

Terraculturation, Political Dissolution, and Myriad Reorientations

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Abstract

Starting with the idea that in science fiction many plots use the device of terraforming of alien planets to make them more suitable for human inhabitation, this paper argues that more recently new works take this macro-plot in a different direction: the need for reforming human beings on Earth to make them more suitable for inhabitation through terraculturation. Further, the work of terraculturation would necessarily lead to significant political dissolutions of national and state formations in order to make political structures more supportive of inhabitory practices. Cultural changes from terraculturation would then interactively precipitate and be pushed along by myriad reorientations taking place at every level of human activity. Examples are provided of literary works already modeling and encouraging this cultural reorientation.

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We need to rethink the way that human beings live in this world. Such rethinking has to occur at every level of conceptions and perceptions of human environmental participation. The starting point needs to shift from how human beings wish to live, to how does the biosphere work and how can human patterns of behavior contribute to the enrichment rather than degradation of that biosphere. Such rethinking would lead to an earth-oriented cultural evolution that I will label “terracculturation,” which would in turn result in significant reformulation of political entities and myriad reorientations of daily human behavior. Literature has already been playing a role in this process, although creative works have not kept pace with developing scientific understanding.

In science fiction, many plots use as their starting point the *terraforming* of alien planets to make them more suitable for human, i.e., terran, inhabitation. The idea consists of global ecological changes that generate an earth-like atmosphere for human beings and the plants they would need for life. These models often mimic the brute force evolution of contemporary genetic engineering in that they are not truly holistic because they do not integrate pre-existing ecologies, both biotic and abiotic into their framework (see Palumbi).

A rather famous example of this brute force approach to terraforming comes from Arthur C. Clarke. Clarke’s *The Sands of Mars*, first published the year I was born, 1951, is standard hard science fiction in its teleological technocratic orientation, and fundamentally anti-ecological in its characters’ attitudes. Clarke assumes that major technological interventions in the Martian biosphere can have utterly predictable results. When the protagonist arrives on Mars, the first human colony is well established and rapidly expanding without having done any systematic ecological mapping. When an animal species is discovered, the colonizers only care about adapting it to terraforming, a process already underway with native flora. Treated as discrete entities, these animals and plants are portrayed as oddities rather than as living components of a biosphere. Indeed, an engineer dismisses the Martians: “What have *they* done except survive? It’s always fatal to adapt oneself to one’s surroundings. The thing to do is to alter your surroundings to suit you” (453; emphasis in original). Nothing in the novel contests this claim.

Let’s just pause a moment and contemplate that thesis: “The thing to do is to alter your surroundings to suit you.” Clarke has left out of his consideration an extremely important rule about human conduct: the law of unintended consequences. Global warming and the attendant climate change already upon us (see CCSP, “Summary and Findings”), with more and worse in store, are prime examples of the unintended consequences of industrialized and industrializing nations altering their surroundings through the burning of fossil fuels, releasing

of methane, discharging of aerosol pollutants from ozone killers to asthma inducers, reducing biological diversity in every realm, from insects to phytoplankton, land animals to sea mammals, and overpopulating specific ecoregions and, possibly already, the entire planet.

Of course, much science fiction has continued in the Arthur C. Clarke vein over the course of my life. But recently, various works have raised the issue of reforming human beings to make them more suitable for inhabitation on other planets. Invariably this reforming requires biological as well as ideational changes. The novels of biologist Joan Slonczewski are probably the most scientifically elaborate of these, while Karen Traviss's *Wess'har War* series addresses the idea from ethical, political, and evolutionary perspectives. But I am not really interested in how humans can get along elsewhere; given the tremendous difficulties we are having getting along on this planet where we have had many, many years of practice.

Rather, I propose that we can take this macro-plot a step further to discuss the need for reforming human beings on Earth to make them more suitable for inhabitation and reduce their ecologically destructive tendencies. Since it would seem that human beings are already biologically suited for life on earth, then what is needed is more a matter of *terracculturation*, i.e., a reforming of cultural conceptions, values, and practices. Psychological, perceptual, and conceptual structures and constructions have not kept pace with our environmental interactions, adaptations, and encroachments. As a result, we have a human evolution reliant on external boundaries and limits that has insufficient constraints to keep it from plunging the species into a potentially irrevocable population versus resource crisis. And, due to our technological reach, a lack of constraints that may not prevent us from engineering the collapse of entire ecosystems on the way to triggering environmental tipping points, such as a sufficient temperature to induce significant sea level rise from glacial melt or the sudden release of methane from melting permafrost (see Kolbert).

Interestingly enough, recent neurobiology, genetic, and physiological psychology research suggests that such terracculturation would actually lead to biological changes not only in individuals of the species, but, gradually over a longer period of time, in the species itself, such that we might be able to develop the mechanisms individually and collectively to recognize the limits of growth and enter into sustainable symbiotic practices both naturally and self-consciously (Donald). That is to say that terracculturation as a long term strategy would accomplish the exact opposite of what Clarke proposed. It would enable us to evolve in a more inhabitory direction—Slonczewski's focus in her novels—reversing centuries of disinhabitory economic and political regimens.

Some critical political ecology thinkers believe that the existing nation state as a structure can provide a sufficient starting point for much of the work of terraculturation that is needed to reverse the current trends of human planetary over extension (Eckersley). I would contend, in contrast, that the kind of terraculturation that must be implemented to stave off the looming food crisis, initially signaled this year by food riots in individual countries around the globe and protectionist practices to safeguard domestic rice production throughout Asia, and anthropogenic climate forcings, mainly propelled by rapidly raising atmospheric concentrations of carbon dioxide and the intensifying expansion of fossil fuel consumption, particularly coal, would necessarily have to lead to significant political dissolutions of national and state formations throughout the world in order to make political structures more supportive of inhabitory practices. The breakdown of these national structures can occur through planned dissolutions in response to a developing understanding of the organizational needs of terraculturation. Or, unfortunately, what is more likely: they will result from huge displacements and catastrophic population reductions due to environmental disasters, including floods and droughts, epidemics and agricultural collapses, and/or resource wars (Heinberg; Kunstler, *Long*).

Sea level rise this century in Shanghai and Louisiana, for instance, will pit the negative impacts of global warming most intensively felt by particular regions against the energy policies of central governments. Mean sea level rise in Louisiana during the past century averaged three feet along that state's coastline (a combination of 1 feet of absolute water level rise and 2 feet of land subsidence); according to the U.S. Department of Transportation, it will see another one to two meters of mean sea level rise in the next eighty years (Potter, *et al.*). Now, considering that 70% of the Louisiana state population lives within 1 foot of sea level now, we will have within a decade or two a state versus federal policy contradiction vastly larger than the Hurricane Katrina debacle. The Pudong region will fare no better and its inundation will be tied directly to the rapid expansion of coal fired power plants for electricity production.

In like manner, the rapidly emerging global food crisis is intimately tied to fossil fuels, specifically petroleum, and the car cultures that that resource has enabled. Increasingly worldwide, food production relies on petroleum inputs, from synthetic fertilizers to motorized agricultural machinery, to diesel based food transportation. Indeed, key components of the American promoted "Green Revolution" consisted of making farmers around the world dependent on patented hybrid seeds and synthetic fertilizers. Petroleum inputs have become even more significant in the era of trade globalization as more and more food is bought and sold internationally rather than consumed locally. Food shortages

today are resulting in part from climate change, such as the ongoing drought in Australia, and in part from the production of biofuels to substitute for oil. While the U.S. is expanding its agricultural production, it is not doing so to feed people but to feed cattle and automobiles, setting the Bush administration in direct contradiction to the pleas of the U.N Secretary-General and numerous international food scientists (Borenstein, "Food"), and raising doubts about the European Union's plans for biofuel production expansion (Cendrowicz).

Prior to Cyclone Nargis, Southeast Asian nations were talking about forming a supranational rice cartel to stabilize the rice supply and guarantee sufficient quantities for their own region (Alexander). Such a cartel would pit a greater-than-nation-state entity against nationalist politics, which, if Myanmar were to join, would create cracks in the illusion of national sovereignty and autonomy that government promotes. Of course, the recent cyclone is already challenging the illusions of autonomy that the Myanmar government has maintained for years, while simultaneously intensifying the rice production crisis, with an estimated 65 percent of their rice crop destroyed.

It appears that loss of life there will be far greater from the after effects of the cyclone than from its immediate impact, especially due to starvation, disease and exposure, all of which are being exacerbated by the Myanmar military's behavior. Political upheaval will almost certainly intensify there once the bodies have been counted and the criminal negligence of the government is revealed. While climate change may not have been a factor in the magnitude of this cyclone, sea level rise, reduction of mangrove swamps, increasing coastal populations, and centralization of food production, in short environmental issues one and all, have contributed to the magnitude of the damage. Central governments focused on the economic bottom line cannot possibly enact the kind of reforms necessary to address the effects of climate change on their territories or their peoples. As with people in the Irawaddy delta, tens of millions living in other delta areas will need to be permanently relocated as sea levels rise. Unfortunately, it will be difficult to determine where to relocate them as glacier loss reduces the flow of major world rivers in South America and Asia, and rainfall pattern changes induce desertification in regions of North America, Europe, and elsewhere (Pearce; Lynas).

The unfolding and growing global food crisis will cause internal dissensions threatening national unity on the one hand, and increase the likelihood of even more regional cooperation, on the other hand (Goering), particularly in the face of sustained high prices ("OECD-FAO Agricultural Outlook"). Josette Sheeran, head of the UN World Food Program, has noted that nearly a billion people worldwide are already going hungry and fears that food shortages and high

food prices are “threatening to loose the moorings that hold poor nations together” (Deans). Further, Salvatore Arico, a biodiversity specialist, summarizing a UNESCO report prepared by 400 contributors, claims that “Modern agriculture will have to change radically if the international community wants to cope with growing population and climate change, while avoiding social fragmentation and irreversible deterioration of the environment” (Erlanger).

Likewise, rapidly escalating energy crises due to peak oil will encourage oil rich regions to break away from states, as the Kurds in Iraq would like to do, and form new smaller political entities. At the same time, there will be more and more movements toward supranational energy organizations, such as the Latin American energy group that Hugo Chavez and other relatively leftist governments in that region are proposing. In other words, we should expect an increase in both subnational and supranational political organization. And one has to ask these days if the Russian government controls Gazprom, or is it more the case that the board of directors of Gazprom, a now publicly-traded energy company, controls the Russian government?

Further, the results of failed energy policies and inaction on global warming mitigation and adaptation will threaten to tear states apart, especially if there is an abrupt climate change or catastrophic effect, such as sudden sea level rise or the collapse of the Monsoon season due to the stalling of the tropical Pacific in a long term El Niño pattern. Certainly the multi-year drought in Australia was a factor in the defeat of the previous government there, which had refused to ratify the Kyoto Protocol.

Significant shifts in the body politic, both toward smaller units and larger regional anti-globalization organizations may very well be pushed along by the body cultural, such as efforts by Muslim regions of China to secede from Beijing and align themselves with the Central Asian Muslim countries, whose oil and natural gas reserves are becoming increasingly necessary to Chinese industrial growth. But while that scenario is based on a body cultural and body politic shift that is traditional and well established, we should anticipate other less traditional transformations.

Changes in the body cultural, in response to and as part of fomenting changes in the body politic, will interactively precipitate and be pushed along by myriad reorientations from self-conceptions of the physical individual human body, to culturally specific redefinitions of the “good life,” to moral considerability revisions, and restructuring of ethical thought. These myriad reorientations will take place at every level of human activity from the smallest aspects of daily life to fundamental international realignments of power, governance, and cooperation.

It is apparent that in only one international environmental challenge to date have the nation states of the world taken decisive action: the hole in the ozone and the need to ban chlorofluorocarbons (Speth). The international treaties and actions in that regard show the possibility for existing governmental actions to engage in significant environmental protection, but only in terms of a single issue and a single causative agent. Today, we have at least two, and very likely three, major civilization threatening crises rushing headlong toward a negative synergy. These crises challenge the business-as-usual and the international-negotiation-as-usual processes that govern the approaches to, and the delays in, addressing environmental dilemmas. These three crises are, as I have already adumbrated, peak oil, climate change tipping points, and the population food supply nexus, with all three of them impacted by human population growth. Human population growth per se need not be a crisis up to a point; rather, human population consumption patterns are the crisis, and those patterns are hastening the intensification of the three crises I have named here.

None of these can be addressed through mitigation alone or adaptation alone, but require mitigationist exaptation through terraculturation, which would result in a curbing of absolute human population numbers. By “exaptation,” to use Stuart Kauffman’s term, I mean adaptation not through adjustments within the current paradigms of human economic and ecological interaction, but rather adaptations based first of all on stepping out of the current paradigms into the “adjacent possible” (Kauffman 208). Trying to make automobiles environmentally friendly relies on adaptation within the current global paradigm of personal transportation. Transportation exaptation would likely begin from elimination of the automobile and the rethinking of such concepts as transportation, delivery, workspaces and rest spaces, which in turn would require rethinking current perceptions of goods and services.

I bring up here the terms “mitigation” and “adaptation” because they represent the two major response directions of those scientists, economists, and policy makers who are not in total denial about the global warming occurring in this century. From a “discourse” perspective they delimit the fundamental starting points for action and represent a series of rhetorical strategies that seek to frame the analysis and direction of scientific research, the economic parameters of necessary and appropriate action, and the policy rationales for the types of government adjustments and planning in response to what the science is measuring and forecasting. In all of its reports, the Intergovernmental Panel on Climate Change has focused policy recommendations on mitigation. Yet there is no evidence that any country is undertaking mitigation at a pace that will impact the loading of carbon dioxide into the atmosphere beyond estimated critical

tipping points. Mitigation is fundamentally based on reducing the buildup of greenhouse gases in order to stave off a planetary temperature rise that will result in environmental forcings that will push the planet into a new climate regime. Two recently published nonfiction works, based on peer reviewed scientific papers but written for the nonspecialist audience, make clear what is at stake here and the scientific concerns regarding various potential tipping points. These are Mark Lynas' *Six Degrees* and Fred Pearce's *With Speed and Violence*.

Mark Lynas in *Six Degrees* takes readers through the effects of each one degree centigrade increase in temperature that the IPCC has predicted will occur in this century, from the minimal one-degree global rise to the truly apocalyptic six-degree rise. At the end of his book he has a chart about what is needed in terms of just carbon dioxide mitigation to avoid breaching the two centigrade rise that scientists view as the threshold for unprecedented climate change. Unfortunately, nothing suggests that any of the world's significant polluters are taking sufficient mitigationist steps. To date businesses are demonstrating greater awareness of the need for mitigation than most governments. A look at the web pages of the major international reinsurance organizations, such as SwissRe, for instance, bears this out. At the same time, almost no business wants to go first in implementing mitigationist strategies that might reduce its competitive edge in the short run. This excessively short-term perspective is at the core of the high profile dispute between Rockefeller family members and the CEO of Exxon Mobil, with the former pushing for more investments in non-carbon fuels—a position rejected by the majority of Exxon shareholders (Krauss).

Many so-called climate change skeptics preach adaptation instead of mitigation. Driven by economists and statisticians, as well as scientists with little or no expertise in climatology, this group argues against any mitigation methods that might impede business-as-usual economic growth on the basis that such actions will be ineffective in stopping or slowing global temperature increases. Instead, they argue that adaptation will become increasingly feasible as capitalist economics lifts more and more countries out of poverty and provides them with the capital to invest in adaptation engineering projects along the lines of those already being undertaken by the Dutch government (see Kolbert). These analysts, mainly from Europe and the U.S., presume that global warming and attendant climate change will remain linear, even as an increasing number accept a 2 degree centigrade minimum rise. (In fact, more and more adaptationists don't even challenge the IPCC global warming figures but rather focus on exonerating CO₂ emissions (for a counter-analysis of CO₂, see Volk). They pretend that economic enrichment is evenly and uniformly spread among all residents of a given country. And they imagine that the raw materials required for such

global economic development exist in unlimited quantities.

Clearly, they cannot explain why oil traded as high as \$147 per barrel at one point in 2008, and is headed toward \$150-200 once the global recession abates (Rubin and Buchanan), or why the price of copper makes it worth stealing electrical cables from highway roadside lighting in Florida. They have no realistic plans for providing the electrical energy the globe will need without intensifying CO₂ buildup in the atmosphere from relying on coal fired power plants—not to mention all of the other pollutants these plants spew out. In fact, due to the high price of oil, Italy is converting some of its power plants back to burning coal, thereby decreasing their ability to meet Kyoto Protocol goals (Rosenthal). Some people, of course, view nuclear power as the answer, but they never address the availability of fuel worldwide nor the number of power plants that would need to be built. For example, for the U.S. to produce as high a percentage of electricity from nuclear power as France does, we would need to build another 300 nuclear power plants, and still get only 80% of our electricity from nuclear energy. Nor do they address the problem of providing the enormous quantities of water required, which will become increasingly problematic as climate change alters rainfall patterns and increases drought in certain regions of the world, such as the southeast U.S. (Kanter).

The so-called adaptationists have put forward no serious strategies for adaptation at the level that will be required within a few decades, especially if governments follow their recommendations and ignore CO₂ as a factor in the global warming that has already occurred. Surface mean global temperature measurements show that 2005 has been the hottest year on record and 1998 and 2007 are tied for second hottest year. As a result, the first decade of this century will be hotter than any decade in the previous century (NASA). This lack of preparation is especially risky because of the potential for the reaching of tipping points that could produce an abrupt change in a relatively short period of time, either in terms of sea level rise and/or weather patterns that impact agricultural production, like the storms flooding the corn crop of the United States in June of 2008.

I have found no adaptationist strategy that has any realistic basis for success without including an expectation of significant world population decline. As the effects of global warming intensify, there is likely to be less and less international aid for catastrophes that overwhelm the emergency response capabilities of any country as more and more countries divert money to shoring up and relocating their own infrastructures and portions of their populations. For example, a two-foot rise in sea level along the Florida coast will flood the Everglades and contaminate the water supply for half the population of the state (Ackerman

and Stanton). In contrast to the don't fight it, adapt to it laissez-faire mentality that projects business-as-usual economics through the end of this century, a recent statement by an international group of National Academies of Sciences make the following statement: "Responding to climate change requires both mitigation and adaptation to achieve a transition to a low carbon society and our global sustainability objectives" ("Joint Science"). At this point in time, we are increasingly looking at the probability of retreat strategies. As governments and businesses fail to implement mitigation strategies sufficient to prevent a tipping point buildup of CO₂ (see Archer, Broecker and Kunzig, Pearce), they will necessarily have to implement adaptation actions to address the most immediate effects of climate change, such as drought and rising sea level. Unfortunately, the economic costs of inadequate mitigation and the need for such adaptations as relocating populations, airports, rail lines, and oil refineries, will reduce the financial flexibility of governments and businesses, as indicated by estimates just for the United States (Committee on Climate Change).

Literature, both what we might call literary nonfiction and fiction, has already been addressing these issues to some degree throughout my entire life. In recent years, the fiction has incorporated an increasing amount of scientific evidence into its plots. What is perhaps most striking about such literature is the widespread skepticism that countries will make serious efforts to adapt before a devastating crisis grabs the attention of governmental leaders. What is most frightening about that projection is the magnitude of the disaster that will be required to end denial.

I have already mentioned the books by Lynas and Pearce. Add to these James Lovelock's *The Revenge of Gaia*, Elizabeth Kolbert's *Field Notes from a Catastrophe*, James Howard Kunstler's *The Long Emergency*, Richard Heinberg's *Power Down*, Kenneth Deffeyes' *Hubbert's Peak: The Impending World Oil Shortage*, Paul Roberts' *The End of Oil*, and Joseph DiMento and Pamela Doughman's edited *Climate Change*, and you have a good little library on the relationship of climate change, peak oil, population pressure, and the food crisis.

Kunstler is of particular interest among this group because, in addition to his nonfiction projection of the crash of American civilization resulting from peak oil, he has also published a novel imagining the kind of social order that he sees arising from the ashes. *World Made by Hand*, presumes, as has speculative fiction imagining alternative societies since at least George Stewart's *The Earth Abides*, that the combined economic and political collapse will coincide with a population crash from a pandemic. Likewise, Lovelock expects human population to decline dramatically in a hotter world. And even if we mitigate the most extreme temperature rises, he believes human population will need to ratchet back to

a billion people or less to be able to establish a sustainable carrying capacity. One finds a world of declining population in T. C. Boyle's *A Friend of the Earth*, set in 2025, for instance, as well as in Australian novelist George Turner's *Drowning Towers*, which was first published in 1987 and details sea level rise in Australia.

This issue of population raises certain questions relevant to ecocriticism in general because many of the appeals to a return to the old ways or the adaptation of indigenous models of agriculture and animal husbandry, of radical rewilding, or virtually any conception of sustainability, are based on far lower population densities and absolute numbers than those currently upon the earth. Neva Goodwin of the Tufts University Global Development and Environment Institute in a working paper suggests that human beings overshoot a sustainable population figure at some point in the twentieth century and that population at mid-twenty-first century is likely to fall below the low end UN projection of 7.2 billion, and possibly much below that if abrupt climate change occurs (Goodwin)

With differing emphases, other novels present speculation about a world overwhelmed by the kind of abrupt climate change that Kim Stanley Robinson depicts in his rather optimistic *Science in the Capital* trilogy. Mark Tushingham, for instance, focuses not on the environmental dimensions of global warming, but rather nation state collapse, specifically the breakdown of the U.S. government, leading to a series of brutal, dictatorial military fiefdoms. Kevin Ready's *Gaia Weeps* suggests that the United States will not respond adequately until Lovelock's Gaia takes its revenge in dramatic fashion. His is a position that many would consider involving little speculation and much probability.

Three novels about climate change that I want to mention in closing are Arthur Herzog's *Heat*, John Barnes's *The Mother of Storms*, and Norman Spinrad's *Greenhouse Summer*. Herzog's novel was published over thirty years ago and details the extreme mitigationist actions that have to be taken to ward off a rapidly rising global temperature. But, more significant than this typical SF race to save the world plot is the few pages near the end devoted to adaptation in terms that clearly fit my definition of terraculturation.

Barnes takes the scientific knowledge available about methane clathrates and their potential for disruption to posit a sudden release of enormous quantities of methane into the atmosphere. This rapid greenhouse effect generates a series of megahurricanes that decimate populations worldwide before a rather far-fetched mitigation technology can end the crisis. What is of interest in this novel is not the solution Barnes proposes, since it is pure fantasy, but rather the two elements of the crisis: methane and megahurricanes.

While CO₂ is the main greenhouse gas on which scientists and policy are focused because of its long residual presence in the atmosphere, methane is a far more concentrated one. While enormous quantities of methane are tapped every day as natural gas supplies, far larger quantities are frozen in permafrost and in hydrate formations on the floors of the oceans. Many scientists worry that the melting of the permafrost will intensify global warming by releasing methane into the atmosphere generating a feedback loop. While debate rages over whether global warming will spawn more or fewer hurricanes and cyclones, consensus exists that the ones that do form will be stronger than those of the past few hundred years. Already we have seen last year two category five hurricanes hitting Mexico in one season, a hurricane approaching Spain for the first time, hurricanes off the coast of Brazil, cyclones of greater magnitude striking Australia, and stronger cyclones striking South and Southeast Asia.

Spinrad focuses on a world well along into a new climate regime in which Paris has a tropical climate and Siberia has become the world's bread basket. This is not an unrealistic scenario, given that scientists have documented that the tropical zone has been expanding and the Jet Streams are moving toward the poles (Borenstein, "Jet"). The climate changes that will desertify Spain, which is currently in a multi-year severe drought, will push Mediterranean weather toward Paris. The melting of the permafrost and global temperature rise will eventually open up land for agriculture in arctic territories. But Spinrad's novel isn't about these details. Rather, he focuses on the idea that anthropogenic factors have pushed the world's climate systems into a condition of chaos, making long range computer modeling ineffective, thus necessitating a strategy of both mitigation and adaptation.

To date, literary writing has not kept pace with the developments in science and public policy pertaining to climate change, peak oil, population pressure, and the food crisis. But clearly, an increasing number of authors, many who do not consider themselves speculative writers, such as T. C. Boyle, are making the effort to produce a socially engaged literature. I call on you to think about ways that you can produce socially engaged courses that enable students to learn about, think about, and act on this global crisis as it unfolds. Technical fixes, disaster-based purges, and moderate reforms are not going to accomplish the minimal changes needed to avoid the decimation of populations of all species. For the human species to achieve either mitigation or adaptation, or the likely necessity-driven combination of the two, its societies will need to take up terraculturation for systemic change. Literature, although a minor player in policy formation, nevertheless can serve a vital function in helping with this cultural reorientation.

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移民改造、政治瓦解與 大規模文化重整

摘 要

在科幻小說中，許多情節挪用「地域再造」此策略來改造外星球，以適合人類居住。以此為起點，本論文主張晚近的新作品將這個大架構下的劇情帶到新的方向：透過「移民改造」改造地球上的人類，讓他們更能適應移居外星生活之必要。進一步而言，為了讓政治架構更能支撐人類的新棲息模式，「移民改造」將必然導致國族政府組織上重大的政治潰散。「移民改造」所帶來的文化變革，將交互促進人類活動各個面向的、大規模的文化重整。本文將提出文學作品中，已經塑造並助長此文化重整之例證。

關鍵字：移民改造，政治瓦解，大規模文化重整