

## Collapse, resilience, stability and sustainability in Margaret Atwood's MaddAddam trilogy

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Myths are the agents of stability, fictions the agents of change. Myths call for absolute, fictions for conditional assent. Myths make sense in terms of a lost order of time ... fictions, if successful, make sense of the here and now. (Kermode 1967: 39)

The good news is that the end is in sight. The bad news is that it's not happy. The worse news is that it's also not the end. (@neinquarterly, 5 February 2015)

### **Collapse, resilience, stability and sustainability: some definitions**

With the publication of *MaddAddam* in 2013, the story that Margaret Atwood began with *Oryx and Crake* in 2003 and continued with *The Year of the Flood* in 2009 stands complete and can be read as a single narrative. Over the course of the MaddAddam trilogy, Atwood relies on notions of collapse, resilience, stability and sustainability as she establishes setting, navigates turns of plot and weighs the actions of characters, among which we must number the multinational corporations – OrganInc, HelthWyzer, AnooYoo and others – where several of her protagonists are employed. The concepts of collapse, resilience, stability and sustainability are also central to recent work in ecological theory and environmental history, where they emerge as crucial to the intelligibility of environment as such. Even, or perhaps especially, when they are not articulated explicitly – as is the case in Atwood's trilogy – these four concepts may serve as tropes, lending weight to and imposing structure on environmental narratives. So, given that Atwood does not acknowledge their importance to her narrative openly, and in light of the fact that 'the popular application of the information generated by ecologists is generally bad news' (Gunderson and Allen 2010: xiii), it is necessary for me to begin by defining collapse, resilience, stability and sustainability as carefully as I can.

For environmental historians, a collapse entails a drastic reduction in natural, cultural and social complexity, and is marked by a rapid drawdown of natural resources, a failure of crops, a disappearance of centralised government and an end to all public works. Some environmental historians portray collapse as the most dire possibility posed by environmental crisis, albeit one that can be offset by ecological stability and mitigated by natural and cultural resilience, if not circumvented altogether by the utopian possibilities of sustainability. Hence one might be tempted to argue, if one were an environmental historian, that collapse and sustainability are in something like a dialectical relationship, with stability and resilience serving as mediating terms.

That temptation should be resisted, since each of these four terms marks something of a theoretical and factual conundrum, if not a vacuum. Despite all the attention the notion has received, an actual collapse of the most drastic sort, one that gives rise to apocalyptic rumblings and post-apocalyptic recriminations, has never been documented, at least not in a wholly satisfactory fashion. The idea that such an event has occurred numerous times throughout human history, and might present a clear and present danger today, was popularised by Jared Diamond's 2005 book *Collapse*. Academically rigorous treatments of the subject make Diamond's account seem suspect on both factual and theoretical grounds (see Tainter 1988 and the essays collected in the 2010 volume edited by McAnany and Yoffee). Of course, that a total collapse of the kind Diamond writes about may *never* have occurred does not mean that no collapse of any kind can *ever* occur. Ecologists recognise that natural systems can only be subjected to so much stress before they collapse, but their use of the term is less apocalyptic and more precise than Diamond's. Here, for instance, is a description of what an ecologist might regard as a garden-variety collapse: 'Changes in either driving or state variables may cause collapses. Often, the system provides no warning, and collapse follows an unexpected, but often inevitable event' (Gunderson et al. 2010: 4). For an ecologist, collapse is simply something that happens to natural systems from time to time. They crash like a desktop computer, but they don't burn like the *Hindenburg*. Population dynamics afford a classic illustration of how collapse-like phenomena can be regarded as fundamental features of natural history: some species of fish, like the North Atlantic cod and the striped bass, endure irregular cycles of boom and bust, of random waxing and waning in their numbers. Managing such species means riding a wildly fluctuating logistical seesaw.

Sustainability is an even more ambiguous concept than collapse, though with sustainability the problem is more prospective than retrospective, as the discourse on the subject has been cast, for the most part, in the optative mood. 'Sustainability' has been a word in search of a precise meaning for several decades. Many people and most governments are

convinced that sustainability would be a good thing. It is variously defined as an embrace of alternative energy sources, as the practice of so-called permaculture, as a philosophy of low-impact living, and – for some of its adherents, including most governments – as a new strategy for continued development along the familiar lines established by capitalism and in the wake of peak oil. Precisely because it means so much, no one has been able to disambiguate the term, to identify the necessary components of sustainability and explain how it might be achieved. As Hannes Bergthaller has observed – succinctly and pertinently, in an article on *Oryx and Crake* and *The Year of the Flood* – ‘sustainability is a notoriously fuzzy term’ (2010: 730; also see Caradonna 2014 and Grober 2012). I would suggest that its fuzziness is in direct proportion to the amount of time environmentalists – and entrepreneurs – have spent trying to define ‘sustainability’: usage has had the consequence, unintended but not unusual, of broadening the term’s meanings.

As a concept, stability is something of a throwback to the ecology of yesteryear. Some natural systems – fewer than you might think – display their stable qualities when they emerge from a disturbance, if not from a collapse, and reestablish themselves in good working order (or return to an appearance, at least, of equilibrium) within a relatively short period of time. I say ‘relatively short’ because the period can range from a few days or weeks or months, as in the case of a riverine system returning to normal flows and population levels of its resident species after a flood, to years, as in the case of a clear-cut temperate forest returning to a state of mature growth and something closely approximating its original diversity of plant and animal life. It helps the process of recovery if engineers have not dammed and channelised the river and loggers have not clear-cut the forest, burned the slash and turned the altered landscape into a plantation for the production of lumber or pulpwood.

As a phenomenon, resilience is more complicated – and, it now appears, more common or, if you like, more *real* – than stability. A relatively new concept, resilience challenges the tidy assumptions that once led to a widespread belief in stability as a fundamental attribute of pristine natural systems. As developed by theoretical ecologists, the concept is somewhat counter-intuitive. Resilience sounds as if it must be a good thing in principle, but it can prove otherwise in practice. Here is the classic statement about resilience offered by the Canadian ecologist C. S. Holling in 1973. Note that Holling juxtaposes resilience to stability:

It is useful to distinguish two kinds of behavior. One can be termed stability, which represents the ability of a system to return to an equilibrium state after a temporary disturbance; the more rapidly it returns and the less it fluctuates, the more stable it would be. But there is another property, termed resilience, that is a measure of the persistence of systems and their ability to absorb change and disturbance and still

maintain the same relationships between populations or state variables.  
(Holling 2010: 37–8)

A resilient natural system, according to the model first proposed by Holling, will rebound from a disturbance like flood or clear-cutting and fire, yet may not re-establish its former regime of species, instead favouring a new one (or at least one that seems novel to human observers), which may persist for some time in its turn. A resilient natural system therefore has the potential to reach a variety of only *relatively* stable configurations. Among the variety of relatively stable configurations a resilient but perturbed natural system is likely to favour are those that include such unwelcome developments – from a human point of view; the system simply takes and uses whatever it can get – as a higher proportion of invasive and other ‘pest’ species among its components (like the bark beetles that occasionally decimate yellow pine plantations in the south-eastern US).

The important point to grasp here is that the systemic attributes of the resilient system remain more or less intact, however altered its individual components may be. The system has bounced back, but at what appears (to a human observer) to be an obtuse angle, thanks to the alterations in its appearance. In this instance, *the more things remain the same, the more they can change*, in a reversal of the familiar paradox. And this is the case because the attribute of resilience is distributed throughout the system; that is, as a property resilience is systemic, and therefore it need not be particular – or partial – to a single species or genus. Nor, for that matter, need it favour, within limits determined by geography and climate, one association or community of plants and animals over another.

It appears, then, that stability and resilience are interrelated phenomena in that each is somewhat at odds with the other, since resilience has the potential to create ‘bad’ forms of stability. Human beings prefer ecosystems that they take to be stable, which is why the concept of stability dominated ecological theory for so long. Resilient ecosystems are more difficult for us to cope with; they require what has come to be called ‘adaptive management’ and they can play havoc with our expectations about land use. For example: the resilient salt marsh will still be a salt marsh once the hurricane has passed along the eastern seaboard of the US, but it may be dominated by alien *Phragmites* reeds instead of native *Spartina* grasses – and it therefore will be a less welcoming habitat for birds like rails, whose numbers have declined owing to the persistence of dense beds of *Phragmites* in the marshy habitats they favour. So managers of wildfowl refuges along the coast find themselves in something of a stalemate in their attempts to eradicate, or adapt to, the invasive reed. Another example: the resilient savanna will still be a savanna after the cataclysmic bush fire and the prolonged drought. But after the disturbance the savanna may no longer

be as dense with woody shrubs and trees, and it therefore will be a better habitat for wildebeest than for elephants. The latter will have to adapt by moving on. The point is that resilience is rather like a casino: it cares less, so to speak, about individual winners and losers, and more about the average take that the house enjoys over time.

So one might say that while the threat of collapse – which in our time is posed most dramatically by global climate change – makes achieving sustainability seem to be an absolute necessity, the reality of resilience suggests that there is some middle ground between the two extremes, a dynamic space where something like an ongoing negotiation over the seemingly stark differences between collapse and sustainability can occur. Juxtaposition of worst-case (dystopian) and best-case (utopian) scenarios of the environmental future has obscured this middle ground in popular discourse, as has the lingering belief that, left to its own devices, the natural world prefers stability. Yet this does not mean that a greater attentiveness to resilience will be the panacea for our environmental woes. The middle ground is contested ground, and while resilience can be a measure of the abiding strengths of natural systems, it can also result in new environmental woes in its own right (such as a preponderance of invasive *Phragmites* reeds, and the further decline of megafauna like elephants that I hinted at above).

### **Science fiction, speculative fiction and the pre-posterous historical novel**

That all four of the terms I just spent some time defining are marked, in varying degrees, by ambiguity underscores their structural importance to the narratives in which they are employed as tropes, owing to a phenomenon readily understood by literary and cultural critics, if perhaps too complacently accepted as routine and unexceptional. The phenomenon has to do with the uncertainty of literary form, especially when it comes to the novel, where it often seems that genre conventions are no sooner put in place than they are violated, vitiated and contravened; that novelistic form is ephemeral, never realised in equipoise but always existing only a hair's breadth from formlessness; and that beginnings, middles and ends can never be as distinct as their idealisation suggests they should be. This unruliness, this kicking over of the traces of convention and this refusal of narrative to move forward along clear-cut lines, makes it possible to read Atwood's *MaddAddam* trilogy not as a work of science fiction or 'speculative fiction' (the latter is Atwood's preferred term; see the feature article by Potts 2003), but as a tripartite historical novel.

I would argue that such a reading also makes available a better understanding of the roles that collapse, stability, resilience and sustainability

play in shaping Atwood's environmental metanarrative, which is mostly implicit but is occasionally expressed in snippets of narration. Admittedly, reading the trilogy as a work of historical fiction will require some sleight of hand if it is going to work. It will have to negotiate, among other things, the awkward fact that Atwood's novels are set in a post-climate change future whose relationship to the present cannot be determined according to the usual measures of chronological succession: if the narrative is not time-stamped and its temporality is uncertain, then so too must be its very historicity.

There is a way to understand this awkward fact about the MaddAddam trilogy in theoretical terms that will make it a useful fact for the reading I propose. We might, like Dipesh Chakrabarty, blame the slippery historicity of Atwood's trilogy on climate change itself. In his landmark essay 'The Climate of History: Four Theses,' Chakrabarty observes that 'our historical sense of the present' has become 'deeply destructive of our general sense of history' (2009: 197). Atwood's trilogy documents that destructiveness on every page, as I will show when I discuss the mindset of her protagonist in *Oryx and Crake*. It also will help us to understand the historical character of Atwood's trilogy if we take a long and somewhat jaundiced view of the relevant chapters of literary history. We have to acknowledge that in even the most classic of historical novels – the ones, that is, which are cited regularly in definitions of the genre – historicity does not provide an anchorage in time and place, except in the most general terms. Indeed, historicity is often one of the things such a novel takes not as foundational and therefore for granted, but as problematic – as something to be established, or at least explored, in that novel's text.

This treatment of history as problematic, as less a matter of fact than a mode of inquiry which is necessarily self-reflexive and 'historiographical,' has implications that range beyond the confines of the literary (whatever those confines are taken to be; I would not presume to delineate them here). In an essay that takes up the subject of the mutability and fluidity of genre, Hayden White notes that the realist writers of the mid-nineteenth century effectively decided 'to treat "the present" as history,' and that 'this move accomplished a metamorphosis of the genre of history writing itself, a change of its focus on the past alone to a focus on the present (and future) of historical societies as well' (2003: 599). White adds: 'Mixture, hybridity, epicenity, promiscuity – these may be the rule now' (2003: 602). In short, historicity itself is not what it used to be, and perhaps it never was; it, too, has always already had a history.

In another essay, White begins by contrasting historical and fictional discourse. The former is interested in the true, he says, the latter in the real: 'The real would consist of everything that can be truthfully said about its actuality plus everything that can be truthfully said about what it could possibly be' (White 2005: 147). Its orientation towards both actuality and

possibility (or in Atwood's terms, its 'speculative' character) gives fictional discourse some advantages. Presumably, it allows fiction to embrace, among other things, 'mixture, hybridity, epicenity, promiscuity' as formal strategies (regardless of whether it embraces those topics thematically, or features – let us say – racially mixed, polyglot, promiscuous epicenes as characters). Fiction's radical openness to possibility also gives it another advantage over contemporary historical discourse. Unlike present-day historiography, which desires to have the status of a science, according to White, and therefore cleaves to the past which is its only canonical source of evidence, fiction can continue to ponder the future in much the same imaginative fashion that earlier historiographies influenced by millenarian and apocalyptic Christian thought once allowed themselves to do, or so White argues (2005: 156–7). In yet another essay, this one on Kermode's *The Sense of an Ending*, White glosses Kermode's engagement with myths of beginnings and myths of endings in terms that can be brought to bear directly on the MaddAddam trilogy: 'Such myths, of "unremembered" (and "unknowable") but "imaginable" events, allow us to join an *imagined* beginning with an *imagined* end which pro-retrospectively, that is to say, pre-posterously, endows the time between beginning and end with meaning.' Theological or metaphysical meaning makes for the certitudes of myth and mythology, whereas meaning which seems '*only* imagined or feigned' – meaning which is portrayed as '*only possible*' (White 2012: 45, author's italics) – is properly fictional.

Here White offers us a more precise way of characterising Atwood's fictional strategies in the MaddAddam trilogy than calling those strategies 'speculative' (which speaks more to Atwood's unease about being identified as a writer of science fiction than to anything distinctive about the three novels). In the trilogy, we find our own time depicted in *pro-retrospective* and *pre-posterous* ways. Just as Kermode says fiction should, the three novels help us make sense of the 'here and now' (Kermode 1967: 39). And this is what renders Atwood's three novels almost immediately legible: while reading the first of them for the first time, one does have to acclimatise – so to speak – to the world Atwood depicts. But doing that does not mean a wholesale rejection of the norms shaping the world one already inhabits, or the exchange of those norms for new ones. In *Oryx and Crake*, the climate has altered, very much for the worse, and the woods are full of transgenic pigeons, swine endowed with human neocortex tissue thanks to a gene splice. Yet anyone who has experienced a heat wave or seen a pig, and who has some human neocortex tissue of their own, is able to make sense of this world in more or less familiar terms, and by invoking concepts like *hot*, *humid*, *mammal* and *pork*, which have been employed for thousands of years. Here and there, the trilogy may be preposterous in the usual sense of the term: in the third volume, for instance, the pigeons develop the ability to communicate telepathically, which is either the

unintended consequence of a gene splice too far or a sign that Atwood has lapsed from speculation into science fiction after all – or both. I am assuming that the porcine telepathy does not reflect the fact that the trilogy has jumped tracks entirely and become a work of fantasy fiction, like some other trilogies I could name. Yet this preposterousness of the usual sort does not mean that the trilogy's readers have to do the equivalent of learning how to get by in colloquial Klingon, or brushing up on the doings of the Time Lords who dwell on the planet Gallifrey, to comprehend its meanings.

Apart from these theoretical considerations having to do with genres, conventions and their effects in both the real world and the other worlds posited by fiction (and, inevitably, by interpretations like this one), I want to suggest that a reading of the MaddAddam trilogy as a series of interlinked historical novels, or as a single grand narrative telling the story of the rapid decline and fall – the collapse – of contemporary industrial civilisation, can be achieved without any undue fudging of the details Atwood presents. Consider the following elements of her narrative, each of which is constitutive:

- Climate change, and an accelerating degradation of environmental conditions broadly speaking, resulting in numerous extinctions
- Corporate development of genetically modified organisms, including animals, plants and viruses
- Advanced computer technologies, especially online technologies that help to further the saturation, if not the outright capture, of culture by electronic media
- The accelerating erosion of public space and the emergence of large private compounds owned by corporations; a corresponding decline in the importance of centralised government authority at all levels
- The privatisation of all functions once performed by governments, but especially those functions associated with maintaining infrastructures, ensuring security and upholding standards of public education
- Increased decadence, evident in the popularity of wildly violent and nihilistic video games, the globalisation of the sex trade both online and off, the legalisation of prostitution and recreational drugs, and a precipitous decline in culinary standards so that eating highly processed or entirely artificial foods becomes the norm
- Increased activity on the part of underground environmentalist insurgencies, most importantly the MaddAddam group that gives the trilogy its title
- A global pandemic that decimates the human population, even as some animal and plant species thrive despite the extinction of numerous others.

This list may not be exhaustive. But it highlights most of the things that have been noticed by critics responding to the novels as they were published,

and it will serve as a starting point for consideration of the trilogy's historical character in more specific, more concrete terms than I have used heretofore. Please note that many of the items on this list are relevant not only to the future Atwood depicts, but to the present day. The world she imagines is familiar; it is, in almost every respect, our world, and her depiction of it never departs from the norms of realism.

Before turning to the text of the trilogy and discussing it in greater detail, I would like to suggest – really, to insist – that Atwood's approach to her material is satirical. Despite the grimness of many of the elements of her story, which documents the end of the world as we know it though not the end of the world *as such*, Atwood's attitude remains consistently irreverent. While this lack of reverence is basic to the satirist's fictional mandate, it does pose a significant problem, especially for ecocritical interpretations. It makes it difficult to read the MaddAddam trilogy as a cautionary tale about collapse, and inadvisable to try and glean a hopeful, utopian message from the trilogy's treatment of resilience, stability and sustainability. If Atwood's corporate henchmen and boy-wonder scientists are appalling in their reckless disregard for planetary wellbeing, most especially for animal and human rights, they are also whip-smart and quick to counter flabby arguments about the sacred nature of species, or – as they would insist – genomes. Conversely, her environmental activists (many of them corporate renegades themselves) can be almost as hard to stomach as their antagonists, thanks to their constant recitation of pieties about nature's inviolability that came to seem passé some time ago. These activists compromise and even conspire with their antagonists, and some of them offer a green exegesis of the Bible just as strained as anything a late-night televangelist might dream up to justify his belief in, say, faith-healing. The activists also like to perform ecologically minded hymns that are tedious to read, and which even the best of gospel choirs could not render credible as song. Atwood's even-handed approach to her antagonists and protagonists – and it is not easy to sort them out neatly, thanks precisely to Atwood's even-handedness – makes the trilogy a discomfiting read. At her best, Atwood takes full advantage of the satirist's mandate to expose contradiction, hypocrisy and lazy moralism, and writes about the good, the bad and the ugly with much the same savage glee.

### ***Oryx and Crake*: the importance of being resilient**

It seems appropriate to consider the first novel of the trilogy apart from the other two, and to give it priority in my reading, since *Oryx and Crake* is tasked with establishing the character of the fictional world in which all three novels are set (it is also the deftest instalment of the trilogy). As is generally the case with science fiction – and disregard for a moment

Atwood's rejection of that label for her work – as the trilogy opens, the reader has to ascend a learning curve while attempting to absorb the details of what appears to be an alien environment shaped by some new trends in natural history. What makes negotiating the learning curve mildly challenging, at least initially, is that we only learn the things we need to know about this environment piecemeal. To read the novel is to become culturally and environmentally literate, as if the reader also needs to adapt to the transformed world Atwood describes. But for the reader this adaptation is far from being a Darwinian process (we have that advantage, at least, over the pigeons).

*Oryx and Crake* begins as Snowman, who figures as the main character in this first instalment of the trilogy, wakes just before dawn near an unnamed shoreline:

On the eastern horizon there's a greyish haze, lit now with a rosy, deadly glow. Strange how that colour still seems tender. The offshore towers stand out in dark silhouette against it, rising improbably out of the pink and pale blue of the lagoon. The shrieks of the birds that nest out there and the distant ocean grinding against the ersatz reefs of rusted car parts and jumbled brick and assorted rubble sound almost like holiday traffic. (Atwood 2004: 3)

The passage presents its reader with something of a perceptual puzzle. The juxtaposition of 'rosy' and 'deadly', followed by the narrator's wistful comment about how 'that colour still seems tender', signals that something is amiss here. Out of place, too, since the towers are situated 'offshore' and just beyond a lagoon filled with what would appear to be tropical waters. The setting might be some coastal city somewhere in the Global South, one ruined by poor or nonexistent urban planning, then abandoned and given over to the shorebirds that now use it as a roosting place. But, as soon becomes clear, the scene, while it is certainly tropical, is only recently so. Most of the action in *Oryx and Crake* transpires on the eastern seaboard of the US, most likely along the stretch of coastline in and around what is now Boston (or so Atwood has indicated in interviews). The first chapter of the novel ends with Snowman eating a mango, one he must have picked himself. Evidently, then, the novel is not set in the present day, but in some future that Atwood is imagining for us as the novel unfolds. In that future, mangoes can be picked well north of their present-day range, and one of the more dire forms of environmental collapse has long since occurred: the climate *has* changed.

It is unlikely that mangoes will manage the move to the Massachusetts coast in time to avoid extinction. However, this implausibility may not matter, since climate change is taken for granted in *Oryx and Crake*. Most of the novel's focal characters are too young to have witnessed the change and have lived with its results all their lives. For them, climate change is

essentially a closed chapter of history; this means that it scarcely needs to be *narrated* at all. Here is Atwood's summary account of its progress early in *Oryx and Crake*: 'time went on and the coastal aquifers turned salty and the northern permafrost melted and the vast tundra bubbled with methane, and the drought in the midcontinental plains regions went on and on, and the Asian steppes turned to sand dunes' (2004: 24). This is closer to a list – or to a schoolchild's hastily assembled report, in which all the facts have been cribbed from an old encyclopedia – than to a fully realised passage of narrative. It is offered not because it is interesting and important as such, but merely as a sort of sidebar in a passage about the difficulty of satisfying the craving for fresh meat in the post-climate change world. Attempts to read the trilogy as climate change fiction, and there have been a number of such attempts, overlook the fact that climate change is not disruptive but constitutive of the world that Atwood's characters find familiar, and in which they all seem to be more or less comfortable (at least initially).

Some of Atwood's characters are even a bit bored by the recent history of environmental devastation and collapse that is their ironic birthright. Here is how Snowman, or rather Jimmy since that is his real name, recalls the note his mother left him when she abandoned her family, and a comfortable life in the posh compound of a corporation devoted to transgenic research and development, in order to join an underground environmental group (as Jimmy later learns):

*Dear Jimmy, it said. Blah blah blah, suffered with conscience long enough, blah blah, no longer participate in a lifestyle that is not only meaningless in itself but blah blah. She knew that when Jimmy was old enough to consider the implications of blah blah, he would agree with her and understand. (Atwood 2004: 61; author's italics)*

In the original note, the blanks marked by repetitions of the word *blah* were filled with environmental discourse. This discourse fell on deaf ears when Jimmy was young, and by implication, it still does – even with the hindsight Jimmy has gained in the wake of a truly devastating collapse, a global pandemic in comparison to which climate change, to judge from the novel's rather scanty portrayal of it, appears to have been quite manageable.

It is possible to view the circumstances I have just described in diametrically opposed terms, by taking advantage (heuristically) of the dialectical model I sketched in my opening comments about collapse, resilience, stability and sustainability. What has happened before *Oryx and Crake* begins might be characterised less as a collapse than as a failure, a falling short, of sustainability – of precisely the kind we are experiencing at the present moment in history. On this reading, the novel documents something comparatively undramatic: it shows that where climate change is concerned,

the present-day habit of balancing prognostication with procrastination and prevarication, the habit of 'debating' climate change, is likely to continue, until all the relevant issues – the need for renewable energy, the shortcomings of industrial manufacturing and agriculture, the rearrangement of urban landscapes, the increased frequency of heavy weather – are obviated by the passage of time and the willingness of human beings to maintain an unsustainable status quo. On such a reading, *Oryx and Crake* is neither apocalyptic nor post-apocalyptic, but 'historical' in the sense of its being self-reflexive and 'historiographical' in the manner I described earlier, when I discussed some ideas formulated by Hayden White. The culture the novel depicts (and the rest of the trilogy follows suit) is not one that has prepared itself mentally for the judgement on its history now being meted out. It is one that has backed resolutely – and *pre-posterously* – into the future with its eyes closed, a culture that continues to 'deny' climate change *even after it has happened*, and which takes only minimal measures (like bullet trains and 'solarcars') to adapt to its ravages.

Jimmy's inability to cope with his situation in the novel's opening pages, like his earlier rejection of his mother's environmentalist message, mirrors his culture's failure to engage adequately with its historical moment. That nobody is able to grasp the enormity of climate change, or to get any real traction on coping with it once its reality is painfully evident, is what makes Atwood's satire so pointed. She describes the systemic failure of local ecologies and reliable weather patterns, and parallels those things with the systemic failure of the culture at all levels. Let's be clear about whose culture she is describing. One of the confessions Atwood might have made in interviews, but to my knowledge has not, is the Flaubertian admission: 'Jimmy is me.'

Perhaps the most striking thing about *Oryx and Crake* is the density of detail with which Atwood fills its pages, but without engaging in a lot of flabby description and exposition (both of which mar the rest of the trilogy). Instead she introduces novel creations like 'Sveltana No-Meat Cocktail Sausages' (Atwood 2004: 4) casually, and tosses off commercial and other neologisms as if they already belonged to the vernacular and should be easily understood. Her brand names are especially amusing, though they are in need of some decoding. The sausages made by Sveltana must be dietetic (surely a first), even if the label does suggest a pun on 'Svetlana', a Russian name which hints that the sausages are marketed to a *babushka* who only dreams of becoming svelte. So the pun suggests advertising images of before-and-after. 'No-Meat' adds to the implication that these sausages are more slimming, and therefore healthier, than other cocktail sausages; though it also indicates that there is literally no meat – or more to the point and more precisely, no longer any meat not originating in the living flesh of a non-GMO – to be had. So the Sveltana cocktail sausages can take their place in the end-of-the-world larder next to the

dog food Mel Gibson eats in *Mad Max* and the canned hams scavenged by the protagonists in Cormac McCarthy's *The Road*. Thanks to an accident of history, the Sveltana sausages have become survival rations. As has the 'chocolate flavored energy bar scrounged from a trailer park' which Snowman 'can't bring himself to eat' since 'it might be the last one he'll ever find' (Atwood 2004: 4). Any reader who frequents the food aisles of groceries and convenience stores will be struck by the gooey symbolism of the last energy bar on earth serving, along with the Sveltana sausages, the abandoned skyscrapers and the reef of automobiles that shelters the lagoon, as an ironic monument to the passage of the consumer society we now inhabit.

The norms and parameters of the new world Atwood has imagined take some time to emerge fully. It hinders this emergence only slightly that Snowman is incoherent, perhaps even demented, since his incoherence and dementia coincide with and reflect the alteration in norms and parameters. In the opening pages of *Oryx and Crake*, he speaks aloud several times, once to the grasshoppers he disturbs when, in order to urinate, he climbs down from the tree where he sleeps, and then again to himself, when he says, probably quoting from an old book, 'It is the strict adherence to daily routine that tends toward the maintenance of good morale and the preservation of sanity,' and then again when he begins a sentence he cannot finish: "In view of the mitigating," he says' (Atwood 2004: 4, 5). Throughout the novel, Snowman is grieving; but he is also borderline aphasic, suffers from auditory hallucinations – and is sometimes drunk to boot. Worst of all, Snowman no longer has anyone to talk to who understands his loss. He is apparently (though not really) the sole human survivor of a global pandemic, so his grip on language and on meaning itself is slipping (which is especially significant since, as we later learn, he is a liberal arts graduate). Of course Snowman is physically miserable, too: dirty, stinking, bitten by bugs and scratched by vegetation, and constantly at risk of sunburn, blindness, dehydration, and lightning strikes thanks to the changed atmosphere, which affords little protection from the sun's rays and is roiled by violent thunderstorms every afternoon.

What makes this situation bearable for the reader is the distance from Snowman's predicament created by Atwood's unfailingly jaunty and often salacious sense of humour, which serves to give the novel perspective on the events that it narrates and the scenes that it describes. It is this perspective on events – and *on the real*, to recall Hayden White's distinction between the historical and the fictional – that makes the novel and its two sequels eligible as works of historical fiction. As events unfold and scenes are developed, the reader is made conscious of the cultural failures of the present moment, and quickly comes to see how a world of just the sort Atwood has imagined might emerge from this moment. In other words, the reader is enabled to see the present moment in parallax view,

simultaneously juxtaposed to and synchronised with the future. And this gives rise to a vertiginous sense of movement, of a headlong rush towards a weird future that is all too easy to recognise in the lineaments of the present day, that is already emergent, even as we would like to believe it might be forestalled.

It is for this reason, I think, that Fredric Jameson identifies Atwood as a science-fiction writer (approvingly) and argues that ‘at this moment, all fiction approaches science fiction, as the future, the various futures, begin to dissolve into ever more porous actuality’ (Jameson 2009: 7). Jameson’s point, which he has made many times over the course of his career, is that genre-melding is itself a historical process and is therefore one Atwood cannot escape (her preference for the label ‘speculative fiction’ notwithstanding). Richard Posner, in a review of *Oryx and Crake*, takes Atwood’s measure in more conventional terms, aligning her with Wells, Huxley and Orwell, and suggesting that all four novelists have produced ‘extravaganzas of extrapolation’ which ‘identify a dominant contemporary trend and explore the ominous consequences of its being allowed to continue unchecked’ (Posner 2003: 31). Posner’s appreciation of *Oryx and Crake* is more restrained than Jameson’s appreciation of its sequel, as Posner finds her portrayal of ‘today’s United States’ to be ‘a caricature – how much of one is the question’ (2003: 32). Yet Posner concludes his review by noting, ‘It is increasingly difficult to imagine feasible solutions to the problems created by the scientific-technological juggernaut – the problems dramatised by *Oryx and Crake*. We must not forget that it is in the nature of prophecies of doom that all but the last are falsified’ (2003: 36). To put Posner’s point into my own terms, and to reiterate an important point I made earlier: just because a certified ‘collapse’ has never occurred does not mean one will not occur sooner or later. It *can* happen here.

### **Transgenic, yet all too human**

In a situation of the kind Atwood describes – one in which collapse is not so much a dread possibility as a constitutive element of the situation itself, an endemic condition and not just an ominous sign of the times – only a meta-solution will serve. In *Oryx and Crake* Jimmy’s boyhood friend Crake provides just such a solution. Throughout the trilogy, Crake remains a cipher, a remote character whose motivations remain unclear despite the lines of dialogue Atwood feeds him, and notwithstanding the background as a disaffected teenager with which she has provided him (in order to hint that while he may be a sociopath, bad parenting and a decadent society are partially to blame). At the same time, Crake gives Atwood a chance to display her own cleverness as a novelist while

characterising Crake's intelligence in superficial and shorthand ways (for instance, by identifying him as a numbers guy). As teenagers, Jimmy and Crake spend a lot of time together, smoking pot, watching Internet porn and online broadcasts of capital punishment, and playing computer games. The porn sites – Tart of the Day, Superswallowers and HottTotts – demonstrate Atwood's knack for echoing the facile, and almost always comic, logic of contemporary commercial language. So do online execution sites like *shortcircuit.com* and *brainfrizz.com*.

The most formative influence on Crake's development is the computer games he plays with Jimmy, which include *Barbarian Stomp*, *Blood and Roses*, *Three-Dimensional Waco*, *Kwiktime Osama* and *Extinctathon*. Each of these games involves scenarios of collapse, as the names indicate; and each of them, along with the porn and other websites visited by Jimmy and Crake, has been identified, perhaps too readily, by readers as a symptom of the decadence that is one factor leading to the 'post-apocalyptic' conditions described in the novel (see, e.g., Bouson 2004). Atwood herself seems remarkably nonjudgemental. She describes the violent nature of several of the computer games in scandalous detail, and her bemused tone never falters. Here is what she has to say about *Blood and Roses*, where players compete by trading historical atrocities for epoch-making cultural and scientific achievements:

The exchange rates – one *Mona Lisa* equalled Bergen-Belsen, one Armenian genocide equalled the *Ninth Symphony* plus three Great Pyramids – were suggested, but there was room for haggling. To do this you needed to know the numbers – the total number of corpses for the atrocities, the latest open-market price for the artworks; or, if the artworks had been stolen, the amount paid out by the insurance policy. It was a wicked game. (Atwood 2004: 79)

The note of approval sounded by Atwood's use of the word 'wicked' here should not be missed. *Blood and Roses* may appal the moralist, but its educational value is undeniable. It marries the admiration of monuments beloved by affirmative culture with the levelling strictures of demystifying cultural critique, and thus it might offer something to the Matthew Arnold as well as the Theodor Adorno or the Walter Benjamin in each of us. Here, every document of civilisation can be exchanged, quite directly, for a document of barbarism – and vice versa, too, or Blood-for-Roses if you like. Crake and Jimmy acquire a liberal education by playing the game, and each becomes a more critical thinker as a result. Or so Atwood suggests. (It says something about the redemptive way in which most novels continue to be read and received that while the hymns Atwood wrote for *The Year of the Flood* have been set to music by a composer from California (see the CD *Hymns of the God's Gardeners* (Stoeber 2009)), not one of the much more imaginative computer games she describes in

*Oryx and Crake* has gone into production. They remain purely literary artefacts.)

While Jimmy is merely disaffected, like all teenagers (he becomes fond of using the dated expression ‘bogus!’), Crake’s critique is eventually articulated in terms of his contempt not only for his culture but also for his species, both of which he sees as unsustainable. Thanks to his status as a grand master player of *Extinctathon*, and a whiz-kid gene splicer, he acquires the numbers he needs to back up his critique and the skills to render it fully operational. That is, he succeeds in wiping out all of humanity except for a small handful of survivors. (*Oryx and Crake* ends just as Jimmy is about to confront three more of them; others turn up in *Year of the Flood* and *MaddAddam*.) So it is worth noting that at no point in the trilogy does Atwood suggest that Crake’s diagnosis of the problems created by his fellow human beings is *wrong*, however ill-advised and mean-spirited his prescription for treating those problems seems to be. This prescription comes in the form of BlyssPlus, a sexual enhancement drug more like the street drug Ecstasy than Viagra™ or Cialis™. Once consumers have become hooked on BlyssPlus, Crake uses the drug as a Trojan horse to introduce a virus, ‘a rogue hemorrhagic’ (Atwood 2004: 325), at all points of the compass globally and simultaneously. Almost everybody dies.

Thus Crake comes up with a market solution to the problems of collapse and sustainability, but not one of the sort favoured by business and government today, because it is also a meta-solution. All markets crash in the wake of the plague Crake unleashes, as the consumers those markets would like to target liquefy on street corners and in their own homes. The only person Crake intentionally spares is Jimmy, not for sentimental reasons but because Jimmy is the employee Crake entrusts with the caretaking of his greatest creation, the Crakers. They are a new species of transgenic humanoids adapted (if that is the right word) to a diet of crude vegetable matter, obviating the need for agriculture. The Crakers also can eat their own solid waste (a trait borrowed from rabbits), and they can purr (a trait borrowed from cats), enabling them to heal wounds with ultrasound. The males urinate both to relieve their bladders and to mark the boundaries of their territory (a trait borrowed from canines and other predatory mammals). The Crakers also enjoy mating seasons like those of many non-human mammals, so that female Crakers are only ‘in heat’ a few times a year. The females emit pheromones as their genitals begin to turn bright blue, eliciting a corresponding chromatic change from the males. Since the Crakers are already particoloured (solving the problem of racial difference), their mating rituals give Atwood a chance to describe a scene that resembles a performance of the Chippendale dancers, if one were to attend the show after dropping a few tabs of one of the livelier hallucinogens:

Courtship begins at the first whiff, the first faint blush of azure, with the males presenting flowers to the females ... At the same time they indulge in musical outbursts, like songbirds. Their penises turn bright blue to match the blue abdomens of the females, and they do a sort of blue-dick dance number, erect members waving to and fro in unison, in time to the foot movements and the singing: a feature suggested to Crake by the sexual semaphoring of crabs. (Atwood 2004: 165)

The mating season is more than the occasion for an amusing spectacle. It solves the problem of sexual jealousy, since each female selects four of the males, all of them physically perfect and very well hung, and mates with them serially until she conceives at the conclusion of what Atwood describes as 'an athletic demonstration, a free-spirited romp' (2004: 165). The mating season also solves the problem of overpopulation, a solution backed up by the Crakers' foreshortened lifespan (which means they will never need geriatric care).

While Crake's redesign and customisation of the human genome seems well thought out and largely successful, there are good reasons to think it fails tests other than, say, the moral and aesthetic ones, which might lead some readers to mourn the fact that sex 'is no longer a mysterious rite' (Atwood 2004: 165) and to think that the Crakers are missing out on something. They are annoyingly inane creatures in many respects. Their dialogue, for instance, does not make for lively reading: they address Jimmy with the worshipful refrain 'Snowman, oh Snowman' throughout the trilogy and they are aggressively literal-minded most of the time. So while I think Atwood should be willing to say 'Jimmy is me' – and even 'Crake is me' – I would not want to hear her say 'The Crakers are me' since the Crakers, especially as they are depicted in the trilogy's first volume, are creatures no thoughtful creator should wish to own.

The chief irony of *Oryx and Crake* is that by engineering the Crakers and placing them alongside all the other transgenic novelties that now fill the landscape, and by wiping out most of the human population at the same time, Crake *does not* reprogramme the course of humanoid evolution as he had planned to do, hacking it like the computer games and other digital technologies he tinkered with as a teenager. He merely reboots it. However altered individual genomes may be in the MaddAddam trilogy, evolutionary processes continue to run just as they always have done. The result of Crake's tinkering is not stability, but resilience – in the Crakers' case, of human nature – and a doubtful forecast for sustainability. The Crakers, tutored by Jimmy, begin to view Crake as a god-like figure in the wake of his death (about which they are not told, since Jimmy has killed him), while Crake's consort – and Jimmy's clandestine lover – Oryx (whose throat was slashed by Crake himself) features in their belief system as a minor deity in her own right. The Crakers also quickly acquire other rudiments of culture and are on their way to becoming fully

fledged humanists. This is evident not only in their singing, but also in their fashioning of crude icons and their curiosity about both their own origins and the flotsam and jetsam left behind by vanished human beings (hubcaps, piano keys, bleach bottles, a computer mouse). By the third novel, a young Craker has acquired the ability to read and write, and is able to play a diplomatic role as an envoy in the disputes that emerge between the humans, their Craker counterparts and the now-telepathic pigeons, who have been doing some evolving of their own thanks in part to the human neocortex tissue implanted in them by OrganInc. Crake's design protocols are set aside, then, by a partial reversion to the human phenotype on the part of the Crakers. Of course, it does not help matters that the few surviving and still fertile human females find the advances of the Craker men irresistible; three of them are pregnant with children fathered by Crakers at the trilogy's conclusion. These pregnancies ensure that hybridisation is carried forward not by transgenic but by natural means, although the distinction between the two has been weakened and may no longer apply in the short term.

Resilience therefore seems to play a subversive role in these novels. As I suggested earlier, along with stability, resilience might be said to mediate between collapse and sustainability. But the result is, at best, a slovenly synthesis – and the mediation or rather the evolutionary process seems to be ongoing, with no end in sight. As suggested by the second epigraph to this essay, the end of the trilogy is 'not the end' but an opening onto yet more of the same, perhaps in perpetuity. This suggests, as I hinted earlier, that the logic employed by Atwood late in the trilogy is less that of 'speculative' fiction than that of fantasy, which pre-posterously – and preposterously – makes every narrative over into a never-ending story and forestalls 'the end of history' regardless of whether that end is envisioned as hopeful or not. (It should be clear by now that by proposing that we read the trilogy as a work of historical fiction, I was not seeking to rescue it from being characterised as belonging to some inferior, 'low' genre.)

In *MaddAddam*, the trilogy's 'final' volume, humans have weathered the near-total collapse wrought not by global warming but by Crake's 'rogue hemorrhagic' virus. Yet it seems unlikely that their genome will recover its purity, naturalness and vigour in the future. Assuming, of course, that the genome had any purity and naturalness and vigour left before the catastrophe visited upon it in *Oryx and Crake*, when most humans had already been tweaked in various ways, even if most of those tweaks – implants, fingerprint wipes, and so on – were merely cosmetic. As for the landscape, it will continue to be filled with transgenic plant and animal species run riot: the pigeons will go on competing with other predacious species like wolvogs, bobkittens and humans; the understory will serve as home to feral rakunks and glow-in-the-dark rabbits; lurid flowers, knockoffs of tropical species, will perpetually bloom; and day-glo

butterflies will help to pollinate them. So while the few remaining human beings, most of them former God's Gardeners (members of the ecological cult whose history is described at length in *The Year of the Flood*) and conscripts in MaddAddam's ecoterrorist counter-conspiracy, attempt to relaunch the project not of modernity but of sustainability, the post-collapse version of sustainable living is just as compromised as the Deep Ecological version of it they practised in *The Year of the Flood*.

The landscape in *MaddAddam* is so wrecked that the survivors have no choice but to continue scrounging among the remains of the very industrial civilisation they once had hoped to forswear for such essential items as soap, toilet paper and the bed sheets they need to protect their skins from the still-damaging rays of the sun. On the one hand, they have seen the end of industrial civilisation; on the other hand, they continue to be dependent on its products. Equally to the point, the artisanal enterprises they have begun threaten to reinvent industrial processes all over again. The paradox of the MaddAddam trilogy as a work of historical fiction, then, is that it somehow manages to have a false front and a false back at the same time: its end marks a new beginning, but this new beginning seems likely to eventuate in calamities similar to those that – or so we are encouraged to assume – first set its narrative into motion. So in the end, and in the final analysis, the MaddAddam trilogy describes both the course of history and a doom cycle.

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