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Biotic invasions: ecological imperialism in new wave science fiction

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ABSTRACTS

This essay examines a spate of SF novels and stories by Thomas M. Disch, J. G. Ballard, and others published during the 1960s and 70s that address imminent threats to human survival. Replacing 1950s-era tales of nuclear annihilation, these texts envisioned less immediate, but no less apocalyptic, scenarios involving the wholesale extinction of life on earth. The discussion attempts to place these works in the larger context of the growth of ecological science and the environmental movement, which inspired specific consciousness-raising efforts such as Disch's 1971 theme anthology *The Ruins of Earth*, and Susan Glicksohn's ecologically oriented fanzine from the 1970s, *Aspidistra*. The overall goal of the essay is to see how SF began to take a critical, species-wide view of the technological 'progress' that the genre had traditionally celebrated.

In an essay on H. G. Wells's *The War of the Worlds* (1898), Peter Fitting argues that tales of 'first contact' within science fiction tend to recapitulate 'the encounters of the European 'discovery' of the New World'. (1) They are thus, whether consciously or not, conquest narratives, though 'usually not characterized as [...] invasion[s]' because they are 'written from the point of view of the invaders', who prefer euphemisms such as 'exploration' to more aggressive or martial constructions of the encounter. (2) The accomplishment of Wells's novel, in Fitting's analysis, is to lay bare the power dynamics of this scenario by depicting a reversal of historical reality, with the imperial hub of late-Victorian London itself subjugated by 'superior creatures who share none the less some of the characteristics of Earth's "lower" species, a humiliation which is compounded by their apparent lack of interest in the humans as an intelligent species'. (3) The irony of this switch of roles is not lost on Wells's narrator, who compares the fate of his fellow Londoners to those of the Tasmanians and even the dodos, 'entirely swept out of existence in a war of extermination waged by European immigrants'. (4) Stephen Arata uses the term 'reverse colonization' to describe this sort of story in which the centre of empire is besieged by fantastic creatures from its margins; as Brian Aldiss puts it, 'Wells is saying, in effect, to his fellow English, "Look, this is how it feels to be a primitive tribe, and to have a Western nation arriving to civilize you with Maxim guns!"'. (5)

Taking this general argument one step further, John Rieder claims that all manner of disaster stories within SF 'might profitably be considered as the obverse of the celebratory narratives of exploration and discovery [...] that formed the Official Story of colonialism'. (6) The sense of helplessness--geographic, economic, military, and so on--reinforced by catastrophe scenarios lays bare the underlying anxieties of hegemonic power, its inherent contingency and vulnerability, notwithstanding the purported inevitability of Western 'progress'. Moreover, disaster stories, by inverting existing power relations and displacing them into fantastic or futuristic milieus, expose the workings of imperialist ideology, the expedient fantasies that underpin the colonial enterprise; for example, 'although the colonizer knows very well that colonized people are humans like himself, he acts as if they were parodic, grotesque imitations of humans instead', (7) who may conveniently be dispossessed of land, property, and even life. The catastrophe story brings this logic of dispossession home to roost, shattering the surface calm of imperial hegemony and thrusting the colonizers themselves into a sudden chaos of destruction and transformation such as they have typically visited upon others. Narratives of invasion in particular are 'heavily and consistently overdetermined by [their] reference to colonialism', allowing a potentially critical engagement with 'the ideology of progress and its concomitant constructions of agency and destiny', (8) that is, the triumphalist enshrinement of white Westerners at the apex of historical development and the demotion of all others to what anthropologist Eric Wolf calls a 'people without history'. (9)

Of course, to interpret most invasion stories of SF's pulp era as critical of Western progress requires reading against the grain, since their evident message is the fearlessness and ingenuity of Euro-American peoples when confronted by hostile forces. The magazine *Astounding Stories*, during its 1940s golden age, operated under a philosophy that Brian Stableford and David Pringle identify as 'human chauvinism', by the terms of which 'humanity was destined to get the better of any and all alien species'. (10) Editor John Campbell saw the extraterrestrial expansion of the human race not only as a logical extrapolation of the exploratory impulse of Western civilization, but also explicitly as an outlet for martial aggression; as he remarked in a letter to A. E. van Vogt, when 'other planets are opened to colonization [...] we'll have peace on earth--and war in heaven!'. (11) One of the few tales of successful 'foreign' invasion published during *Astounding's* heyday was Robert Heinlein's *Sixth Column* (1941), where the invaders are not aliens from space but a Pan-Asiatic horde that occupies the United States, only to be undermined and eventually defeated by an underground scientific elite masquerading as a popular religion; reverse colonization is thus foiled and the Westward trend of empire reaffirmed. *Sixth Column* is a forerunner of post-war tales of communist menace, such as Heinlein's own *The Puppet Masters* (1951), in which slug-like parasites seek to brainwash the US citizenry but ultimately prove no match for the native resourcefulness and righteous rage of humankind: 'they made the mistake of tangling with the toughest, meanest, deadliest, most unrelenting--and ables--form of life in this section of space, a critter that can be killed but can't be tamed'. (12)

The cinema of the 1950s was filled with similar scenarios of sinister alien infiltration and dogged human resistance; essentially, they allegorized the US struggle with global communism and usually ended with the defeat of the invaders. Yet close readings of these stories reveal a strong undercurrent of unease beneath the bland surface confidence in American values. For example, in *Invaders from Mars* (1953), as I have argued in a previous essay, 'the paranoia about alien invasion and takeover may merely serve to deflect

anxieties about how seamlessly militarist power has inscribed itself into the suburban American landscape'. (13) Similar disquiets can be perceived in films that depict literal communist attacks and occupations, such as *Invasion USA* (1952), which is, as Cyndy Hendershot has shown, as much about fears of US decadence and conformism as it is about Soviet perfidy. (14) In other words, even invasion stories that valorize human (that is, Western) cunning and bravery may be troubled by doubts regarding the susceptibility to external incursions, the lurking rot at the imperial core that permits such brazen raids from the periphery.

By contrast with American treatments of the theme, which were pugnacious in their refusal to succumb to invasion, post-war British disaster stories had a distinctly elegiac tone, a quality of wistful resignation in the face of imperial decline. As Roger Luckhurst points out, British tales of catastrophe had 'always addressed disenchantment with the imperialist "civilizing" mission', but 1950s versions, confronted with the ongoing collapse of the global empire, used the disaster plot as 'a laboratory reconceiving English selfhood in response to traumatic depredations'. (15) The popular novels of John Wyndham, such as *The Day of the Triffids* (1951) and *The Kraken Wakes* (1953), take refuge in pastoralist fantasy as Britain's cities are overrun by marauding invaders, the imperial hegemon shrinking to beleaguered individual (or small-communal) sanctuaries. Brian Aldiss has coined the term 'cosy catastrophe' to describe these sorts of plot, a category in which some have also placed the early fiction of John Christopher, although here, as Aldiss says, 'the catastrophe loses its cosiness and takes on an edge of terror'. (16) In Christopher's *The Death of Grass* (1956) and *The World in Winter* (1962) there is no refuge from the crisis because the environment itself has grown hostile, stricken by a virus that kills off crops or the advent of a new Ice Age. The absence of an alien menace in these novels vitiates the possibility of heroic resistance, replacing it with an ethos of brute survivalism, whose long-term prospects are desperate and unpromising. The sense of imperial comeuppance is particularly strong in *World in Winter*, where Britons displaced by glacial expansion flee to Nigeria, only to be rudely treated by their former colonial subjects.

Christopher's novels welded the traditional British disaster story with an emergent trend of eco-catastrophe that gained strength during the 1960s. The master of this new genre was J. G. Ballard, whose quartet of novels--*The Wind from Nowhere* (1960), *The Drowned World* (1962), *The Drought* (1964), and *The Crystal World* (1966)--variously scoured the earth, inundated it, desiccated it, and (most curiously and perversely) immured it in a jewel-like crust. Throughout these works the author appears fundamentally uninterested either in explaining the disasters (only *The Drought* posits a human cause: widespread pollution of the oceans) or in depicting valiant efforts to fend off their ravages. Instead, the protagonists struggle towards a private accommodation with the cataclysms, a psychic attunement to their radical reorderings of the environment; as Luckhurst argues, 'the transformation of landscape marks the termination of rationally motivated instrumental consciousness'. (17) In other words, the very mindset that produced imperial hegemony--the confidence in reason, disciplined deployment of technoscience, and posture of mastery--has eroded, replaced by a deracinated fatalism and an almost mystical embrace of its own antiquation.

For Fredric Jameson, Ballard's scenarios of 'world-dissolution' amount to little more than the exhausted 'imagination of a dying class--the cancelled future of a vanished colonial and imperial destiny [that] seeks to intoxicate itself with images of death'. (18) Yet, while it is difficult to argue that Ballard's novels express a conscious politics--aside from the ironized libidinal commitments of a surrealism tinged with Freud--his influence over what came to be known as SF's 'New Wave' helped foster an overtly anti-hegemonic strain of eco-disaster stories during the 1960s and early 1970s. The New Wave generally adopted an anti-technocratic bent that put it at odds with the technophilic optimism of Campbellian hard SF, openly questioning if not the core values of scientific inquiry, then the larger social processes to which they had been conjoined in the service of state and corporate power. (19) This critique of technocracy gradually aligned itself with other ideological programs seeking to reform or revolutionize social relations, such as feminism, ecological activism, and postcolonial struggles, adopting a counter-cultural militancy that rejected pulp SF's quasi-imperialist vision of white men conquering the stars in the name of Western progress. While Ballard might not have embraced this polemical thrust, his subversive disaster stories, with their stark irrationalism and pointed mockery of technoscientific ambitions, gave it a significant impetus as well as a potent model to follow.

Thomas M. Disch's 1965 novel *The Genocides* is definitely cast in the Ballardian mode, a positioning that drew the fire of critics opposed to the New Wave's ideological renovation of the field. Disch's novel, which depicts an earth transformed by faceless aliens into an agricultural colony in which humans are mere pests awaiting extermination, became something of a political hot potato within the genre. Responding to a laudatory review of the book by Judith Merrill, the most prominent advocate for the New Wave among American commentators, Algis Budrys attacked the novel as 'pretentious, inconsistent, and sophomoric', an insult to 'the school of science fiction which takes hope in science and in Man'. (20) Contrasting it with Heinlein's latest effort, *The Moon Is a Harsh Mistress* (1966), which depicts 'strong personalities doing things about their situation', its hero a 'practical man-of-all-work figure' who just keeps 'plugging away', Budrys complains about Disch's 'dumb, resigned victims' who simply wait passively to be destroyed. (21) Unlike the can-do heroism of Heinlein and his ilk, *The Genocides* is an 'inertial' SF novel, modelled on the disaster stories of Ballard, wherein 'characters who regard the physical universe as a mysterious and arbitrary place, and who would not dream of trying to understand its actual laws' putter about listlessly in a suicidal haze. (22) As David Hartwell comments, Budrys clearly could not imagine a successful work of SF in which scientific knowledge is not 'a priori adequate to solve whatever problem the plot poses'--even, in this case, when vastly superior alien technologies have seeded and irretrievably transformed the entire surface of the planet. (23)

In a curious aside, Budrys considers the possibility that Disch is rejecting the 'Engineers-Can-Do-Anything school' of pulp SF in favour of an older, more satirical and pessimistic tradition that extends back to H. G. Wells; and he goes on to forecast an imaginary critical-historical study championing Ballard for 'having singlehandedly returned the field to its main stem' following the pulp era's arguably naive optimism. (24) Budrys's projected title for this volume, *Cartography of Chaos*, seems precisely to acknowledge the entropic dissolution of the scientific modes of missionary imperialism accomplished by the New Wave disaster story, although Budrys does not really develop the point. Another review of the novel, by Brian Aldiss, made a more concerted effort to link Disch with a strain of visionary pessimism in the field. Decrying the 'facile optimism' of American pulp SF, with its fantasies of a prodigal nature effortlessly exploited by a sagacious 'scientocracy', Aldiss praises *The Genocides* for providing 'an unadulterated shot of pure bracing gloom'. (25) The effect, despite Disch's American provenance, is 'curiously English', portraying a 'dwindling community' confronting an 'unbeatable problem [...] as credible a menace as I ever came on'. (26) Aldiss never quite explains why this scenario should be viewed as particularly English, but he doubtless had in mind the Wyndham-Ballard school of post-imperial melancholy, here transplanted to the United States.

And, indeed, that is the signal accomplishment of Disch's novel: to extrapolate the end-of-empire thematics of the post-war disaster story to a specifically American context. Certainly, by the mid- to late 1960s, revisionist historians and left-wing political commentators such as William Appleman Williams, David Horowitz, Gabriel Kolko, and Harry Magdoff had begun to critique US foreign policy during the Cold War as explicitly imperialist, driven by economic and military imperatives designed to enrich and expand the powers of a

corporate elite. (27) While not suggesting that Disch was expressly aware of these thinkers, I do feel that his novel belongs within the general orbit of a New Wave critique of modern technocracy, scorning his country's nascent imperial aims with the same cold-eyed cynicism that Wells summoned to chasten his late-Victorian compatriots. Even more than Wells, Disch stresses the total indifference of the aliens to the monuments of human civilization, excrescent 'artifacts' they are capable of wiping away as casually as a farmer uproots weeds; as one character bitterly muses:

It wounded his pride to think that his race, his species was being defeated with such apparent ease. What was worse, what he could not endure was the suspicion that it all meant nothing, that the process of their annihilation was something quite mechanical: that mankind's destroyers were not, in other words, fighting a war but merely spraying the garden. (28)

Indeed, as this mundane metaphor suggests, Disch, in *The Genocides*, develops a powerful critique of what has subsequently come to be called by environmental historians and activists 'ecological imperialism'.

As the discipline of ecology was consolidated during the post-war period, and especially as the concept of ecosystem as a functional totality of life processes gained widespread currency, (29) evolutionary biologists began to study the implications of the introduction of foreign flora and fauna into existing environments. The classic study in the field is Charles S. Elton's *The Ecology of Invasions by Animals and Plants*, first published in 1958 and still in widespread use in biology classrooms. (30) Elton considers such significant 'biotic invasions' as the spread of the Japanese beetle throughout the Northern US and the incursion of sea lampreys into the Great Lakes region, theorizing their competition for resources with native species, their unsettlement of and integration into food chains, and the ramifying consequences of genetic mixing through subsequent generations. In order to convey the dramatic quality of these 'great historical convulsions', Elton occasionally has recourse to SF texts to furnish illuminating models or metaphors, from Professor Challenger's discovery of a 'lost world' of primordial life in Arthur Conan Doyle's 1912 novel to the uncontrollable dissemination of escaped laboratory animals in H. G. Wells's 1905 *The Food of the Gods*. (31) As the latter example suggests, the study of biotic invasions cannot ignore the important role of human agency; as Elton comments, 'One of the primary reasons for the spread and establishment of species has been quite simply the movement around the world by man of plants, especially those brought for crops or garden ornament or forestry'. (32) He even addresses the history of colonial expansion, in a chapter considering the impact on the ecosystems of remote islands of Captain Cook's voyages during the late eighteenth century. (33)

During the 1970s and 80s environmental historians began to extrapolate some of the insights of ecosystems theory to explain the consequences of major migrations of human populations. William McNeill's *Plagues and Peoples* (1976), which examines the role of disease in shaping historical encounters between cultures, meticulously shows, in a chapter entitled 'Transatlantic Exchanges', how the European conquest of the Americas was facilitated by the 'biological vulnerability' of Amerindian groups to foreign pathogens, especially smallpox. (34) Rather than attributing the success of New World colonization to superior technology and culture alone, works such as McNeill's--and William Cronon's *Changes in the Land* (1983), which examines the environmental impact of the introduction of European livestock and agricultural practices in colonial New England (35)--anatomized the role, intended and unintended, of biotic transfers in conferring an advantage in the competition between native peoples and foreign invaders. As Alfred Crosby summarizes in his landmark work of synthesis *Ecological Imperialism* (1986), 'the Europeans had to disassemble an existing ecosystem before they could have one that accorded with their needs', with the outcome at times resembling 'a toy that has been played with too roughly by a thoughtless colossus'. (36) In this new colonial history the influence of Christianity and gunpowder pales beside the proliferating synergy of microbes and weeds, deforestation and domestication. In Alan Taylor's words, 'the remaking of the Americas was a team effort by a set of interdependent species led and partially managed (but never fully controlled) by European people'. (37)

While Disch could certainly not have known this body of work when he wrote *The Genocides*, there is ample evidence that he was always deeply interested in ecological issues and in linking this concern with the developing New Wave critique of American technocracy. In 1971 Disch edited a major anthology of eco-catastrophe stories, *The Ruins of Earth* (1971), complaining in his introduction that 'too often science fiction has given its implicit moral sanction' to wholesale transformations in the environment without concern for the consequences. (38) This introduction, entitled 'On Saving the World', stands as one of the strongest statements of an ecological awareness within the New Wave assault on traditional SF:

The very form of the so-called 'hard-core' s-f saga, in which a single quasi-technological problem is presented and then solved, encourages [a] peculiar tunnel vision and singleness of focus that is the antithesis of an 'ecological' consciousness in which cause-and-effect would be regarded as a web rather than as a single-strand chain. The heroes of these earlier tales often behave in ways uncannily reminiscent of psychotics' case histories: personal relationships (as between the crew members of a spaceship) can be chillingly lacking in affect. These human robots inhabited landscapes that mirrored their own alienation. (39)

SF, in short, had for too long been an uncritical cheerleader for the social engineering of nature emanating from a narrow technocratic mindset, and was only now beginning to shake free of this imperialistic delusion. Disch went on to celebrate the early novels of Ballard, especially *The Drought*, as prophetic visions of how a violated nature might take revenge on its heedless exploiters. Budrys was thus correct to infer in *The Genocides* a viewpoint inimical to 'the school of science fiction which takes hope in science and in Man'--though instead of 'hope', Disch would have said 'the faith, usually unquestioning, in a future in which Technology provides, unstintingly and without visible difficulty, for man's needs'. (40)

The Genocides is set in 1979, seven years after shadowy aliens have converted the planet into an agricultural preserve devoted to growing 600-foot trees with leaves 'the size of billboards'. (41) Pushing up through concrete, shouldering aside buildings, and growing at an incredible rate, the trees have destroyed the earth's cities and thoroughly colonized its rural areas. The story focuses on a group of farmers, located in northern Minnesota, who free up arable land by bleeding sap from the alien plants, which eventually kills them and thus conserves a tiny clearing amidst the planet-wide canopy. In this clearing they maintain a plot of corn, which in turn supports a small livestock population. Unfortunately, the aliens--'bored agribusinessmen', as Hartwell calls them, whose cultivation processes are entirely automated (42)--have finally taken notice of these human remnants, sending out flame-throwing drones 'adequate for the extermination of such mammalian life as they are likely to encounter', as one of their inter-office memos blandly puts it (p. 49; italics in original). The drones incinerate the farm community, sending a handful of desperate survivors into the trees' hollow root system, where they subsist on the sugary fruit of the plants that grows underground. Murderous squabbles thin their ranks, which are further diminished by the arrival of mechanical harvesters that vacuum up the mature fruit. At the end, six ragged human scarecrows stagger across the scoured landscape, which has been burned clean by the harvesters, as the spores of 'the second planting' begin to take root (p. 206).

Hartwell's reference to agribusiness is quite appropriate, since at one level the novel is a powerful critique of technoscientific methods for accelerating and amplifying natural processes of cultivation. This mechanized agriculture amounts to the systematic 'rape of a planet' (p. 206), which has far-reaching consequences. A hybrid crop designed in alien labs, the trees are brilliantly efficient machines of growth, but their burgeoning comes at the expense of the overall ecology. Since they do not shed their leaves, no compost accumulates, so the topsoil rapidly withers to dust. Their greedy consumption of carbon dioxide is quickly cooling the planet, making the winters brutally severe. And their monopolization of resources has systematically killed off higher species: the 'balance of nature had been so thoroughly upset that even animals one would not think threatened had joined the ever-mounting ranks of the extinct' (p. 26). An offhand allusion indicates the novel's critical perspective: as winter recedes and no birds emerge to herald the new season, the narrator grimly comments, 'it was a silent spring' (p. 169), thus referencing Rachel Carson's classic 1962 critique of the deadly effects of agribusiness methods on the environment. (43) Unfortunately, human beings do not have the luxury of being absentee landlords of the planet, as Disch's aliens are, and so must suffer the long-term consequences of their ecological tinkering directly.

Disch's title, *The Genocides*, thus refers on one level to humanity's imminent self-extinction through ecological mismanagement, a snuffing out the narrator comments on at the end with Wellsian detachment:

Nature is prodigal. Of a hundred seedlings only one or two would survive; of a hundred species, only one or two.

Not, however, man. (p. 208)

On another level, the novel allegorizes the biotic invasion of the New World, which resulted in the wholesale destruction of native cultures and ways of life. Like the Europeans in America, the aliens reconfigure the existing ecosystem to satisfy their own needs, at first ignoring the original inhabitants and then, when their methods of cultivation come into competition, brutally eliminating them. Yet, as in the histories of ecological imperialism described above, the most effective genocidal technique by far is the environmental transformation wrought by the invaders, which literally makes indigenous modes of agriculture impossible. As William Cronon points out, 'European perceptions of what constituted a proper use of the environment [...] reinforced what became a European ideology of conquest': whereas Amerindians generally favoured mobile settlements and subsistence agriculture supplemented by hunting, the colonists preferred fixed habitats, organized animal husbandry, and surplus crop production for purposes of trade. (44) The latter system required widespread deforestation, which killed off deer populations on which the natives were dependent, and the cultivation of large tracts of land, now conceived as permanent property rather than an open bounty. Disch's novel shows the consequences of such an arrangement from the Amerindian perspective, as the humans are confronted by literally alien biota maintained by superior technology and policed by ruthless violence.

Disch's jaundiced view of European supremacy in the New World is underlined by the most viciously satirical scene in the book, a Thanksgiving Day celebration. Following the incineration of their cattle by the alien machines, the community has lost its main source of protein. To promote harmony among a population grown restive and contentious, the governing patriarch decides to proceed with the occasion, serving up sausages prepared from the bodies of a group of urban marauders the community has recently slain. 'Necessity might have been some justification. There was ample precedent (the Donner party, the wreck of the *Medusa*)' (p. 78). But the patriarch's goal in enforcing this communal cannibalism is more sinister and jingoistic: to unite the group in a 'complex bond', a 'sacrament' that transmutes the squalid act into patriotic solidarity (p. 78). And so the others sit there, chewing desultorily, bickering with one another, and growing drunk on liquor fermented from the sap of the alien trees. As their resident scientist dryly comments, 'Survival is a matter of ecology. [...] Ecology is the way the different plants and animals live together. That is to say--who eats whom' (p. 79). This pathetic remnant of European colonization, enjoying a hallowed holiday feast that sentimentally commemorates its triumph, is reduced to feeding on their erstwhile countrymen in order to survive. Reinforcing this sarcastic portrait of collapsed American hegemony, Disch dates the aliens' extermination order 4 July 1979, with the projected completion of the project 2 February 1980--Groundhog Day, now the harbinger of an eternal winter for the human race (p. 11; my emphasis). Watching Duluth go up in flames kindled by the alien drones, one of the characters waves and snickers, 'goodbye, Western Civilization' (p. 51).

While ecological extrapolation was not new to SF in 1965--indeed, Frank Herbert's *Dune*, serialized in *Analog* magazine during 1963-64, probably did more than any other single book to bring ecological awareness into the centre of the genre--Disch's *The Genocides* gave the topic a sharp polemical edge through its arraignment of traditional SF's complaisant scientism. Technoscientific development, in the novel, is not a cure-all for the problems posed, but is itself the problem: the faceless alien technocrats, armed with a battery of sophisticated machines, show a casual contempt not only for natural balance but for human life itself. The besieged community Disch portrays has as much chance against this monolithic apparatus as Third World farmers have against Western agribusiness enterprises; their small-scale agrarian revolt, pitched against the environmental monopoly of the trees, fails as miserably as, say, the Guatemalan revolution against the United Fruit Company in the 1950s. Disch's novel points the way towards more politicized engagements with ecological issues in SF, such as John Brunner's *Stand on Zanzibar* (1968) and *The Sheep Look Up* (1972); as Michael Stern observes of the latter novel, 'the relation of the US to the rest of the earth's societies [...] takes the form of a total but undeclared ecological war' (45)--an invasion less of Western biota than of industrial pollution, resource extraction, and neocolonial 'development' projects. During the early 1970s, the genre witnessed not only a handful of theme anthologies devoted to these issues--including, alongside Disch's *Ruins of Earth*, Rob Sauer's *Voyages: Scenarios for a Ship Called Earth* (1971), and Roger Elwood and Virginia Kidd's *Saving Worlds* (1973)--but even fanzines with an environmentalist agenda, such as Susan Glicksohn's short-lived *Aspidistra*. In the balance of this essay, though, I shall focus on a second major New Wave text that specifically treats ecological imperialism in the terms outlined above: Ursula K. Le Guin's short novel *The Word for World is Forest* (1972). (46)

In many ways Le Guin's novel reads like an inversion of *The Genocides*: rather than the victims of biotic invasion, earth people are the invaders; and rather than seeding a host of trees, they lay waste to a vast forest on the planet *Athshe*. Le Guin quite calculatedly draws parallels between the exploration of space and the history of Western colonialism: despite the existence of 'Ecological Protocols' governing interaction with alien biospheres, largely designed to keep other worlds from being reduced to the 'desert of cement' bereft of animal life that the Earth itself has become, (47) the colonists on *Athshe* behave exactly like classic imperialists, renaming the planet 'New Tahiti', conscripting its humanoid population into forced labour camps, and systematically extracting its riches, especially lumber. The tale's main villain, Captain Davidson, captures the mindset perfectly: contemptuous of the natives as lazy 'creechies', yet lusting after their women, eager to command the landscape as proof of his manhood and cultural superiority, he can see in the endless vistas of trees only a 'meaningless' expanse of wasted resources, rather than the richly meaningful cultural world it is for the native inhabitants. He has nothing but scorn for the 'bleeding-heart' attitudes of the expedition's token ecologist and anthropologist, viewing the situation in basically military terms: 'you've got to play on the winning side or else you lose. And it's Man that wins, every time. The old Conquistador'. (48) Whereas in Disch the motives of the alien invaders remain obscure, Le Guin provides, in Davidson, a scathing portrait of overweening racist machismo as the root impulse supporting projects of imperial

domination. While the effect is perhaps to overly psychologize the colonial relationship, de-emphasizing crucial political-economic imperatives, her treatment does infuse a strong ecofeminist consciousness into the traditional invasion scenario. (49)

Still, the tale did have an essentially political origin; Le Guin has indicated that the military-ecological rape of Vietnam by US forces is what impelled her writing:

it was becoming clear that the ethic which approved the defoliation of forests and the murder of noncombatants in the name of 'peace' was only a corollary of the ethic which permits the despoliation of natural resources for private profit or the GNP, and the murder of the creatures of the Earth in the name of 'man.' (50)

Thus we see Davidson and his renegade band decimating creechie villages in classic counter-insurgency fashion, 'dropping firejelly cans and watch[ing] them run around and burn', (51) while the Athsheans adopt guerilla tactics as the only effective resistance. These blatant historical connections have led to complaints by some critics that the story is overly tendentious and moralizing. (52) Yet, as Ian Watson points out, the plot is broadly allegorical and can symbolize any number of instances of ecological imperialism, including 'the genocide of the Guyaki Indians of Paraguay, or the genocide and deforestation along the Trans-Amazon Highway in Brazil, or even the general destruction of rain-forest habitats from Indonesia to Costa Rica'. (53) William Cronon has shown how deforestation was a major factor in the reconfiguration of New World biota by European colonists: an ecological habitat to which the natives had adapted themselves was systematically culled to serve a new 'mosaic' of settlement; and, like Captain Davidson and his comrades, the 'colonists themselves understood what they were doing wholly in positive terms, not as "deforestation," but as "the progress of cultivation"' (54)--even though the effects were often pernicious, ranging from topsoil erosion, to increased flooding, to the spread of marshes with their attendant diseases. The callous quality of the transformations wrought by the colonists, their lack of concern for enduring consequences, in both the historical record and in Le Guin's story, suggests the heedless alien genocide depicted with such casual savagery in Disch's novel.

A key difference between Le Guin's work and Disch's, however, is that by the early 1970s a quite developed discourse regarding the effects of ecological devastation, and a growingly militant environmentalist movement, had risen up to assert the 'rights' of nature and native peoples over against the needs of Western neocolonialism. Generally guided by an ethic of 'responsibility' and governed by a concern for long-term 'sustainability', this movement was propelled by a conviction that the ongoing exploitation of nature augured nothing short of a catastrophe for the planet--Ecocide, according to the title of a 1971 collection of essays. (55) The Club of Rome's best-selling study *The Limits to Growth*, published in the same year as Le Guin's novel, argued that current levels of resource depletion were likely to lead to major socioeconomic crises in the relatively near future. *The Word for World Is Forest* reflects these anxieties in its depiction of a home planet literally bereft of foliage, dependent on alien jungles to satisfy its appetite for 'clean sawn planks, more prized on Earth than gold'. (56)

In terms of the ethics of interaction with other species, positions ranged from John Passmore's view, in *Man's Responsibility for Nature* (1974), that human life is the basic standard of value in terms of which all potential violence against animals or plants must be gauged, to more radical arguments for the inalienable 'rights' of non-human beings, such as Peter Singer's brief for *Animal Liberation* (1975). (57) An interesting text with relevance to Le Guin's story is legal scholar Christopher Stone's 1971 essay 'Should Trees Have Standing?'. Written as an intervention in a lawsuit pitting the Sierra Club against the Disney Corporation's efforts to build a resort in California's Sierra mountains, Stone's essay was groundbreaking in its attempt to define legal "injury" not merely in human terms but with regard to nature. [...] Stone argued in all seriousness that trout and herons and cottonwood trees should be thought of as the injured parties in a water-pollution case', and not simply the people who might be deprived of clean water or the opportunity to enjoy a pristine landscape. (58) The impulse to protect trees in particular, not merely owing to their human uses but intrinsically for themselves, formed a significant impulse of the environmental movement, as the deployment of the term 'green' as a political rallying cry suggests. (59) On the one hand, this impulse may merely express a sentimental romanticization of nature, one that has too readily led to the disparagement of environmentalists as 'tree huggers' (an identification facilitated, for example, by the dedication to an anthology commemorating the first Earth Day celebration: 'to the tree from which this book is made'); (60) on the other hand, if pursued with intellectual rigour, such an attitude could lead to a conceptualization of 'nature' not as an anthropocentric tool or an essentialist 'other', but as a socially constructed reality with important dimensions of agency and autonomy. (61)

Le Guin's abiding humanism, however, makes it difficult for her to articulate an ethic of rights that does not inhere ultimately in human subjects. While the novel fudges the issue essentially by identifying the Athsheans with their habitat--like the forest, they are peaceful, close-knit, and actually green--the effect is to naturalize their culture and to see the violence committed against them as an environmental desecration. The forest is their world, as the title indicates, and alterations to it are alterations to them; by the end, they have, like the trees, learned violence and been scarred by the knowledge. They have been 'changed, radically, from the root' by 'an infection, a foreign plague'. (62) The model of moral relation Le Guin finally defends is not surprising given the central bond in her celebrated novel *The Left Hand of Darkness* (1969)--a friendship, despite differences, between sentient humanoids. The novel's anthropologist-hero, Lyubov, is everything Captain Davidson is not: empathetic towards the Athsheans and comfortable in the enveloping forest, fondly protective of their mutual innocence and dignity. (63) Not only does this depiction bear a lingering noble-savage Romanticism, (64) but it leaves open the question of whether the denuding and strip-mining of an uninhabited planet would be ethically acceptable. If the forest were not someone's indigenous world, would it then be ripe for the picking? Can ecological imperialism only be committed against human subjects or their fictional surrogates?

Le Guin's attitude towards technoscience and its role in colonial conquest is also more ambivalent than in previous New Wave eco-catastrophes. Unlike Disch's *The Genocides*, in which advanced science is exclusively an agency of domination; and unlike eco-critics such as Lynn White, whose influential 1967 essay 'The Historical Roots of our Ecological Crisis' indicts Europe's 'superior technology' that permitted its 'small, mutually hostile nations [to] spill out over all the rest of the world, conquering, looting, and colonizing'; (65) Le Guin draws a distinction (a quite reasonable one in my view) between military-industrial technologies designed for violent purposes, whether warfare or resource extraction, and communication technologies, which allow for the exchange of ideas and information. In the novel, the arrival on the planet of an ansible--an interstellar radio that permits instantaneous messaging, despite the decades-long time-lag of space travel--is the mechanism that alerts the new League of Worlds to the violation of Ecological Protocols and leads to the termination of the colonial administration and the eventual economic quarantining of the planet. Similarly, in the present day, communications media such as the Internet have facilitated the worldwide dissemination of data about serious ecological problems, such as global warming, (66) and computer simulation software has been used to model ecosystem interactions, such as (to cite a relevant example) the growth and decline of forest areas. (67) Le Guin, to her credit, resists the assumption, common to some New Wave texts, that Western technoscience itself has been irreparably contaminated by its conscription for technocratic-imperialist ends.

In his environmental history of the twentieth century, J. R. McNeill summarizes recent biotic invasions and concludes with a prognostication: 'In the twenty-first century, the pace of invasions is not likely to slacken, and new genetically engineered organisms may also occasionally achieve ecological release and fashion dramas of their own.' (68) If they do, one can be certain that SF writers will be there to chronicle the results, and to craft powerful moral allegories out of them. While they will doubtless draw upon the compelling example of major New Wave precursors, it is likely that their treatments of the topic will cleave closer to Le Guin's ethical-political ambivalence than to Disch's neo-Wellsian despair.

(1) Peter Fitting, 'Estranged Invaders: The War of the Worlds', in *Learning from Other Worlds: Estrangement, Cognition, and the Politics of Science Fiction and Utopia*, ed. by Patrick Parrinder (Liverpool: Liverpool University Press, 2000), pp. 127-45 (p. 127).

(2) Fitting, p. 130.

(3) Fitting, p. 131.

(4) H. G. Wells, *A Critical Edition of The War of the Worlds: H. G. Wells's Scientific Romance*, ed. by David Y. Hughes and Harry M. Geduld (Bloomington: Indiana University Press, 1993), p. 52.

(5) Stephen D. Arata, 'The Occidental Tourist: Dracula and the Anxiety of Reverse Colonization', *Victorian Studies*, 33.4 (1990), 621-45; Brian W. Aldiss, with David Wingrove, *Trillion Year Spree: The History of Science Fiction* (New York: Avon, 1988), pp. 120-21.

(6) John Rieder, 'Science Fiction, Colonialism, and the Plot of Invasion', *Extrapolation*, 46.3 (2005), 373-94 (p. 376).

(7) Rieder, p. 376.

(8) Rieder, p. 378.

(9) Eric R. Wolf, *Europe and the People without History* (Berkeley: University of California Press, 1982).

(10) Brian Stableford and David Pringle, 'Invasion', in *The Encyclopedia of Science Fiction*, ed. by Peter Nicholls and John Clute (New York: St. Martin's, 1993), pp. 623-25 (p. 624).

(11) John W. Campbell, Jr., Letter to A. E. van Vogt, 3 March 1945, in *The John W. Campbell Letters, Volume 1*, ed. by Perry A. Chapdelaine, Sr., Tony Chapdelaine, and George Hay (Franklin, TN: AC Projects, 1985), pp. 49-55 (p. 55).

(12) Robert A. Heinlein, *The Puppet Masters*, rev. edn (New York: Del Rey, 1990), p. 338. For a reading of the novel as an allegory of Cold War conflicts see H. Bruce Franklin, *Robert A. Heinlein: America as Science Fiction* (New York: Oxford University Press, 1980), pp. 98-101.

(13) Rob Latham, 'Subterranean Suburbia: Underneath the Smalltown Myth in the Two Versions of *Invaders from Mars*', *Science Fiction Studies*, 22.2 (1995), 198-208 (p. 201). For a discussion of the 1956 film *Invasion of the Body Snatchers* that links it with Wells's and Heinlein's novels, see David Seed, 'Alien Invasions by *Body Snatchers* and Related Creatures', in *Modern Gothic: A Reader*, ed. by Victor Sage and Allen L. Smith (Manchester: Manchester University Press, 1996), pp. 152-70.

(14) Cyndy Hendershot, 'Anti-Communism and Ambivalence in *Red Planet Mars*, *Invasion USA*, and *The Beast of Yucca Flats*', *Science Fiction Studies*, 28.2 (2001), 246-60.

(15) Roger Luckhurst, *Science Fiction* (Cambridge: Polity, 2005), pp. 131-32.

(16) Aldiss, *Trillion Year Spree*, p. 255. For an alternative take on Wyndham's work, which defends him as a more subversive writer than Aldiss allows, see Rowland Wymer, 'How "Safe" is John Wyndham? A Closer Look at his Work, with Particular Reference to *The Chrysalids*', *Foundation*, 55 (1992), 25-36.

(17) Roger Luckhurst, 'The Angle Between Two Walls': The Fiction of J. G. Ballard (Liverpool: Liverpool University Press, 1995), p. 53.

(18) Fredric Jameson, 'Progress Versus Utopia; or, Can We Imagine the Future?', *Science Fiction Studies*, 9.2 (1982), 147-58 (p. 152).

(19) For an overview of the New Wave movement see my 'The New Wave', in *A Companion to Science Fiction*, ed. by David Seed (Oxford: Blackwell, 2005), pp. 202-16. See also Luckhurst, *Science Fiction*, pp. 141-95.

(20) Algis Budrys, 'Galaxy Bookshelf', *Galaxy*, 25.2 (1966), 125-33 (p. 130).

(21) Budrys, pp. 127, 130.

(22) Budrys, p. 128.

(23) David Hartwell, Introduction to Thomas M. Disch, *The Genocides* (Boston: Gregg, 1978), pp. v-xv (p. xiv).

(24) Budrys, pp. 129, 131.

(25) Brian W. Aldiss, 'Book Fare', *SF Impulse*, 1.11 (1967), 51-54 (pp. 51-52).

(26) Aldiss, 'Book Fare', pp. 52-53.

(27) See, e.g., William Appleman Williams, *The Tragedy of American Diplomacy*, rev. edn (New York: Delta, 1962); David Horowitz,

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(28) Thomas M. Disch, The Genocides (New York: Pocket Books, 1979), p. 104.

(29) See Frank B. Golley, A History of the Ecosystem Concept in Ecology: More Than the Sum of the Parts (New Haven, CT: Yale University Press, 1996).

(30) Charles S. Elton, The Ecology of Invasions by Animals and Plants (London: Chapman & Hall, 1972).

(31) Elton, pp. 31, 32, 109.

(32) Elton, p. 51.

(33) Elton, pp. 77-93.

(34) William H. McNeill, Plagues and Peoples (Garden City, NY: Anchor, 1976), p. 177.

(35) William Cronon, Changes in the Land: Indians, Colonists, and the Ecology of New England (New York: Hill and Wang, 1983).

(36) Alfred W. Crosby, Ecological Imperialism: The Biological Expansion of Europe, 900-1900 (Cambridge: Cambridge University Press, 1986), p. 279.

(37) Alan Taylor, American Colonies (New York: Viking, 2001), p. 47.

(38) Thomas M. Disch, 'Introduction: On Saving the World', in The Ruins of Earth: An Anthology of Stories of the Immediate Future, ed. by Thomas M. Disch (New York: G. P. Putnam's, 1971), pp. 1-7 (p. 5).

(39) Disch, 'Introduction: On Saving the World', p. 5.

(40) Disch, 'Introduction', p. 5.

(41) Disch, The Genocides, p. 5. (Further references to The Genocides are to the edition cited in note 28 above and will appear in the text.)

(42) Hartwell, p. xiv.

(43) The publication of Silent Spring is generally seen as the catalytic event that spawned the modern environmental movement: see Victor B. Sheffer, The Shaping of Environmentalism in America (Seattle: University of Washington Press, 1991), pp. 119-21; and John McCormick, The Global Environmental Movement, 2nd edn (New York: John Wiley, 1995), pp. 65-67.

(44) Cronon, Changes in the Land, p. 53.

(45) Michael Stern, 'From Technique to Critique: Knowledge and Human Interests in Brunner's Stand on Zanzibar, The Jagged Orbit, and The Sheep Look Up', Science Fiction Studies, 3.2 (1976), 112-30. See also Neal Bukeavich, "'Are We Adopting the Right Measures to Cope?': Ecocriticism in John Brunner's Stand on Zanzibar', Science Fiction Studies, 29.1 (2002), 53-70; and, for a review of ecological themes in post-1960s SF, Patrick D. Murphy, 'The Non-Alibi of Alien Scapes: SF and Ecocriticism', in Beyond Nature Writing: Expanding the Boundaries of Ecocriticism, ed. by Karla Armbruster and Kathleen R. Wallace (Charlottesville: University Press of Virginia, 2001), pp. 263-78. A more general survey is Brian Stableford's 'Science Fiction and Ecology', in A Companion to Science Fiction, ed. by Seed, pp. 127-41.

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(50) Ursula K. Le Guin, 'Introduction to The Word for World Is Forest', in Le Guin, The Language of the Night: Essays on Fantasy and Science Fiction, ed. by Susan Wood (New York: Perigee, 1979), pp. 149-54 (p. 151).

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(52) Susan Wood complains that the author was 'unfortunately [not] successful in avoiding the limitations of moral outrage at contemporary problems': see 'Discovering Worlds: The Fiction of Ursula K. Le Guin', in Ursula K. Le Guin: Modern Critical Views, ed. by Harold Bloom (New York: Chelsea House, 1986), pp. 183-209 (pp. 186-87).

(53) Ian Watson, 'The Forest as Metaphor for Mind: The Word for World Is Forest and "Vaster Than Empires and More Slow"', in Ursula K. Le Guin, ed. by Bloom, pp. 47-55 (p. 48).

(54) Cronon, Changes in the Land, p. 124.

(55) Clifton Fadiman and Jean White, Ecocide--and Thoughts toward Survival (Santa Barbara, CA: Center for the Study of

Democratic Institutions, 1971). For a contemporaneous history see *From Conservation to Ecology: The Development of Environmental Concern*, ed. by Carroll Pursell (New York: Thomas Y. Crowell, 1973).

(56) Le Guin, *The Word for World Is Forest*, p. 35.

(57) Although both these works were published after Le Guin's novel, the issues they treated were widely debated during the late 1960s and early 1970s. For an excellent overview of these debates see Roderick Frazier Nash, *The Rights of Nature: A History of Environmental Ethics* (Madison: University of Wisconsin Press, 1989).

(58) See Nash, p. 129. As Nash summarizes Stone's position: 'Fines would be assessed and collected (by guardians) on behalf of these creatures and used to restore their habitat or create an alternative to the one destroyed.'

(59) On the emergence of Green activism see McCormick, pp. 203-24.

(60) *Earth Day--The Beginning: A Guide for Survival*, ed. by the National Staff of Environmental Action (New York: Bantam, 1970), p. v. On the origins of Earth Day, see Sheffer, pp. 124-25.

(61) For a critique of essentialist views of nature see Jeffrey C. Ellis, 'On the Search for a Root Cause: Essentialist Tendencies in Environmental Discourse', in *Uncommon Ground: Rethinking the Human Place in Nature*, ed. by William Cronon (New York: Norton, 1995), pp. 256-68. Major theoretical/historical studies of nature as a social construction include Neil Evernden, *The Social Creation of Nature* (Baltimore, MD: Johns Hopkins University Press, 1992); and Carolyn Merchant, *Reinventing Eden: The Fate of Nature in Western Culture* (New York: Routledge, 2004).

(62) Le Guin, *The Word for World Is Forest*, p. 86 (my emphasis).

(63) On Lyubov and other similar figures in Le Guin's work see Karen Sinclair, 'The Hero as Anthropologist', in Ursula K. Le Guin: *Voyager to Inner Lands and to Outer Space*, ed. by Joe De Bolt (Port Washington, NY: Kennikat, 1979), pp. 50-65.

(64) On Romantic imagery in the novel, especially the anthropomorphizing evocation of the forest as 'a metaphor for the landscape of consciousness', see Peter S. Alterman, 'Ursula K. Le Guin: Damsel with a Dulcimer', in Ursula K. Le Guin, ed. by Joseph D. Olander and Martin Harry Greenberg (New York: Taplinger, 1979), pp. 64-76 (p. 65).

(65) Lynn White, Jr., 'The Historical Roots of our Ecological Crisis', in *Politics and Environment: A Reader in Ecological Crisis*, ed. by Walt Anderson (Pacific Palisades, CA: Goodyear, 1970), pp. 338-49 (p. 342). On the influence of White's essay see Nash, pp. 88-96.

(66) See, e.g., Climate Ark's continuously updated website 'Climate Change and Global Warming' at <<http://www.climateark.org>> [accessed 6 December, 2006].

(67) See T. F. H. Allan, Joseph A. Tainter, and Thomas W. Hoekstra, *Supply-Side Sustainability* (New York: Columbia University Press, 2003), pp. 259-61.

(68) J. R. McNeill, *Something New under the Sun: An Environmental History of the Twentieth-Century World* (New York: Norton, 2000), p. 262.

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