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### **A Climate of Competition: Climate Change as Political Economy in Speculative Fiction, 1889-1915**

The contemporary economic rhetoric of climate change, particularly anthropogenic climate change, comes down to us from the first major locus of climate change in late nineteenth- and early twentieth-century fiction.<sup>1</sup> These early accounts of (fictional) climate change position climate policy as merely another arena by which economic competition among nations is conducted. The role of economics in climate-change fiction has been contentious, simultaneously providing an easy villain even as much climate fiction remains dependent on “capitalist visions of social progress” (Irr), and recent scholarship has worked to explore the idea of economics and its entanglements with climate fiction.<sup>2</sup> Yet because of quantity or urgency, the emphasis of climate-fiction scholars has been very much on the present moment. Adam Trexler’s germinal *Anthropocene Fictions* (2015) suggests that the “archive” of climate-change fiction dates back to the mid-twentieth century (8), yet historian of science James Rodger Fleming, in *Fixing the Sky* (2012), has found a number of geoengineering narratives published in the late nineteenth century.<sup>3</sup> It is from this archive, along with other examples of climate fiction from the same period that I draw my texts for this essay. Although Nico Stehr et al. suggested in 1995 that nineteenth-century debates about climate change could be relevant to our own moment, it is only recently that literary scholars have turned their attention to nineteenth-century climate change, and then usually to assess the impact of actual changes in the climate of this period on literature rather than on fictional accounts of a changing climate.<sup>4</sup> Although there is contestation over whether the Anthropocene was already underway in the late nineteenth century, the science of the period could not yet have measured the global effects of humanity’s impact on the climate, and so discussions of global climate change in this period were almost exclusively the domain of science fiction. Writers of the period were disinclined to believe that humanity could inadvertently change the global climate, but readily envisioned scenarios in which the climate was changed deliberately thanks to some new scientific or technological breakthrough. A handful of utopian texts notwithstanding, these projects tended to be profit-making schemes. Just as Fredric Jameson observed in “Future City” that “it is easier to imagine the end of the world than to imagine the end of capitalism,” so too has modern climate fiction demonstrated greater readiness to envision climatic apocalypse than scenarios in which climate change is detached from market economics (Irr)—a critique applicable even to climate fiction in the late nineteenth and early twentieth centuries. In the climate fiction of this era, climate becomes monetized, treated as both an industrial

resource and a consumer good; the application of market economics to climate turns it into a domain and tool of competition among nation-states and corporations (often themselves *de facto* state agents). In later examples of this genre, attempts to monopolize climate leads to escalating competition that in turn leads to outright warfare over, and using, climate.

Visions of an industrially altered Earth appeared as early as William Blake's prophetic poems (such as *Milton* [1810]), and John Ruskin warned of observable physical differences in the quality of the sky because of human pollution in *The Storm-Cloud of the Nineteenth-Century* (1884). Yet such beliefs ran counter to the prevailing attitudes of the period, which held that the atmosphere was "a great ocean" (in the words of a contemporary meteorologist) and the amount of pollution emitted by the industrial smokestacks could not possibly affect such a great volume (qtd. in Mosley 25). While such attitudes had their foes at the local level, the idea of *global* climate change as a result of human activity was essentially confined to science fiction. Even then, the majority of such narratives dealt with deliberate rather than inadvertent changes to climate. This is a testament to the skepticism that everyday human activity could affect global climate, an idea that would require both an imaginative leap and deeper scientific understanding of the interrelationships of global ecosystems. The emphasis on deliberate climate change is also a testament to the utopian aspirations of the period, whatever their politics: climate becomes a tool both for providing the physical, material basis for utopia (tailoring the planet to be both fruitful and beautiful) and for modifying or at least controlling human nature to enable a more peaceable society.

One of the earliest pieces of climate fiction, Russian author Feddei Bulgarin's *Plausible Fantasies* (1824), demonstrates the belief that climate change could be localized and controlled. In this fantasy, a high-utopian Russian Empire of the twenty-ninth century succeeds in warming its Arctic coastline, so that the once-frozen region becomes a seaside paradise—with no apparent consequences for the rest of world from the increased heat or ice-melt. Even at the end of the nineteenth century, deliberate and localized modifications of specific ecozones remained a feature of utopian narratives such as Byron Brooks's *Earth Revisited* (1893) and Lysander Salmon Richards's *Breaking Up* (1896), both of which envisioned the Sahara transformed into arable land through climatic manipulation. It was a natural disaster—the eruption of Krakatau in 1883, and the subsequent global spread of its ash cloud throughout the atmosphere—that suggested to contemporary scientists and artists that global climate was not localized but unified, and that it could be changed by a sufficiently dramatic event.<sup>5</sup> The magnitude of the eruption required to make a relatively slight and transitory change to the global climate, however, also conveyed an incorrect lesson: that anthropogenic global climate change required an equally dramatic intervention into planetary systems, rather than the passive accumulation of daily emissions pollution over time. In other words, this was an intervention that could only be accomplished as a result of deliberate action and technology that only existed in sf stories,

rather than the smokestacks and chimneys long since a familiar feature of the urban skyline.

Fleming uses the term “geoengineering ... define[d] as the intentional large-scale manipulation of the global environment” (2) to characterize the fiction of deliberate climate change around the turn of the twentieth century in France, Britain, and America. As a historian rather than a literary scholar, Fleming’s description of these works mainly summarizes their plots. Collectively, however, he identifies this nascent literary trend fascinated with deliberate climate change as a “Baconian program involving fantasies of control” that “usually emphasizes words such as ‘mastery’ or ‘domination,’” irrespective of whether these schemes are presented as testaments to human ingenuity or mocked as examples of over-reaching folly (26). These rhapsodies of control stem directly from the contemporary belief that the increasing pace of scientific discovery would soon yield a unified theory of the world in which no aspect of nature was uncategorized (Coen 33). By the same token, therefore, it was only a matter of time before human science would be able to manipulate all aspects of nature. While I agree that control is certainly wish-fulfillment and functions as a prerequisite for the plots of these scientific romances, I believe control is merely the first stage—the premise or tools—of the ideological work being performed by these geoengineering narratives. The next stage—the motivations and goals of such schemes—lies in *competition*. This is first and foremost competition in the economic sense, but also competition among rival nations: the competitive advantage furnished by control over climate translates into political dominance on the world stage, sometimes backed up by the use of climate control for military purposes. Fleming perceives this pattern inasmuch as his descriptions of the texts highlight the profit-making schemes or direct application of climate control as political power in these narratives, but he does not explicitly identify, synthesize, or theorize this pattern, which I will do here by broadening the archive to take account of pulp novels and short stories that Fleming does not include in his survey.<sup>6</sup>

Writers of the period well understood how climate patterns enabled the economic strength of nations, and their speculative fiction examined how shifts in climate could alter this power. This was of especial concern to British writers such as Henry Crocker Marriott Watson (in *The Decline and Fall of the British Empire; or, The Witches’ Cavern* [1890]) and Louis P. Gratacap (in *The Evacuation of England: The Twist in the Gulf Stream* [1908]), because Britons had long held that their climate was providential, perfectly balanced between ease and hardship to form the striving British character (Coen 32). Both novels take as their premise a radical alteration to English climate as a result of what was the preeminent geoengineering project of the late nineteenth century, the construction of the Panama Canal. The joining of the two oceans shifts the path of the Gulf Stream away from the British Isles and toward America. In neither case was this an intentional effect of the geoengineering project, and so these novels feature inadvertent rather than deliberate anthropogenic climate change; but the cause of the project (and therefore its

consequences) is commercial and competitive. The opening pages of Gratacap's novel lay out the economic case for the Canal, aimed at restoring "the mercantile integrity" of the United States against "competing" and "rival" nations in the developing world (7-8), similar to the commercial impetus that historically motivated American funding for the Panama Canal. The American government stands ready to profit from disaster when the construction leads to the seismic collapse of the isthmus, described as a "triumph of Opportunity" by a caricatured President Roosevelt (121). Meanwhile, the Gulf Stream's abandonment of the Atlantic is "an ominous portent for the leading nations of the world"—meaning the established powers of Europe (121). Roosevelt, contemplating the end of "the glory of England," cannot decide whether the greater tragedy is being "robbed of a friend" or having "lost a market," but he is comforted by the "compensating" benefits that will accrue to America due to this very literal geopolitical shift (123). Not only does climate change undermine the English power base in their providential islands, but also it modifies the very character of the English people, altering the ephemeral environmental qualities that supposedly made them natural rulers of the world. The future Englishmen that Watson's narrator encounters are a "rude" and "insular people, with very strong prejudices" (47, 56), out of step with the rest of the world socially and technologically because of the paucity of resources and constant struggle for existence in this colder England. Watson's mouthpiece, Professor Fowler, also blames the titular decline of the British Empire on irreligion, socialism, and feminism; he links the growth of these social movements to a decline in "true character" occurring in tandem with changing climate, as "All who loved freedom fled away, and founded new empires of the British blood in Canada, Africa, Australia." The growth of these competitor nations comes as "England ... ceased to be a nation among the nations of the earth" (76).<sup>7</sup> Both books represent good climate as something that can be possessed (with the Gulf Stream as an object of ownership), and as a zero-sum equation: any gain in climate by North American nations is offset by a loss of climate and its attendant benefits on the part of England and Europe. The dire consequences of this loss positions climate as tremendously valuable and therefore—as further narratives will demonstrate—worth fighting over.

The valuation (and indeed monetization) of climate is showcased in those narratives where anthropogenic climate change is not the inadvertent effect of capitalistic ventures but the very goal of such enterprises. This is amply demonstrated in one of the earliest examples, Jules Verne's *Sans Dessus Dessous* [Topsy-Turvy or The Purchase of the North Pole, 1889]. As with many other geoengineering tales, it opens by examining the economic considerations such a project entails, as characters must secure financing for the technology and logistics of the project. This is something that much of later sf overlooks in favor of assuming that the infrastructure for their novum already exists. The initial heavy emphasis on finance signals that these narratives view deliberate climate change as a business venture that characters hope will provide a return on an investment of capital. Verne intended for

*Sans Dessus Dessous* to be read as a satire of grandiose capitalist schemes, and so he devotes a disproportionate amount of time—the first several chapters of the book—to the legality of selling the unclaimed Arctic territories, the auction itself, and then the investment drive on behalf of the protagonists, all while characters maintain a tone of high drama undercut by the bemused narrator. The purchasers of the Arctic are revealed to be the Baltimore Gun Club, the protagonists of Verne's earlier *De la Terre à la Lune* [From the Earth to the Moon, 1865], whose erstwhile heroism as space-flight pioneers becomes ridiculous when they apply the same grandiosity and self-congratulatory genius to a money-making scheme whose scale approaches the absurd. The competitive nature of the enterprise is apparent in Verne's choice to open with the antagonistic process of an auction, in which European nations oppose America's purchase of the Pole (by the proxy of an American company) but fail because they cannot overcome the perception of each other as competitors for this territory and thus cannot pool their capital. Competition, in other words, benefits only the most competitive.

In *Sans Dessus Dessous*, the protagonists purchase the North Pole because of suspected coal reserves. Barbicane, president of the corporation, emphasizes that this fossil fuel is not only the "source" of all modern industry but also one which "s'épuisera" [will run out] within a few centuries at most because of its "consommation à outrance" [extreme consumption] (59). Verne presciently links global climate change to the perpetual quest for industrial growth based on fossil fuels that are ever more difficult to obtain and to an anticipated energy crisis. To access the coal reserves under the Arctic ice, Barbicane seeks to correct the tilt of the planet's axis of rotation; this will bring the current Arctic territories further south, where the heat of sunlight will melt the icepack for them. Unfortunately, it would also trigger massive tidal waves and reshape the very surface of the world, with the result that many populations and nations would be wiped out, signaling the utter disregard of industry for the consequences of its actions on the welfare of innocent bystanders. Wealthy nations, in turn, appear willing to tolerate the disaster so long as it only affects indigenous and other non-western populations, but uncertainty over what kind of climate or topography their country would be left with generates stringent opposition. The redistribution of the oceans and continents is another zero-sum equation, and no country knows whether they stand to gain or lose from the scheme. Ultimately, a calculation error means that the Gun Club's plan fails. Yet had it succeeded, the axial tilt would also have eliminated the seasons and most variations in temperature, a prospect which the global public in Verne's novel initially hails. In addition to agricultural benefits and an anticipated reduction in extreme weather events, proponents believe that, post-climate change, "Chacun suivant son tempérament, pourra choisir le climat invariable qui conviendra" [Each, according to their temperament, will be able to choose the invariable climate that suits] their preferences (69). Ideologically, this means that people no longer simply *inhabit* climate, but that they become *consumers* of climate, and this is combined with a fantasy of universal mobility that

envisions no financial or national barriers to mass migration; to inhabit a particular climate becomes as simple as choosing options at a store.

Mark Twain's *The American Claimant* (1892) further reifies the idea of climate as a consumer good. Colonel Sellers has the "stupendous idea of reorganizing the climates of the earth ... to order, for cash or negotiable paper," looking to bring climate "under human and intelligent control" for the benefit of humanity—and Sellers's profit, of course, as "There are billions of money in this enterprise" (247-48). The science, involving sunspots, is deliberately absurd, but Sellers has the economic side of this scheme fully mapped out, including "supply[ing] a good business article of climate to the great empires at special rate, together with fancy brands for coronations, battles, and other" special events, "sell[ing] shop-rights to the minor countries at a reasonable figure," and even "taking the old climates in part payment ... at a fair discount" and renting them out "to poor and remote communities not able to afford a good climate" (247-48). Quality of climate correlates with financial resources and thus geopolitical puissance, which in turn reinforces the status quo of power relationships among the world's nations: as better climate enables economic might, powerful countries will surely buy the best weather, if only to keep it out of the hands of rivals. Sellers contemplates a global, state-based marketplace for climate in a manner curiously evocative of modern proposals to regulate climate change through an international system of emissions trading. Such cap-and-trade programs attempt to regulate emissions as though they could achieve a perfect balance between pollution and supposed offsets, creating an illusion of homeostasis between the competing interests of industry and environment. This approach exculpates big carbon producers even as it encourages the perception that limiting or balancing carbon emissions is a sufficient goal, even though simply maintaining current levels of emissions would still lead to consequential climate change. In this way, imagined climate marketplaces foreclose other potential solutions, such as the ability to imagine better climate for everyone, as in the case of Sellers's scheme, or to enact plans to reduce rather than simply offset the build-up of carbon in the atmosphere.

Here, climate is akin to a consumer good that can be circulated. Certain less desirable climates, Sellers believes, are "in condition to be repaired at small cost," as though they are pants to be hemmed (247). The concept of uncaptured natural resources being turned into commodities is the logical outgrowth of a century of simultaneous scientific and industrial development in which previously untouched aspects of nature became fuel for new businesses and previously overlooked natural resources, such as gas and electricity, became powerful sources of energy. Since business interests generally follow on scientific and technological developments, the late-nineteenth-century belief that human science would soon be able to manipulate all aspects of nature clearly leads to the capitalization of all aspects of nature, including climate, that could be collected or manipulated for the right price. Consequently, no aspect of the world would escape being subsumed under market ideology and its lionization of competition. Twain's novel revisits the

idea of Arctic geoengineering, but where Bulgarin's novel did so to utopian ends, here it instead illustrates the competitive nature of Sellers's venture: he intends to "buy Greenland and Iceland ... while they are cheap," then "move one of the tropics up there" in order to "have the entire Arctic Circle in the market as a summer resort next year," while "the surplusage of the old climate" will be used "to reduce the temperature of opposition resorts" and render the equator frigid to benefit his Arctic resort business (248). Sellers's very name signals Twain's satire of the overreaching salesman. At no point does Sellers stop to worry about the ethical implications of his scheme or the consequences of one man controlling the weather; since the scheme is doomed to failure, however, we are not meant to worry about these things.

The result is rather different—indeed, outright deadly—in many of the other climate-profiteering schemes of turn-of-the-century pulp fiction. John Mills's "The Aerial Brickfield" (1897) takes the idea of climate as consumer good even further: the inventor protagonist discovers a way of manufacturing bricks out of the atmosphere, allowing "millions of people to have a seaside atmosphere" or "air from the sunny south," without ever leaving their homes and physically moving to the climates in question (47-48). This process provokes global climate change, however, when the reduced volume of the atmosphere disrupts the hydrological cycle and causes constant rainfall that triggers floods and wipes out crops. Only by forcing his aerial bricks to evanesce back into the atmosphere does the protagonist prevent a scenario wherein all life on the planet would suffocate from insufficient oxygen. The environmental risks are comparable in George Griffith's "A Corner in Lightning" (1898), when a scheme to store and monetize the planet's natural electromagnetism disrupts climate (causing widespread drought, this time) and leeches the very vitality from metals and living beings. Like Sellers, the scientist-industrialists of these narratives anticipate that they will "make millions" from this new "source of income" because they are the first to come up with the idea of monetizing this part of nature and will therefore control the market (Mills 47)—forming, in effect, a monopoly. But these narratives also showcase the dangerous latency period between the overexploitation of natural resources and the appearance of climatic consequences, by which point the damage is potentially irreversible.

The concept of monopoly recurs frequently in the period's deliberate climate-change fiction as it represents the elimination of competition, which I would call the ultimate manifestation of Fleming's fantasies of control: the power to act unimpeded. The narratives' protagonists imagine that if they are the first to devise the technology and secure climatic resources, they will get ahead of and eliminate any potential competition. Such competitions include nation-states, as the corporation founded by Griffith's protagonist accrues so much wealth that it becomes a rival to, or surpasses, nation-states in the influence and power they wield. But while Mills's protagonist is presented as a legitimate entrepreneur whose flaw is not greed or self-interest but recklessness in the pursuit of such goals, Calvert, the industrialist at the heart of "A Corner in Lightning," is depicted as an unabashed villain by author

Griffith, an ardent socialist. Though Mills's protagonist never intends for the catastrophic consequences that arise from his invention, Calvert is perfectly willing to inflict a measure of suffering on the world to demonstrate his dominance. For Calvert, the drought and plague which he "had deliberately brought upon the world" are not merely side effects but desired outcomes that demonstrate his entire "control [of] the electricity of the world" and allow him to dictate "the terms on which [he] was prepared to permit the nations to enjoy this gift of Nature" (55). Said nations would be powerless to stop him given his stranglehold over the climate. (Indeed, no rival foils his scheme: his hoarding causes the electromagnetic banks to overload and explode, and so his greed dooms him.) The text warns against what Griffith sees as the logical outcome of capitalist ideology, should it be applied to climate and its resources: the extirpation of the planet's natural wealth in the service of industry, with disastrous consequences for the common environmental and human good, powerless before the dominance entailed by the concentration and control of this wealth.

The incorporation of climate into the market economy in these narratives does not go unopposed. While Verne, Twain, and Cook mock would-be geoengineers for their overreaching ambitions, and Watson, Gratacap, and Mills provide cautionary tales against human intervention into complex natural systems, contemporary foes of capitalism such as Griffith and George Allan England use narratives of deliberate climate change as examples of the excesses of market ideology. Griffith's *The Great Weather Syndicate* (1906) and England's *The Air Trust* (1915) are directly concerned with the competition over climate, featuring monopolists as villains whose absolute control over the planet's climate represents the greatest capitalist threat to individual and collective freedoms. England's foreword positions his novel as "the monopolistic principle [carried] to its logical conclusion," suggesting that the only reason capitalism has not yet brought "the ocean and the air itself" into the sphere of market economics is "merely because the task has hitherto proved impossible" (n.p.)—an impossibility resolved by the technological conceits of science fiction. England's unnuanced villains seek "a complete monopoly of the air, with an absolute suppression of all political rights" by extracting the oxygen from the atmosphere (n.p.). They are opposed by brave socialists who manage to kill the capitalist crooks as the first act of a global socialist uprising. England introduces climate into market economics to highlight the extreme perils of such an act—yet even an oppositional stance contributes to a rhetorical discourse in which air is given economic value, and in which characters must compete over climatic resources (even if one side is uninterested in its monetary value). Applying collectivist economics to natural resources is still a mode of economics, still an anthropocentric view of the natural world that prioritizes its use-value for humanity.

England's novel presents a straightforward conflict between economic systems with climate as the stakes, but Griffith's *Great Weather Syndicate* complicates its plot by presenting two competing would-be monopolists. Arkwright, the protagonist, anticipates that his climate-control technology will



allow him “to run the world’s weather and sell it out to the countries ... at our own price” (86). When a rival corporation seeks to tilt the planetary axis, Arkwright “knew he was at the beginning of a war for the economic control of the world” (17)—a telling description, inasmuch as climate, economics, and the planet itself all become equivalent to one another in this formulation. As Fleming observes, Arkwright becomes the hero of this conflict between monopolists only because he is willing to take criticism and eventually guidance from “female voice(s) of conscience,” including his romantic interest, Eirene (32). While Fleming does not state why it is important that these voices are female, I would suggest that Griffith is drawing on the traditional association between nature and femininity in positioning female characters as spokespeople for the environment. As Eirene also comes to the defense of the poor, her voice stands in for all peoples and entities communally marginalized by typical power dichotomies when wealthy white men such as Arkwright exert their dominance. Indeed, Eirene (now Arkwright’s wife) gets the last line in the book after the defeat of the competing syndicate, enabling its utopian ending as she purports to “show [Arkwright] how to manage the climates of the world” (312). She will instruct him in climate management as an exercise in *domestic* economy, a more collaborative mode of economics than the competitive domain of international finance.

Arkwright’s characterization of the conflict between the monopolist syndicates as a “war” is also apt, and points toward the increasing presence of violence in the competition over (and utilizing) climate. Narratives of deliberate anthropogenic climate change by England and Griffith, as well as Arthur Train and Robert Williams Wood’s *The Man Who Rocked the World* (1915), begin to look increasingly like thrillers and spy narratives. These espionage-focused subgenres were coalescing at around the same time, best remembered from the works of Kipling and Conrad but also strongly present in contemporary pulp fiction. The invasion-narrative genre was another major influence popular during the late Victorian and Edwardian periods, particularly the subset of invasion literature concerned with futuristic warfare. Stories by the likes of Griffith, William LeQueux, and H.G. Wells often featured military applications of new or speculative technologies such as airplanes and submersibles, and so the presence of climate-altering technologies deployed for military purposes was merely a lateral generic move. Due to the sheer economic power and destructive potential of deliberate climatic change, literature concerned with this concept morphs into narratives about a climatological Great Game, as rival nations and/or heroes and villains race to secure the technology and/or resources that will permit the possessor to achieve mastery over the world’s climate—and thus, over all nations and peoples as well.

There are hints of this potential for physical conflict throughout the earlier installments of the genre. Verne’s protagonists are all former Civil War artillerymen whose grandiose schemes are born from a hunger for conquest left over from their soldiering days. The method they employ to alter the global

climate is simply an oversized application of weapons technology, directed here not at human foes but at nature itself, as if it were yet another enemy to be dominated. Twain's Sellers briefly mentions the idea of climate purchased for "battles" (247). But two novels at the turn of the century—Charles Curtz Hahn's *The Wreck of the South Pole, or the Great Dissembler* (1899) and Fred M. White's *The White Battalions* (1900)—move from treating climate as source of and arena for competition to using climate itself as a weapon of war. *The White Battalions* offers another example of climate change based on disruptions to the Gulf Stream—only this time, the British government deliberately manufactures the disruption in order to plunge continental Europe into an artificial ice age. So crippled, the continent is then easily conquered by trained, winter-adapted British legions. *The White Battalions* provides one of the most direct examples of the dovetailing of invasion literature and climate fiction in the period; reversing the British fears of climate change and imperial decline, climate operates here in tandem with nationalistic aims, allowing Great Britain total victory against her continental competitors.

Climate change wielded for military ends becomes much more dangerous in the hands of a single individual who rapidly fulfills the role of climatological dictator anticipated by the figure of the capitalist climate monopolist. Hahn's *The Wreck of the South Pole* overlaps with the Lost Race novels popular at the time, as the protagonist discovers a Theosophy-inspired civilization near the South Pole whose vast mental powers allow it to manipulate the weather. Warfare between the titular Dissembler, the most powerful of these beings, and a group of revolutionaries challenging his authority takes the form of a "gigantic battle of the elements" (71). When local climatological warfare reaches a stalemate, the Dissembler enacts a more permanent form of climate change: by "jar[ring] the pole from its moorings" he unleashes a series of "tidal waves" that wipe out his political competitors, using geological violence in service of conservative ideology (72-73). Unfortunately, the confused Dissembler cares little for the global consequences of this shift, which is "climate ... change all over the world," with cold climes becoming warmer and warm climes becoming colder (72). This shift will be marked by a "gradual increase in number and intensity" of natural calamities including "cyclones and tornadoes and earthquakes" in a fashion that darkly evokes the acceleration of extreme weather events in the shadow of climate change (72). Here, deliberate climate change has escaped the control of the error-prone individual, signaling the limitations of human capacity—a collapse of the utopian fantasy of targeted climate change into the apocalyptic mode.

The later climatological dictators—Griffith's Arkwright and PAX, the *nom-de-guerre* of the titular *Man Who Rocked the Earth*—are more precise, and their characters remain more nuanced and dynamic. Arkwright can narrowly tailor his modifications to the climate, both to fulfill the utopian dream of converting so-called wastelands into arable farmland to end world hunger and to enforce global peace by wielding climate (particularly blizzards) against the military forces of the nation-states that oppose his growing global dominance. Arkwright claims that when one pits "weather against war ... weather will

win,” though of course Arkwright wields weather *for* war, despite his pacifist inclinations (308). Yet this enforced peace, along with his goal of eradicating famine and poverty, suggests that we are meant to read his ascension as a benevolent dictatorship, “a millennial reign of global peace and prosperity” as Fleming terms it (32). There is no mention of what will happen, in this political return to the absolute monarch, should Arkwright die or no longer be able to manage the global weather. Characters in *The Man Who Rocked the Earth* are more skeptical of the benevolent climate dictatorship of PAX, whose goal is also the imposition of pacifism on a world at war. PAX is likewise capable of pinpointing climate change (sending a blizzard against Washington DC, for instance), but threatens to shift the planetary axis and unleash disasters upon the world when belligerents disregard his imposed cease-fire. The novel highlights the foolishness of competition when an international gathering of scientists aimed at understanding PAX’s technology fails, sabotaged by the rival nation-states who all wish to acquire the man and his methods for themselves—eerily anticipating the failed and ineffective international gatherings of the last few decades, where modern nations have been unable to unite against the common threat of climate change as each nation maneuvers to assure its own interests. Although PAX’s technology literally blows up in his face (like many other monopolists surveyed here), he is inadvertently successful in bringing about “the abolition of war” (Train and Wood 226). This leads to the creation of a supranational legal regime guaranteeing absolute freedom of movement across the globe, so that any individual can move to the climate best suited to them—fulfilling the fantasy of universal climate mobility first envisioned in *Sans Dessus Dessous*.

Just as the self-interested tactics of competing nations recall those of modern-day climate-change deniers, so too do the outcomes of these books fulfill one of their fears: climate policy as a loss of individual and national freedom. It is a common refrain in denier literature that the goal of climate policy is a global tyranny of bureaucrats and scientists replacing individual choice with wholly regulated lifestyles.<sup>8</sup> Although debunkers of the denier movement such as James Hoggan caution us not to take these arguments in good faith, the idea that climate control would lead to dictatorship finds antecedents in the progress of climate fiction in the late nineteenth and early twentieth centuries. Whether climate policy is perceived to target their freedoms or their finances (and for many conservative thinkers these concepts are unitary), the denier movement is merely the latest instantiation of the economic conception of climate policy. In this view, climate policy is merely the ideological overlay of what is essentially a contest over control of resources and the regulation of industrial production.

The search for new natural resources to control and monetize first brought climate into the economic sphere in nineteenth-century fiction. It was the assumption of most of these texts that intense competition over the control of technology and resources would naturally follow because, even when dealing with so vast a concept as climate, capitalism cannot envision scenarios in which one’s gain is not simultaneously another’s loss. The characters of these

novels and short stories embody and naturalize this climate of competition in which the victor earns economic dominance over all rivals, potentially culminating in a monopoly of totalitarian power. That this competitive trend in early climate fiction gradually amounted to narratives of physical conflict and warfare is, to me, a fresh concern. Popular media representations of climate change have, for decades if not more, portrayed a world of changed climate as a world in conflict, particularly in more apocalyptic scenarios such as the *MAD MAX* film series (1979-2015). More recently, studies of global warming's impacts have emphasized the potential for increased global conflict due to resource scarcity and population displacements.<sup>9</sup> While these are meant to be warnings, calls to action to forestall the consequences envisaged, it is possible that these works are also inadvertently laying the ideological groundwork that would normalize a discourse of open conflict over climate change and shifting/dwindling resources, just as the economic discourse that surrounded some of the earliest sustained explorations of climate change in fiction set the stage for a conception of climate policy as a zero-sum competition between economic and national rivals rather than a cooperative venture.

#### NOTES

1. Sf authors at the turn of the century did envision scenarios of natural climate change, both sudden and gradual; for example, Richard Jefferies's *After London* (1885) and H.G. Wells's "The Star" (1897). Quantitatively, however, such narratives are outnumbered during this period by narratives of anthropogenic climate change.

2. See, for instance, Trexler's concept of "Eco-nomics" (170-72).

3. The geoengineering works that Fleming identifies are Jules Verne's *Sans Dessus Dessous* [Topsy-Turvy, or The Purchase of the North Pole, 1889], Mark Twain's *The American Claimant* (1892), Charles Curtz Hahn's *The Wreck of the South Pole, or the Great Dissembler* (1899), George Griffith's *The Great Weather Syndicate* (1906), William Wallace Cook's *The Eighth Wonder* (1907), Louis P. Gratacap's *The Evacuation of England: The Twist in the Gulf Stream* (1908), Arthur Train and Robert Williams Wood's *The Man Who Rocked the Earth* (1915), and George Allan England's *The Air Trust* (1915).

4. See Siobhan Carroll, Adeline Johns-Putra, and David Higgins for examples of scholarship in this area.

5. Scholars have recently advanced the idea of Krakatau as the first global media phenomenon (cf. Hamblyn 179, Winchester 6), and it enabled a globalizing scientific perspective as well, observable in the massive *Report* by the Royal Society of London's Krakatoa Committee (cf. Symons), in which the global travel of sound waves, oceanic displacement, and the ash cloud were all noted, suggesting an inherently interlinked global biome.

6. Ironically, the narratives that most closely hew to Fleming's view of geoengineering as a fantasy of control are the utopian narratives of Brooks and Richards, to which Fleming does not attend. In those texts, the emphasis is on what humanity can create for its own enjoyment rather than on the creation of tools to wield against others.

7. Watson's narrator and his companions are Australians, a variation on the popular nineteenth-century trope of a New Zealand tourist visiting the ruins of London.

This trope was initiated by Lord Macaulay in a piece for the *Edinburgh Review* in 1840 and is perhaps most famously illustrated by Gustave Doré in *London: A Pilgrimage* (1872). This trope spoke to fears that the focus of global political power, currently centered on England, would eventually shift to a rival nation (see Skilton for a full discussion).

8. Patrick J. Michaels' *Climate Coup* is a book-length advocacy of this idea, but totalitarian fears also make up part of the denier stance taken by Matthew Sinclair, Alan Moran, and many others.

9. See, for instance, the books by Gwynne Dyer and Harald Welzer, both entitled *Climate Wars*.

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#### ABSTRACT

This paper demonstrates how the first major locus of climate-change fiction in the late nineteenth and early twentieth centuries already integrates climate into an economic rhetoric that views climate policy as a zero-sum competition between rival nations. In speculative fiction of the period, climate change occurs principally as a result of large-scale human geoengineering projects aimed at transforming the world. Examples of this deliberate anthropogenic climate change include texts by Jules Verne, Mark Twain, and George Griffith. SF writers found ways to monetize as-yet-unincorporated aspects of nature such as climate as resources for the market economy; access to resources, in turn, became part of the economic and political balance of power between state entities. Plots to disrupt, control, and monopolize climate were conceptualized as grandiose capitalist schemes capable of unleashing significant collateral damage; yet many of these novels present geoengineering as laudable entrepreneurship operating out of legitimate economic self-interest. At the extreme, several stories outright weaponize the weather and convert climate change into military might, featuring the same kind of technological brinkmanship that defines an arms race. The economics of early climate-change fiction foreshadows, and potentially conditions us, to view climate as a resource worth fighting for.

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