both primary and secondary sources because the former serves to validate claims via census numbers, casualty rates, and quotes from eminent figures of the era, while the latter provides insight into historiographical perspectives. Analyzing only one or the other would inhibit impartial consideration, given highly polarized past and present opinions on imperialism. While economic, military, political, humanitarian, and religious goals all contributed to the rise of European imperialism in the late nineteenth and early twentieth centuries, developments in medical technologies and infrastructures were the biggest factors in advancing imperialism by facilitating the arrival and cementing the power of Europeans colonists in developing regions.

CAUSES OF NEW IMPERIALISM

Many attribute the origins of New Imperialism to economic, political, societal, and technological impetuses, but all of these relied to an extent on medicine—the primary facilitator of imperialism. European nations had a desire to increase profits by engaging in global markets and acquiring raw materials—rubber, palm oil, gold, diamonds—from the territories they colonized. They established authority over these territories through economic mechanisms, such as by imposing their currency on native populations. For example, after the Royal Niger Company secured the palm oil trade along the Niger River, the British claimed the entirety of Nigeria as part of their colonial empire in 1884. Subsequent palm oil acquisition from this colony was so great that the price of palm oil in Great Britain itself fell by 50 percent between 1860 and 1890 (Pearson, 1971). Furthermore, the late-1800s discovery of gold and diamonds in southern Africa sparked total warfare between the Dutch Boers and the British. Such evidence demonstrates the importance of these resources to imperial powers, who not only established colonies based upon where valuable materials were located but also were willing to incite war for such goods.

However, these powers could not expand markets and mine for raw goods without the health infrastructure to facilitate their economic development. In fact, many able men refused to venture into West Africa because of prevalent disease. In Sierra Leone, disease killed nine of 26 governors; in the Gold Coast (present-day Ghana), four governor-elects refused their positions in 1874 alone due to fears of disease (Gale, 1982, p. 81). These figures convey the extent to which disease was a deterring force, as it was the lack of adequate medical technology that primarily prevented capable men from accepting these esteemed jobs.

Many nations also embraced imperialist behavior to reinforce national security and further their political interests. An example is Great Britain, which occupied Egypt in the 1882 Anglo-Egyptian War to protect the Suez Canal and thus British national interests. To facilitate this, William Gladstone—the Prime Minister at the time—went

as far as expressly overturning his Liberal Party's stance on imperialism. Historian Anthony G. Hopkins asserts that the Suez Canal faced no danger from rebellious Egyptian and Sudanese forces; instead, he suggests that Gladstone sparked a wave of imperialism to compete with the rival Conservative Party for his own political gain (Hopkins, 1986, p. 363-70). Even if there were substantial military threats, historian A. J. P. Taylor corroborates Hopkins' claims through his own assertion that the invasion of Egypt "not only gave the British security for their route to India...[but also] made them masters of the Eastern Mediterranean and the Middle East" (554). Such evidence suggests that the British, like most other European empires, pursued imperialism as a means of consolidating national power and global influence.

However, troops and nations could not establish military bases or strengthen their power without the ability to survive in the colonies, again underscoring the significance of medicine in facilitating such colonialism. Humanitarian and religious ideals also played a role in New Imperialism, as Rudyard Kipling's "White Man's Burden" and the theory of Social Darwinism were foremost among politicians and businessmen of the time. Kipling based his argument on the principles of Social Darwinism, encouraging the white men of the United States to emulate European powers in "fill[ing] full the mouth of Famine and bid[ding] the sickness cease" (Kipling, 1899). His main claim was that it is was duty of white men to undertake imperialism as only they can provide for all other "inferior," non-white peoples. Such notions also aided in the spread of religion, as Europeans "civilized" indigenous peoples by forcibly converting them to Christianity. Cecil Rhodes, an advocate of British expansionism and former Prime Minister of the Cape Colony from 1890 to 1896 in what is now South Africa, stated in his 1877 *Confessions of Faith* that the British "are the finest race in the world and that the more of the world [they] inhabit the better it is for the human race." Likewise, in various diary entries and public speeches, King Leopold II of Belgium declared that his primary goal in establishing the Belgian Congo was to abolish the slave trade and promote his

“Christian and civilizing” objectives (Viaene, 2008, p. 756). In actuality, he constantly defended forced labor as the sole means of civilization and exploited native peoples for personal and national economic advantage. Over ten million Congolese died due to cruelty and overworking.

The General Act of the 1884-85 Berlin Conference established guidelines for the colonization of Africa, mandating that imperial powers “[instruct] the natives and [bring] home to them the blessings of civilization” and granting “especial protection” to Christian missionaries. As many consider the Berlin Conference the official beginning to the Age of Imperialism, it is understandable that humanitarian and religious factors are seen as the primary cause and advancer of European imperialism. Medicine, however, was the backbone of such ideals. As historian and former professor of Asian and Global History at Warwick University David Arnold argues, cholera in particular enabled “Western observers to equate sanitation with civilization and find India woefully wanting in both” (Arnold, 1988, p. 15). Thus, the prospect of medical advancements justified intervention into Africa, Asia, and Latin America under the notion that it was the duty of Europeans to “save” indigenous peoples.

Moreover, improved weapons, new forms of transportation, and other technological developments like the steamboat, telegraph, and machine gun allowed Europeans to move more speedily and efficiently as well as intimidate natives upon arriving in developing regions. In India, for instance, the steamboat allowed the British East India Company to maneuver narrow waterways to access interior areas of the subcontinent. In turn, the natural resources from these areas could be shipped out via steamboats to larger manufacturing centers and Britain itself. Further, establishing numerous interior, steamboat-accessible settlements allowed for shorter transcontinental travel times, improving the efficiency of military mobilization and resource distribution. However, medical technologies were the most significant developments as they enabled Europeans to survive long enough in the lands they colonized to utilize the aforementioned innovations.

ARRIVAL OF EUROPEAN POWERS

Medicine’s role as a facilitator of New Imperialism can be divided into two phases: the arrival of European powers and the assertion of European authority. Arrival of European powers refers to the act of physically stepping foot in the various territories they conquered; assertion of European authority refers to their ability to maintain control of these territories by imposing systems of colonial rule. To gauge the significance of medical developments on Europeans, it is necessary to analyze the impact of disease on colonists, economic output, and indigenous populations. Disease prevented colonists from settling in Africa, Asia, and Latin America due to high fatality rates. From 1819 to 1836, nearly 50 percent of British troops sent to Sierra Leone died of disease (Curtin, 1990, p. 65). In the middle of the nineteenth century, the life expectancy of British colonizers “could be measured in months” upon their arrival in colonial lands (Luscombe, n.d.). Even in 1878, Gold Coast officials petitioned their authorities for shorter work assignments because “nearly all [the] petitioners [were] in failing health, the result of residence in the Gold Coast Colony” (Gale, 1982, p. 81). Europeans could certainly step foot in unconquered territories; however, with the medical technology—or lack thereof—at the time, they could not survive long enough to establish colonial rule and consolidate larger empires. Since access to the resource-rich, desirable territories was unsustainable, many colonists were limited to areas with safer, milder environments such as South Africa, Canada, and New Zealand.

Disease was evidently among the primary obstacles to colonization as the diseases that affected Europeans were prioritized when searching for cures, thereby undermining any attempts at humanitarian justification. For instance, British efforts at vaccination to eradicate smallpox in India served “the purpose of preserving white health through the creation of a cordon sanitaire” (Apffel-Marglin, 1996, p. 438). Essentially, the British vaccinated the Indian people not for mutual benefit but to ensure their own safety. In addition to establishing this cordon sanitaire, or quarantine zone, in densely populated indigenous areas, the

British simultaneously failed to provide adequate vaccine supplies, subjecting many to certain death in quarantine. In fact, some obstacles to vaccination came from British governance itself, as officials were reluctant to commit monetary and medical resources to the benefit of native populations. If Europeans were truly using imperialism as a means of saving native peoples, then they would have introduced medicines and medical technologies to immediately help them. Instead, they exploited the natives and introduced their own diseases, many of which proved fatal for the natives.

Moreover, Europeans “invented” the region of the Tropics, a “domain of the imperial powers” characterized by disease (Botelho, 2011). The fact that colonial powers attributed a specific name to disease-ridden areas emphasizes the significance of disease in imperialism. Diseases that affected colonists included malaria, which slowed productivity; cholera, which affected Europeans both in Europe and the Tropics; sleeping sickness; yellow fever; syphilis; and smallpox. In particular, Europeans used native populations as research subjects to find a cure for sleeping sickness. Attempted remedies such as lumbar punctures caused brain damage, blindness, and even death for as many as 20 percent of subjects (Tilley 743). The fact that Europeans experimented with natives underscores their prejudicial beliefs and has negative connotations akin to modern-day animal testing. From a medical humanities perspective, the experimentation can be seen as objectifying and dehumanizing, pointing to intrinsic power imbalances between the populations. Such activities also portray the means of overcoming disease as a detriment to native populations, a depiction contrary to stated European intentions. Even as late as 1955, British physician Honor Smith noted that Africa’s “unlimited field...for clinical research...[was] enthralling” (Tilley 748). His comments represent the common sentiment of many European scientists who viewed African peoples not as victims of deadly epidemics but as opportunities to further Western medical knowledge, regardless of the physical and psychological ramifications on their research subjects.

Beyond its direct effect on colonists, disease also negatively impacted economic output, which, to an extent, was prioritized over the health of colonists. Infectious diseases such as hookworm—known at the time as “lazy man’s disease”—reduced worker productivity, decreasing the net economic output of colonial regions (Waitzkin and Jasso-Aguilar, 2015). In the face of lower worker productivity, parent empires extracted fewer resources, leading to reduced economic influence in global markets and net losses from colonial ventures. A viral disease known as rinderpest wreaked havoc on cows and horses, which in turn detrimentally impacted colonists, since the horse was their preferred means of transportation, and the cow was one of their most valuable farm animals. In line with these observations, historian Stephen Luscombe asserts that “disease could dictate the economic viability and structure of whole communities and even whole colonies.” Luscombe worked closely with the British Colonial Service; therefore, the fact his claims are supported by perpetrators of imperialism affirms the quintessential importance of disease to colonial economies and colonialism as a whole. Not only did productivity slow in disease-ridden regions, it was also very costly for corporations to pay for workers afflicted by disease. As a result, investors and companies were reluctant to establish markets in areas with endemic disease. The development of medical infrastructures using scientific inquiry and existing knowledge would make companies more willing to settle in tropical or colonial areas, further reinforcing European authority. Additionally, a bustling economy as a result of these infrastructures would make it appear as though European powers were essential for the economic vitality of the areas they inhabited, thereby advancing imperialism.

Disease also negatively impacted indigenous populations. Historian Alfred Crosby argues that the germs of European imperialists, “not these imperialists themselves...were chiefly responsible for sweeping aside the indigenes and opening up the Neo-Europes to demographic takeover” (Marks, 1997, p. 209). However, it can be argued that it was a combination of the imperialists and the diseases they introduced that enabled them

to cement their authority in the Tropics. For instance, history professor Sheldon Watts asserts that the British purposefully kept cholera alive for “130 years at the cost of some 25 million Indian” lives (167). He also claims that colonial powers “constructed leprosy so as to be able to put away troublesome others who were not, in fact, suffering from Hansen’s disease” (Watts, 1999, p. 177). This notion suggests that Europeans not only inadvertently introduced disease to the peoples they were attempting to colonize but also utilized disease as a means of solidifying their authority and furthering imperialism. Contrary to European justifications of imperialism via the notion that they would be improving the lives of conquered peoples, the “greatest rates of morbidity...[were] associated with the introduction of new diseases from one region of the world to another” (Marks, 1997, p. 208). In other words, European colonizers introduced fatal diseases to native populations and used the resulting remedies they found to propagate the idea that their presence was necessary for the natives’ well-being.

Given the impact of disease on various groups and the economy, it is necessary to consider the effects of vaccines and other medical developments to counteract such diseases. One might assume that medical developments would reverse the pro-imperialist impact of disease; however, such medical technologies actually intensified imperialist attitudes and the construct of imperialism itself. First, medical developments enabled colonists to survive in the Tropics. In the 1832-34 MacGregor Laird Expedition, 40 out of 49 British colonists died due to malaria-induced fever. But following the introduction of quinine, not one colonist died during the 1854 Baikie Niger Expedition (Gale, 1982, p. 81). Further, within one year, the death rate caused by malaria in Algeria dropped from 30 percent to five percent (Cohen, 1983, p. 23-5). By 1875, less than two percent of British troops in West Africa died of malaria (Curtin, 1990, p. 63). In the late 1800s, over 700 pounds of quinine were used annually in the British Raj for the over 150,000 British colonists that had migrated to India (Raustiala, 2013). This provides evidence for

a correlation between the availability of medicine and the number of European settlers able to survive in colonial lands.

Furthermore, Scottish physician Patrick Manson established schools of tropical medicine in Great Britain with the purpose of researching malaria treatments to ultimately stimulate cash crops and the economy (Botelho, 2011). The interdependence of the economy and disease can be seen through these establishments, as efforts concerning colonizers overseas were at the forefront of scientific research in parent nations. Searching for treatments and cures to diseases specifically affecting Europeans in “the tropics” were prioritized, and philanthropic institutions like the Liverpool School of Tropical Medicine and the Rockefeller Foundation allocated resources toward constructing research centers in Caribbean and African colonies (Moore, 2016, p. 384-90). The hope was that such medical developments would enable greater survival rates in these regions, entrenching European economic systems and allowing for the establishment of colonial rule. Furthermore, these centers served to reinforce justifications for expanding empires based upon humanitarian notions, as many correlated a greater number of medical research centers with improved treatment for colonizers and natives alike. Likewise, these establishments solidified the presence of the imperial power as they required more scientists and bureaucrats to migrate to the colonies for oversight and management, thereby advancing imperialism.

Other medically related developments included public works projects, like fresh water and sewage systems. Though these infrastructures appeared to be beneficial, colonizers often contributed less money to such projects than was initially allocated; this “extraction of wealth limit[ed] poorer countries’ abilities to construct effective health systems” (Waitzkin and Jasso-Aguilar, 2015). In essence, by developing medical infrastructures, including public works projects, colonial powers inhibited indigenous self-reliance, contributing to the notion that European presence in the Tropics was essential. The lack of medical developments similarly benefited imperialism, as it reinforced

European claims that native populations were in desperate need of assistance, strengthening imperialist notions based on “humanitarian” ideals.

ASSERTING EUROPEAN AUTHORITY

The second phase of medicine as a tool of empire pertains to its ability to assert European authority by eradicating the tradition and identity of colonized peoples and justifying segregation. Regarding the former, European-backed medical developments undermined traditional medical practices. Specifically, the extraction of wealth from colonies by European empires inhibited natives from advancing their own medical infrastructures, as they no longer had the financial means to do so (Macleod and Lewis, 1988, p. 117). Europeans in positions of authority also used civil and criminal laws (Tilley 743-6) to marginalize native medicine, as they had “little tolerance for...non-Western medicine whether Chinese, Ayurvedic, or African” (Marks, 1997, p. 214). For instance, some systems of African healing involved witchcraft or sorcery in combination with herbal medicine (Luongo, 2011). As seen in the Wakamba Witch Trials of the 1930s, European administrators launched a massive wave of pushback against these traditional systems in favor of more “legitimate” Western medicine.

In most cases, a system of medical pluralism existed, in which indigenous systems were not entirely eradicated. However, having multiple medical systems, in which that of the Europeans could significantly outperform that of the natives, bolstered claims of European superiority and the necessity of their presence. Some of these claims can be disproven, too, as many colonizers relied on local medical practices to shield themselves from disease. Such was the case in India, where men of the British East India Company who “built airy bungalows with good ventilation and who ate the local cuisine were far more likely to survive than those who transplanted their English customs” (Luscombe, n.d.). This further undermines European humanitarian justifications, as in many cases it was the natives who improved the colonists’ quality of life rather than vice versa.

Moreover, most resources and research went

towards colonial medicine to either find treatments for disease affecting colonists or establish medical infrastructures that would replace any pre-existing establishments in colonial areas. In fact, Europeans dedicated the largest proportion of their efforts towards addressing dangers to human health or obstacles to economic productivity; as such, infectious diseases “received disproportionate attention,” while other vital concerns of native populations remained unaddressed (Tilley, 2016, p. 747). In addition to European-introduced diseases, concerns for indigenous peoples included the environmental and economic ramifications of colonial rule, labor conditions, and ethnic rivalries—issues that continue to plague many formerly colonized regions in present-day.

Arnold suggests that all medicine is colonial because traditions and cultural practices are being overrun by a Western-backed medical regulatory structure, which inherently favors imperialist tendencies (9-10). The use of Western-backed medicine to civilize colonized peoples in many ways also undermined and eradicated their identity. In the early 1800s, the Brazilian elite replicated European medical ideas and practices to prove they were civilized. In response, a group of doctors, known as “Tropicalistas,” in the late nineteenth century emerged in opposition to such emulation to develop “a distinctive medicine of the tropics” (Marks, 1997, p. 212). The fact that countermovements emerged to reject Western medical infrastructures and assert a colonial identity demonstrates the extent to which European practices undermined indigenous identities. Oftentimes, medical projects received “a significant portion of development funds earmarked for social welfare, and medical personnel made up the majority of employees in the technical services of each colonial state” (Luscombe, n.d.). The association between medicine and social welfare underscores the importance of medicine in colonial establishments and thus as a tool of empire.

Furthermore, the distinction between tropical, colonial, and imperial medicine must be addressed because the very existence of these separate terms is evidence that medicine was indeed a facilitator of imperialism. Tropical medicine refers to a scientific

discipline specifically established to tackle diseases prevalent in hot climates, otherwise known as the Tropics, which were invented by imperial powers as previously mentioned (McCleery, 2015). Therefore, an entire field of science was created due to imperialism, emphasizing the integral role of medicine in this construct. Colonial medicine, on the other hand, has been seen as a tool of empire to enable settlement in the colonies (McCleery, 2015, p. 152). In contrast to colonial medicine, imperial medicine refers to the health infrastructures, such as public works projects, research centers, and schools of medicine, established by imperial powers after they have imposed their authority in colonial lands. These infrastructures then cement foreign power by advancing Western technologies at the expense of traditional practices, demonstrating how tropical, colonial, and imperial medicine coincide to entrench Western power.

Medicine was also used by missionaries to impose Christianity on native peoples or, at the very least, direct colonized populations away from their traditions. At nearly every colonial post, one would also find a church, school, and hospital; later, imperial powers added nurse training schools and theological colleges. Therefore, indigenous peoples who sought medical education would not only learn Western methodologies but also inevitably encounter religious discussion, often facing forced conversion. In India specifically, missionaries, not scientists, were the ones that identified and emphasized the correlation between outbreaks of cholera and Hindu pilgrimages. While the medical explanation for this is that cholera is highly contagious, thereby spreading quickly in densely populated areas, missionaries criticized religious sites, like the city of Puri. The effects of such mindsets and values continued into the late twentieth century, with medical roadblocks en route to Puri forcibly vaccinating passersby and medical patrols spraying toxic disinfectants in Puri's public water transport infrastructures (Apffel-Marglin, 1996, p. 438). The fact that policies from the age of the British Raj can be directly traced to the modern era underscore the extent to which Western-backed medical developments eradicated indigenous values

while asserting European authority.

Beyond eradicating the identity of colonized peoples, medicine was able to justify segregation and thus benefit imperialism. Diseases like malaria and yellow fever reinforced the notion that Blacks were "racially immune to both diseases and could be used as slave or cheap labor in areas unhealthy to whites" (Watts, 1999, p. 175). One reviewer even called yellow fever "a godsend" because it showed that Blacks were a "biologically different and servile race" (Watts, 1999, p. 185-7). Therefore, not only their susceptibility but also their immunity to disease made indigenous peoples vulnerable to imperialism and subjugation. The fact that European powers manipulated objective data on disease susceptibility to reinforce their power further demonstrates the misuse of medicine in justifying hegemonic pursuits in colonial territories.

CONCLUSION

Medicine not only played one of the most significant roles in facilitating European imperialism but also reinforced many of the other causes of the Age of Imperialism. European powers could not strengthen their economies and establish military bases if they could not step foot in the tropics without dying, explaining why they coordinated efforts for vaccines and other medical infrastructures. At the same time, medicine was at the forefront of humanitarian and religious ideals, which served as the primary justifications for imperialist behavior. Moreover, the most significant technological developments were those relating to medicine, as seen with the establishment of distinct fields of tropical, colonial, and imperial medicine. Medicine allowed colonists to set foot in developing regions and then assert their power and authority, fueling the institution of imperialism itself.

Increased presence of rival European powers fostered competition and strong nationalism, as each nation competed for more colonies which offered greater access to raw materials, markets, and ports. Native populations that did not die because of intentionally or inadvertently introduced diseases either died of intensive labor and medical malpractice or lost their cultural and

traditional identities to European domination and subjugation. Imperialism had far-reaching effects, as it not only was one of the main causes of World War I but also weakened native communities, thereby impacting their self-reliance after gaining independence throughout the twentieth century. Specifically, modern-day health disparities between developed and developing countries can be directly attributed to imperialism. Such divides have severe ramifications for the ability of formerly colonized nations to address health crises and epidemics, as their dependence on Western aid reinforces centuries-old power imbalances and prejudices. While these instances are specific to public health, similar patterns can be traced across many sectors of society and global politics—all of which have encouraged and entrenched the present age of neocolonialism.

CONFLICTS OF INTEREST

The author has not disclosed any conflicts of interest.

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About The Author

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Unlike many students, Brina's passion for research is not focused on a certain topic or even area of study. Rather, she loves the process of asking questions and designing ways to answer those questions. Entering high school, Brina was interested only in the biomedical sciences, with a particular affinity for microbiology and immunology. However, she soon — rather inadvertently — got involved in history competitions, which opened her eyes to the ways in which science and medicine connected with so many other fields, ranging from history to literature to economics. This realization motivated Brina to double major in medicine, health, and society and neuroscience at Vanderbilt and has allowed her to get the “best of both worlds” regarding her dual passions for STEM and the humanities. She then recognized, however, that being involved in both fields was not enough; she sought a way to immerse

herself in their intersection.

Reflecting on personal experience, Brina found that her own family's history is closely associated with the legacies of imperialism: her maternal great-grandfather was a stowaway on a ship from India to Tanzania, where he lived alongside German colonizers. Similarly, her mother was born in Tanzania and her father in South Africa during British occupation of both nations. In turn, Brina decided to combine her interest in medicine with this broader familial connection to imperialism, giving rise to her investigation into the extent to which medicine was an enabling factor of imperialism during the late nineteenth and early twentieth centuries.