

School of Media, Creative Arts and Social Inquiry

Capitalocene Dreams: Dark Tales of Near Futures

&

**The 21st Century Catastrophe: Hyper-capitalism
and Severe Climate Change in Science Fiction**

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Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made. This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

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Abstract

This thesis investigates the research question: What is the role of speculative fiction in a climate changed world? The research investigation consists of two parts: the short story collection: *Capitalocene Dreams: Dark Tales of Near Futures* and the exegesis: *The 21st Century Catastrophe: Hyper-capitalism and Severe Climate Change in Science Fiction*.

Science fiction emerged in the nineteenth century as an amalgamation of multiple strands of converging popular literature developing alongside western technological progress and imperialist expansion. Born of industrialisation, science fiction literature is deeply engaged with the impacts of scientific, technological, political and social change, reflecting societal anxieties of its time.

Identifying capitalism as the engine driving severe climate change on Earth, *Capitalocene Dreams* explores life on the fringes of disintegrating Australian enclaves during the dying days of neoliberal excess, an unstable near future landscape in which humanity is forced to face up to the consequences of its collective lack of action. These are speculative fictions; deliberate fusions of science fiction and climate fiction; cautionary tales reflecting mechanisms of corporate culture running amok, with humanity infected and 'civilisation' set upon a blind trajectory to annihilation. The stories evolve incrementally from science fiction into fantasy; edges blurred as our systems become irreversibly contaminated with threats of obsolescence. Glimmers of hope manifest in glimpses and suggestions of emerging, post-natural landscapes; whispered promises that through resilience, new baselines and new cultures will inevitably evolve.

The accompanying exegesis, *The 21st Century Catastrophe: Hyper-capitalism and Severe Climate Change in Science Fiction*, examines key cultural concerns of the sixties and seventies as expressed through ecocatastrophe science fiction: overpopulation, pollution, resource depletion and contamination, considering that, despite sophisticated literary efforts, science fiction's cautionary tales were rendered ineffective, diffused by genre cringe and prejudice, dismissed as mere entertainment. This is contrasted with contemporary climate fiction, written with the presumption that the processes leading to resource depleted, climate ravaged futures are already inexorably in motion. Anthropocene fiction is pushing beyond its origins as a subgenre of science fiction, evolving into a bold new genre responding directly to looming environmental crisis, laying the foundations for new literatures to emerge alongside new technologies, new attitudes, new social ecologies and new hope.

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Capitalocene Dreams: Dark Tales of Near Futures

Prayers to Broken Stone¹

1. Eyes I Dare Not Meet in Dreams

The apartment is musty. No one has been in here for a very long time. Arpita tugs the curtains, letting in a blast of light. To do so is permitted, on the list of things she is allowed to and supposed to do.

Dusty boxes in need of unpacking clump together against a plain cream wall. The box cutter is in the drawer where *they* said it would be. Everything is always exactly where the voice on the phone says it will be.

Old furniture belonging to a different era. Ancient hardwood, stained, too ugly to be valuable.

She wasn't allowed to bring the notes she'd scribbled when they called. They expect her to memorise ordinary lists of ordinary-sounding tasks, but nothing is ordinary about this job or this place.

Arpita slits tape, unpacks each box slowly and thoughtfully, examining every object in case it is more than it seems: long-life milk, tea bags in packets of 100, slim rectangular tubes of coffee pods. The coffee machine on the grey marble bench top looks like it has never been used.

Two double beds in separate rooms with mismatched sets of sheets. She's surprised by the wardrobe in the master bedroom: an ancient monstrosity with large, dark keyholes, wafting smells of naphthalene and tennis shoes. One much like it stood in the grand Bengali mansion where Aunt Laksha worked. Aunt Laksha used to sneak the sisters past the wrought iron gates. The young girls made a castle of that wardrobe, imagining themselves princesses and queens.

Arpita dismisses her memories brusquely. She makes both beds and stacks the linen closet with towels pulled free from placental wrappings.

She took this job because it pays more than any other job she's ever had. The extra money is supposed to buy her silence. In eighteen months, she has learnt nothing more than what brands of tinned and packaged foods can be conveniently stocked in different cupboards. Only once has her employer's agent come to meet her, a woman who declined to give her name. She looked disturbingly like Arpita; of similar height and build. Similar skin, yet not one of her people. Different hair, but changing hair is easy.

The woman stared her down and said, *Whatever it is you're looking for, stop here. Stop now. Trust me.* She put her hand on Arpita's and it was cold, the look in the woman's eyes much colder.

¹ Originally published in *Kaleidotrope* Magazine, Spring, 2017: <http://www.kaleidotrope.net/archives/spring-2017/prayers-to-broken-stone-by-cat-sparks/>.

There are always phones in the apartments. Old-fashioned landlines made of dull green plastic. If a phone rings, Arpita is supposed to leave. Immediately. Just drop whatever she is doing and get out, never to return unless instructed.

In eighteen months she has obeyed every command, from unpacking boxes to calling numbers and leaving incomprehensible messages. Sometimes simple tasks are required, such as purchasing a bottle of Dior perfume at Myers, placing it on the second shelf in a bathroom cabinet. Other things, all too ordinary to speak of.

Arpita lives in motels they designate and pay for. That part she doesn't mind—she'd been staying with distant relatives barely known to her. Had they searched for her that first night she didn't come home? A question she ponders frequently as she cleans apartments that, as far as she can tell, are rarely used. Which should make them safe, but doesn't. *Safe as houses*, something her Port Hedland case manager used to say. Safe as houses... a peculiar phrase, whatever such words were truly supposed to mean.

Once Arpita spent six weeks in a red brick house waiting for a call that never came, sleeping in an enormous double bed.

It's Wednesday and she's dusting venetian blinds in the master bedroom. The phone rings, a jarring clamouring like bells, unsettling in the electronic age. She pauses the duster mid-air. Three minutes can be plenty of time, or not enough if your personal items are scattered.

She knows what she is supposed to do, but this time something stops her. She freezes, waiting for the awful noise to cease. Then Arpita does something she has never done before. Picks up her shoulder bag, takes off her shoes and climbs into the dark and musty wardrobe.

Her heart is pounding and she knows she's crossing a line, that she doesn't know what she's doing, that apartments such as this one are not safe—nowhere is safe, that she might get killed if she sees something she shouldn't, that of course she will see something because everything is forbidden to her here. Everything. But it's too late, three minutes have drained away, then another one, then another and another.

Her right foot is beginning to cramp when metal jangles and a key turns in the lock.

2. In Death's Dream Kingdom

I watch and listen. That's what they pay me for. Not a bad job, really, but I've been working here too long. The anti-social hours fall within my comfort zone, as does overtime, cab vouchers, meal allowance and blissful solitude during the graveyard shift. An oversized, padded swivel chair and a big fat bank of sixteen monitors. A slim window sits above the penguin clock I brought from home: tinted and permanently stuck fast. Always chilly—air conditioning's there for the machinery, not me.

I sift data for politicians. Record and splice together news they don't have time to watch, with eyes glazed over—I can do this in my sleep—sometimes it's like that's exactly what I'm doing.

Management locked us out of gaming, Twitter, Facebook, Tumbler and Instagram. Email's permitted—I IM folks all around the world. One of my regulars is a woman called Morgan. Not her real name. Probably American. I used to think our jobs were similar: watching screens, summarising data. Morgan twiggled to my civilian status early. Stopped using the heavy military jargon I struggled to get my head around.

She might be military but she's not infallible. They call her station 'the Caribbean'—pretty sure that's code for someplace cold—where shifts last 24 hours in capsules buried 60 feet below. She too has a swivel chair, but only four old monitors, black and white: two keyboards and a box her people refer to as 'the key'.

She says her people get slung a lot of tests: long checklists, learn-by-rote and sleepless nights. Fake alerts come in at all hours with flashing lights and nerve-grating alarms. The pumped-in air stinks like a backed-up sewer. Vibrating floors make them nauseous and antsy. They're off their faces half the time on stuff she calls 'bath salts'. They scour their capsules in search of secret cameras but the ever-flickering fluorescent lighting conceals all evidence and proof.

Sounds like hell.

Another slow shift in my own shitty job. Sixteen screens showing nothing of local interest: Al Qaeda insurgents striking back in Yemen. Gaza, where they're making gas masks out of jars and paper towels. North Kivu awash with starving Congolese. Janjaweed proxy militias continue systematic hammering of Darfur villages. North and South Korea... not much happening—nothing new. A French tiger helicopter raid in Mali—gotta love those 'surgical' missile strikes.

My bottommost right-hand screen is stuck on a live train station feed. People waiting on a concourse under a big old clock. Unusual, no explanation in the shift handover notes. Not my problem. Someone else can sort it in the morning.

My eyes are dry.

Just past the witching hour, up pops an IM window. Morgan. She never wastes my time with pleasantries. Gets straight down to whatever's in her head.

'This whole bloody subculture,' Morgan types, 'You get inklings of it on TV. What was underground is now mainstream. This whole hybrid happening. The mentality. They're carrying a lot of hurt.'

'Who's carrying hurt—are you watching what I'm watching?' I reply, then backspace over my words. Of course she isn't. I've figured out she's Air Force, stationed somewhere in the wilds of the USA or Alaska.

What I'm watching is text scrolling along the bottom of three screens claiming the Syrian Mujahideen are taking the fight to the Assadist enemy. Shabiha forces holed up

in a building when the Mujahideen come busting through. Pale goutts of smoke envelop crumbling cement. Trees shiver beside the satellite dishes.

‘I’ve got toxic strain,’ Morgan continues. ‘Spent too much time doing the jobs nobody wanted. I’m used to a different kind of chaos. There are cameras everywhere. In the foyer, glass tubes hanging off the ceiling. I miss Alexander, my ex.’

I pause before replying. She’s told me about her ex so many times. ‘Thought your husband’s name was Dominic?’

She pauses. Three little wavering dots onscreen. ‘Alexander or Dominic. One of the two. I mix them up. I’ve got head trauma. Hairdressers don’t like cutting my hair because of it.’

Morgan can get pretty random sometimes—some nights more random than others. Sounds like tonight is going to be a doozy.

I rest my fingers. My feeds seem to be stuck on Syria for the long haul. Insurgents caught up in an extreme firefight with SAA Troops in Atman. Small arms fire, mostly, but I can just make out impressions of heavy urban terrain fire-fighting in the background.

I wait to see if she’ll bring the chitchat back to Dominic—or Alexander—but she doesn’t. Way back, I concluded that Morgan has never actually been married. That Morgan has, at best, a tenuous grip. She’s never once asked after my own sorry marital condition. She likes to talk. She’s not much of a listener.

Three dots blinking, waiting.

An innocuous, gradient sky fills my screens. Clipped bursts of Arabic, a young guy firing in Adidas knock offs, dusty blue jeans, ammo cartridge striped in his nation’s colours. *Allah Akbar*, he says. *Allah Akbar*. No protection but sandbags and thin trees.

I’m going to keep the IM window open ‘til Morgan gets bored and goes away. She used to ping some of the other guys but now she just pings me. Didn’t take long for Leskie and Wazza to call it like it is. Contradicting her terms, her frames of reference: *Morgan, you were not on-board the Rainbow Warrior when it blew. Morgan, you never signed with the French Foreign legion. They don’t take chicks—and if you reckon you speak French, go on then—prove it.*

I don’t believe her either. Reckon Morgan reads a lot of magazines. She’s recounted in great detail black ops in jungle terrains. Bagging dead bodies. Digging maggots out of her flesh with a bowie knife.

‘I avoid the packs,’ she told me once. ‘I just can’t run anymore. I’ve got scars all over my body. Scars on my arms. Scars on my legs. Scars on my hands. Scars on my side. Gotta do gym just to get the aggro out.’

On my screens, blurred forms streak past flaming ruins. Bare arms against stripped trees. Fighters dragging fallen comrades through dark soil. Back against the split brick wall, hurrying down grenade blasted streets. Tanks trembling with the aftershock.

‘The soldiers all wear protective gear,’ says Morgan. ‘They reckon ESP exists. Based on random possibility and the speed of technology. In Kabul, you know not to touch these guys. So long as you do nothing wrong, you’re fine...’

There’s nothing fine about the long-range firefight live-streaming from Afghanistan. The onscreen battle contains small-arms fire, sniper rifles, machine guns and an A10 Support Scattershot cloud peppered over orange sunrise. Machine gun rounds like popcorn. Rapid fire. Pop pop pop. Mist rising off distant mountains. ‘Coming between right peak and right here,’ the onscreen soldier shouts. His face obscured in shadow. ‘Got more coming your way, friend!’

I take a slug of warm Red Bull, shift my weight as a tattooed insurgent fires through the smoke, which goes from white to black, to vaporised. Big gun mounted on a Toyota flatbed. The whole thing shudders when it fires.

On the screen below, footage of the seizure of Khan al-Asal. Scrolling text in Arabic, superimposed over masked men firing through gaps in an ancient stone wall. Cut to big guns firing out the side of a dirt-streaked combi. The vehicle shakes with every bright blast of yellow.

When the smoke clears, I’m staring at a firefight in woodland terrain. Some other fucking country altogether. I sit up and say out loud, ‘Hey wait—is that Bosnia?’

Nobody answers—obviously. Wouldn’t be the first night shift I’ve ended up talking to myself.

Onscreen, infantry trudge uphill through waist-high foliage, leaves dull, khaki green. Walky-talkies passed from hand to hand, pale faces daubed with shadow stripes. Arguing over directions. Out of the sunlight, uniforms meld with the muddy tree trunks and rotting leaves.

‘Saw a soldier suicide,’ says Morgan. ‘He had caps in his teeth. I turned around and he wasn’t there anymore. Only a few of us stuck with the mortuary run. You lose your memory. That’s why no one wants the job. My friend was the Russian who got done with polonium. I knew him as an Englishman. I remember standing, watching some dead people after a tank accident. Married an Englishman. Don’t know if he’s alive or dead. That’s reality in the twenty-first century...’

AT4 rocket liv-fire footage. A10 Thunderbolts blitzing already arid fields. Vignettes of greedy, gobbling flames digest a row of tanks, canary yellow, through blazon orange, demon red, then finally to belching chokes of charcoal.

I lean in closer. This war looks familiar. Really familiar, only I hardly ever pay attention to the European feeds. The monitor room’s gone very dark. I can barely make out past the edge of the desk. Can’t even see the penguin clock or the glow that usually bleeds in from the streetlights.

‘It’s chaos if you buy into the information,’ says Morgan. ‘Like playing a computer game. I’m walking through town and there’s this enormous screen. A cartoon character’s

eyes pop out and he looks at me and winks. Satellites can track us wherever we go. The military are transmorphing and transposing all realities.'

My screens seem closer, bigger, more immediate, each one filled with city ruins in black and white. Footage from an older war in dreary smudges of colour. A woman running ahead of shuffling crowds, like constipated lava. Men in brown lining up to get their guns. Loading boxes. Marching with fists raised.

'What. The fuck. Am I watching?'

'I'm a believer in eternity,' says Morgan. 'The future doesn't exist and the past doesn't exist. That's why I don't believe in time travel. You get tethered to people. Just take it as it comes. A whole other world we're not meant to be aware of.'

I realise I'm no longer typing. Morgan's slow southern drawl continues inside my head. Too many cigarettes. Too many nightmares.

The feeds change back to black and white: ruins and rubble, peasants wailing for lost children, lost men. Unfamiliar aircraft in the background.

'There was this funeral in town,' says Morgan softly. 'Only one mourner. A soldier. Everyone else was in the shadows. Some people know me from the past—and others from the future. You got to be nice to them. I never get involved in the machinations.'

Two soldiers in skin-tight jumpsuits step in from the left—their uniforms are like something out of sci fi. The smaller one carries a gun that's half her size.

'Gotta go,' I say to Morgan. She doesn't answer. The IM chat box has vanished from my screen.

'She got disconnected,' I explain to the empty room. It's all just darkness like the sky behind the ruins. No screen. No walls. No sound.

The close air reeks of cordite, dust and ash. And something else—dead flesh. As the soldiers approach, the tall one pulls his helmet off. The small one slings the gun across her shoulder.

'No.'

'You don't fall through the thin ice unless you've walked there before,' says Morgan. It's her, no mistake, standing right in front of me. Hair lank and greasy, fallen bodies strewn about her feet.

'I spent my entire life expecting people to die,' she whispers. 'Life's just like that. Good and bad at the same time.'

But I'm not listening. That tall soldier has me spooked. Something about the shape of him and the way he shifts his weight. When the helmet's off, he runs gloved fingers through clipped hair. My hair.

'I've got ghosts,' says Morgan. 'They cling to us when they want to.'

I shake my head but the soldier doesn't see me. A radio crackles and he talks into his wrist. With my voice, my lips, my blunt inflections. I'm still shaking when both of them step out of the screens and walk right through me, boots and all.

3. Sunlight on a Broken Column

Esther is not certain of this city or the date. She has been awake for 100 hours, running from The Soldier with the straight white teeth and sniper rifle. Sheltering in doorways, cowering in the back of cafes, dimly-lit, or the protective, garish glare of McDonalds, with its stale fat stench, plastic furniture and nobody paying attention to anyone else.

The brisk wind brings her mind into sharp focus. The camera slung across her torso bangs against her hip. This is Sydney and she is pretending to be a tourist, easily blending with youth hostel backpackers—tattoos, piercings, Paddy Palin kit—but when The Soldier smiled, he knew and she knew he knew. She'd been made and she's been moving ever since. On alert and perpetually on the run.

Esther is the name they gave her, a diminutive of the Goddess Ishtar or perhaps an ancient Persian name for 'star'—she can't remember. Esther has had many names and many, many briefs. So many countries, so many exit routes.

She presses her face against the bus window, camera balanced on her knees, observing backstreets thick with casualties of suburban wars: the ancient, the hard-bitten, the weary and the desperate. No smiles to spare. Withered hands fumbling coins, roll-your-owns pinched between sour lips, shapeless women in floral polyester, urchins darting between varicose calves.

The bus shudders, flinging Esther backwards. Leviathan faces pout down at her from billboards. Torn paper hangs in pastel curlicues, weeds lunge between pavement cracks. Wind sends garbage pirouetting in the updraft.

She is safe here on this rattling bus. For the moment.

The 309 crawls through urban wastelands, slinks past terraces huddled in rows. Abandons passengers at the feet of mighty towers. Esther slumps, lets her eyes slip out of focus as the cityscape bleeds to monochrome. In the floodlit glare, she glimpses evidence of shadows trapped. Geometric silver planes intersecting where darkness melds with light. The Soldier will not shoot her in broad daylight. Not if she keeps moving—and she's always on the move. Once the package is delivered, she's off the grid—perhaps forever. She's waiting for instructions; that kind of message, she'll know it when she sees it.

The bus tacks wind traps between cold monoliths, moving ever closer to the city's pulsing heart. Skirts the parkland fringes, metal detectors gliding across fallen leaves. Students huddle, staring at their phones as old men doze fitfully under trees.

She shifts her eyes back into focus. Something is not right.

At the back of the bus, a shadow coalesces. She sees it only in reflection—when she turns, there's no one there. But she knows it's him, his resonance. The Soldier.

At the next stop she jumps down into the realm of politicians, lawyers, the specialists of Macquarie Street and their slick-suited retinues. The trim and streamlined

lunchtime crowd flood from office to food court, returning in sweeping tides, balancing lattes and carb-free salads sheathed in rectangular plastic.

Tall buildings create wind corridors. It is cold out of the sun. Everybody strides with purpose. Nobody looks lost. Nobody ambles. Every single one of them wears black.

Esther is busy, too. The drop will be monitored and she doesn't want to fumble it. So many things have changed: old buildings knocked down, replaced by new ones three times the size. Coffee shops nestled in their vestibules below ridiculously large attempts at corporate art. Blurred baristas and the hiss of steam. Seated people talking, always talking, gesticulating, sipping latte, glancing at their phones. Checking they're not late for something else.

Office people cannot be trusted. They bully each other like caged and beaten dogs, safely cocooned from the contemporary world, never going hungry, never too hot or cold, never had to watch a loved one die by their own hands.

She doesn't want to think about that now.

Esther is much older than she looks. She's plagued with memories of London, before the parent organisation was forcibly cleaved three ways: Propaganda, Active Operations, Planning. Before the establishment of Home Station, the temporary premises her unit was assigned were often both uncomfortable and unsuitable.

Operatives were required to possess subversive minds. Rebels, prepared to do whatever it took. Riots, boycotts, labour strikes. Assassinations, liquidation of traitors, military and industrial sabotage, the dissemination of relentless propaganda.

Recruitment was by word-of-mouth. Training took place in special schools secreted on remote country estates. Unarmed combat, secrecy, trade-craft and silent killing, resistance to interrogation, parachuting, signalling and sabotage. Weapons, explosive devices and booby traps.

These days, when pressed, sometimes Esther will claim to be a film student or a photographer. Where possible, she makes use of influential people and authorities to gain intelligence.

The bus made her uncomfortable. She does not fare well in cramped, confined spaces. On a bad day, she will involuntarily experience flashbacks to that South Pacific skirmish: memories of zigzagging in a submarine, recycled air, warm, stale and shit-scented overlaid with the purr of distant diesel engines and clammy close-pressed iron walls run damp with condensation. Obtaining vital intelligence from Chinese agents, yet another in a long line of risky solo missions. The last one ended in betrayal and capture, nine months solitary in a dirt-floored prison cell. The guards had taken her out to shoot her, but something had gone wrong. A light so bright, she'd been blinded for a week. Woke up between crisp white sheets in an iron bed about as far from the Macassar Straits as it was possible to get.

And now this. Here.

She pushes blindly through the tide of suits, irrelevant in her cargo pants and t-shirt. Heading for the Quay to lose herself amongst the garish crush of tourists. But, in an unanticipated flare of luminosity, an electronic billboard broadcasts an encoded message—a giant eye winking, just for her. The eye sends her off in the opposite direction, to Central Station under the clock where she will be expected to make the drop.

Chances are The Soldier saw the billboard the same time she did.

Chances are The Soldier will be lying in wait by the time she gets there, with his 7.62-mm. bolt-action Remington M24 and fixed-10 power scope, elevated to correct for ballistic arc.

4. This Broken Jaw of Our Lost Kingdoms

Nadya sits in the railway cafeteria, frowning at short skirts and bare midriffs. In this country, everybody thinks they're a celebrity. Nobody notices Nadya, despite her outlandish burgundy fur ensemble. She dresses well, still compensating for the deprivations of her squalid Soviet upbringing. The bare-walled room thirteen metres square reeking of kerosene insecticide used to fight the communal flat's frequent bedbug infestations. The stinking lavatory, its black walls smeared with human shit graffiti. Twenty below zero, rooms filled with smoke from brick and pig iron stoves. Seven decades on and she still remembers all of it. Casual observers do not see her history. Do not question why she overdresses in high-buttoning blouses, brooches and embroidered cardigans. Thinning hair pinned back out of her eyes and, perhaps, a hat.

Two gentlemen directly in her line-of-sight dismiss her as irrelevant while checking the room for surveillance possibilities. A scalp hunter, one of them, she's certain. The other, a talent spotter, himself a famous raven back in the day. Not in her day, of course. Neither man was born back in her day.

She ignores them. Her years of professional espionage are well behind her. It's ordinary people she comes here to watch.

She purses her thin lips as, in the coffee queue, a man chasing a dropped coin is startled to discover himself standing on an enormous map of Australia fashioned from inlaid marble, states and territories delineated in shades of off-white, puce and bone. He's staring at the compass inset in the speckled emerald ocean when the barista calls out that his cappacino's ready.

Behind him, a middle-aged white woman in fussy pink leans on a stack of luggage almost her own height. A blind cane rests against the bags. Her husband approaches the coffee counter, resplendent in white chinos and white shoes, a pale blue shirt crisply ironed. Navy blue jacket with smart brass buttons lend him a maritime air.

The dumpy waitress taking his order's long red hair is home-dyed. Her Irish brogue is broad and pleasing. She waddles across the floor to deliver a triangle of wrapped sandwiches to a young seated couple sharing a pastry: him talking, her listening intently, luggage huddled roughly around their feet. His jacket folded and draped over an extended suitcase handle. A crust pinched delicately between her thumb and forefinger. Red painted nails, two takeaway cups nestled to protect her skin from scalding tea.

Nadya's gaze travels beyond them, surveying the concourse, the space beneath the station clock crowded with young families and groups of Asian tourists. Couples pushing wheeled suitcases glide across smoothly polished marble. Pigeons dodge and flutter beneath careless feet. A scruffy bearded man with a lost expression passes another fitter man pushing a bicycle, its spokes whirring gently.

A young white woman stands solo beneath the clock, waiting. Short hair. Cargo pants. Camera slung across her torso. She flinches as a sullen man with heavy black-rimmed glasses and a leather jacket pushes past her clutching a box of tulips.

The clock itself is an ancient thing—perhaps as old as Nadya—round and solid, heavy-looking, suspended by taut wires. Pale, set with thick black roman numerals. Below, a vast, imposing electronic Next Departures board, timetables streaming in endless loops. Corrugated plastic sheeting filters natural light from above, pinned in place by pale green beams.

There are ghosts here. She can feel them.

Nadya nods approvingly at a smart young Asian girl's powder blue trenchcoat, yellow handbag hooked over one arm, long legs and shiny black patent leather shoes. The girl checks her phone. She is waiting for someone. Everyone under the clock is waiting for someone.

Back inside the cafeteria, Mr Maritime sets two coffees carefully on a nearby tabletop. Mutters something, takes the cane and heads for the cafeteria's heavy side doors, tapping all the way to the public toilets. Nadya's surprised to discover him the blind one, not his altogether more fragile-looking wife.

The raven and the scalp hunter sip coffee without concern. They do not notice Nadya's fascination with the concourse. The blond barista is an asset. He sees Nadya every other week. She blends into the scenery, with her Devonshire teas and second pot of hot water, stretching out the first to fill in time. He'd peg her as an Aussie or a Brit, if pushed. A nice old lady, harmless. Overdressed. Lonely perhaps, with nowhere else to go.

The barista has been trained to penetrate façades. He stares idly into space as the milk-frother screeches, venting great jets of scalding steam.

An old grey man in a ratty jumper taps past with his walking stick, coughing, hat flaps tight over his ears, metal hitting marble with loud thunks.

A second screech in competition with the first—chair legs dragging. Nadya is clumsy when she rises, bending arthritically to hook her leather handbag over one arm. She walks with an ivory-handled cane even though she does not need it. The cane once belonged to her husband Borya.

She bumps the former raven's chair. Turns slowly to make her apologies. Up close, yes, he is still handsome despite the scar, probably still well adept at entrapment. When her arm brushes his, she takes pride in his momentary flash of concern. For a second—just a second—he considered she might not be what she appears.

She apologises profusely, then ambles on her way. She did not do anything so obvious as tamper with his drink, nor press a tracking device the size of a teardrop onto the expensive fabric of his jacket.

Nadya heads for the taxi rank at the far side of the concourse, berating herself for wasting so much time in this miserable place. She comes here because of *him*, despite the constant irritation of having to fend off with a brusque, gloved wave the stoned beggars pestering the cafeteria tables. She passes under the clock, moves on to Platform 4—the last place she saw her Borya alive. Borya, who'd survived the Great Patriotic War and the German Fascists only to succumb to pancreatic cancer in a land he had not chosen as his own.

She's standing there struggling with her memories when she senses *something* materialise nearby. She stiffens, recognises its peculiar metallic scent, even though it has been many years and she was certain this country was a safe one. The creature is a shadow soldier—she is never wrong about their kind.

She turns slowly, carefully, glancing back, presuming the scalp hunter or the raven to be the creature's mark.

The shadow travels quickly, striding brazenly out in the open. It fears nothing—already it has claimed a place beneath the station clock, looming over the short-haired girl in the cargo pants and t-shirt with the camera.

Nadya knows it is too late. That she can do nothing. That she cannot bear to watch. *We lost the wars. We failed in our duty. We let these creatures through and there's no turning back.* Her rheumy, tear-filled eyes flick up to the garish, overlit TV screen hanging high above the turnstiles, a mess of flashy sports footage and talking heads. The screen is so poorly calibrated that the skin of the smiling blonde advertising kitchen appliances is the colour of scalded lobster.

She squeezes her eyes shut. By the time she is able to open them, the girl with the cargo pants and camera has vanished. In her place stands a yellow sign explaining that all Blue Mountains inner city trains between Central and Penrith have been cancelled.

5. In This Valley of Dying Stars

Hours have passed with her hidden in the wardrobe—Arpita marks time by the cramping in her legs and the unbearable pressure building in her bladder. She's been too terrified to move in case the apartment's two occupants hear her. It will not take much for them to investigate, to open the heavy wardrobe door. That they haven't already is some kind of miracle, perhaps one sent by the gods who abandoned her on the golden sands of a foreign shore.

There are two of them: one definitely a man, no question, but the other, she's not certain. A woman, perhaps, with a deep, rich voice, or perhaps another man, a younger one. At first, they banged around the kitchen opening cupboards, speaking something sounding much like Russian. She knows practically nothing about that country, only what she has seen on television. What she does know is that if they find her, they will kill her. They will presume she is a spy. They will not believe she is a housekeeper, randomly assigned, never visiting the same apartment twice. That she doesn't know who she works for. She took the job when it was offered because, back then, she would have taken *any* job. She had no papers and was relieved to learn there would not be drugs or immoral acts involved. Only for her to unpack, stack, clean, dust and vacuum, move things around and, occasionally, speak nonsense down a phone line. Sentences such as:

'There are no eyes here in this valley of dying stars,' and 'Lips that would kiss form prayers to broken stone.'

Just a voice instructing her to speak such words, hang up, then quickly leave. Pack up the vacuum and close the curtains maybe—if there's time. Time, apparently, is always of the essence.

Arpita has been trying to understand the random urge that made her climb inside the big old wardrobe. Perhaps the memory of Aunt Laksha, or was it because, so very briefly, the act had made her feel utterly alive? The same pounding-heart-inside-her-chest she'd experienced when she climbed into the boat that brought her and 554 desperate strangers to this country. Tight packed-in like human sardines, passed from open boat to open boat, tossed over the sides like sacks of grain. No shelter from the sun or stinging rain, each boat bigger than the last one, everybody soaked to the skin and retching as they bobbed and lurched and panicked in near-pitch darkness.

She is not supposed to be here, not supposed to see or overhear. Not supposed to stand out in any way.

Her third assignment was the first in which the term 'safehouse' was spoken. She'd never considered these strange apartments safe. Safe from whom or what is never specified. Safe from the outside world? She can never feel safe within such cold white walls. She is frightened of the ringing phone, of the faceless people speaking down the line. What they might say in response to her strange poetry. Afraid one of them might

ask for papers she does not possess. She is not supposed to be here, yet here she is, luckier than so many of the others.

Her bladder is about to burst. Somehow she'd managed to keep her dignity on those terrible leaky boats and she is damned if she will lose it in this place. She holds her breath and pushes the wardrobe door, gently gently, the sharp stab of afternoon light blinding.

She makes no sound as bare toes brush nylon carpet. The double bed has not been slept in. Dust mites swirl above its drab print calico. Soft light floods the room, old and yellowed, matching the crockery she so dutifully stacks in cupboards.

No sounds emanate from the lounge. The door remains ajar, she can see inside—and the reason for the silence. A man lies face up on the carpet, a dark stain pooled beneath. No sign of the other one, the one she could not be certain of.

She's desperate to relieve herself, but she has to get out of there. She remembers her shoulder bag, retrieves it from the wardrobe along with her shoes—she'd almost forgotten them, too.

She does not want to see the dead man's face, but in the end she can't help herself. Glassy eyes stare into nothing. He might have been handsome, a small scar on one cheek. A cleft chin, day-old stubble.

She's made it three steps down the landing, door pulled shut behind her when the phone begins to ring, hollow chimes much louder than they should be.

The dim stairwell thickens with moving shadows that seem almost alive. Arpita hurries and does not look back. Same here as on the journey out of Cisarua. Looking back never offers any solace. Looking back, so often, is the thing that tears your heart out in the end.

Hot Rods²

The winds blow pretty regular across the dried-up lake. Traction's good—when luck's on your side, you can reach three hundred KPH or faster. Harper watches the hot rods race on thick white salt, so pure and bright the satellites use it for colour calibration.

Harper doesn't care about souped-up hot rods. Throwdowns, throwbacks, who can go the longest, fastest, hardest. But there's not much else to do in Terina Flat. She used to want to be a journalist, back when such professions still existed. Back when the paper that employed you didn't own you. Back when paper still meant paper. Back before the world clocked up past three degrees and warming. Back when everybody clamoured for Aussie coal and wheat and sheep. The sheep all died when the topsoil blew away in a dust cloud stretching almost five hundred K. Ships still come for the uranium. Other countries bring their own land with them. Embassies, fenced off and private, no one in or out without a pass. Cross the wire and they get to shoot you dead.

Harper thinks about her boyfriend Lachie Groom as the racers pick up speed. The future plans they've made. How they're gonna get the hell out of Terina, score work permits for Sydney or Melbourne. They say white maids and pool boys are in high demand in the walled suburban enclaves. Only, Lachie couldn't wait. Said they needed the money now, not later.

The racers purpose-build their dry lake cars from whatever they can scavenge. Racers used to care about the look; these days, it's all about the speed. There's nothing new, no paint to tart things up. No juice to run on except for home-strained bio-D. You need the real stuff for startup and shutdown. The racers pool their meagre cash, score black-market diesel from a guy who hauls it in by camel train.

She can hear them coming before she sees them kicking up thick clouds of salty dust. The pitch drops dramatically as they pass; she takes a good long look as the cars smudge the horizon. Hot rods, classics and jalopies, streamliners and old belly tankers, all the side windows and gaps taped firm against the salt. It gets into everything: your clothes, your hair, your skin. Nothing lives or grows upon it. No plants, no insects, not a single blade of grass.

The short racecourse is five K long, the long one near to twelve. King of the short run is Cracker Jack, Lachie's cousin—plain Cracker to his mates. Obsessed with Dodges. Today's pride and joy is a 1968 Dodge Charger, automatic, gauges still intact. Purpose-built for the super speedway, veteran of Daytona and Darlington.

2 Originally published in *Lightspeed Magazine*, Issue 58, March 2015: <http://www.lightspeedmagazine.com/fiction/hot-rods/>.

He loves those cars like nothing else alive. Spends everything he has on keeping them moving. Harper has come to envy the racing regulars: Bing Reh, Lucas Clayton, Scarlett Ottico. Others. There's enough on the salt flats to keep them focused. Enough to get them out of bed in the morning.

Cracker nods at Harper; she throws him half a smile. Checks out his sweat-slicked, salt-encrusted arms. 'I'll take you out there,' he says, wiping his forehead. No need to specify *where* out there. She knows he's talking about the American Base—and Lachie.

She doesn't say no but he gauges her expression. 'After sundown. The others don't have to know.'

Unfortunately, in towns like Terina Flat, everyone knows everybody else's business. 'Was a stupid plan,' she tells him. 'We never should have . . .'

Cracker dusts salt flecks off his arms. 'It was a fuckn' *awesome* plan. 'Bout time we got a look behind that wire. Found out what all the bullshit is about.'

She shrugs. Her and Lachie's 'plan' had sounded simple. Just two people trying to keep in touch. Inching around a Base commandment that seems much harsher than it ought to be.

Cracker tried to talk Lachie out of taking the job at all. Too late. By then, Base medics had tested his blood, piss, and spit. He'd signed away his rights on the dotted line.

Lachie's been gone almost a week—the full week if you're counting Sunday, which Harper is because she's counting days, hours, minutes, seconds. Segregating Sundays is for the churchy folks. Whole town's riddled with true believers since the heavens clammed and the good soil blew away.

'S'no trouble,' says Cracker.

Harper shakes her head. Her eyes are focused on the middle distance. On Janny Christofides and that beat up 1968 Ford Mk 2 Cortina she loves more than most girls love their boyfriends. Janny's boyfriend's been on Base six months. She never wins a race but she keeps on trying.

Lachie's not so far away, just over the wire on newly foreign soil—American, although it could just as easily have been China or India or Russia.

Once past that wire, you don't come back until your contract's through. Money comes out, sometimes with a message. Stuff like *I miss you honey* and *I love you* and *tell grandma not to worry* and *its OK in here, the food is pretty good*.

The whole town knows about that food. They watch it trucking in by convoy, trucks long enough to fit houses in them. Refrigerated, loaded up with ice cream. Bananas from the Philippines, prime beef barely off the hoof. They stand there salivating in the hot red dust. Whole town's been on starvation rations since before the last town council meeting proper, the one where Mr Bryce got shot in the leg.

Crude jokes about Lachie circulate, not quite out of earshot. Somehow everyone found out about their ribbon secret. Voices carping on about how he's probably too distracted. Too busy shagging those hot chick Growler pilots. Boeing EA-18Gs—sleek and fast—have been burning across the blanched blue sky all week.

She ignores them, watches as a flecked and rusted 1936 Plymouth sedan tailgates a '58 Chevrolet Apache that once used to be red, apple rosy.

Cracker tries to shift the subject. Says those 18Gs were manufactured in Missouri—what's left of it. Mumbles something about future threats across the electromagnetic spectrum.

Harper recalls peculiar ads on free-to-air: The smiling lady saying shit like *Stealth is perishable; only a Growler provides full-spectrum protection*. Making *stealth* sound like a brand of sunscreen. What use could there be for *stealth* in Terina Flat? Nothing but more sky than anyone can handle laced with impotent wisps of cloud.

The racers pass, wave, whoop, and holler, some of the vehicles disintegrating in motion, belching smoke and farting acrid fumes. People used to think that only topless roadsters could hit top speeds. Back when Lake Gairdner was the only lake to race on. Back before the Bases and the droughts. Back before a lot of things that changed this country into someplace you'd barely recognise.

Harper turns her back on them all and starts walking toward home.

Cracker runs to catch up with her. 'Those guys don't mean nothing by it. Half of 'em's gonna be taking Base contracts themselves.'

She keeps walking.

'Wanna ride?'

'Nope.'

'You really gonna hoof it all the way?'

She nods. Walking gives her time to think. Time to run through all the reasons she's not going back to the Base. Not tonight—or any other night. Not even with Cracker, who she trusts more than she's ever trusted anyone aside from Lachie.

Eventually, the salty crunch gives way to russet dirt. Her boots disturb the road's powdery dust. No salt here, just brown on brown. Crooked fence posts, barbed wire curling in the sun.

Not everything is dead or dying. She admires the millet, still holding its own, but the sorghum fields have seen far better days. There used to be rice, but rice needs irrigation, and for irrigation, you need rain. No decent rainfall three years running, which is how come council got desperate enough to call in a priest-of-the-air. Prayer vigils week in, week out have altered nothing.

Apparently, a flying priest worked miracles in Trundle, scoring them forty millimeters three days in a row. Not just hearsay; plenty of Terina locals were present

when the heavens opened. Plastic buckets clutched against their chests, praising Jesus and the man in the yellow Cessna.

When the downpour ceased, a flock of black-and-white banded birds descended. Whole sky was thick with them. Stilts, reportedly confused, as if they had been expecting something other than Trundle mud at the end of their epic journey.

A year on now and prayer vigils have all dried up. Terina passed the hat around, everybody kicking in what they could scrounge.

Harper's toes are blistered and her shirt is soaked with sweat. Things come in threes—or so folks say. Three days of rain for Trundle in a row. Three nights was how long Lachie managed to tie a bit of ribbon to the fence. Low so the Hellfighter spotlights wouldn't catch it. Nothing fancy. No messages attached. But from the fourth night onwards, there was no ribbon. Nothing.

Lachie is as close to family as she has. Dad's long gone; there's only her and Mum. Mum was all for him taking that contract job.

Dusk is falling by time she makes it back. Still hot but tempered by gentle breaths of wind. A warm glow pulsing from the big revival tent. She knows her mother will be in there alongside all the other mothers. She knows she ought to go inside and grab a bite to eat if nothing else.



Beyond the fraying canvas flap lies a warm enveloping glow; a mix of lantern light and tallow candle. Town still has plenty of functioning generators but they made a lot of smoke and noise.

The overpowering tang of sweat mixed in with cloying, cheap perfume. Still hot long after the sun's gone down, women fanning their necks with outdated mail order catalogues. Out of their farming duds and all frocked up, like Sunday church, not plain old Thursday evening. Scones and sticky Anzac biscuits piled high on trestle tables. Offerings. Harper's stomach grumbles at the sight.

Reg Clayton has the microphone. He's telling some story she's sure she's heard before about nitrogen and ploughing rotted legumes.

Her mother claps and cheers from second row. Dry dirt has got inside her head. Made her barking mad as all the others. Farmers with their fallow stony fields, rusted-up tractors, and heat-split butyl tires. All praying for the rains to come.

The big tent puts some hope back in the air—Harper gives it that much credit even if she doesn't buy their Jesus bullshit. Jesus isn't coming and he isn't bringing rain. Jesus and his pantheon of angels have snubbed their town before moving on to bigger, better things.

She lets the tent flap fall again before anyone catches sight of her. Not everyone in the tent is old, but most of them are. Old enough to believe in miracles. To believe that flying in some Jesus freak from Parkes might make it rain.

When the singing starts, it's sudden as a thunderclap.

*When peace like a river,
attendeth my way,
When sorrows like sea billows roll . . .*

Three years have passed since any of them clapped eyes on the dirty trickle that was once the proud Killara river. Sea billows, whatever the hell they are, seem more than a million miles from Terina Flat.

Harper jumps when a firm hand presses upon her shoulder. It's only Cracker and he jumps back in response.

'Didn't mean to startle ya. Coming out to Base with me or what?'

She shies away from the tent flap, away from the candied light. He lopes after her like a giant puppy.

'Not going back out there again,' she stops and says at last. 'What would be the point of it? There's nothing to see but wire and towers—and what if we get caught? You know what they say happens to trespassers. Those two guys from Griffith that—'

'Those two bastards bugged off to Sydney.'

'Cracker, nobody knows what happened to those guys.'

The swell of hymns gets louder, the voices enunciating clearly.

*He sends the snow in winter,
The warmth to swell the grain,
The breezes and the sunshine,
And soft, refreshing rain.*

Cracker grunts at the mention of snow. 'Not bloody lately, he doesn't.'

Harper almost smiles.

The two of them bolt when the tent flap flies open, taking cover behind the shadowy row of trucks and cars that reek of sour corn pulp and rancid vegetable oil. Cracker barely spares the cars a glance. He has no interest in vehicles whose sole purpose is to ferry occupants from A to B.

'Yer mum in with that lot?' he asks.

'Yup.'

'Mine too.'

She nods. All the mums and dads are in the tent, banging tambourines and clapping hands. All the folks who yell at the younger ones for frittering their time and cash on hot rods.

They wait until the coast is clear, then climb the tufty knob of ground that offers a clear view across the dried-up river. All the way to the American Base. Harper can't see that riverbed without picturing Lachie, boasting about the time he and his brother dug a rust-red 1936 Ford Model 48 up out of the silt. How they had to scrape out twenty-six inches of dirt from firewall to tailpan.

The Base has a glow to it, a greeny-ochre luminescence. The kind of colour mostly seen in long-exposure borealis photos.

Behind that wire and the machine gun-guarded towers lies a big rectangular grid: A forty-eight-element high-frequency antenna array. Beyond it stands a power generation building, imaging riometer, and a flat-roofed operations centre built of cinder blocks. They all know this; it's no kind of secret. Base PR admits to investigating the potential for developing ionospheric enhancement technology for radio communications and surveillance. It supports a cluster of ELF wave transmitters slamming 3.6 million watts up at the ionosphere. There have been whispers of other things such as successful moon-bounce experiments—whatever that means. New kinds of weapons for new kinds of war, still in experimental phases. What weapons and what war are never specified.

The tent hymns fade, absorbed by other forms of background noise. Cracker stuffs his hands into his pockets, closes his eyes to the warm breeze on his face. When he opens them, Harper's staring at the Base and pointing.

Above it, the sky has shifted burgundy, like dried blood. Lightning bolts, ramrod straight—not jagged, strike the ground, then thicken, changing colour, and slowly fade.

'What the . . . ?'

'Did you just see that?'

She's fidgeting, running her thumb along the friendship bracelet knotted on her right wrist. Three blue ribbons tightly braided. Three wishes for bringing her Lachie safe back home.



The plane appears like a lonesome dove, winging its way to Terina Flat bringing with it salvation in the form of a priest decked out like Elvis Presley. Elvises aren't unusual in these parts, what with Terina being so close to Parkes and its famous Elvis festival. Back in January, fifty thousand tourists flooded in to celebrate the King's hundredth birthday.

Harper has never seen one of them up close. The Elvis who lands on the blistered tarmac is dusty and kind of faded. Paunchy, but not in the proper Elvis way. A golden cross hangs around his neck. A knife tucked into his boot if he's smart. A pistol hooked through his belt if he's even smarter.

Town folks skip right past the rhinestones and move straight to calling him Father. Press around him like bleating sheep. Harper doesn't plan on making contact. She cringes as the shrivelled biddies primp and fuss and preen. Flirting with the sly old dog, promising him pumpkin scones and carrot cake—all chokos with artificial flavour added, if truth be known, although you won't catch any of them admitting such a thing. Lamingtons run soft and gooey from the broiling sun. Local piss-weak beer to wash it down with.

The Elvis plane, though, that's something else. An ancient Beech A60 Duke, knocked up and turbocharged—Cracker was mouthing off about that plane before the sunlight hit its yellow sides, planes being the one thing capable of distracting him from Dodges.

Harper waits until the fuss dies down. Elvis shoos his flock away from the landing strip towards the revival tent. Promises to be joining them just as soon as he's checked his luggage. Once the parents and grandparents have moved off, small children run to place their grubby palms on the fuselage.

'Piss off, you little buggers,' spits Darryl Quiggen, charged with checking the battered old bird over, hand-rolled cigarette dangling from his pinched white lips. Used to be some kind of expert once. The tang of avgas hangs in the air—the good stuff, not the crap distilled from corn.

Quiggen pays Harper no attention. He's never had much luck with women, seems to find it preferable to pretend they don't exist. She makes sure she's out of his line of sight, inching as close as she can get away with to examine the peculiar assortment of religious symbols painted across the plane's canary yellow casing.

Jesus—rendered clear as day, hands pressed together in prayer. Surrounding his head, a thick halo of icons: an egg with a cross, a flaming heart with barbed wire wrapped across its middle. A snake and an anchor. Some poorly rendered birds. A hand with an eye set into its palm. A star made of two triangles. A crescent moon and a tiny little star. Some writing that looks like it might be Hindu—not that she'd know a Hindu from a Sikh.

There's something strange underneath the wings. Bulging clusters of attachments reminiscent of wasp nests. She steps up closer but she isn't game to touch. Up closer still, she can see the welds and other bodged repairs beneath paint blisters. Paint costs a fortune. There must be something well worth hiding under there.

She peers in through the grimy windows until Quiggen shoos her off. The rear cabin's stuffed with all kinds of junk. Looks like maybe Elvis sleeps in it.

The plane serves well as a distraction. She's trying not to think about the Base's empty wire, the thick red lightning, and the sickly green light rippling over everything the night before. The Base is locked down, nothing unauthorised in or out—not even bits of ribbon tied to wire. 'Earn good money' was what they said, money they were

all in need of. They were desperate or curious, all the ones that took up contract offers. Three months on. No worries. She'll be right. But how often three months extended to six or twelve. How often at the end of it, they climbed into one of those Blackhawks and disappeared.

She's sheltering beneath the concrete shade of what remains of a Shell service station. Hard to believe people used to drive right up and pump petrol into their tanks.

Dusty Elvis saunters over, his jaw working over a wad of gum. 'Like the look of my equipment, now, do ya? Give you a private tour if you come back later.' He winks.

Harper straightens up and inches back. 'You oughta be ashamed of yourself,' she says. 'These people don't have much to spare. Drought's taken everything the wheat rust missed the first time through.'

'Mind your own goddamned business,' he spits, forcing her back with the bulk of his rhinestoned, jumpsuited bulk, fiddling with a bunch of keys attached to his belt. Reaches into his pocket for mirror shades, the kind with wire frames. He somehow looks bigger—meaner—with them on. He leans his shoulder against the crumbling concrete wall, looks her up and down until she itches. Tugs a packet of cigarettes from another pocket. Tailor-mades—they cost a bloody fortune too. Sticks one on his lower lip, lights it with a scratched and battered Zippo.

'Girl like you oughta be thinking of her future,' he says. Rhinestones sparkle in the stark midmorning light. The scent of tobacco curls inside her nose. 'I was you, I'd be fucking my way up and out of this dustbowl shithouse.' He jams the cigarette between fat lips and smiles.

'Lucky you're not me, then,' she says drily. Waiting. Not wanting to give him the satisfaction. He keeps on smoking, smiling, leering, his BO permeating the plumes of tobacco smoke. She turns on her heel and walks away, angry but keeping it bottled up like she's learned to do with guys who stare at her like hungry dogs.

'Don't wait too long,' he calls after her. 'Yer not that far off yer use-by date, you know.'

Harper avoids the revival tent and its excited, anticipatory believers. She heads for the crowd amassing in Whitlam Park, which still boasts two functioning wooden picnic tables not too warped and cracked from years of exposure. Young people cluster around a battered laptop, taking turns to log on through the Base's web page portal.

Janny looks up when she sees Harper coming. 'There's one for you,' she calls across their heads.

Harper almost doesn't want to read it. She already fears what it isn't going to say. Four simple words: *pet Cooper for me*. There isn't any dog called Cooper. Lachie created the imaginary pooch when he filled in his application form. Cooper is their private code meaning everything's okay. No mention of Cooper means everything isn't.

The message on screen supposedly from Lachie is bland and cold. Words that could have been written from anybody to anybody.

‘They still eating like kings in there?’ calls someone from behind.

She nods in silence and hits the delete key.



By sundown, everyone is drunk. Rain is the only topic of conversation. Anecdotes stretching from Lightning Ridge all the way down to the Eden coast.

Outside the tent, it's hard to tell at what point prayer vigil descends into full-bore hootenanny. Night wears on and the music gets louder. Clapping and shouting and stomping for rain, fuelled by Ray Clayton's palm-heart toddy, what they drink when they're out of everything else. Songs for Jesus, dancing for him too, work boots and sun-cracked plastic sandals thumping hard on the warped and weathered dance boards.

With a blast of laughter, a couple of Country Women's Association stalwarts burst their way out through the tent flaps. 'Just as hot out here as 'tis inside,' says one, fanning her bright pink face—frowning when she notices Harper, a look that screams, *Girl, you oughta be throwing your lot in with the righteous.*

Because everyone who's anyone in Terina Flat is stomping and shrieking and hollering, both inside and outside the revival tent—social niceties be damned. Priest-Elvis has prepared his song list well: 'Kentucky Rain' for openers, following on with 'How Great Thou Art.' Short-verse speeches in between, paving the way to 'I Shall Not Be Moved.'

In the pauses between numbers, conversational buzz drones like the chittering of cicadas. A few stray blasts of it swim towards Harper through the heat. Nothing she doesn't already know: that entrance to the revival tent is by gold-coin donation; that the way-past-their-bedtimes children scampering underfoot have been encouraged to write to God on precious scraps of multicoloured paper (the remaining dregs of the school's once-vibrant art department). At the crack of dawn tomorrow, smoke-lipped Elvis is going to hit the skies. Fly up high as close as he dares to deliver God their messages, extra personal.

Yeah, right.

As 'It's Now or Never' starts up, Harper's surprised to catch old Doc Chilby slipping out through the tent flap. The women exchange suspicious glances. Doc Chilby nods, so Harper returns the favour. Doc Chilby delivered her into this world. She deserves respect even if she's thrown her lot in with the Bible-thumpers.

Up on the knoll, the racers admire the Base lit up like Christmas squared, same as every other night, but this night, there's something extra in the air. The town itself emits barely a glow. Night skies dark enough to drown the Milky Way in all its glory.

There's talk of cars and trade in missing parts. Who needs what and what they're going to barter for it. How the camel guy is late again. How someone's cousin's investigating other sources.

Janny Christofides saunters over, sipping on a can of something warm and flat. 'Saw you checking out that Jesus plane. A cloud-seeder for sure.'

'Didya get a look at it up close?' says Harper.

Janny shakes her head. 'Didn't have to.'

Harper continues. 'It's got these bulges under the wings like wasp nests.'

Janny nods, enthusiasm causing her to spill a couple of splashes from her can. 'Dispensers holding fifty-two units apiece. Flares built into the wings themselves. Avoids resistance. As little drag as possible.' Her eyes are shining.

'How'd ya know all this?'

'Old man used to do crop-dusting, don't forget.'

'But dusting's different. Seeding's illegal—'

'Dusting's illegal—there's nothing left to dust. Everything's illegal, unless you're frackers or big foreign money or those massive fuckoff land barges dumping toxic shit deep into cracks.'

'We oughta report him,' Harper says bitterly, remembering Elvis grinding his cigarette butt into Terina dirt.

'Like anybody's gonna give two shits.' Janny cocks her head back in the direction of the revival tent. The singing has long since become incoherent. Songs mashing into one another, Presley numbers indistinguishable from hymns. 'How much you reckon we're paying that—'

She doesn't get to finish her sentence. Somebody calls out, 'Lightning!'

Janny looks up, startled, points to the empty airspace above the Base. Racers stand there frozen, jam jars of fermented melon hooch clutched in their hands.

'I don't see any—'

'Wait—there it is again!'

This time, they see and hear it too, a cracking split. Like thunder but not. Thick spikes stabbing at the fallow dirt. Aftershocks of colour, green and red.

There's a scabble for phones as a volley of sharp, thick beams shoot upwards from the Base. High-pitched whining that fades, then swells, then fades. A sonic boom followed by overbearing silence. The town dogs start barking and howling all at once. Nothing to see now. No more laser lights. The racers stuff their phones into pockets and head for their cars.

Cracker's already seated behind the wheel of his precious Dodge Charger. Harper runs up to cadge a lift.

'Stay here,' he warns as he's revving up his engine.

'Are you shitting me?'

But he's got this serious look on his face and he's not going to give her a ride. No matter. She waits till he takes off, then climbs in beside Bing Reh

in his 1951 Ford Five-Star pickup. The racers are heading to the salt, their vehicles overloaded. Everyone's in a hurry to get out there.

The Base has fallen still and silent. No more lasers. No more lightshow. No Blackhawks either, which seems odd, considering.

There's more light than there ought to be, all coming from a suspicious patch of sky above the salt.

More lightning strikes drown out the growl of engines.

'Looks dangerous!' says Harper. Bing nods, eyes on the road. Half drunk or not, they have to go check it out.

Her heart pounds, thinking, *Lachie, please stay under cover; whatever you do, stay away from that chain link fence.*

Things are not as they had seemed when viewed from the edge of town. The lightning's localised, not spread across the sky—they got that right, but it isn't striking anywhere close to Base. The salt flats are soaking up the brunt of it. Singed salt particles fling themselves at Harper's nose. She sneezes, half expecting blood. Too dark to tell what she wipes across her jeans.

There's no stopping Cracker. He aims his Dodge straight out into the thick of it. Looks like he's deciding to play chicken with the lightning. Bing slows down. Harper knows what that means; he's giving her the opportunity to get out. And she *should* get out, because not doing so is crazy, but instead, she nods and the pickup's engine roars and surges.

She can smell that smell no one ever smells anymore, that heady, moody tang just before a thunderhead lets rip. Plant oil sucked from dry rocks and soil mixed up with ozone and spores. Chemical explanations half remembered from biology class, never dreaming back then how rare the experience of rain would become in future times.

They gather, staring at the crazy lights.

'Red sprite lightning,' says Bing, 'Or something like it.'

Nobody argues. They've all seen strange stuff above and around the Base. Clouds that didn't look like clouds when no clouds hung in any other patch of sky. Lenticular shapes like UFOs, only insubstantial. Ephemeral, like ghost residue of clouds. Not made of metal like anything you'd expect.

'Check it out!'

Sharp intakes of breath all round as a thick red lightning bolt travels horizontally from one cloud to another. Hits the second hard like there's something solid at its core, shatters into separate fragments, which coagulate into orbs.

Balls of crackling light drift down, hover, pause, a pink neon glow emanating from their centre mass. Pulsing. Like the crackling orbs are breathing.

‘Man, I don’t like the—’

‘Shhh.’

More crackling, louder, like automatic weapons fire. They cover their ears and duck, only it’s not ammo. It’s coming from the glowing orbs, close to the ground now, pulsing with red and light. A high-to-low-pitched whistle, almost musical.

A blood-red cloudshape jellyfish emerges, dangles tentacles of pure blue light. Drags across the surface of the salt. Almost moves like a living, breathing creature.

The air hangs thick with acrid ozone stench. Some of those lightning stabs are getting close.

Beneath the cloudshape, thick swirling coils writhe like a nest of snakes. Pale clouds forming angry faces, elongated skulls, animals with jagged teeth.

Somehow, some way, they lose track of time. Dawn is so insipid by comparison, they almost miss it when it finally arrives. Their eyes are dazed from the flash and flare. Colours dancing across their inner vision.



Harper isn’t the one who first spots Lachie. She’s staring in the opposite direction. Up into a pink-and-orange sky at the dark gnat wobbling across its luminescent swathe. Elvis in his patched-up plane, heaven-bound with a hangover, she hopes, of Biblical proportions. A plane packed tight with cigarette-size sticks of silver iodide if Janny’s right. Cold rain. Pyrotechnic flares. At best it’s alchemy; at worst, yet another hick-town scam. Perhaps he will coax moisture from the wispy cirrus. Not enough to make a difference. Just enough to make sure he gets paid.

‘Harper!’

Cracker’s voice. She turns around as, dazed and moaning, three figures stagger across the salt. Somebody’s got binoculars. They shout the names out: Lachie, Danno, Jason. Staggering like zombies, only this isn’t some kind of joke. They get back in their vehicles and race out to intercept the scarecrow men. Clothing torn up, singed, and smoking. Eyes wide and shit-scared sightless.

Harper’s screaming, *Lachie Lachie Lachie*, when she comprehends the state he’s in. He doesn’t react. Doesn’t even look at her. Doesn’t stare at anything. Just ahead.

All three are hurt bad. Jason is the worst.

Everybody’s shouting at everybody else. Eventually, Lachie cocks his head at the sound of Harper’s voice. She goes to fling her arms around his neck but Janny grabs her wrist and holds on tight. ‘Needs Doc Chilby,’ she says grimly. Harper slaps her hand away but she doesn’t dare touch Lachie, because Janny’s right.

‘Base’s got a hospital,’ says Lucas Clayton, son of Reg. ‘State of the art.’

Nobody else says anything, but everybody's thinking it. If they take the injured boys back to the Base, they'll never be seen again. That lightning was not the natural kind. Whatever just happened here is Base-related.

A siren wails in the far off distance. The sound makes everybody jump.

'Doc Chilby will know what to do,' says Bing.

Lachie and Danno get loaded into the back of Bing's pickup. Harper spreads down a blanket first, a ratty old thing balled up and wedged beside the tool kit. She tries not to wince at the sight of those burns. Keeps saying, 'Everything's gonna be okay,' although it isn't.

The third guy, Jason, is laid gently across the back seats of a Holden Torana. Softly moaning like an animal.

They don't notice the Blackhawks until too late. The cars split up—a reflex action—fanning in all directions, two vehicles heading for Doc Chilby's by different routes, the others will know to drive decoy all over until they're apprehended or run out of juice.

Harper presses her back against the cabin, crouches, hanging on with one hand to the pickup's battered side. The ride is reasonably smooth until they reach the limits of the salt. Each bump and pothole sets the injured men off moaning.

By time they reach the town's outskirts, Lachie is delirious and screaming. Impossible to keep the salt out of their wounds. He tries to sit up but the passage is too ragged. Harper holds her breath, heart thumping painfully against her ribs. *Hang on, Lachie. Hang on till we get there.*

The sky is streaked with morning glow, the Jesus plane now the size of a lonely bird. A few clouds scudding, clumping stickily together. More than usual.

Any minute now the pickup will get intercepted by soldiers in full combat gear. Or a hazmat team in an unmarked van—they've all seen that in movies on TV.

But the streets are empty. Everyone's still clustered around the revival tent or passed out on the ground. All necks are craned, all eyes on the Jesus plane looping and threading its way through a puff of clouds like a drunken gnat. Rosaries muttered, beads looped tightly around arms and wrists. Clutched in hands, pressed against hearts and lips. Holy Mary, Mother of—Jesus, is that rain?

Thick, fat drops smack the dusty ground.

Proper rain for the first time in three long years. Rain coaxed from clouds not even in sight when the plane began its journey.

Looks like Elvis is no charlatan after all. Elvis is the real deal. Elvis can talk to Jesus and make it pour.

And then they're dancing, arms flung into the air. Laughing and shrieking and praising the heavenly host. 'Ave Maria' as bloated splats drill down upon their heads,

soaking their shirts and floral print dresses, muddying up the packed-dirt hospital car park. Mud-splattered boots and trouser legs.

There'll be time for Jesus later. Harper stays by Lachie's side as the injured men are unloaded off the pickup. Straight through to Emergency; lucky such an option still exists. Terina Community Hospital once boasted fifty beds; now only ten of them are still in operation. The place was supposed to have closed a year ago. They're all supposed to drive to Parkes if an accident takes place. Supposed to use the Base if it's life or death.

One of the racers must have thought to phone ahead. Two nurses stand tentatively inside the sterile operating theatre. Waiting for Doc Chilby to scrub up. Waiting for something. Harper doesn't find out what—she's hustled into another room and made to fill out forms. Their Medicare numbers—how the fuck is she supposed to know? Didn't they have their wallets in their pants?

'Don't call the Base,' she says, but it's too late. That helicopter stopped chasing them for a reason—there's only one place in town they can go for help.

An hour of waiting before a nurse brings her a cup of tea. Two biscuits wrapped in cellophane and a magazine with blonde models on the cover. The magazine's two years old, its recipes ripped roughly out of the back.

'Is Lachie gonna be okay?' she asks.

The nurse is about her age or maybe a few years older. Nobody Harper knows or went to school with. The hospital has trouble keeping staff. They rotate young ones from the bigger towns, but they never stay for more than a couple of months.

'That other boy died,' the nurse says eventually. 'I'm not supposed to tell you.'

Harper knows the nurse means Jason even though she didn't say his name.

'Were they all from the Base?'

'Yeah, reckon.' The nurse doesn't seem to think anything of the fact. Definitely not a local, then. To her, the Base is nothing more than it seems.

The nurse chews on her bottom lip. 'Never seen anything like it. Multiple lightning strikes each one, poor things. Left its mark on them, it did. Tattoos like blood-red trees.' She points to the base of her own neck by way of demonstration. 'What were they doing out there on the salt in the middle of the night?'

Harper doesn't have an answer. The nurse is not expecting one, not even wild speculation. She wanders over to the window and lifts the faded blue and purple blind. 'Still raining, I see. 'Least that's something.'

Still raining. Words that take awhile to sink in. Harper unfolds her legs from underneath her, heaves up out of the sagging beige settee.

The nurse's heels *clip-clop* against linoleum as she leaves.

The opened blind reveals a world awash with mud and gloom. Water surges along the gutters like a river. Slow-moving cars plough through, their wheels three-quarters covered. More water than Harper has seen in a long, long time.

‘When can I see Lachie?’ she calls after the nurse. Too late. The corridor is empty.

Harper slips the crinkly biscuit packet into her pocket, hops down the fire escape two steps at a time.

The water in the car park is brown and up to her knees already. A couple of men in anoraks wade out in an attempt to rescue their cars.



The rain keeps falling, too hard, too fast. Main Street is barely recognisable. Whole families clamber up onto roofs, clinging to spindly umbrella stems—and each other. Half drenched dogs bark up a storm. Nobody’s singing songs of praise to Jesus.

She pictures the revival tent swept away in a tsunami of soggy scones and lamingtons, trampled as panic sets in, random and furious as the rain itself.

The deluge is too much, too quick for the ground to cope with. Hard-baked far too many months to soak it up. There’s nowhere for the surge to slosh but up and down the streets. Vehicles bob along like corks and bottles.

She doesn’t want to think about the cattle in the fields. Dogs chained up in unattended backyards. Children caught in playgrounds.

She’s wading waist-deep in filthy swell when a wave breaks over her head. A wave on Main Street, of all unlikely things. Next thing she knows she’s going under, mouth full of mud and silt. Scrabbling for a slippery purchase, bangs her shins on something hard, unseen. This can’t be happening. The rain keeps falling, mashing everything to brown and grey.

Her leg hurts but she keeps on moving, half swimming, half wading, crawling her way to higher ground. To the knoll. She doesn’t recognise it at first. Not until she stands and checks the view. A line of lights snaking out from the Base and heading in her direction.

She’s shaking, either from the cold or shock. Bit by bit, the sky is clearing, bright blue peering through grey rents and tears. Clouds the colour of dirty cotton wool break up. Voices shout from rooftop to rooftop. A sound that might be a car backfiring—or a gunshot.

She wipes grit from her eyes with the heel of her palm. Hugs her shoulders, slick hair plastered against her face.

‘Leg’s bleeding.’

It’s Janny. She glances down at red rivulets streaking her muddy calf.

‘It’s nothing.’

‘Can you walk?’

She nods.

‘Better get you up to the hospital, then.’

Steam rises from the rapidly warming sludge. A cloying smell like rotting leaves and sewage. Damp human shapes mill about, disorientated. Unanchored.

She watches three men in anoraks attempt to right a car. Others stand staring stupidly at the mess. Like they don't know where to start or what to do.

She limps back up to the hospital with Janny by her side. Only two army trucks are parked out the front of it. Doc Chilby stands her ground in a sodden coat, arms folded across her chest. Four soldiers briskly unload boxes, stacking them up on the verandah out of the mud.

Doc Chilby argues with another soldier. 'We didn't ask for anything. You're not taking anyone out of here—that's final.'

The soldier has his back to Harper; she can't hear what he's saying. Only that the doc is getting flustered, flinching every time a Blackhawk thunders close. She repeats herself but the soldier isn't listening.

The nurse who told Harper that Jason had died stands smoking on the verandah.

Loud voices emanate from inside the building, then a sudden surge of soldiers swarm. That nurse starts shouting, Doc Chilby too. Three stretchers are borne swiftly down wooden stairs. Weapons raised. Threats issued. The steady thrum of Blackhawk blades drowning out all attempts at negotiation.

The Base has come for its wounded contract workers. Wounded doing what, exactly? Harper has been watching without comprehending. Now wide awake, she adds her own voice to the shouting. Ignores the nurse signalling frantically from the verandah, the ache in her leg and the Blackhawk's thudding blades. She runs after one of the trucks—too late, it's out of reach. Picks up a rock and throws it. The rock bounces harmlessly off the taut khaki canvas. She almost trips as she reaches for something else to throw. The road's sticky and slippery from rain.

The convoy lumbers like a herd of beasts. A minute later and she's standing helpless in the middle of the road, a chunk of rock gripped tightly in her hand.

Her bleeding leg gets sprayed with mud as a car pulls up beside her. Cracker in a rattling old army Dodge from his collection. The M37 convertible minted 1953. Same colour as the green-grey mud. Dented. Spotted with rust and a couple of bullet holes. Thick treads built to handle difficult terrain.

Neither of them says anything. The crazed glint in his eyes fills her with hope. She climbs into the passenger seat. He floors it, following close behind the trucks at first, then lagging. The old Dodge putters and chokes, but it holds its own.

A bright new day. Sun and daylight are banishing the nighttime landscape's sinister cast. Red-and-blue jellyfish lightning seems like another world ago.

Cracker races, slams his palm down on the horn. The convoy of army trucks ignores him. He keeps his foot pressed to the accelerator. Harper keeps her gaze fixed on the Base.

They can't get in. They'll be turned back at the front gate. Threatened with whatever trespassers get threatened with. Whatever happens, she's ready for it. So is Cracker.

The Base's electronic gates do not slide open. The truck convoy halts. Cracker stops too but keeps the engine purring. Just in case.

A soldier gets out of the truck ahead and slams the cabin door. He's armed but he hasn't drawn his weapon. She's still gripping that rock chunk in her hand.

'Get out of the vehicle,' booms a megaphone voice.

'Not fucken likely,' says Cracker.

'I repeat: Get out of the vehicle.'

Nothing happens. Nobody moves. The Dodge keeps grunting and grumbling like a big old dog.

Harper turns the door handle, slides out of the passenger seat. 'You can't just do whatever you like,' she shouts. She's shaking hard and she knows she'd better drop the rock, not give them any reason. She's waiting for that soldier to draw his gun. 'You've got no right,' she repeats, softer this time.

He approaches, one arm raised. 'Ma'am, this country is at war.' The walkie-talkie on his shoulder crackles but he doesn't touch it.

'Which country?' she says, squinting through harsh sunlight. 'Which war?'

He gives her a half-arsed smirk but doesn't answer. Mumbles into the electronic device. Turns his back, gets back in the truck.

She lets the rock fall to the dusty road. *Dusty*. It appears the rain didn't reach this far. Not the strangest thing she's seen in recent times. 'Lachie,' she says, but it's too late. Too late for Lachie, too late for her and Cracker. The gates slide open with electronic precision. Trucks pass through, one by one, Cracker's Dodge amongst them—too late for turning back. A voice behind commands her to keep moving. Not to turn. Not to pick up any rocks. Not to make any sudden movements.

She looks up just in time to catch a speck in the wide blue sky. A wedge-tailed eagle, coasting on the updraft, its diamond-shaped tail unmistakable. Those birds partner up for life—something else she learned in school. They fly together, perform acrobatics, but she cannot spot the other one, its mate. When she cranes her neck and shades her eyes, a soldier twists her arm behind her back. Pushes her forwards through the steel Base gates. Metal grates as they snap and lock behind her.

**The 21st Century Catastrophe:
Hyper-capitalism and Severe Climate
Change in Science Fiction**

Introduction

In January 2018, the Doomsday Clock statement issued by the Bulletin of the Atomic Scientists Science and Security Board was set at two minutes to midnight.¹ The Clock serves as a symbolic assessment of how close the world stands to total annihilation from catastrophes such as nuclear weaponry, emerging technologies and climate change. The Board, which includes fifteen Nobel Laureates, has assessed that the world is currently ‘as dangerous as it has been since World War II.’ Stressing the urgent need to collectively rewind the Doomsday Clock, President and CEO Rachel Bronson urges people to ‘Get engaged, get involved, and help create that future. The time is now.’

For many of us, fear of global thermonuclear war seems like a threat from a bygone age, specifically the 1950s, a period following on from two world wars when science and technology, once considered the highway to utopia, had acquired a sinister cast. Concerns about social, political and cultural upheavals wrought by the dangerous effects of scientific development and technological advancement were explored through science fiction cinema and prose. Changes to the social order resulting from catastrophic events were examined in cosy catastrophes such as John Wyndham’s *The Day of the Triffids* (1951) and John Christopher’s *The Death of Grass* (1956), while fear of communists, atomic annihilation and radioactive contamination were expressed in films such as *Invasion of the Body Snatchers* (1957), *Invaders from Mars* (1953), *The Day the Earth Stood Still* (1951) and *Them* (1954).² The following decades of the 1960s and 1970s were a period of ecocatastrophic alarmism, focused on the potential horrors of overpopulation and pollution, anxieties which spiked as nuclear fears subsided.

We might be more inclined to worry about terrorism and the rise of the alt-right than reds under the bed or mutant creatures these days, but climate change and associated ecological issues loom large in the public consciousness. Earth’s climate is undeniably in transition: 2017 was the third hottest year recorded since modern observations began—the hottest year in which temperatures were not boosted by an El Niño event, making 2013-2017 the hottest five-year period on record.³ Climate change is a long-term issue on a massive scale, occupying a front-and-center position, not just on political and scientific agendas worldwide, but in the wider social and cultural

1 ‘Doomsday Clock,’ 2018 statement, *Bulletin of the Atomic Scientists*, <http://thebulletin.org/2018-doomsday-clock-statement>.

2 John Wyndham, *The Day of the Triffids* (London: Michael Joseph, 1951); John Christopher, *The Death of Grass* (London: Michael Joseph, 1956); *Invasion of the Body Snatchers*, directed by Don Siegel, Walter Wanger Productions, 1956; *Invaders from Mars*, directed by William Cameron Menzies, 20th Century Fox, 1953; *The Day the Earth Stood Still*, directed by Robert Wise, 20th Century Fox, 1951; *Them!* directed by Gordon Douglas, Warner Bros, 1954.

3 ‘Working Group on the Anthropocene,’ Climate Council, Last modified 4 January 2016, <http://quaternary.stratigraphy.org/workinggroups/anthropocene/>.

imagination. Climate science illuminates great uncertainties: targets outlined in the 2015 Paris Accord no longer seem achievable.⁴

Earth's climate functions as its life support system. That system is under heavy threat from over seven billion people and the bleeding heat of industry as jungle and forest are rendered into farmland; greenhouse gases belch and fume, destabilising the environment and shrinking biodiversity.⁵ Effects being felt around the globe include mega forest fires, increased droughts and heatwaves, melting poles and shrinking glaciers, the spread of vector-borne diseases, changing rainfall patterns, acidifying oceans and other irreversible conditions pushing the limits of Earth's regulating mechanisms, with the worst being yet to come as we enter the sixth mass species extinction in the history of life on Earth.⁶ This is not the planet's first world-threatening climate event by any means—our biological ancestors survived five mass extinction events, including a dinosaur-demolishing meteorite impact and countless erupting super volcanoes.⁷ But this world-threatening climate catastrophe has been brought about by human activity. We are fouling our own nest, stealing from our grandchildren and their future.

The worldwide scientific community has issued warnings for years about the present and future impacts of climate change linked to fossil fuel use. Questions about climate change were initiated by nineteenth century scientists. In 1827 French mathematician Fourier coined the term 'greenhouse effect.' But until around 1960, most scientists thought it implausible that humans could significantly affect average global temperatures. The term 'Anthropocene', now entering common use, was initially suggested by Paul Crutzen and Eugene Stoermer in 2000, 'to denote the present time interval, in which many geologically significant conditions and processes are profoundly altered by human activities.'⁸ Some date the threshold of the Anthropocene at 1800 CE, at the start of the Industrial Revolution. Others place it at the beginning of agriculture itself, approximately 12,000 years ago. More recent suggestions place the start of the Anthropocene epoch at 1950, 'The Great Acceleration', with nuclear weapons tests, disposable plastics and post-war human populations booming.⁹

Climate change is emerging as a set of philosophical and existential problems as well as physical challenges.¹⁰ It is yet to receive the crisis response and attention

4 'Paris Agreement,' United Nations, April 20, 2018, http://unfccc.int/paris_agreement/items/9485.php.

5 Some phrases in this chapter draw from my essay 'Climate Science and Climate Fiction - Where Data Intersects With Art,' originally published on *Boing Boing*: <https://boingboing.net/author/catsparks>.

6 Elizabeth Kolbert, *The Sixth Extinction: An Unnatural History* (New York: Picador, 2015).

7 A Hallam and P.B. Wignall, *Mass Extinctions and Their Aftermath* (Oxford University Press, 1997).

8 P.J. Crutzen & E.F. Stoermer, *IGBP Newsletter* 41, 17-18 (2000). Some other terms for the Anthropocene include Capitalocene, Thermocene, Carbocene, Thanatocene, the age of loneliness, and the Eremocene—the age of silence.

9 On the concept of the Anthropocene in general, see for example: Dipesh Chakrabarty, 'The Climate of History: Four Theses,' *Critical Inquiry* 35 (2009): 197-222; J. K. Gibson-Graham and Gerda Roelvink, 'An Economic Ethics for the Anthropocene,' *Antipodes* 41 (2009): 320-346; Ben Dibley, "'The Shape of Things to Come': Seven Theses on the Anthropocene and Attachment,' *Australian Humanities Review* 52 (May 2012): 139-153; Donna J. Haraway, *Staying With the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press, 2016); as well as the journal *The Anthropocene Review*.

10 Isabelle Stengers, *In Catastrophic Times: Resisting the Coming Barbarism*, trans. Andrew Goffey (London:

it deserves from world leaders. There have never been more of us and we have never demanded more from our environment than we do now. The perpetual motion machine known as late stage capitalism stands as the deadliest, most self-destructive weapon in our arsenal, pushing the planet beyond the threshold of sustainability.¹¹ The coming decades will see problems of increasing complexity, such as ongoing political and social instability, dangerous weather, food and water insecurity, and an increase in displaced persons as more and more land is swallowed by the sea.

The way we conceptualise the future is intrinsic to the fabric of our cultures—and our storytelling. It empowers us to connect with others and gives context and meaning to our lives. Fiction has the power to translate complex and evolving scientific concepts into captivating tales reimagining human interactions with the world. Many contemporary storytellers have taken on the task of facing this looming environmental crisis. Non-didactic narratives prioritising climate consciousness, stressing the social aspects of climate change as much as the technical and scientific, encourage long-term thinking about the power and potential of renewable energy. Other narratives show how we might realign our value systems and adapt to a changing world as ice melts and seas rise. Stories appeal to social ethics, question established hierarchies, explore how practical changes might be implemented across ordinary lives and address our responsibility for fashioning an ecologically sustainable future.

Speculative fiction—in particular science fiction—has a significant role to play in exploring responses to environmental crisis. Its engagement with science and the social and political transformations of modernity, its global perspective, its flexible transdisciplinary parameters and its attention to the future, all situate speculative fiction as the genre best suited to extrapolating new realities that comprehend and communicate the scale and significance of ecological catastrophe, imagining a wide spectrum of possible scenarios and outcomes, exploring radical solutions and encouraging imaginative engagements that might emerge in response, both hopeful and pessimistic.

Mimetic or Speculative?

In a 2005 article for *Grist*, Bill McKibben, author of *The End of Nature* and director of 350.Org, lamented that although we are living through the biggest thing since human civilisation emerged:

... it hasn't registered in our gut; it isn't part of our culture. Where are the books? The poems? The plays? The goddamn operas? Compare it to, say, the horror of AIDS in the last two decades, which has produced a staggering outpouring of art that, in turn, has had real political effect. I mean, when

Open Humanities Press, 2015); Bruno Latour, *Facing Gaia: Eight Lectures on the New Climatic Regime*, trans. Catherine Porter (Cambridge: Polity Press, 2017).

11 Jason W. Moore, *Capitalism In The Web Of Life: Ecology And The Accumulation of Capital* (London: Verso, 2015), Kindle.

people someday look back on our moment, the single most significant item will doubtless be the sudden spiking temperature. But they'll have a hell of a time figuring out what it meant to us.¹²

Will mimetic fiction be the best literary form to guide us through these changes? Focusing on domestic realism as a microcosm reflecting broader societal landscapes is limited and potentially irresponsible in the current ecological climate. We no longer have the luxury of looking inward in a world into which humanity is pumping climate-warming carbon dioxide ten times faster than at any point in the past 66 million years.

In *The Great Derangement*, Amitav Ghosh laments the 'smaller shadow' cast by climate change within the landscape of literary fiction: 'fiction that deals with climate change is almost by definition not the kind that is taken seriously by serious literary journals; the mere mention of the subject is often enough to relegate a novel or short story to the genre of science fiction.'¹³ Yet science fiction is precisely equipped to interrogate these modern questions. As the literature of technologically enmeshed societies, arising from the Industrial Revolution, it excels at imagining what might possibly go wrong, highlighting potentials we ought to fear, the dangers and the possible catastrophic outcomes of technological, scientific and even sociological and political trends. Not all science fiction is set in the future, nor has its main function ever been to predict future events, societies or technologies, but, rather, to contemplate possible human outcomes and to highlight fears contemporary society has about itself and where it might be heading. Ray Bradbury felt that science fiction is 'the fiction of sociology and psychology and history compounded and squared by time,' creating 'outsize images' of the problems that face society.¹⁴

Speculative fiction has always considered the end of the world as a serious topic, both existential and catastrophic threats. Its authors utilise imagination to situate readers in a different place and time. Science fiction authors are often required to craft and shape entire new worlds complete with functional cultures and economic systems in order to render future projections engaging and believable. Such a skillset is invaluable as we come to the point of requiring new approaches to life on a rapidly warming Earth.

And yet, perhaps domestic realism will end up with significant scope for development, expansion and interrogation. As climate change progresses and affects a great many things often taken for granted—supply of coffee, fresh vegetables, running water, for example—authors will be nudged into incorporating changes and effects into urban terrains as the ordinary continues to become more and more extraordinary.

12 Bill McKibben, 'What the Warming World Needs Now is Art, Sweet Art,' *Grist*, April 22, 2005, <http://grist.org/article/mckibben-imagine/>. See also Bill McKibben, *The End of Nature* (New York: Random House, 2006).

13 Amitav Ghosh, *The Great Derangement: Climate Change and the Unthinkable* (India: Penguin Random House, 2018), 9.

14 Ray Bradbury, 'Day After Tomorrow: Why Science Fiction?' *Nation*, May 2, 1953, 364-367.

Eventually all mimetic fiction may become climate fiction by default. As Adam Trexler writes, ‘The creation of Anthropocene realism marks a profound shift in the understanding of climate change itself, from something that ought not to exist to something that already does.’ However, he cautions that:

Formally, realism is unlikely to imagine novel political affiliations because of its commitment to a desultory status quo. For this reason, it seems likely that the most interesting fiction and criticism about the politics of climate change will dwell in the speculative future, inventing new ways of connecting diverse human beings.¹⁵

Whatever labels and classifications are applied to contemporary fiction, one thing is clear and certain. Our world is warming, the climate is changing and we find ourselves needing to respond to these transformations through many and varied forms of art and storytelling. In this exegesis I will examine the role of speculative fiction in a climate changed world. The first chapter explores the nature, historical roots and context of speculative fiction. Chapters two and three look in detail at exemplary short stories from two different periods of eco-fiction: ecocatastrophe fiction of the 1960s–1970s, and contemporary climate fiction respectively. The exegesis concludes with a reflection on ways in which Anthropocene fiction has broken free of its science fiction ecocatastrophe roots to establish itself as a literature of purpose for the current age.

15 Adam Trexler, *Anthropocene Fictions: The Novel in a Time of Climate Change* (Charlottesville and London: University of Virginia Press, 2015), Conclusion: ‘The Real and the Future,’ Kindle.

Chapter 1:

What is Speculative Fiction?

The term ‘speculative fiction’ was first used in 1889, in a review of Edward Bellamy’s ‘Looking Backward’ in *Lippincott’s Monthly Magazine*.¹⁶ The origin is more commonly credited to a 1947 essay, ‘On the Writing of Speculative Fiction’, by Robert Heinlein, in which he specifically discusses the writing of science fiction.¹⁷ The term was further popularised by Judith Merril in a series of anthologies published in the 1960s:

Merril defined the fiction she wanted to promote as ‘Speculative’ fiction: stories whose objective is to explore, to discover, to *learn*, by means of projection, extrapolation, analogue, hypothesis-and-paper experimentation, something about the nature of the universe, of man, or ‘reality.’¹⁸

Speculative fiction stories can be characterised as ‘What if?’ stories set somewhere other than in the real world as we recognise it. Speculative fiction describes the literature of unbound imagination, stories that feature fantastical, supernatural, or futuristic elements: fantasy, horror and science fiction. Branching subgenres include alternate history, steampunk, magic realism, dystopias, superheroes, both high and urban fantasy, space opera, cyberpunk, time travel, and so on. Speculative fiction often functions as a general purpose carry all, in which can be placed anything deemed a little bit strange, left-of-centre, or uncomfortable. In particular, it gets used as Heinlein used it, as an alternative to ‘science fiction’, a term saddled with a prejudice acquired during science fiction’s Golden Age (1938-46), an era begun when John W Campbell Jr assumed editorship of *Astounding Magazine* in October 1937.¹⁹ This was the era of pulp fiction genre magazines, pulp actually referring to the cheap paper the magazines were printed on rather than a comment on the quality of the stories themselves. However, science fiction stories of this time tended to be wildly imaginative and unsophisticated, largely written by men for young male readers at a time of belief in the wondrous transformative potential of technology.²⁰

16 Harry Edwin Eiss, *Electric Sheep Slouching Towards Bethlehem: Speculative Fiction in a Post Modern World* (Cambridge Scholars Publishing, 2014).

17 Robert Heinlein, *The Nonfiction of Robert Heinlein, Volume One* (The Virginia Edition, 2011), 219.

18 John Rieder, ‘What is SF? Some Thoughts on Genre,’ in *A Virtual Introduction to Science Fiction*, ed. Lars Schmeink (2012), 1-17. http://virtual-sf.com/?page_id=137.

19 Malcolm Edwards and John Clute, ‘Campbell, John W, Jr,’ *The Encyclopedia of Science Fiction*. Eds. John Clute, David Langford, Peter Nicholls and Graham Sleight. Gollancz, 4 Apr. 2017. Web. 5 Apr. 2018. http://www.sf-encyclopedia.com/entry/campbell_john_w_jr.

20 See Mike Ashley, *The Time Machines: The Story of the Science-Fiction Pulp Magazines from the Beginning to 1950* (Liverpool: Liverpool University Press, 2000); Adam Roberts, *The History of Science Fiction* (New York: Palgrave Macmillan, 2006).

After World War II, in which atomic power was used as a weapon of mass destruction rather than a miraculous energy source, science fiction sobered up and matured, and the imagining of large-scale ecological disaster became a marked trope, but the taint of that Golden Age proved very hard to shake off. Despite sophisticated works by authors such as Isaac Asimov, Ray Bradbury, Leigh Brackett, Theodore Sturgeon and Arthur C. Clarke, cartoonish images of rockets, robots and space aliens from those formative years lodged in mainstream imagination, discouraging many readers from engaging with the literature at all, let alone taking it seriously. Decades of appalling magazine and paperback cover art did little to help.

John Reider explains how commercialism and expectations of formulaic predictability had accrued around the term science fiction, encouraging the use of a new term:

Taking off in the 1960s, 'speculative fiction' signaled a deliberate departure from 'Golden Age' practices, especially a higher degree of literary ambition, less concern with attaining a high volume of sales, and more with reaching a more highly educated, more artistically sophisticated and demanding audience.²¹

Today, the term 'speculative fiction' is often employed as a means of camouflage, nestling science fiction stories alongside literary expressions considered more respectable, such as magic realism, with its South American pedigree, fairy tales, with their inherent cultural value, and alternate history, which is still realistic in expression, divergent rather than wholly fantastical, examining what plausibly might have transpired if, say, Hitler had won WWII. Some readers do not respond well to any fiction set outside the realm of real-world plausibility. In a paper entitled 'The Genre Effect', Gavaler and Johnson documented processes by which identifying a text as science fiction made readers consider it as a less worthy form of literature, and consequently expend less effort reading it. Substituting an alternative term to 'science fiction' is an attempt at pushing beyond such prejudices while simultaneously enabling engagement with new forms and functions.²²

Yet there are many for whom this outdated preconception no longer make sense. David Mitchell, award-winning author of *Cloud Atlas* and *The Bone Clocks*, well respected by both speculative fiction and literary fiction readers and critics alike, says:

It's a bizarre act of self-mutilation to say that 'I don't get on with science fiction and fantasy, therefore I'm never going to read any...' What a shame.

21 Rieder, 'What is SF?'

22 Chris & R Gavaler, Dan Johnson, 'The genre effect: A science fiction (vs. realism) manipulation decreases inference effort, reading comprehension, and perceptions of literary merit.' *Scientific Study of Literature*. 7 (2017): 79-108. 10.1075/ssol.7.1.04gav.

All those great books that you're cutting yourself off from.²³

When *Station Eleven* by Emily St John Mandel became a National Book Award finalist in 2014, the author explained that the literature/genre divide in relation to her work was to do with marketing, nothing more.²⁴ Whether or not a book is categorised as science fiction, speculative fiction or literary fiction for marketing purposes does not necessarily reflect the author's wishes or intent, or, indeed, the characteristics of the text, as Adeline Johns-Putra points out:

but on the identification of its author with the genre and the willingness of readers to read that text and its author within those generic boundaries; marketing, it must be conceded, plays an important role in such decisions.²⁵

Neville Shute did not consider himself to have written a work of science fiction with his 1957 post-apocalyptic novel *On the Beach*, focused on Melbourne residents placidly awaiting the arrival of a deadly radiation cloud. Nor did John Wyndham, whose classic *The Day of The Triffids* explores the horrors of sudden, mass blindness among the population of London—he claimed his works were 'logical fantasies.'²⁶ China Mieville suggests that the real schism lies not between 'litfic' and fantasy/SF, but between 'the literature of recognition versus that of estrangement.'²⁷ Other writers to have made similar statements questioning genre categories across the years include Jules Verne, H. G. Wells, Kurt Vonnegut Jnr, Harlan Ellison and, most famously, Margaret Atwood.²⁸

In response to a backlash by self-identified science fiction readers to her claim that she did not write science fiction, Atwood stated:

What I mean by 'science fiction' is those books that descend from HG Wells's *The War of the Worlds* which treats of an invasion by tentacled Martians shot to Earth in metal canisters—things that could not possibly happen—whereas, for me, 'speculative fiction' means plots that descend

23 <http://www.theguardian.com/books/booksblog/2015/nov/10/david-mitchell-and-literary-and-genre-fiction-world-fantasy-award>: 'It's convenient to have a science fiction and fantasy section, it's convenient to have a mainstream literary fiction section, but these should only be guides, they shouldn't be demarcated territories where one type of reader belongs and another type of reader does not belong,' Mitchell says in Episode 175 of the *Geeks Guide to the Galaxy* podcast.

24 Ron Charles, 'Sorry, Emily St. John Mandel: Resistance is futile,' *Washington Post*, October 15, 2014, http://www.washingtonpost.com/news/arts-and-entertainment/wp/2014/10/15/sorry-emily-st-john-mandel-resistance-is-futile/?utm_term=.28505bf19792.

25 Johns-Putra, A. 'Climate change in literature and literary studies: From cli-fi, climate change theater and ecopoetry to ecocriticism and climate change criticism,' *WIRES Climate Change*, 7, Issue 2 (March/April 2016): 266-282.

26 Robert McKie, 'Don't ignore the invisible man,' *The Guardian*, July 13, 2003, <http://www.theguardian.com/books/2003/jul/13/classics.johnwyndham>.

27 Sarah Crown, 'What the Booker Prize Really Excludes,' *The Guardian*, October 18, 2011, <http://www.theguardian.com/books/booksblog/2011/oct/17/science-fiction-china-mieville>.

28 Certified 'Literary' authors who have crossed over into traditional genre territory in recent times include Margaret Atwood, Colson Whitehead, Cormac McCarthy, Kasuo Ishiguro, Michel Faber and Maggie Gee.

from Jules Verne's books about submarines and balloon travel and such—things that really could happen but just hadn't completely happened when the authors wrote the books. I would place my own books in this second category: no Martians. Not because I don't like Martians, I hasten to add; they just don't fall within my skill set.²⁹

Despite the internal logic of Atwood's separation and explanation of the terms, as speculative fiction had been used for decades already, its meaning much discussed, unpacked and debated, attempting to introduce new meanings for these terms would cause more confusion than it would likely solve. Jules Verne, often nominated as a contender for Grandfather of Science Fiction, might well have agreed with Atwood. He saw himself as a writer of voyages imaginaires, claiming he did not have much of an interest in science. Most of his stories are set in the recent past rather than the future. His works were often shortened and poorly translated when transposed into English—and incorrectly presumed to have been written for children.³⁰

Science fiction may be perceived as childish by those who do not engage with it because of outlandish magazine covers, because of B-Grade cinema, because young people are attracted to it, because of unappealing aesthetics, because it is not steeped in the respectability of long historical tradition as can be said of folk tales and mythology. But science fiction is a form of mythology, one running in the opposite temporal direction to folklore: forwards rather than backwards. To the future rather than the past. Science fiction interrogates human fears and apprehensions in the face of changing social, political and technological landscapes. Fears rooted in the very idea of living amidst perpetual change.

Andrew Milner writes of the boundary between the science fiction field and the canonical 'literary' field as a selective barrier analogous to a membrane, impermeable to many but not all elements, located in the overlap between the SF restricted field and institutionalised bourgeois SF. From the canonical side, SF may enter the canon, but it may not then return to science fiction. Milner explains that science fiction works canonised as 'literary' by educational and publishing institutions get relocated from the bookshop shelves marked 'Science Fiction and Fantasy,' a move that does not affect their appreciation amongst science fiction critics.³¹

My observation is that literary fiction is slipping between the streams, regardless of where anyone might wish to shelve it. It is worth noting that five of the six finalists in

29 Margaret Atwood, 'Margaret Atwood: the road to Utopia,' *The Guardian*, October 15, 2011, <http://www.theguardian.com/books/2011/oct/14/margaret-atwood-road-to-utopia>.

30 Jules Verne, *The Extraordinary Journeys: Twenty Thousand Leagues Under the Seas*, trans. William Butcher (Oxford: Oxford University Press, 1998). On Verne, see, for example, Peter Costello, *Jules Verne, Inventor of Science Fiction* (New York: Scribner, 1978); Arthur B. Evans, *Jules Verne Rediscovered: Didacticism and the Scientific Novel* (New York: Greenwood Press, 1988).

31 Andrew Milner, 'Science Fiction and the Literary Field,' *Science Fiction Studies*, Vol. 38, No. 3 (November 2011): 393-411.

the best science fiction novel category of the 2017 Aurealis Awards—awards established to recognise the achievements of Australian science fiction, fantasy and horror writers—were published as literary rather than genre novels.³² As Robinson put it in an episode of The Coode Street Podcast, ‘now everything is SF and the literary fiction community is all desperately trying to do SF because we live in a SF world.’³³ The current cross-pollinating climate goes both ways: genre gatekeepers are also reading, and rating, these difficult-to-categorise works that explore our fears and apprehensions, providing readers with a different perspective from which to see anew their own world.

Dystopia, Climate and Anthropocene Fiction

Reality has all but overtaken science fiction as the accelerated pace of change results in uncertain outcomes and the impact of technology increases exponentially, expanding on an ever-increasing number of fronts, affecting the ways we engage with each other and work, permeating domestic spheres and narrowing the gap between the imagined and the possible. Machine learning algorithms, self-driving vehicles, drones and hyper surveillance of civilian spaces have become regular facts of recent times, as we move towards the creation of new forms of life via artificial intelligence and synthetic biology.

Increasingly, the future is becoming more difficult to see as we creep up on it, inch by inch. Ford expresses the danger this way:

The frightening reality is that if we don’t recognize and adapt to the implications of advancing technology, we may face the prospect of a ‘perfect storm’ where the impacts from soaring inequality, technological unemployment, and climate change unfold roughly in parallel, and in some ways amplify and reinforce each other.³⁴

These ecopolitical transformations have been expressed and reflected through literature in manifold ways. Recent years have seen an unsurprising surge in the popularity of post-apocalypse and dystopian fiction in tandem with rising concerns about global issues. ‘Dystopian’ is often used to describe stories set in bleak futures, however, as John Joseph Adams explains:

In a dystopian story, society itself is typically the antagonist; it is society that is actively working against the protagonist’s aims and desires.

This oppression frequently is enacted by a totalitarian or authoritarian

32 Aurealis Awards, ‘2017 Aurealis Awards shortlist announcement,’ February 15, 2018, <http://aurealisawards.org/2018/02/15/2017-aurealis-awards-shortlist-announcement/>.

33 Kim Stanley Robinson and Gary K. Wolfe. ‘Podcast—Coode Street,’ Jonathan Strahan, Accessed June 5, 2018. <http://www.jonathanstrahan.com.au/wp/the-coode-street-podcast/>.

34 Martin Ford, *Rise of the Robots: Technology and the Threat of a Jobless Future* (New York: Basic Books, 2015).

government, resulting in the loss of civil liberties and untenable living conditions, caused by any number of circumstances, such as world overpopulation, laws controlling a person's sexual or reproductive freedom, and living under constant surveillance.³⁵

Only one year into US President Trump's term of office, George Orwell's *1984*, first published in 1948, was back on the best seller lists. Octavia Butler's *Parable of the Sower*, Margaret Atwood's *The Handmaid's Tale*, and Aldous Huxley's *Brave New World* all received a resurgence of interest for elements of their narratives being seen as scarily relevant to current times. The Hunger Games trilogy by Suzanne Collins was an outstanding success of recent years, influencing hundreds of young adult dystopian titles in its wake, perhaps testament to the fact that young people are concerned about the future that awaits them.

The term 'Cli Fi' was coined and popularised by Taiwan-based blogger and activist Dan Bloom in 2008 as an abbreviation for climate fiction.³⁶ Other terms in use include Anthropocene fiction, first impact fiction, eco-fiction, ecotopianism, eco-fabulism and post-natural fiction. My personal preference is for Anthropocene fiction because, as Trexler states, the term 'emphasises the emergence of its subject from a scientific theory (contained in models and brains) to a geological process reflected in the atmosphere, oceans, ecosystems, and societies.'³⁷

Haraway, however, considers the Anthropocene to be more of a boundary event than an epoch, marking 'severe discontinuities; what comes after will not be like what came before.' She asks if there is an 'inflection point of consequence that changes the name of the "game" of life on earth for everybody and everything?'

The question we need to be asking is when do changes in degree become changes in kind, and what are the effects of bioculturally, biotechnically, biopolitically, historically situated people (not Man) relative to, and combined with, the effects of other species assemblages and other biotic/abiotic forces?³⁸

Moore contends the rise of capitalism after 1450 stands out as such a historical moment of consequence: 'a turning point in the history of humanity's relation with the rest of nature'. He criticises as inadequate the dominant Anthropocene argument's standard narrative, which situates the origins of the modern world with nineteenth century

35 John Joseph Adams, 'Dystopian Fiction—an Introduction,' *Tor.com*, April 11, 2011, <http://www.tor.com/2011/04/11/dystopian-fiction-an-introduction/>.

36 James Sullivan, 'Can Science Fiction Save the Earth?' *Literary Hub*, January 4, 2017, <http://lithub.com/can-science-fiction-save-the-earth/>.

37 Trexler, *Anthropocene Fictions*, Introduction, Kindle.

38 Donna Haraway, 'Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin,' *Environmental Humanities*, vol. 6, 2015, p. 159, www.environmentalhumanities.org.

English coal and steam. The notion of the Anthropocene fails to challenge ‘naturalised inequalities, alienation, and violence inscribed in modernity’s strategic relations of power and production’ and thus ‘removes inequality, commodification, imperialism, patriarchy, and much more from the problem of humanity-in-nature.’ The term Capitalocene thus best encapsulates ‘a turning point in the history of humanity’s relation with the rest of nature,’ as opposed to Anthropocene, which ‘integrates factors but does not synthesise them.’³⁹

Anthropocene fiction as a body of work identifying itself as such is in its early, formative years, but already there are a wide varieties of approaches and responses to climate change and its impacts being experimented with: the cautionary tale very much in the vein of the 1960s and 1970s ecocatastrophe period; the stories outlining experimentations with potential mitigations or solutions; the techno-fix stories; the stories showing how we might adjust to new physical, social and emotional living conditions; the stories of how we just pick ourselves up and continue; stories of apocalypse, post-apocalypse and dystopia; and the stories set in a time of post-scarcity in a not-too-distant future when, having (somehow) survived the worst, humanity carries on with great success and goes on to colonise space.

The atomic bomb was the biggest threat in the 1950s, and now it appears to be returning as a realistic existential threat. Ecological concerns, population growth and pollution were the biggest threats in the 1960s and 1970s, threats that never went away. I identify capitalism as the biggest issue of here and now—the underlying cause of ecological damage and continuing unsustainability—and the greatest threat to our planet’s future. Contemporary times have added an array of worrying players: synthetic biology, terrorism, impending antibiotic resistance, vector borne diseases, release of methane from warming sea beds and permafrost, the fast pace of change and resultant social upheaval. Our twenty first century world is armed and dangerous.

Ecological concerns identified and explored by science fiction authors of the 1960s and 1970s remain prevalent and relevant today as industrial nations continue emitting unsustainable levels of greenhouse pollution, despite warnings from the scientific community that parts of the world will be rendered uninhabitable as a result. The problem does not simply lie with the mechanics of manufacturing and distribution processes, but with the fundamentals of late stage capitalism and the neoliberal ethos of profit and perpetual growth, regardless of consequences.

The dearth of fictional work dealing with climate change has often been lamented. In a 2011 review of *I’m With the Bears*, an anthology of contemporary climate fiction, Chris Ross, dismissing the stories as barely relevant, exclaimed ‘Guys, the ice caps are melting now. Where are those stories?’⁴⁰ And Daniel Kramb, in 2012, added

39 Moore, *Web of Life*, Kindle.

40 Chris Ross, ‘I’m With the Bears edited by Mark Martin—review,’ *The Guardian*, October 11, 2011, <http://>

to the conversation, stating ‘It’s an unpleasant conversation to have, no doubt about it—and maybe that’s why it’s not really taking place in fiction, at least not centre-stage.’⁴¹ However, science fiction authors have, of course, been writing about climate change scenarios for decades, as was pointed out in a letter to the editor to *The Financial Times* from Mr Bob Buhr dated July 10, 2010, in response to Ed Crooks’ review of climate change in fiction:

...once again, I’m amazed that no one ever bothers to check out what science fiction writers have been doing for the past couple of decades. Of course, it’s science fiction, so who cares? But Ian McEwan is certainly wrong when he says it’s hard to find novels about climate change. He should just wander over to a different section of the bookstore.⁴²

As Laurence Buell reminds us, ‘for half a century science fiction has taken a keen, if not consistent interest in ecology, in planetary endangerment, in environmental ethics, in humankind’s relation to the non-human world’.⁴³ An engagement with the genre is necessary for an informed understanding of twenty- and twenty-first century literary responses to environmental and climate anxieties.

In his introduction to *Everything Change*, Kim Stanley Robinson declared climate fiction to be ‘a subgenre of science fiction’:

As part of that fidelity to the real, a lot of near-future science fiction is also becoming what some people now call climate fiction. This is because climate change is already happening, and has become an unavoidable dominating element in the coming century.⁴⁴

Yet climate fiction set in the here and now, such as Kathryn Heyman’s *Floodline* and Ashley Shelby’s *South Pole Station* do not involve speculative elements. Annie Proulx’s *Barkskins*, a historical novel set in seventeenth century New France (now Canada), describes Christian colonists cutting down trees, violating sacred land and impacting the ecology of the region across generations.⁴⁵

Although a more respected literary form today than it was back in the 1960s and 1970s, science fiction still suffers from genre ghettoization in some spheres. Application of the term ‘dystopian’ in some instances permits broader access and appreciation, but

www.theguardian.com/books/2011/oct/11/im-with-the-bears-review.

41 Daniel Krumb, ‘Climate Fiction Melts Away Just When it’s Needed,’ *The Guardian*, October 18, 2012, <http://www.theguardian.com/books/booksblog/2012/oct/18/climate-change-fiction>.

42 Bob Buhr, ‘Science fiction writers have had climate change covered for decades,’ *Financial Times*, Opinion Letter, July 10, 2010, <http://www.ft.com/content/b85f1c7a-8bbc-11df-ab4d-00144feab49a>.

43 Laurence Buell, *The Future of Environmental Criticism: Environmental Crisis and Literary Imagination* (John Wiley & Sons, February 9 2009), 56.

44 Milkoreit, Martinez & Eschrich, *Everything Change* (Arizona State University, 2016).

45 Kathryn Heyman, *Floodline* (NSW: Allen & Unwin, 2013); Ashley Shelby, *South Pole Station* (London: Picador, 2017); Annie Proulx, *Barkskins: A Novel* (New York: Scribner, 2016).

climate fiction, even when it could accurately also be described as science fiction, is likely to be better served by avoiding use of the term. Both dystopian and climate or Anthropocene fiction are today perceived as considered and relevant responses to an emerging global predicament, as evidenced by the recent success of titles such as James Bradley's *Clade* and Clare G. Coleman's *Terra Nullius*, amongst others.⁴⁶

Why Short Fiction?

In *Anthropocene Fictions: The Novel in a Time of Climate Change*, Trexler interrogates restrictions of the contemporary novel inherent in both its form and processes.

At a more theoretical level, the novel is founded on the tension between fact and invention, history and place, society and interiority, and the practice of making a living. These sites are integral to the meaning-making of a novel, and each of them is being radically reordered as we locate ourselves in the Anthropocene.

He adds that:

...contemporary critical accounts describe literary production as a dialectical conflict between the literary and popular, between formal experiment and realism; or between the works 'routinely celebrated in the press and the prize awards' and 'challenging work from the margin, from the perspective of the other.'⁴⁷

Clark warns that the 'institution of the novel' is always a latent neutralisation of its content... (which)... 'forms a limit both to the possible impact of climate change fiction and to the hope of ecocriticism that the informed reading of it can take on a crucial role of political and social leadership.'⁴⁸

This exegesis aims to supplement Trexler's research by focusing on short form science fiction and climate fiction as opposed to novel-length works. This is because of the potential for the inherent differences between the forms to lead to the covering of diverse ground from alternate perspectives.

William Trevor writes in *The Paris Review*:

If the novel is like an intricate Renaissance painting, the short story is an impressionist painting. It should be an explosion of truth. Its strength lies

⁴⁶ James Bradley, *Clade* (Australia: Penguin, 2015); Clare G. Coleman, *Terra Nullius* (Australia: Hachette, 2017).

⁴⁷ Trexler, *Anthropocene Fictions*, Kindle, unpaginated.

⁴⁸ Timothy Clark, *Ecocriticism on the Edge* (NY: Bloomsbury Academic, 2015).

in what it leaves out just as much as it puts in, if not more. It is concerned with the total exclusion of meaninglessness. Life, on the other hand, is meaningless most of the time. The novel imitates life, while the short story is bony, and cannot wander. It is essential art.⁴⁹

Trexler asks the question ‘does climate fiction demand new literary modes?’ The short story is not a new literary mode by any measure, but one that inhabits the margins of capitalist consumer culture due to the fact that, unlike in F. Scott Fitzgerald’s day, it’s no longer possible to make a living writing it. Steven Petite writes, ‘In a way, the decrease of profitable venues for short story writer has made these writers enhance their craft in order to succeed and remain relevant.’⁵⁰

Artistic ambition and concerns drive contemporary short story publishing, with cultural kudos being highly valued as a commodity in and of itself. To quote author Nick Mamatas:

The short story is alive because it was dead. Freed from commercial considerations—there’s no reason to sit down and try to write to the men’s magazine market or for the Saturday Evening Post’s specific requirements—writers can do what they will.⁵¹

Mamatas writes of short fiction being compatible with smartphone and commuter culture, allowing for instant access: ‘reading in an interstitial moment and then reading another story eight hours later doesn’t tax one’s attention span so much.’ Short fiction is thus particularly well suited to an era marked by technological change.

Speculative fiction short stories must achieve something more than tales of domestic realism—succinct and believable world building, which often requires the rendering and display of an entire realistic universe as backdrop—and all within a modest word count. Speculative fiction ideas are well-suited to the short form (science fiction particularly so), as evidenced by the fact that today’s short speculative fiction market is flourishing and highly competitive at the professional and semi-professional grade, publishing material in print, electronic and audio form at a time when short fiction is regularly pronounced to be dead in mainstream venues.

While it is certainly true that it is not possible to make a living from solely writing and publishing short speculative fiction, it is possible for an author to make a name for themselves and build a solid reputation and fan following. Many speculative fiction

49 William Trevor, ‘The Art of Fiction No. 108,’ Interview by Mira Stout, *The Paris Review*, Issue 110, Spring 1989, <http://www.theparisreview.org/interviews/2442/william-trevor-the-art-of-fiction-no-108-william-trevor>.

50 Steven Petite, ‘Why Short Stories Matter Now More Than Ever,’ *Huffpost*, June 18, 2015, https://www.huffingtonpost.com/steven-petite/why-short-stories-matter-_b_7093528.html.

51 Nick Mamatas, ‘Jeff VanderMeer and Nick Mamatas on the Death and Rebirth of the Short Story,’ *Electric Literature*, August 15, 2018, <https://electricliterature.com/jeff-vandermeer-and-nick-mamatas-on-the-death-and-rebirth-of-the-short-story-d340cb160d4>.

authors admit to using the short form as a testing ground for ideas, characters, scenarios and styles they plan to eventually utilise in novels or other longer works. A benefit of the short form for newer writers is the chance of achieving publication and feedback within a reasonable timeframe rather than diving straight into the laborious and time consuming processes of novel-length works.

Starting with short fiction and progressing to novel-length works was formerly considered a logical career path, however self-publishing and the digital revolution has negated the need for any kind of long-term game plan or pathway for many authors—anyone can upload whatever they have written straight to online sales platforms without concern for editing or other polishing processes. Uploading, however, comes with no guarantee of readership. Despite the prevalence of self-publishing, the bar for acceptances from the above-mentioned professional magazines is higher than ever, with editors having a great pool of skilled and accomplished authors to choose from.

Master of the short SF form, Terry Bisson, explains that ‘A “mainstream” short story can be about anything: a mood, a character, a setting, even a flashy writing style. A genre (SF or fantasy) short story is about an idea. The fictional elements (character, plot, setting, etc) are only there to dramatize the idea.’ His rules for writing short SF include ‘The stranger the idea, the realer the world must seem to be,’ ‘Novels are made out of characters and events. Short stories are made out of words alone. They are all surface. Polish,’ and ‘Symmetry is more important than plot. A short story must make a pleasing shape, and close with a click.’⁵² The short form seems like a particularly suitable canvas upon which to explore issues relating to global ecocatastrophe: the impacts of big events on disregarded places and individual lives, piecemeal and personal in the face of changes sometimes slow and insidious, other times rapid and cataclysmic, almost always too big to comprehend. Short stories, by their nature, focus on the microcosm: a single incident with a single plot and setting, a limited number of characters, covering a short period of time. Short stories tend to have dramatic missions and abrupt beginnings, throwing the reader immediately into the middle of the action. Like Bisson says, a short SF story is an outstanding execution of an idea in which every sentence has to count. The result can be transformative, a snapshot of the human condition. A successful short story is more than the sum of its parts and keeps you thinking long after it is done. ‘Good fiction teaches us what it means to be human,’ says Connie Willis.⁵³ Short speculative fiction is the perfect form to interrogate what it means to be human, humane, and potentially post-human, in a climate-changed world.

52 Terry Bisson, ‘Guest Post: 60 Rules for Short SF (and Fantasy),’ *Science Fiction and Fantasy Writers of America*, July 5, 2011, <http://www.sfwaworld.org/2011/07/guest-post-60-rules-for-short-sf-and-fantasy/>.

53 ‘Writing and the Human Condition,’ Connie Willis quoted by Cat Rambo, <http://www.kittywumpus.net/blog/2012/08/15/writing-and-the-human-condition/>.

My Own Fiction

I have thus set my own fiction in the dying days of neoliberal capitalist excess on Earth, cataloguing human dereliction of duty, fear of change and failure to act. Thought experiments utilising speculative fiction's powerful tool kit, these stories observe failing and flailing capitalism from different angles as it affects different landscapes: the city—now and future; the country, the ocean, the wastelands and the sky. They are not hopeful, positive stories. The world does not get saved, but it endures.

In my novel, *Lotus Blue* (2017), a science fiction narrative set in a war and climate ravaged Australia 500 years in the future, the consequences of inadequate environmental planning and protection coupled with a lack of political, social and commercial awareness and responsibility regarding rapid technological development form the scaffolding for a tale in which future generations are still endangered by today's lack of ecological foresight.⁵⁴

This harsh, unforgiving landscape, seen through multiple points of view, is the setting for a fast-paced action adventure complete with killer robots, centuries-old warriors, and other popular genre tropes, that tackles serious issues of morality, social justice and belonging, all so relevant today, alongside rapid advancements in real-world science and technology. Australian speculative fiction authors have a tendency towards genre blending, perhaps reflecting the mishmash of influences we are bombarded with and the melting pot we are proudly part of: Anglo, Southeast Asian, American, Middle Eastern. So many of us hail from migrant backgrounds that ancestral influences bleed through generational rifts.

Similar concerns have shaped the selection of short fiction written as the creative production component of this thesis, in answer to the research question: what is the role of speculative fiction in a climate changed world?

'Prayers to Broken Stone' depicts the moment of infiltration: infecting darkness seeping in from another realm. Inspired by Ursula Le Guin's 'The New Atlantis' in which the stupidity of the human world becomes so overwhelming and overpowering, that fantasy literally pushes through a metaphysical membrane and bleeds through.

'Hot Rods' (a prequel to *Lotus Blue*) is set in a near future, resilient outback Australian town where the only work to be found is on The Base, a fenced-off area of foreign-owned soil where dangerous weaponry is tested and local workers vanish without trace.

'Before Dominica' portrays a wistful reminiscence of a broken friendship set against the backdrop of a broken city; a post-democracy corporate nightmare in which humans have been reduced to mere traces of functional lubricant in the great machine. Dominica is a giant corporation behaving much like a giant monster, crushing

⁵⁴ Cat Sparks, *Lotus Blue* (New York: Skyhorse, 2017).

everything smaller underfoot, with human lives expendable, humanity in the throes of discovering it has reached an evolutionary cul-de-sac. Ruby Joy Canter represents the final flickering, angry flame, more dead than alive, so she might as well go out fighting.

‘And the Ship Sails On’ is all about denialism, business as usual, imperial conceit, depicting capitalism as a still-warm corpse, its parasite animals not yet comprehending their predicament and the fact that their fate is sealed. Meanwhile, new cultures push through, like grass after a bushfire. A new world waiting for the chance to seed.

‘Dreams of Hercules’ is a cargo cult story set in the ruins of a Galilee Basin mining community in which buying and selling processes have fragmented and become detached from the human communities they once served. Young Kanye perceives aeroplanes as magical conduits to bounty and deliverance from the evil he fears so much at the end of the long dirt road.

‘You Will Remember Who You Were’ is dedicated to wealthy people who believe that, one way or another, they will be able to purchase sanctuary after an apocalypse. It was inspired by articles about rich Americans buying land in Tasmania and New Zealand, with the intention of constructing state-of-the-art designer bunkers.⁵⁵ These actions go beyond the precautions taken by Survivalists and Preppers, who understand that the post-apocalyptic future will be horrible, which is why they are stocking up on guns and food. Wealthy would-be luxury bunker folks have not apparently thought through questions such as who will produce food and service the machinery supporting their ongoing survival? What kind of world will they be emerging into and how long must they live underground before it is safe? By envisioning a post-climate change world in which reincarnation is real, I have designed an escape-proof future, suggesting that humanity has no choice but to fix this mess.

The Historical Roots of Ecocatastrophe: Change and Crisis

Ecological crisis has been a common literary theme in many cultures. Many myths and legends recount the story of a great flood dramatically impacting upon humans, animals and land, the waters unleashed by an angry god. Speculative fiction has engaged with existential and catastrophic threats since *The Epic of Gilgamesh*, poems written in cuneiform on clay tablets, beginning with the words ‘He who saw the Deep’.⁵⁶ Semi-divine superhero Gilgamesh and his wild companion Enkidu battle a giant monster in a Cedar forest, resulting in environmental destruction. After Enkidu dies, Gilgamesh goes in search of the immortal Uta-Napishti, survivor of a great Deluge which wiped misbehaving humans from the Earth.

55 Evan Osnos, ‘Doomsday Prep For the Super Rich,’ *The New Yorker*, January 30, 2017.

56 *Epic of Gilgamesh*, *Encyclopedia Britannica*, Accessed February 17, 2018, www.britannica.com/topic/Epic-of-Gilgamesh.

Four thousand years later, speculative fiction stories engaging with environmental change and crisis flourish and prosper as a way of ‘seeing the Deep’ and beyond, responding to looming challenges with apocalyptic imaginings ranging from the nineteenth-century ‘last man’ genre through nuclear and ecological catastrophe to contemporary ‘anthropocene fiction.’

The emergence of science fiction in the nineteenth century was an amalgamation of several strands of converging popular literature developing alongside western industrial technological progress and imperialist expansion. Science fiction responded to the impacts of mechanism on society and reflected the anxieties of swiftly changing political and social cultures, particularly in regards to large-scale ecological impacts such as industrial pollution and the overcrowding of cities. Post-apocalypse literature evolved and adapted from its initial focus on natural catastrophes to those that are human-induced. Developing technologies impacted heavily on both emerging pulp fiction and the public imagination, reflecting social anxieties as science fiction tropes, specifically in response to fear of nuclear weaponry and changes to the structure of postwar society. Eco-dystopian fiction rose alongside the 1960s environmental movement, with New Wave science fiction emerging as a deliberate push for stylistic changes to the literature itself. Explorations of climate change manifested in fiction in the 1980s and 1990s, eventually conceptualising as ‘literary’ fiction rather than science fiction.

Even in its juvenile expressions, SF often deals with grand perspectives, projecting its focus beyond domestic settings. SF imagines Earth as one planet among many, a jewel set in the darkness of space. Whether we are alone in the universe or not is implicitly part of the conversation along with the serious ecological implications—if we are alone, should we not be treating this world and its life with more respect?

SF speaks both mimetically and through metaphor, broadcasting on a range of cultural frequencies. Sometimes monsters are used to convey monstrous ideas, such as the deadly nature of nuclear contamination (*Gojira* aka *Godzilla*) or the erosion of individuality in society (*The Stepford Wives*). Science fiction questions what might happen if we don’t have all the answers. It takes the risks and toxic byproducts of ‘progress’ seriously, illustrating ecological nightmares as well as dangers posed by technological, scientific, sociological and political trends. SF goes further by envisioning futures beyond the destruction of our world—entertaining the possibility that we might need to move off our home planet and out into space in order to save ourselves and other forms of life.

Science fiction is particularly suited to interrogating and responding to environmental change because the genre itself emerged as a reaction to developmental impacts of science and technology, coupled with fears about where such developments might take us. Roger Luckhurst names science fiction to be ‘a literature of technologically saturated societies’, explaining that it could only have emerged

relatively late in modernity, as it concerns the impact of ‘mechanism’ on ‘cultural life and human subjectivity’.⁵⁷ SF subverted the Romantic, elegiac natural landscapes of the nineteenth century, jabbing at them with newfangled machinery, both mechanical and cultural. Luckhurst describes the literature as a hybrid form ‘interweaving with strands of gothic, realist, fantasy and utopian writing’.⁵⁸ All four elements are visible in much of today’s science fiction. Gothic sensibilities permeate—a sense of danger, fear of the unknown beyond and the darkness within. Realism is evident as the base from which we can recognise the shift from the familiar to the ‘other.’ Fantasy is the element that grants permission to imagine all manner of disruption and development, from natural catastrophe to alien invasion and beyond. Finally, utopian thought involves the comprehension that, for better or worse, our contemporary societies are not our only options. It is important to acknowledge these component elements as they give an indication of the genre’s breadth and depth and go some way to explaining why today’s SF is becoming more and more relevant to everyday life.

Origins of Ecological Science Fiction

The biblical Book of Genesis famously conceives of the relationship of humans and the natural world in hierarchical terms, viewing the natural environment as a wilderness provided for human use:

And God said, let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.⁵⁹

This verse has often been interpreted to justify the human use and despoilation of the Earth.⁶⁰ Likewise, Aristotle’s statement in *Politics*, that ‘nature has made all things specifically for the sake of man’ has been echoed throughout Western culture and contributed to the dominant hierarchical dualisms that ecofeminist thinkers such as Val Plumwood have identified as contributing to the modern environmental crisis.⁶¹

Since the sixteenth century, cultural critics have warned that human domination over nature could lead to the decay and death of the natural world.⁶² The Age of Enlightenment was a time of great optimism, with science and technological

57 Roger Luckhurst, *Science Fiction* (Cambridge: Polity Press, 2005).

58 Luckhurst, *Science Fiction*, 11.

59 *The Bible*. Book of Genesis (Gen 1:26).

60 Lynn White Jr, ‘The historical roots of our ecological crisis,’ *Science* 155 (1967): 1203-1207.

61 Val Plumwood, *Environmental Culture: The Ecological Crisis of Reason* (London: Routledge, 2002). Aristotle, *Politics*, Bk. 1, Ch. 8.

62 Chris Lewis, ‘Science, Progress, and the End of the Modern World,’ *Soundings* 75, 2-3, (1992): 307-32.

development being seen as tools of wonder, which would lead to the betterment of mankind. Two major traditions in environmental thought emerged during this time: Parson-naturalist Gilbert White's 'Arcadian' stance, which encouraged man's peaceful coexistence with other animals, and Swedish Botanist Carolus Linnaeus's 'Imperial' tradition, which, echoing Aristotle, aimed to establish man's dominion over nature.⁶³ Natural philosopher Francis Bacon was a pioneer of scientific methodology during the period of transition from the Renaissance to the early modern era. His utopian novel *The New Atlantis*, considered as a work of proto-science fiction, expresses the contention that scientific progress will address humanity's failings and lead to an improved society.⁶⁴

Yet the impacts of scientific and technological developments have been far more ambivalent. By the late nineteenth century, lives were being transformed by new machines and processes, producing anxieties reflected in emerging forms of literature. Brian Stableford credits four basic stimuli as giving rise to speculative fiction of this time: the revolution in transportation; the theory of evolution; the socialist movement; and the anticipation of large-scale war.⁶⁵ These developments fed into the popular imagination, facilitating quite distinct varieties of speculative fiction, which gradually came together because of cross-fertilisation of ideas and their significance. Roger Luckhurst, on the other hand, names mass literacy, new printer vectors, a coherent ideology, and the emergent profession of science as the conditions for the new popular scientific fiction's development.⁶⁶ As David Seed suggests in his preface to *Anticipations*, perhaps SF should be thought of as 'a series of subgenres, which gradually converged on each other during the nineteenth century: the fantastic voyage, the utopia, the tale of the future and so on.'⁶⁷ Darko Suvin expresses similar thoughts, pointing out SF's kinship with other literary subgenres: the classical and medieval 'fortunate island' story, the 'fabulous voyage' story from antiquity on, the renaissance and baroque 'utopia' and 'planetary novel', the Enlightenment 'state [political] novel', and the modern 'anticipation' and 'anti-utopia'.⁶⁸ Today's climate fiction can itself be seen as a byproduct of the Industrial Revolution and its world-changing, forward-looking social foundries; a literature of an Earth transformed by global warming and its associated effects, emerging in response to real-world ecological devastation and the multiple species extinctions resulting from catastrophic climate change.

63 Gilbert White, *The Natural History of Selborne*, 1789. Patricia Fara, *Sex, Botany, and Empire—The Story of Carl Linnaeus and Joseph Banks* (Columbia University Press, 2004).

64 Francis Bacon, *The New Atlantis*, 1627.

65 Brian Stableford, *The Sociology of Science Fiction* (Maryland: The Borgo Press, 1987), 46.

66 Luckhurst, *Science Fiction*, 29.

67 David Seed, *Anticipations: Essays on Early Science Fiction and its Precursors* (Liverpool University Press, 1995).

68 Darko Suvin, *Metamorphoses of Science Fiction* (London: Yale University Press, 1979).

The Dangers of Progress in Nineteenth-Century SF

When Mount Tambora in the East Indies erupted violently in April 1815, the event disrupted seasonal rhythms of the global climate system. In New England, 1816 became known as the ‘Year Without a Summer,’ resulting in Europe-wide crop failures. Resultant lurid skies influenced the painters John Turner and Casper David Friedrich as well as a party spending the evening by a lake in Geneva, challenging each other to write ghost stories. Amongst them was the young Mary Shelley, then Mary Godwin. The story she wrote, initially published anonymously as *Frankenstein, or the Modern Prometheus*, is considered by many to be the first true science fiction novel, in that it features a scientist performing experiments inspired by prominent topics of the day, such as galvanism and the vitalist controversy, while interrogating the ethics of doing so.⁶⁹

Frankenstein was not to be Mary Shelley’s only speculative work. *The Last Man* (1826) was one of many Romantic-era texts exploiting the motif of the lone survivor in a post-disaster world—a trope still popular today. The mythology of the Last Man began with Daniel Defoe’s *A Journal of the Plague Year* (1722), a historical account that mingles fact and fiction—Defoe himself was a small child at the time of the events. The first true fictional Last Man story was *Le Dernier Homme* (1805) by Jean-Baptiste Francois Xavier Cousin de Grainville, which appeared anonymously in English translation in the following year. Popular in Europe and England, this work blended Romantic, Christian and scientific anxieties regarding the decay and death of nature. Other Last Man stories were to follow. Grainville wrote:

...the inhabitants of the ancient world, after having exhausted their soil, inundated America like torrents, cut down forests coeval with creation, cultivated the mountains to their summits, and even exhausted the happy soil.—Then they descended to the shores of the ocean, where fishing, that last resource of man, promised them an easy and abundant supply of sustenance; hence, from Mexico to Paraguay, the shores of the Atlantic ocean and South seas are lined with cities, inhabited by the last remains of the human race.⁷⁰

Soil exhaustion also featured in A. G. Street’s *Already Walks Tomorrow* (1938) and Edward S. Hyam’s *The Astrologer* (1950). J. D. Beresford’s ‘The Man Who Hated Flies’ is a parable about a manufactured insecticide, which brings about an ecological catastrophe

69 Mary Shelley, *Frankenstein—the Modern Prometheus*. See also Chris Baldick, *In Frankenstein’s Shadow: Myth, Monstrosity, and Nineteenth-century Writing* (Oxford: Clarendon Press, 1987) and George Lewis Levine, U. C. Knoepfelmacher, *The Endurance of Frankenstein: Essays on Mary Shelley’s Novel* (University of California Press, 1979).

70 Grainville, *Le Dernier Homme*, as cited in Martin Meisel’s *Chaos Imagined: Literature, Art, Science* (New York: Columbia University Press, 2016), 418.

by destroying the pollinators of many plants.⁷¹ A planetwide crisis of sustainability and resource depletion lies behind H. G. Wells' *The War of the Worlds* (1898). The Martians invade Earth because their own planet is doomed and are defeated by bacteria rather than human strength or ingenuity.

Already, these nineteenth-century fictions exhibit many of the central characteristics of science fiction. By unpacking ramifications of technology and unsustainable land use, they interrogate the idea that our past may have not equipped us well to face our future, while highlighting our vulnerability as a species and the overall precariousness of life on Earth.

In noting that the term 'science fiction' can only exist at a point in time at which 'science' and 'fiction' acquired their modern meanings, Brian Stableford considers *Frankenstein's* designation as the first significant work of science fiction 'conservative.'⁷² However, the novel was influenced by many revolutionary scientific and technological discoveries of the time, alongside new developments in art and culture during the Romantic era, a time of dramatic technological, political and social change. Noel Gough points out that modern science was constructed on empiricist and experimentalist assumptions:

'By the middle of the nineteenth century it had come to be typified by Newtonian physics and (as Newton had foreseen—and deplored) was materialistic, deterministic, atomistic and reductionist. Scientists and educators alike began to assume that science was chiefly a matter of patiently seeking the 'facts' of nature and reporting them 'objectively'.⁷³

Science fiction was the literature that explored both the possibilities and dangers of this new scientific worldview.

Physician and natural philosopher Erasmus Darwin's stated aim had been to 'enlist the imagination under the banner of science'.⁷⁴ Nineteenth-century science reached its peak expression with the evolutionary ideas that his grandson Charles Darwin proposed in *On the Origin of Species* in 1859.⁷⁵ Novelists engaged in explorations of the implications of this theory and its social ramifications. Charles Kingsley's *The Water Babies*, Edward Bulwer Lytton's *The Coming Race*, Samuel Butler's *Erewhon*, Richard Jefferies's *After London*, and W.H. Hudson's *A Crystal Age* are amongst evolutionary romances making use of evolutionary metaphors to 'raise questions about the efficacy of contemporary society and the human condition to imagine future societies'.⁷⁶

71 J. D. Beresford, *The Meeting Place and Other Stories* (London: Faber & Faber, 1929).

72 Stableford, *Sociology*, 45.

73 Noel Gough, 'Environmental education, narrative complexity and postmodern science/fiction,' *International Journal of Science Education* 15, no. 5 (1993): 613.

74 Michael R Page, *The Literary Imagination from Erasmus Darwin to H.G. Wells* (London: Routledge, 2012).

75 Charles Darwin, *On the Origin of Species* (London: John Murray, 1859).

76 Page, *Literary Imagination*, 9.

Yet some changes to society were far from being for the betterment of all. William Morris (1834-1896), famed English textile designer, artist, writer and socialist, rallied against the ways in which luxury was defacing the English landscape:

‘It has covered the merry green fields with the hovels of slaves, and blighted the flowers and trees with poisonous gases, and turned the rivers into sewers; till over many parts of Britain the common people have forgotten what a field or a flower is like, and their idea of beauty is a gas-poisoned gin-palace or a tawdry theatre.’⁷⁷

From 1760 to 1914 in England, large numbers of people moved from the country to the city in search of employment opportunities. Britain profited from cheap coal relative to labour, encouraging heat-intensive industries. London’s population grew, prompting a century-long struggle with large-scale industrial pollution, sanitation and water quality and introduced diseases such as rickets. Poor air quality and filthy streets are documented in the literature and poetry of the time, for example, the opening paragraphs of Charles Dickens’s *Bleak House* (1853):

Smoke lowering down from chimney-pots, making a soft black drizzle, with flakes of soot in it as big as full-grown snowflakes—gone into mourning, one might imagine, for the death of the sun. Dogs, undistinguishable in mire. Horses, scarcely better; splashed to their very blinkers. Foot passengers, jostling one another’s umbrellas in a general infection of ill temper, and losing their foot-hold at street-corners, where tens of thousands of other foot passengers have been slipping and sliding since the day broke (if this day ever broke), adding new deposits to the crust upon crust of mud, sticking at those points tenaciously to the pavement, and accumulating at compound interest.

W.D. Hay’s *The Doom of the Great City* (1880) and Robert Barr’s ‘The Doom of London’ (1892) likewise highlighted the dangers of industrial smog. In late Victorian literature, the industrial smog of London and other manufacturing districts present as deadly, poisonous events, threatening the social order of humanity.

However, speculative fiction was not only concerned about industrial grade pollution; it reflected fears about changes to the fabric of society itself. People of the late nineteenth century saw their world changed remarkably by mechanised factories and steam engines, gas, electricity and other gadgets, and became aware that ‘the lives of their children, even more than their own, were going to be transformed by them’.⁷⁸

⁷⁷ William Morris, Lecture: ‘The Society of the Future,’ 1887, quoted in Rutherford, *Forever England*, (42).

⁷⁸ Edward James, *Science Fiction in the Twentieth Century* (Oxford University Press, 1994), 23.

Science fiction is deeply embedded in the historical processes of technological and political change. Technology ambiguously offered both the means of progress and disturbing possible transformations of social life. Hence Matthew Arnold's 1869 statement that 'faith in machinery is... our besetting danger'.⁷⁹ Arnold felt himself to be witnessing a usurpation of the domain of belief by a technologically driven materialism, centred on the metropolis. In the same decade, Samuel Butler complained in one of the articles that was to form the germ of *Erewhon, or Over the Range*:

Day by day... the machines are gaining ground upon us; day by day we are becoming more subservient to them; more men are daily bound as slaves to tend them; more men are daily devoting the energies of their whole lives to the development of mechanical life.⁸⁰

Erewhon, published anonymously in 1872, was a satirical utopia in which Butler considers 'is it not safer to nip the mischief in the bud and forbid them further progress?'⁸¹

The concept of technological tampering via large-scale engineering also generated concern. In 1890, H.C. Watson's *The Decline and Fall of the British Empire* was one of the first fiction accounts of what problems might be caused by merging the Atlantic and the Pacific via the Panama Canal. Fears of how industrialisation and technology might mess with our minds, despoil the natural world and reduce human connection to it were also expressed in E.M. Forster's *The Machine Stops* (1909), a story envisioning machine connectivity much like today's internet.

From the 1830s to the 1880s, when belief in the positive aspects of progress was at its height, societal anxieties about the death of nature lessened and end-of-the-world stories were relatively rare.⁸² W. Warren Wagar argues in *Terminal Visions* that:

... the romance of the world's end, invented quite early in the nineteenth century, vanished during the heyday of the Industrial Revolution in Europe and North America. These were the years of the ascendancy of positivism in thought and its aesthetic counterpart, realism, in letters and the arts. Belief in progress, though not unchallenged, was universal. Confidence in the innate superiority of white Western civilization was well-nigh unshakable. Even those mavericks who questioned the fundamental premises of industrial capitalism and the scientific ethos tended to see the future as a time of redemption from present evils, not as a time of ruin and death.⁸³

79 *Matthew Arnold: Culture and Anarchy and Other Writings*, ed. Stefan Collini (London: Cambridge University Press, 1993), 63.

80 Seed, *Anticipations*, xv.

81 Samuel Butler, 'Erewhon/Chapter 23—Wikisource, the Free Online Library,' Wikisource, the Free Library, Accessed May 23, 2018, http://en.wikisource.org/wiki/Erewhon/Chapter_23.

82 Lewis, *Science*, 319.

83 Wagar, *Terminal Visions*, 19.

Yet concerns were brewing. Stableford points out that early forms of political ‘environmentalism’, based on the concept of industrialisation proving self-destructive and resulting in ecological consequences, first became evident in embryo in the nineteenth century, in such texts as Henry David Thoreau’s *Walden* (1854) and George Perkins Marsh’s *Man and Nature* (1864). John Tyndall’s proof of global warming was first published in 1863, before global sustainability issues were understood. Nineteenth-century science peaked in 1859 with Charles Darwin’s *The Origin of Species*, and with Wells, ‘the intersection between literary imagination and science reached full maturity’.⁸⁴

Adam Roberts contends that it is at the end of the nineteenth century, with the writings of Verne and Wells, that the actual growth of science fiction as a meaningful category in its own right occurs, having been fuelled by ‘Gothic hopes and Gothic mood’.⁸⁵ Describing the Gothic as a ‘symptom’ of Romanticism, with its focus on ‘notions of the Imagination and the Sublime,’ he states that it ‘sets the agenda for the development of science fiction.’ Contemporary ecological perspectives also find an origin point in European Romanticism. That the two literary movements sit well together is, therefore, unsurprising.

Environmental Anxieties in Early Twentieth-Century SF

The Great War of 1914-1918 was unprecedented in its slaughter and destruction, with casualty rates exacerbated by new technologies. This had a notable effect on the apocalyptic literature of the time. Before WWI, natural catastrophes were the principal cause of devastation in apocalyptic literature, such as a collision between the Earth and the moon. The years following WWI saw a rise in fictional catastrophes caused by destructive human hands. In 1914, H.G. Wells published a series of essays in a short volume entitled *The War That Will End War*. He wrote that establishing a league of nations and a one-world government would be the best way to establish permanent global peace. Three of his novels of future war, *The World Set Free* (1914), *Things to Come* (1933) and *The Holy Terror* (1939), depict scientifically managed world civilisations becoming possible only in the aftermath of a great planet-wide conflagration.⁸⁶

In his fiction, Wells anticipated the dangers of a global dictatorship. Winston Churchill credited him with the concept of using aeroplanes and tanks in combat ahead of WWI. His stories depicted chemical and nuclear weapons as well as air travel and robotics. Wells was one of 53 British authors, including Rudyard Kipling, Thomas Hardy, H. Rider Haggard and Sir Arthur Conan Doyle, to sign a manifesto in support of the war effort. However, WWI shook Wells’ faith in even short-term human

84 Page, ‘*Literary Imagination*’, 9.

85 Adam Roberts, *Science Fiction (The New Critical Idiom)* (London: Routledge, 2005), 44.

86 Wagar, *Terminal Visions*, 20.

progress.⁸⁷ He and several of the other signatories eventually changed their minds and expressed public cynicism towards the ongoing conflict.

Post-war audiences embraced science fiction in both literary and cinematic forms. A bomb with devastating destructive powers had been unleashed twice on civilian targets. The horror of this raw power and the accompanying effects of radiation and fallout fed straight into pulp and horror traditions, including a new rash of ‘last man on Earth’ apocalyptic scenarios.⁸⁸ Wagar sees fear of the doomsday weapon as resonating from fears unleashed by Frankenstein, ‘the fear that man will demolish, dehumanise, or enslave himself by his own cleverness, and especially by too much headlong progress into science and technology’.⁸⁹

The threat of nuclear catastrophe jeopardised ecological balance and sustainability in an unprecedented measure. Apocalypses had long featured in religious tracts, but apocalypse by science had come of age and the stakes had changed. Angry gods were no longer necessary—humanity had developed its own godlike powers of destruction. Science fiction had been telling these kinds of stories before the science was sound and the weapons were real: Hungarian emigre physicist Leo Szilard, who anticipated both the advent of Nazism and the coming of the nuclear arms race and believed that the splitting of the atom could produce vast energy, credits Well’s *The World Set Free* with showing him ‘what the liberation of atomic energy on a large scale would mean.’⁹⁰ As Stableford indicates, the significance of technology took on a distinctly pessimistic cast in this period:

The idea that a redemption of the Earth’s ecosphere from the threats posed by human activity could only be achieved by a drastic retreat from modern technology took rapid hold in the late 1940s, infecting many disaster stories—including stories of the aftermath of nuclear holocaust—with a sense that a decisive interruption of technological progress might be a blessing in disguise.⁹¹

Significant cautionary ecocatastrophes from this period include Ward Moore’s *Greener Than You Think* (1947), in which a dominant species of grass obliterates all other plant life; Stuart Cloete’s *The Blast* (1947), the story of the last two survivors of Earth and their hunting dogs, and George R. Stewart’s classic *Earth Abides* (1949), in which a mutant

87 *World War I Centenary*, ‘Pen and Sword Pt. I: The Authors’ Declaration,’ University of Oxford. Accessed June 4, 2018. <http://ww1centenary.oucs.ox.ac.uk/unconventionalsoldiers/propaganda-the-authors-declaration/>.

88 Mike Bogue, *Apocalypse Then: American and Japanese Atomic Cinema, 1951-1967* (North Carolina: McFarland, 2017).

89 Wagar, *Terminal Visions*, 25.

90 William Lanouette with Bela Silard, *Genius in the Shadows: A Biography of Leo Szilard, the Man Behind the Bomb* (New York: Skyhorse Publishing, 2013), 141.

91 Brian Stableford, ‘Science Fiction and Ecology,’ *A Companion to Science Fiction*, ed. David Seed, (New Jersey: Blackwell Publishing, 2005), 131.

virus wipes out most humans and society falls into primitivism across the span of a single human lifetime.

The 1950s were a boom decade for speculative fiction, the great age of the pulp magazines. SF captured the public imagination as it became increasingly more relevant and predictive, with post-war readers suddenly awash with regular newspaper updates on formerly science fictional topics like atomic weapons, orbiting satellites, jet aircraft, and radioactive fallout. Powerful social changes swept post-war Europe and America. Britain saw a steady growth in disaster fiction during the Cold War. Concerns about nuclear weapons and radioactive fallout loomed large. Across the late fifties and early sixties, as the nuclear power industry developed, the environmental movement rose in response, as the terrifying power of nuclear weaponry and fallout became more widely understood. Barry Commoner, a leader in the early days of the environmental movement, said: 'I learned about the environment from the Atomic Energy Commission in 1953'.⁹² His organisation's influential publication *Environment Magazine* began as *Nuclear Information*. Notable SF novels of the period include Neville Shute's *On the Beach* (1957), Pat Frank's *Alas, Babylon* (1960), Walter M. Miller Jr's *A Canticle for Leibowitz* (1960), Leigh Brackett's *The Long Tomorrow* (1955), and Philip K Dick's *Dr. Bloodmoney, or How We Got Along After the Bomb* (1965). In 1969, a group of Massachusetts atomic physicists formed the Union of Concerned Scientists, which warned the public about the environmental dangers of new—particularly military—technologies. *On the Beach* was a best seller, shifting 100,000 copies in its first six weeks. Copies were sent to senior military officials and politicians, including John F. Kennedy, who would go on to become the US President. While Shute apparently disliked the 1960 film, he did write positively to an admirer of the work's wider effect:

A popular novelist can often play the part of the *enfant terrible* in raising for the first time subjects which ought to be discussed in public and which no statesman cares to approach. In this way, an entertainer may serve a useful purpose.⁹³

Many were inspired to anti-nuclear protest by the book and film versions, including Dr Helen Caldicott, then a 19-year-old medical student, who credits the film as the catalyst that radicalised her into a lifetime of anti-nuclear activism.⁹⁴

Yet nuclear technology was only one among many post-war anxieties. The depiction of large-scale ecological disaster developed into a notable trope in science fiction from the mid-1950s onwards as Malthusian fears of overpopulation gradually began to resurface in response to the postwar baby boom. The Population Council

92 Barry Commoner, *The Closing Circle* (London: Random House, 1971).

93 Gideon Haigh, 'Shute the Messenger—How the End of the World Came to Melbourne,' *The Monthly*, June 2007, <http://www.themonthly.com.au/issue/2007/june/1268876839/gideon-haigh/shute-messenger>.

94 *Ibid.*

was founded by John D. Rockefeller III in 1952, but as Stableford points out, genre SF writers were already attracted by the topic. In its November 1951 issue, *Marvel Science Stories* featured a ‘symposium’ questioning the value of limiting the world’s population, a topic also addressed in Isaac Asimov’s *The Caves of Steel* (1954) and Damon Knight’s ‘Natural State’ (1954).⁹⁵ When The Population Council was formed, the ecological problems created by overpopulation became a regular feature of science fiction. Dystopian anxieties were expressed in a slew of novels and short stories, which collectively express a range of fears surrounding the unpleasant consequences of societies in which comfort and liberty are no longer features: free space is considered an unimaginable concept (‘Concentration City’), or attainable only via winning a brutal, competitive race into ‘darkest New York, most notorious of the jungle cities’ (‘The People Trap’), or a setting in which dry land was abandoned generations ago in favour of subsistence on the seas (‘Shark Ship’), or brutal experiments conducted on people forced into an artificial living space to endure accelerated life cycles (‘Total Environment’), or a crushing future America in which overpopulation is fuelled by the elimination of disease and elderly lives are extended indefinitely by an anti-ageing potion (‘Tomorrow and Tomorrow and Tomorrow’).

Meanwhile in Britain, as the Empire’s global influence slowly declined, a new science fiction subgenre began to emerge in parallel to the living standards and social mobility of the working class. The ‘cosy catastrophes’, a label coined by Brian Aldiss, were post-disaster stories in which ‘the familiar and commonplace is demolished by a devastating event which leaves the main characters relatively unscathed’, freed from the old constraints of civilisation.⁹⁶ ‘The Blast,’ a 1946 novelette by Stuart Cloete about a post-apocalyptic New York, is a good example. Aldiss speculates that the genre’s popularity with British readers ‘was something to do with the collapse of the British Empire, or the back-to-nature movement, or a general feeling that industrialisation had gone too far, or all three’.⁹⁷

Evidence for this can be found in John Wyndham’s *The Day of the Triffids*. All the blinded, rabble-rousing people encountered by protagonist William Masen speak with working-class accents and inflections. Jo Walton argued that cosy catastrophes were, for the most part, written by middle-class British authors who, having experienced the new settlements and social changes during and after World War II, were reacting against increasing contact with working classes.⁹⁸ She also suggested that the ‘ludicrous catastrophes’ obliterating civilisation: ‘bees, in Keith Roberts *The Furies*; a desire to stay

95 Brian Stableford, *Science Fact and Science Fiction: An Encyclopedia* (New York: Routledge, 2006), 399.

96 Brian Aldiss, *Billion Year Spree* (New York: Doubleday, 1973), 294.

97 Brian Aldiss, *Trillion Year Spree* (London: Gollancz, 1986), 254.

98 Jo Walton, ‘Who Reads Cosy Catastrophes?’ *Tor.com*, 2009, <http://www.tor.com/2009/10/14/who-read-cosy-catastrophes/>.

home in Susan Cooper's *Mandrake*; a comet in John Christopher's *The Year of the Comet*,⁹⁹ were obvious analogies for the atomic bomb.

Interestingly, *The Day of the Triffids*, written in the shadow of a cataclysmic world war at a time when fear of nuclear attack was strong, can also be read as a precursor to climate fiction in that the triffid plants were 'the outcome of a series of ingenious biological meddling, developed in response to the pressures of a growing world population.'⁹⁹ Triffids were grown and farmed for their pink oil, developed secretly by Russians as a cheap alternative to traditional sources. In addition, it is suggested that the blindness inflicted on the global population was caused by malfunctioning weapons in Earth orbit.¹⁰⁰ So the novel can be seen as interrogating a multitude of issues relating to biohazard, weapons of mass destruction and climate change, culminating in social upheaval—all problems still faced by society today.

Eco-Fiction Since the 1960s

Chris Lewis describes Wyndham's *The Day of the Triffids* and John Christopher's *The Death of Grass* as eco-dystopias, naming them as cultural precursors to Rachel Carson's *Silent Spring* (1962), the book widely credited with beginning the modern environmental movement. Laurence Buell, for example, calls it 'the book that inaugurated the literature of environmental apocalypse'.¹⁰¹ Carson evoked the kind of language and sentiment that had become customary when describing nuclear fallout to depict the catastrophic environmental impacts of DDT. Although a work of non-fiction, the book utilises the device of a science fiction story, 'A Fable for Tomorrow,' embedded within the broader text: 'No witchcraft, no enemy action had silenced the rebirth of new life in this stricken world. The people had done it themselves.'¹⁰² Buell also points out that this general thematics of 'toxic interpenetration' evolved from the Cold War era nuclear fear that pervaded popular culture before *Silent Spring* via, for example, ecocatastrophe novels like Philip K. Dick's *Do Androids Dream of Electric Sheep?* and John Brunner's *The Sheep Look Up*. But Carson's book was the one that captured public imagination and inspired a cohesive reaction. Catastrophic ecological disaster continued as a familiar trope in science fiction in tandem with the rise of the environmental movement.

99 'The Day of the Triffids,' *The John Wyndham Omnibus* (London: Michael Joseph, 1964) 23.

100 *Wyndham Omnibus*, 24

101 Laurence Buell, *The Environmental Imagination: Thoreau, Nature Writing and the Formation of American Culture* (Harvard University Press, 1995), 285. For some recent reassessments of the impact of Carson's book, see Alex Lockwood, 'The Affective Legacy of Silent Spring,' *Environmental Humanities* 1, no. 1 (2012): 123-140; Amanda Hagood, 'Wonders with the Sea: Rachel Carson's Ecological Aesthetic and the Mid-Century Reader,' *Environmental Humanities* 2, no. 1 (2013): 57-77; Kenny Walker, 'Without Evidence, There Is No Answer: Uncertainty and Scientific Ethos in the Silent Spring[s] of Rachel Carson,' *Environmental Humanities* 2, no. 1 (2013): 101-116.

102 Rachel Carson, *Silent Spring* (Boston: Houghton Mifflin Company, 2002), 3.

The Sixties were a time of change across the West. Social revolution was enacted through fashion, literature and music; countercultural expressions included civil rights movements such as black power, student demonstrations, militant feminism, Vietnam and the anti-war movement, political assassinations and riots. The realisation that humans had developed the power to destroy everything encouraged the burgeoning environmentalism, particularly amongst the young. Many baby-boomer children experienced nightmares about atomic war and considered such a thing to be a genuine possibility. The continued growth of the environmental movement owed much to the impetus created by these political, social and cultural upheavals.

SF works grounded in new ways of seeing such as ecological mysticism grew in popularity across the decade. Popular titles included Robert Heinlein's *Stranger in a Strange Land* (1961), a foray into free love, religion and fascism, and Frank Herbert's *Dune* (1965), which featured a blend of high fantasy, space opera and Zen mysticism. Piers Anthony's *Omnivore* (1968) and its two sequels portrayed intelligent, carnivorous fungi on a distant alien world. Frank Herbert's *The Green Brain* (1966) depicted human attempts to control all life on Earth with grand scale ecological tampering and nature fighting back via an intelligent superorganism. Brian Aldiss's *Hothouse* (1962) is set on a far future Earth trapped in a locked orbit, its surface crawling with aggressive, mutated, sentient plants and insects. In *The Genocides* by Thomas M. Disch (1965) Earth has become overrun with fast-growing 600-foot-tall alien plants. As arable farmland is consumed, humanity dwindles, from famine, violence or spherical alien incendiary devices, which eventually force survivors underground into the roots.

New Wave was a notable subgenre of science fiction, emerging from the pages of British magazine *New Worlds* in the mid to late sixties. A prime example, Brian Aldiss's *Barefoot in the Head* (1969) is a psychedelic 'European fantasia,' punctuated with random bursts of poetry, moving through the after-effects of the Acid-Head War, revealing its impact on the social and political landscape where the lines between reality and fantasy have blurred. The dissolution of a grounding, consensual reality results in a form of fragmentary environmental crisis rather than pollution of the more regular, toxic kind.

Whether or not New Wave was in fact a coherent movement, or, as Rob Latham contends, a shapeless coalition 'coined in the echo of the nouvelle vague in French cinema',¹⁰³ the SF field was shaken up and injected with more experimental and progressive artistic sensibilities and literary techniques. For Damien Broderick, 'existential vertigo is arguably the key to New Wave textuality'.¹⁰⁴ Broderick also argues that the New Wave was more often the location of pessimistic environmental themes and tones:

103 Rob Latham, *A Companion to Science Fiction* (New Jersey: Wiley-Blackwell, 2005).

104 Damien Broderick, *The Cambridge Companion to Science Fiction* (Cambridge University Press, 2006), 56.

It is true that much of the “experimental” SF of the 1960s took a gloomy cast, while the continuing mainstream of commercial SF was distinctly upbeat, constructing a universe in which technological salvation arrives through virtuous human efforts.¹⁰⁵

Yet pessimistic environmental themes became increasingly widespread. The risks of transforming nature were explored in SF novels like Brian Aldiss’s *Earthworks* (1965) and Kate Wilhelm’s *Where Late the Sweet Birds Sang* (1976). Ecotheorists Garrett Hardin and Paul Ehrlich, who contributed aggressively to the wider public and academic discourse around population growth and resource distribution, both produced science fiction novels with environmental themes: *The Voyage of the Spaceship Beagle* in 1972, and *Ecocatastrophe* in 1969, respectively. Alvin Toffler’s *Future Shock* (1970), an international bestseller, which sold over 6 million copies, forecast the Internet’s ‘electronic frontier’ and a future in which the pace of change and relentless impermanence would result in disruptive social consequences. An interesting prediction in light of today’s digitally connected landscape where, to quote SF writer Charlie Stross: ‘We live with constant low-level anxiety and trauma induced by our current media climate, tracking bizarre manufactured crises that distract and dismay us and keep us constantly emotionally off-balance.’¹⁰⁶

Much ecocatastrophe science fiction of this period featured a bitter, misanthropic tone. Stableford names this bleak outlook as a response to the ‘declining fortunes of the myth of Space Age,’ which so many SF writers had long held dear.¹⁰⁷ While the dream of space travel was most often indirectly critiqued for its anti-ecological imperatives, at times this critique became more direct. In the 1969 Ace Books anthology *Men on the Moon*, of the twenty-seven featured SF authors ‘only Philip K Dick, Ray Bradbury and Poul Anderson were full of unqualified praise and excitement.’ The others took a sceptical view, with some feeling ‘that the lunar walk could have brought small cheer to the oppressed and impoverished on Earth.’¹⁰⁸ Dead astronauts are a recurring theme in JG Ballard’s ‘new wave’ short stories from this period. More recently, Kim Stanley Robinson has spoken of the damage science fiction has done by leading us to believe that we can move to other worlds if we ruin this one irreparably, one of the themes explored in his 2015 novel *Aurora*.¹⁰⁹

As Adam Rome details, late 1960s environmentalism attracted millions of anxious young people worried about environmental degradation and nuclear threats. Earth Day was formed by this mass movement and ecological organisations sprang up across America. Despite noting the three primary changes outlined by environmental historians

105 Broderick, *Cambridge Companion*, 55.

106 Charlie Stross, ‘Why I barely read SF these days,’ <http://www.antipope.org/charlie/blog-static/2018/02/why-i-barely-read-sf-these-day.html>.

107 Brian Stableford, *Gothic Grotesques—Essays on Fantastic Literature* (Maryland: The Borgo Press, 2009), 172.

108 Aldiss, *Trillion Year Spree*, 339.

109 Kim Stanley Robinson, *Aurora* (London: Orbit, 2016).

as explanations of postwar societal transformation: a willingness by newly affluent Americans to insist on environmental quality, increased environmental dangers created by improved technological resource extraction and the popularisation of ecological concepts, Rome considers these factors do not adequately explain why environmentalism became such a phenomenal force in the 60s.¹¹⁰

In *A Short History of Environmental Apocalypse*, Frederick Buell writes that the perception that environmental impacts were altering and destroying all of nature became fundamental to the success of the post-war environmental movement:

Indeed, two contrary, but mutually reinforcing strains of feeling animated that movement: a sudden and passionate upsurge in the idealisation of wilderness, of unspoiled nature—one that associated nature with beauty, purity, pristinity, equilibrium and health—was paired with an equally irruptive awareness of the fact that an ecological doomsday was imminently at hand. ... Behind the sudden appearance of nuclear and then environmental apocalypse thus lay an equally sudden world-historical change in humanity's understanding of its position in the world. Against a wide variety of contrary scientific, cultural and religious traditions, the notion that human beings had acquired the power to change everything on the earth everywhere—and to do so suddenly—became a mainstream concern.¹¹¹

Population anxiety and environmental pollution continued to be major issues in seventies science fiction, as expressed in texts such as Keith Laumer's 'The Last Lawgiver' (1970), John Brunner's *The Sheep Look Up* (1972), Robert Silverberg's *The World Inside* (1971), Andrew J Offutt's *The Castle Keeps* (1972), and Philip Wiley's *The End of the Dream* (1972). Ursula K Le Guin's short novel *The Word for World is Forest* (1972) is a critique of capitalist and colonial excesses, set a few centuries ahead where the forest world of the gentle Athshe people is being unsustainably felled for its high-value wood. Arthur Herzog's *Heat* (1977), an early novel of anthropogenic climate change written in classic thriller style, features an engineer who uncovers evidence of a global acceleration in carbon dioxide that will produce an unsurvivable heatwave.

Climate change gradually became recognised as a separate, and indeed overwhelming environmental problem, and began to feature as a central theme in speculative fiction. As Adam Trexler observes:

Through the 1970s and 1980s, anthropogenic global warming grew as

110 Adam Rome, "'Give Earth a Chance': The Environmental Movement and the Sixties," *The Journal of American History*, 90, No. 2 (Sep 2003): 525-554.

111 Frederick Buell, 'A Short History of Environmental Apocalypse,' in *Future Ethics: Climate Change and Apocalyptic Imagination*, ed. Stefan Skrimshire (London: Continuum International Publishing Group, 2010), 14.

an area of concern, but it was generally treated in fiction as just another environmental problem, alongside deforestation, urban development, toxic waste, and depletion of the ozone layer. Around the time of the formation of the Intergovernmental Panel on Climate Change (1988) and the Rio Earth Summit (1992), sustained speculative explorations of climate change in fiction began to emerge.¹¹²

George Turner's *The Sea and Summer* (1987) is set in both the near and far future: a story of two brothers who become fringe dwellers in a city divided into sweet and swill (those with jobs and those without); and a future historian who is studying the past conditions that led civilisation to be overtaken by the ocean.¹¹³ As outlined by Lucy Sussex, the novel is set against a background of overpopulation and potable water insecurity: 'An intense agricultural programme, including weather modification, and over-fertilisation, pollutes the artesian reservoirs ... "where expensive iceberg tows and desalination projects brought desperate economies closer to collapse".'¹¹⁴

Morgan Llywelyn's *The Elementals* (1993) and Norman Spinrad's *Greenhouse Summer* (1999) both depict rising sea levels and climate disaster. Other examples from this period include Bruce Sterling's *Distraction* (1998), Monica Clee's *Overshoot* (1998), and William Sanders' *When this World is All on Fire* (2001).

Cynthia Deitering speaks of 'toxic consciousness' expressing itself in the Postnatural Novel and a shift in our cultural identity—a shift from a culture defined by its production to a culture defined by its waste:

Fiction of the 1980s, in its sustained and various representations of pollution, offers insight into a culture's shifting relation to nature and to the environment at a time when the imminence of ecological collapse was, and is, part of the public mind and of individual imaginations.¹¹⁵

She names chemical contamination as an important theme in Don DeLillo's *White Noise*, Walker Percy's *The Thanatos Syndrome*, Paul Theroux's *O-Zone*, T. Corgahessan Boyle's *World's End*, and Richard Russo's *Mohawk*, and a primary subtext in other important novels including Saul Bellow's *More Die of Heartbreak*, Margaret Atwood's *The Handmaid's Tale*, and William Gaddis's *Carpenter's Gothic*. The poisoning of Earth as a byproduct of human activity resonates through science fiction literature and film in narratives concerning pandemics, sterility, industrial pollution, genetic manipulation and

112 Trexler, *Anthropocene Fictions*, Introduction, Kindle.

113 George Turner, *The Sea and Summer* (London: Faber & Faber, 1987).

114 Lucy Sussex, 'An Anthropocene Tale and its Writer: The Sea and Summer,' *Sydney Review of Books*, June 6, 2017, <http://sydneyreviewofbooks.com/anthropocene-tale-writer-sea-summer/>.

115 Cynthia Deitering, 'The Postnatural Novel: Toxic Consciousness in Fiction of the 1980s,' *The Ecocriticism reader: landmarks in literary ecology*, eds. Cheryll Glotfelty and Harold Fromm (Athens: University of Georgia Press, 1996).

radiation.¹¹⁶

One of the most well known contemporary novels depicting an ecologically despoiled Earth is Cormac McCarthy's Pulitzer Prize winning *The Road* (2006), which can be viewed as a continuation of the last man trope, only this last man is leading his child across a nuclear winter wasteland.¹¹⁷ In his review entitled 'After the Apocalypse', Michael Chabon states that the novel is 'neither parable nor science fiction', yet namechecks Jack London, Robinson Crusoe and 'post-apocalyptic tales of lone survivors, such as George R. Stewart's classic *Earth Abides*'.¹¹⁸ Chabon writes:

Perhaps it is mostly a measure of the growing sense in the minds of readers and writers alike, since the mid-twentieth century, of the plausibility, even the imminence, of the end of the world.¹¹⁹

According to Paul Brians, some 1400 stories engaging with nuclear war have been produced to date.¹²⁰ Perhaps nuclear war, winter and contamination have become such a familiar part of the public imaginary, science fiction as a label is no longer the most adequate way in which to view them. For Chabon, 'ultimately it is as a lyrical epic of horror that *The Road* is best understood... the fear of knowing—as every parent fears—that you have left your children a world more damaged, more poisoned, more base and violent and cheerless and toxic, more doomed, than the one you inherited.'¹²¹ Today, the knowledge that tomorrow's children will be inheriting an ecologically compromised world is inescapable.

Reading and Writing Climate Fiction Today

Lack of global response to the imminent threat of climate change is sometimes blamed on a failure of societal imagination, despite the fact that science fiction has been imagining various forms of environmental catastrophe since its beginnings. Novels depicting ecologically damaged futures such as *Gold Fame Citrus* by Claire Vaye Watkins (2015) and *Year of the Orphan* by Daniel Findlay (2017) would likely have been labeled science fiction in earlier decades.

Trexler notes that climate fiction has not emerged from any specific literary movement or school of thought. No singular concept, influence or idea connects

116 On the representation of toxicity, see also Lawrence Buell, 'Toxic Discourse,' *Critical Inquiry* 24, no. 3 (Spring 1998): 639-665. 639-665, and *Toxic Gardens: Narratives of Toxicity in Twentieth-Century American and British Fiction* by Erin Schroyer Mcquiston.

117 *The Road* was well-received by critics and made into a motion picture in 2009.

118 Michael Chabon, 'After the Apocalypse,' *New York Review of Books*, 2007, <http://www.nybooks.com/articles/2007/02/15/after-the-apocalypse/>.

119 Chabon, *Apocalypse*.

120 Paul Brians, *Nuclear Holocausts: Atomic War in Fiction, 1895-1984* (Ohio: Kent State University Press, 1987).

121 Chabon, *Apocalypse*.

all climate fiction, and yet it seems to be formalising as a marketing category aimed at literary rather than genre readers; a literature of our planet in transformation. Extrapolated from scientific data, climate fiction draws attention to the physical, political, and socio-economic changes that will no doubt be required to mitigate and adapt to the ever-increasing threat of global warming, such as reorientation of economies, government intervention, and changes to mass consumption practices. The coming decades will see global problems of increasing complexity, such as permanent political and social instability, dangerous weather, food and water insecurity, and an increase in displaced persons as more and more land is swallowed by the sea. Fictional visions empower us to connect with others and give context and meaning to our lives.

When SF envisions humans living in space hundreds of years into the future, it reveals itself as a literature of hope. Post-scarcity SF believes humanity, for all its flaws, will survive the next few decades, thus proving itself capable of transcending its own worst impulses. In his *Hieroglyph Theory*, author Neal Stephenson states that ‘good science fiction supplies a plausible, fully thought-out picture of an alternate reality in which some sort of compelling innovation has taken place.’¹²² He points to the usefulness of an overarching narrative that supplies researchers and engineers with a shared vision. New subgenres such as Solarpunk are emerging with the aim of encouraging authors to envision positive, sustainable futures.¹²³

Noel Gough argues that critical readings of science fiction texts should be integral to both science and environmental education as the narrative strategies used by educators in these fields rarely encompass the narrative complexities needed to make problems of human interrelationships with environments intelligible (and, thus, amenable to resolution).¹²⁴ A series that exemplifies this mode of thinking is Kim Stanley Robinson’s ‘Science in the Capital’ climate trilogy, published between 2004 and 2007 under the titles *Forty Signs of Rain*, *Fifty Degrees Below*, and *Sixty Days and Counting* and re-released as a single volume called *Green Earth* (2015). In his *Green Earth* introduction, Robinson reinforces Asimov’s words in which he urges that ‘our statesmen, our businessmen, our everyman must take on a science fictional way of thinking’:

...these days we live in a big science fiction novel we are all writing together. If you want to write a novel about our world now, you’d better write science fiction, or you will be doing some kind of inadvertent nostalgia piece; you will lack depth, miss the point, and remain confused.¹²⁵

122 Neal Stephenson, *Hieroglyph: Stories and Visions for a Better Future* (New York: HarperCollins, 2014), xiv.

123 Tom Cassauwers, ‘Sci Fi Doesn’t Have to be Depressing: Welcome to Solarpunk,’ January 21, 2018, <http://www.ozy.com/fast-forward/sci-fi-doesnt-have-to-be-depressing-welcome-to-solarpunk/82586>.

124 Noel Gough, ‘Environmental education, narrative complexity and postmodern science/fiction.’ *International Journal of Science Education* 15, no. 5 (1993): 613.

125 Kim Stanley Robinson, *Green Earth* (London: Del Ray, 2015), xii.

Robinson's point is well made, and reinforced by numerous other science fiction authors such as the regrettably prophetic William Gibson. However, Clark criticises the 'Science in the Capital' trilogy as:

an exercise in scale framing to a degree that fatally undermines its plausibility as making a useful contribution to the debate... Washington politics is simplified, overlooking the plurality of US domestic factors that would stymie the vast programmes of emergency measures and economic reforms pushed through by Robinson's fictional president... simplifying the Anthropocene in terms largely dictated by the aesthetic, dramatic, and narrative constraints of presenting things in some easily apprehensible empirical scenario, sensuous images or plot of human actions, characters and motive.¹²⁶

Jeff Vandermeer asks an important question:

If sharp, intelligent fiction from the 1960s and 1970s by Ballard, Ursula K. Le Guin, John Brunner, and even T. J. Bass (*Godwhale*) did not create sustained change, then why should we think our fictional efforts now will result in a different effect?¹²⁷

Contemporary climate and Anthropocene fiction finds itself in just such a discomfoting place, despairing both of the state of the world and its own power to change it, yet driven to struggle on notwithstanding.

Consequently, what is needed is a literature of now rather than a literature of the future, to interrogate its issues and motivate reader engagement and response. Everything humans do impacts the environment—all literature should be dealing with this. James Bradley suggests that climate fiction

...[d]eals with expressions of deep and pervasive transformations of the world and ourselves' and 'embraces the broader disruption of natural and social systems by environmental change and capitalism ... That we ourselves are being altered by the shifting terms of our engagement with what we would once have called the natural world.¹²⁸

He has stated that he prefers the term 'post-natural' to others like cli-fi and

¹²⁶ Clarke, *Ecocriticism on the Edge*, 78.

¹²⁷ Jeff Vandermeer, 'The Slow Apocalypse and Fiction,' *Electric Literature*, April 23, 2015, <http://electricliterature.com/the-slow-apocalypse-and-fiction-8ecd53136e23>.

¹²⁸ James Bradley, 'The End of Nature and Post-Naturalism: Fiction and the Anthropocene,' *City of Tongues*, December 30, 2015, <http://cityoftongues.com/2015/12/30/the-end-of-nature-and-post-naturalism-fiction-and-the-anthropocene/>.

Anthropocene fiction. Perhaps ‘post-natural’ should serve as an umbrella term in place of speculative fiction because, as William Gibson reminds us, all fiction is speculative. Climate change is happening now, and, regardless of preferred terminology, we need a literature of now to address its issues as glaciers melt, corals bleach, typhoons kill and forest fires rage.

Chapter 2: Ecocatastrophe SF of the 1960s and 1970s

Ecocriticism became established as a recognised literary and cultural theory in the early 1990s, examining the relationship between nature writing, ecological themes and literature. Ecocriticism highlighted ecological concerns such as pollution, global warming, deforestation and reduction of biodiversity, topics already thoroughly interrogated by science fiction authors of previous decades.

Continuing environmental concerns identified in the 1960s, science fiction in the 1970s was concerned with dark futures: negative human impacts on the planet. Much work was consumed by the sense that things were steadily going from bad to worse; that exponential increases across many systems would lead to global catastrophic outcomes. Such beliefs are well encapsulated in this quotation from ‘The Shaker Revival’ by Gerald Jonas:

All the euphorics we feed ourselves cannot change the fact that the machinery of abundance has long since reached its limit as a vital force and is now choking on its own waste products—Pollution, Overpopulation, Dehumanisation.¹²⁹

As Terry Carr points out, SF ‘has always been a product of the time in which it was written.’¹³⁰ The decade saw a slew of anthologies specifically focused on these issues through the lens of science fiction. *No Room for Man: Population and the Future through Science Fiction* and *Voyages: Scenarios for a Spaceship Called Earth*, focused specifically on overpopulation. *Voyages* was co-published by Zero Population Growth, an organisation dedicated to the promotion of population control. Stanford biologist Paul R. Erlich, author of the best selling non-fiction book *The Population Bomb*, wrote the Foreword to *Voyages*, and contributed a speculative, non-fiction essay for *Nightmare Age: Thirteen Tomorrows That We May be Building Today* (1970).¹³¹

These anthologies contain a range of visions of the power of engaged writing to contribute to social change. Thomas M. Disch served as editor for both *The Ruins of Earth* and *Bad Moon Rising*, and contributed two poems to *The Wounded Planet*. He

129 Disch, *Ruins of Earth*, 315.

130 Terry Carr, ed., *Dream's Edge: Science Fiction Stories About the Future of Planet Earth* (San Francisco: The Sierra Club, 1980), 2.

131 Frederik Pohl, ed., *Nightmare Age: Thirteen Tomorrows That We May be Building Today* (New York: Ballantine Books, 1970); Rob Sauer, ed., *Voyages: Scenarios for a Spaceship called Earth* (New York: Ballantine Books and Zero Population Growth, 1971).

states that SF ‘attracts writers with causes to promote, writers who are impatient with our own eternally compromising world’, and that:

Fiction, finally, cannot be a call to action. It only lifts the mirror, tilts it this way or that. Hopefully our actions, whether on the barricades or in the voting booth, will be better, saner, more humane for our having stopped a moment and studied what that mirror has made visible.¹³²

Dream’s Edge editor Terry Carr had a more positive take on things:

... science fiction’s stories of space travel were instrumental in the development of our space program ... If Science Fiction can fulfil that role again, causing enough people to devote their working lives to solving environmental problems, it will make an even more important contribution to the world.¹³³

The stories in *Dream’s Edge* are set on Earth across the coming 100 years and concern environmental pollution, resource depletion, endangered species, vanishing wilderness, overpopulation, and the need to find alternative energy sources—all problems of the immediate future.

In his introduction to *The Infinite Web*, editor Bob Silverberg is critical of the way the word ‘ecology’ is commonly inappropriately used as a synonym for ‘environment’ and ‘conservation.’ He states that he was aiming for something different with his anthology by offering a selection of stories that function as something other than sermons:

These stories are about processes, about relationships. They are chosen not only because they are relevant and significant and socially useful, but also because they offer illumination in the way that only good fiction can.¹³⁴

His anthology is presented as an attempt to convey a sense of the interrelatedness of all things rather than as a cautionary text.

By the 1970s, the science fiction field itself was no longer considered nascent and had become well-populated with seasoned, experienced writers. These anthologies feature stories from big name authors of the day mixed in with others who have been forgotten.

132 Thomas M. Disch, *Bad Moon Rising* (London: Hutchinson, 1974), 9.

133 Carr, *Dream’s Edge*, 2.

134 Robert Silverberg, *The Infinite Web* (New York: Dial Locus, 1977), xiii.

As described above, the 1960s New Wave movement had encouraged authors in the direction of inner as well as outer space. Post-New Wave, science fiction continued to contribute to the conversation regarding impacts of science and technology on society.

The introductions to this thematic selection of anthologies demonstrate belief in the genre's agency and value. In the introduction to *Dream's Edge*, Terry Carr states that concerns for the problems and prospects of Earth are as intrinsic to the genre 'as knowledge of physics, chemistry, the workings of politics and human psychology'.¹³⁵ In Frederik Pohl's *Nightmare Age*, he names 'homo sapiens as the most successful predator this planet has ever seen' and presents the reader with a 'well-informed look at what might happen if technology continues unchecked and affluence progresses unabated.'¹³⁶ He even suggests that perhaps SF writers do not go far enough, that they 'should have a bit more confidence in their predictions', considering that the overpopulation and pollution envisioned in storytelling were already demonstrably realistic. Finally, he warns that we might be 'complicating ourselves out of existence'.¹³⁷ *Voyages: Scenarios for a Ship Called Earth*, published a year later and containing stories by prominent authors such as J. G. Ballard, Fredric Brown, Kit Reed, Ray Bradbury and Norman Spinrad, opens with a statement by population alarmists Paul R. and Anne H. Ehrlich outlining the fact that just as science fiction writers had presciently described visits to the moon 'a good deal more than a decade in advance', so also had they been writing about overpopulation and the complexity of ecosystems.¹³⁸ An uncredited statement from the group Zero Population Growth follows, including the line: 'Man has conquered nature—with a vengeance. Now he must learn to control his own human nature.'¹³⁹

In *The Ruins of Earth*, editor Disch writes of Golden Age science fiction and the 1950s sharing the same basic dream: a faith in technology, which was shattered by the nightmare of nuclear weaponry and the 'megadeath' becoming an established unit of measurement.¹⁴⁰ He explains that people learned to live with such fears by looking the other way and 'concentrating on the daytime, suburban side of existence', with unfortunate results:

In effect, the bombs are already dropping—as more carbon monoxide pollutes the air of Roseville, as mercury poisons our waters, our fish, and ourselves, and as one by one our technology extinguishes the forms of life upon which our own life on this planet depends. These are not catastrophes of the imagination—they are what's happening.¹⁴¹

135 Carr, *Dream's Edge*, 1.

136 Pohl, *Nightmare Age*, frontspiece, 1.

137 *ibid.*

138 Ehrlich and Ehrlich, *Voyages*, ix.

139 'Zero Population Growth: A Statement,' *Voyages: Scenarios for a Ship Called Earth*, xv.

140 Disch, *Ruins*, 11.

141 *ibid.*

He states that science fiction, in its naivety, has let us down by giving ‘its implicit moral sanction to this double transformation of man and his environment’. It:

encourages that particular 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 a single-strand chain.¹⁴²

He writes positively about the best contemporary science fiction achieving ‘a coming-together of invention and awareness’ and states that he feels the writers in this book ‘have played a significant part in the very urgent business of saving the world’.¹⁴³

In the introduction to *The Wounded Planet*, Frank Herbert of *Dune* fame describes the anthology’s contents as ‘ecological projections’:

... the human species has gone beyond the point where a single individual can control enough energy to obliterate us all. We have no assurances that such energy will remain in the hands of individuals whose good sense will steer us away from the bang or the whimper.¹⁴⁴

These anthologies represent science fiction’s significant engagement with the politics of the decade via a process of interrogating causes of dysfunction, extrapolating grim conclusions and generally using the tools of SF to create cognitive estrangement, enabling examination of key problems at a distant remove. They contain thoughtful, cautionary tales of plausible futures best avoided at all cost.

The four stories I will examine in this chapter exemplify this period, in their thematic interrogations of broad scale human disregard for planet-wide ecological consequences.

There is something intrinsically Ballardian in the image of global humanity powerlessly deluged in scientific data pertaining to the effects of climate change, passively awaiting immeasurable disaster to strike, willing to be entombed with material possessions like modern-day Pharaohs rather than mobilising to force governments and captains of industry to make the rapid and significant changes required to save us all.

It’s always been assumed that the evolutionary slope reaches forever upwards, but in fact the peak has already been reached, the pathway now leads downwards to the common biological grave. It’s a despairing and at present unacceptable vision of the future, but it’s the only one.¹⁴⁵

142 Disch, *Ruins*, 14.

143 Disch, *Ruins*, 16.

144 Frank Herbert, ‘Introduction,’ in *The Wounded Planet*, eds Roger Elwood and Virginia Kidd (New York: Bantam, 1973), xi, xii.

145 J. G. Ballard, ‘The Voices of Time,’ *New Worlds*, 1960.

J.G. Ballard's 'The Cage of Sand,' the first short story in what has become known as his 'Dead Astronauts' sequence, unpacks the point of intersection between the fantasy and reality of space flight, the contaminating effect of capitalism on culture and landscape, and the fallout from the failure of hasty grand scale global engineering projects.

Harry Harrison's 'Roommates' is a tale depicting Moore's 'planetary shifts,' and Haraway's contention that:

It's more than climate change; it's also extraordinary burdens of toxic chemistry, mining, depletion of lakes and rivers under and above ground, ecosystem simplification, vast genocides of people and other critters, etc, etc, in systemically linked patterns that threaten major system collapse after major system collapse after major system collapse.¹⁴⁶

A story set in a hellishly overpopulated, under-resourced and catastrophically unplanned-for near future, a society brutalised and fragmented from within as standards of health, welfare and education continue their relentless, incremental decline. No invading enemies are required—these Americans are breeding themselves to death.

I selected Poul Anderson's 'Windmill' because of its depicted empowerment of Pacific nations and clear showcasing of an alternate, anti-capitalist mindset. Windmill's future scenario lauds The Law of Life as opposed to Capitalism's Law of Value, which Moore explains as being a law of Cheap Nature:

It was 'cheap' in a specific sense, deploying the capacities of capital, empire, and science to appropriate the unpaid work/energy of all global natures within reach of capitalist power.¹⁴⁷

In 'Windmill,' nature is regarded as anything but cheap, it is the element that must be respected and protected ahead of human interests in service of the greater good of the whole planet, a reality policed by survivors of nuclear war who enforce rationing of technology in order to limit both waste and enable functional sustainability.

Anderson presents readers with a new kind of frontier, one of harsh restrictions enforced by a comprehension of human adherence to traditional patterns of self-destructive behaviour. 'Windmill' imagines a future in which a branch of humanity has achieved the kind of 'self recognition' or self-understanding as a species called for by E.O. Wilson's 'Half-Earth' proposal in which large reserves of Earth must be set aside for nature to flourish.¹⁴⁸ 'Windmill' stands as an anomaly within the ecocatastrophe subgenre in that it presents the reader with a gruelling, yet ultimately positive

¹⁴⁶ Haraway, *Making Kin*, 15.

¹⁴⁷ Moore, *Web of Life*, Kindle.

¹⁴⁸ Edward O. Wilson, *Half-Earth: Our Planet's Fight For Life* (NY: W&W Norton & Co, 2016).

post-apocalyptic scenario, one in which humanity has been forced to abide by strict sustainability guidelines that, in some quarters, run contrary to traditional human goals and expectations.

Ursula K. Le Guin's 'The New Atlantis' stands out as horribly prescient, in its depiction of a future where advertising and business studies have replaced humanities in universities and western governments implement atrocities, such as internment camps, once considered the exclusive preserve of brutalist totalitarian regimes. Blending elements of science fiction and fantasy, it paints a vivid picture of humanity's final months, having reached the point of forfeiture of the capitalism-bludgeoned Earth, when older entities are rising from the deep to take our place.

The Cage of Sand by J.G. Ballard

'The Cage of Sand' is set in the near future, on Cocoa Beach, Florida, with the opening two paragraphs craftily suggest that protagonist Bridgeman might actually be standing on a human-settled Mars: 'vermillion glow reflected from the dunes along the horizon and the first wind stirred across the dead Martian sand.'¹⁴⁹ The dead Martian sand is literal, not metaphorical—it's in the wrong place, as is Bridgeman himself. What remains of Cocoa Beach's abandoned strip of motels, chalets and five-star hotels thirty miles to the south of Cape Canaveral is choked with Martian sand, brought to Earth as ballast when it was feared multiple launches might be affecting the tilt of the Earth's axis—a bold, failed geoengineering move that has resulted in the contamination and thus quarantining of the entire area. Mars is where Bridgeman wants to be. At least, Mars as it should have been before the grand scheme failed, before miscalculations not only robbed him personally of his architectural design and development dreams, but caused an environmental crisis back on Earth.

Bridgeman and two others, Louise Woodward and Travis, live illegally in the sand-choked quarantine zone, managing to stay one step ahead of the wardens tasked with flushing them out. All three have deeply personal reasons for hiding amongst the ruins. At bi-monthly conjunctions, seven derelict satellite capsules still orbiting the Earth cross the sky together, 'left in this natural graveyard, forming their own monument'. (369) The capsules are lodged in a holding pattern, an artificial orbiting zodiac of entombed warriors. Louise is ostensibly watching her dead astronaut husband's capsule, trapped in a decaying orbit, in order to keep alive his memory. Travis has told Bridgeman that he feels honour-bound to watch over the dead astronauts, however Bridgeman has learned that Travis was once a test-pilot himself before losing his nerve strapped in on the launching pad.

¹⁴⁹ J.G. Ballard: *The Complete Short Stories* (London: HarperCollins, 2001), 355. Subsequent page references are in parentheses in the body of the text.

Of the five years he has been here, three of them have been spent questioning his own true motives. Once the chief architect of a big space development company, he has been unable to accept blunt reality in the wake of such a magnificent vision:

His dreams of building a new Gothic architecture of launching ports and control gantries, of being the Frank Lloyd Wright and le Corbusier of the first city to be raised outside her, faded forever, but leaving him unable to accept the alternative of turning out endless plans for low-cost hospitals in Ecuador and housing estates in Tokyo. (360)

Bridgeman is, in his own way, trying to make it to a version of the future promised by the ingenuity of humankind, to a city of dreams and promise he had himself designed. He is lost in the interstitial space between the dream and the reality, roaming the purgatory of a discarded fantasy. He performs acts of sabotage aimed at maintaining the status quo. He engages with ghosts via the memo-tapes that he plays over and over, recordings made by former Cocoa Beach residents, some amusing, others poignant and disturbing. Bridgeman can't leave this place until he fully comprehends what it is he is doing there. He spends most nights digging supplies out of the buried motels and dismantling sections of metal roadway put in place by the wardens for their jeeps. Yet he comprehends his sabotage as ultimately futile. Bridgeman is merely marking time with his delaying tactics—sections of track are being permanently anchored with heavy steel stakes.

The story ends with one of the space capsules crashing in the sand. Travis is captured, Louise runs off into the dunes and Bridgeman punches the sand, where his wrist is burned on hot capsule metal, 'bonding him to the spirit of the dead astronaut'. (372)

'The Cage of Sand' was first published in 1962, the year Astronaut John Glenn became the first American to orbit the Earth. Russian cosmonaut Yuri Gagarin had become the first man in space the year previous and the race was well and truly on to be the first nation to put a man on the moon.¹⁵⁰

The real-life space race had barely begun, yet already Ballard was done with it, skipping past the glory and adventure, through its gargantuan period of commercial exploitation to dump the reader in its hubristic ruin, its sand-choked relics, its colossal oversights. Ballard foresaw commercial cooperation between Russians and Americans, the tourist infrastructure and cultural response to the Earth–Mars connection, capitalism forging ahead without proper environmental assessment, predicting that we would somehow ruin the dream of conquering space that science fiction had been preparing us for across decades.

¹⁵⁰ See also Walter A. McDougall *...the Heavens and the Earth: A Political History of the Space Age* (Baltimore: Johns Hopkins University Press, 1997) and Dennis Overbye, 'Reaching for the Stars When Space Was a Thrill', March 8, 2010, <http://www.nytimes.com/2010/03/09/science/space/09space.html>.

The real-world space race itself was contaminated by the heavy burden of expectation placed upon it by years of Golden Age science fiction. Ballard speaks to this in his guest editorial ‘Which Way to Inner Space?’ which he wrote for *New Worlds Science Fiction* magazine:

The degree of interest inherent in the rocket and planet story—with its confined physical and psychological dimensions and its limited human relationships—is so slight as to make a self-sufficient fictional form based on it almost impossible. If anything, however, the success of the manned satellites will only tend to establish the limited psychological experiences of their crews—on the whole accurately anticipated, though unintentionally, by s-f writers—as the model of those to be found in science fiction.¹⁵¹

He goes on to state that:

The biggest developments of the immediate future will take place, not on the Moon or Mars, but on Earth, and it is inner space, not outer, that needs to be explored. The only truly alien planet is Earth.¹⁵²

This is an important idea that takes on fresh relevance in the current day, on an Earth beset with the severe global dangers of anthropogenic climate change and potential risks associated with embracing grand scale, untested geoengineering solutions.

The space race delivering on the promise of actual spaceflight freed up SF to expand its horizons and examine inner space as well as outer and it is likely no coincidence that the years of initial human conquest of space coincided with Anglo-American science fiction’s New Wave movement. Ballard urges a softer SF:

In the past the scientific bias of s-f has been towards the physical sciences—rocketry, electronics, cybernetics—and the emphasis should switch to the biological sciences, particularly to imaginative and fictional treatments of them, which is what is implied by the term science fiction. Accuracy, that large refuge of the unimaginative, doesn’t matter a hoot. What we need is not science fact but more science fiction, and the introduction of so-called science fact articles is merely an attempt to dress up the old Buck Rogers material in more respectable garb.¹⁵³

Critic Patrick Parrinder describes Ballard as ‘the poet of the Scientific world-view in decline.’¹⁵⁴ He argues that, ‘although the theory of evolution is used as

151 J.G. Ballard, ‘Which Way to Inner Space?’ *New Worlds Science Fiction* (1962), 3.

152 Ballard, *Inner Space*, 117.

153 *ibid.*

154 Parrinder, *Science Fiction: A Critical Guide* (New York: Longman, 1979), 82.

an adjunct to Ballard's visions of environmental disaster, it is clear that the main "scientific" background for these stories is not biology, as it was for Wells, but Jungian psychology.¹⁵⁵ Certainly, these two meanings of 'inner space'—focusing on the Earth as opposed to 'outer space', and focusing on the strange operations of the human psyche—overlap in Ballard's fiction, drawing on the 'softer' sciences of ecology, biology and psychology, and making them strange again with a sharp imaginative twist.¹⁵⁶

As Greenland points out, post-catastrophe lingerers in former centres of human activity now deserted are the special preserve of the British—the last man amongst the ruins—only in 'The Cage of Sand', this particular apocalypse is internal, not global.¹⁵⁷ The error committed by society did not kill off humanity like so many plagues and nuclear wars. The Martian sand contaminant is not deadly to animal carriers. It has been isolated and contained—it is Bridgeman himself who has become a contaminant, along with his wayward companions, biohazard that must be contained or extracted. The three of them are choosing to persist outside the strictures of mundane domestic reality, out of step with the regular time stream. They are living the disappointment of the American dream, haunting the ruined strip of bars and hotels like ghosts.

It is often remarked that science fiction is not particularly good at predicting the future, but Ballard seems very comfortably at home in ours—only the analogue memo-tape devices Bridgeman obsesses over have dated. Replace these with digital messages, update the makes and models of the cars and this story could be taking place here and now.

Ballard's story and its themes continue to reverberate in contemporary engagements with the dreams and disasters of formidable human conquest and achievement on Earth and in space. Echoes of the failure of grand geoengineering schemes can be found in Paul McAuley's 2017 novel, *Astral*:

Quite soon, the wreckage of one of the big geoengineering projects from the last century loomed out of the moonlit dark. A tank farm, concrete bunkers, a bouquet of radar dishes, and three colossal rail-guided launch tracks aimed out to sea, concrete blast pads reared up behind them like the gravestones of giants. A little further on, I saw that the launch control tower had burned down and one end of the payload assembly building had collapsed, presumably wrecked by storms in the years since Mama and I had passed through Charlotte Bay.¹⁵⁸

155 *ibid*, 83.

156 For recent perspectives on Ballard, see D. Harlan Wilson, *J.G. Ballard* (Chicago: University of Illinois Press, 2017); Simon Sellars, *Applied Ballardianism: Memoir from a Parallel Universe* (Falmouth: Urbanomic, 2017).

157 Colin Greenland, *The Entropy Exhibition* (London: Hachette, 2013).

158 Paul McAuley, *Astral* (London: Gollancz, 2017).

Both *Astral* and 'The Cage of Sand' focus on the plight of strong-willed individuals trapped by large-scale processes beyond their control on a future Earth damaged by ecological contamination and the transformation of terrain in response to human actions. Genetically engineered to survive in changed climatic conditions, Astral herself can be viewed as machinery gone rogue, breaking away from a society that regarded her as low value to set her own agenda and plan for a better future for her unborn child, adapting strongarm strategies to her own survival needs. This future earth has been doomed by its own methods and persistent inability to learn from past history and tragedy, whereas 'The Cage of Sand' is about coming to terms with human limitation for the sake of human welfare. This theme would be echoed decades later by Kim Stanley Robinson in his similarly downbeat 2015 novel *Aurora*, a story about a generation ship's failed attempt to colonise another planet. Robinson's novel drew criticism from some quarters, notably science fiction novelist and scientist Greg Benford, who states that 'a brooding pessimism dominates the novel'.¹⁵⁹ In Robinson's novel, the Golden Age science fiction fantasy of pushing through and conquering the stars is thwarted, not by sand but by a microscopic alien prion, forcing a group of generation ship spacefarers to turn tails and head back to planet Earth. Both *Aurora* and 'The Cage of Sand' play out a reversal of H.G. Wells's *War of the Worlds* in which powerful, conquering alien invaders from Mars are defeated not by human ingenuity, warfare tactics and firepower, but by the smallest amongst the living creatures of Earth, indigenous germs and bacteria against which the Martians have no natural defences.¹⁶⁰ Wells's story was a social commentary on the hubris of empire and colonialism. Ballard's contaminated sand represents a failed duty of care to our planet itself in the great haste to expand capitalism beyond the boundaries of our own home planet.

Roommates by Harry Harrison

'Roommates' is divided into four chapters, each named for a season. The story begins in summer, 1999, in New York City where a population of thirty-five million swelter in the grip of a ten-day heatwave. Andrew Rusch is a thirty-year-old police detective, sharing a thinly partitioned room with an older man, Solomon Kahn (Sol). The two share comfortable camaraderie and good humour, despite the years between them and the squalor of their living conditions. They share food and domestic chores, which include generation of electricity by stationery bike and fetching of water from public access points down on the overcrowded streets. Drought and water shortages have recently been made worse by the dynamiting of an upstate aqueduct, a response by farmers accusing the city of water theft. As Andy heads to work he acknowledges the difficulty he is having telling Sol that he wants to bring a girl to live with them.

159 Kim Stanley Robinson, *Aurora*, (London: Orbit, 2016); Gregory Benford, 'Envisioning Starflight Failing,' *Centuri Dreams: Imagining and Planning Interstellar Exploration*, <http://www.centauri-dreams.org/2015/07/31/envisioning-starflight-failing/>.

160 H.G. Wells, *The War of the Worlds* (London: William Heinemann, 1898).

By Fall, Shirl has moved in to live with Andy and Sol, in lesser circumstances than she was once used to. She and a rugged-up mother she meets in a water queue survive an attempted mugging by two teenagers on the way home. The mother fights off the would-be assailants and disarms them, a feat accomplished without letting go of her malnourished child's hand.

Over dinner, Andy is critical when Shirl reveals she has bought them soyburgers as a treat. He fears resources will be extra tight across the coming winter and luxuries should therefore not be indulged in. Tension between them is diffused by Sol's good humour and skilled storytelling. After dinner, Andy and Shirl rug up and climb into bed, the only possible way to stay warm. Shirl cries silently as Andy finishes up his police paperwork by hand-powered flashlight.

By winter, the city is in the grip of riots, looting and fires. Andy returns from a hard night on the job to discover Shirl had gone out all dressed up the night before and not returned. Sol attempts to distract Andy by discussing the Senate's emergency bill and its true agenda, the legalising of birth control clinics: 'some emergency, it's only been one hundred years in the making'.¹⁶¹ Shirl eventually returns, explaining that she had been at a party with friends from her old life.

Come spring, Sol has died of pneumonia. Andy and Shirl are not back from his funeral half an hour when Shirl's former bodyguard, Tab, knocks on the door. Tab is unhappily accompanying a man called Belicher, who has hired him to enforce a squat-order. Belicher, his pregnant wife and seven abominable children are exercising their legal right to occupy Sol's half of the room now that the old man is gone.

This future vision of New York, 1999 is joyless—alternating between extremes of heat and cold. City infrastructure is crumbling, the ceiling plaster cracked and stained, everything desperately in need of repair, only there's no money for such luxuries. Nor is there any indication that the skills required for fixing things will endure after the older generation dies off.

People suffering from protein deficiencies. Andy, who has just turned thirty, wonders about the 'slight bow to his legs that was usually concealed by his pants. And how did he manage to have ribs that stuck out like those of a starved horse, as well as a growing potbelly—both at the same time?' (118) The child of the woman Shirl meets in the water queue is suffering from 'kwash,' a protein malnutrition condition causing swelling and black spots on the knees. She gives the peanut butter prescribed by a doctor as treatment to her old man who 'loves the stuff.' When she asks later, Sol explains that 'Kwash' is short for kwashiorkor, a deficiency disease like beriberi: 'They used to have it only in Africa but now they got it right across the whole US. Isn't that great?' (130)

161 *The Ruins of Earth* (London: Arrow Books, 1973). Subsequent page references are in parentheses in the body of the text.

Andy and Sol are fortunate in their living conditions. Many are homeless, sleeping crowded on the stairs and steps of buildings. When Andy goes downstairs for water,

The gaunt women moved aside reluctantly, ignoring him, but the men stared at him with a cold look of hatred stamped across their features that gave them a strangely alike appearance, as though they were all members of the same angry family. (124)

Woody, the callboy who delivers messages chalked on a board, is completely toothless, despite being in his early twenties. Such is the way of things in New York City.

The image that most strikingly expresses the inherent themes of this dark tale is the scene in which Andy steps over the outstretched leg of an old man, who looked dead, with a string tied about his ankle that led to a naked, malnourished baby. Andy observed that it did not matter if the man was dead or not, as ‘the only work he had to do in the world was to act as an anchor for the baby and he could do that job just as well alive or dead.’ (124)

Andy’s police job affords him some small privileges: an actual room for the past seven years, a duty patrolman from his own precinct allowing him water after the public tap had been ordered to close. But the real privilege comes from his friendship with Sol. Strong affection between the two is evident in the way they share the small luxuries of their existence such as ice cubes and margarine. Seventy-five-year-old Sol makes good use of wisdom gleaned from years of experience during better days to make small improvements to their situation—such as bucket seats salvaged from an ancient 1975 Ford. As well as generating electricity with a stationary bicycle connected to four black automobile storage batteries, Sol grows herbs and tiny onions in a window box, distils his own vermouth, and makes palatable soup out of their bland food supplies. Sol tells stories from his old army days. He remembers joy. He is the only one who remembers the world as it used to be. Perhaps alongside his general knowledge that enables their survival, his biggest gift to Andy is his unfailing humour, the social glue he provides.

Sol comprehends the source of the country’s dire predicament—the senate’s refusal to legislate against overpopulation, despite the limits to sustainability having been well and truly exceeded. Andy works long hours, but Sol has time to watch the television news and enough education and experience to understand it.

In the introduction to *The Best of Harry Harrison*, Harrison makes it clear that ‘Roommates’ was written after the novel with which it shares specific themes, *Make Room! Make Room!*¹⁶² ‘Roommates’ was produced specifically for the Disch anthology *The Ruins of Earth*. The anthology is divided into four sections: Part 1: The Way It Is, Part 2: Why It Is The Way It Is, Part 3: How It Could Get Worse, and Part 4: Unfortunate Solutions. ‘Roommates’ sits in Part 2, nestled between ‘Autofac’ by Philip

162 *The Best of Harry Harrison* (London: Orbit, 1991/1976).

K Dick, a critique of capitalism and ‘Groaning Hinges of the World’ by R A Lafferty, a comment on colonialism.

It is not the knowledge that Americans are suffering from what we consider today to be developing world deficiency diseases like kwashiorkor that impacts in this story, but the fact that a mother would ignore her own child’s desperate medical condition in order to provide her husband with a treat, an act that resonates upon the reader, enabling the squalor, deprivation and desperation of these people’s lives to be felt rather than merely absorbed as facts. One of the ideas central to contemporary appreciation of the value of climate fiction is that people become immune to a relentless stream of facts and figures regarding climate change and ecological devastation. The use of fiction as a way of generating empathy and encouraging action is evident in these anthologies from the seventies as part of a broader ongoing ecological conversation. Harrison’s bleak story contains many uncomfortable details which nudge the reader into feeling Andy’s despair—none so powerful as at the story’s final paragraphs when the mindless, disruptive Belicher family force their way in to occupy Sol’s half of the room.

Harrison was deliberately setting out to educate readers. He offers this in his memoir:

Overpopulation had been a recurrent theme for years, but I realised that science fiction had fudged this problem by setting stories in the far future, and they were about as relevant to life today as Doc Smith’s Lensman. I picked the year 2000 as being close enough to be a real threat.¹⁶³

When Sol dies, the last remnants of civilisation die with him—Sol’s funeral has not been over half an hour before the Belicher family is banging on the door. Without Sol, there will be no more intellectual conversation for Andy. No friendship, an end to all small, home grown comforts—and absolutely no privacy. His relationship with Shirl is unlikely to survive close proximity to the Belichers. Indeed, in *Make Room! Make Room!* she leaves him and returns to what amounts to a life of high-class prostitution.

Thomas Malthus published his influential *Essay on the Principle of Population* in 1798, outlining fears about the rapid reproduction of humankind.¹⁶⁴ Malthus argued that food supply can only increase arithmetically, while population tends to increase exponentially (an idea no longer accepted.)¹⁶⁵ The logical result of this imbalance, he contended, is that human societies always require numerical restriction by war, famine and disease, formerly referred to dramatically as ‘Horsemen of the Apocalypse’, but scientifically relabelled as ‘Malthusian Checks’. In his ‘second essay (1803),’ the revised

¹⁶³ *The Best of Harry Harrison.*

¹⁶⁴ Thomas Malthus, *An Essay on the Principle of Population As It Affects the Future Improvement of Society, with Remarks on the Speculations of Mr. Goodwin, M. Condorcet and Other Writers* (London: J. Johnson in St Paul’s Church-yard, 1798).

¹⁶⁵ Lawrence Buell, Ursula K. Heise, and Karen Thornber, ‘Literature and Environment,’ *Annu. Rev. Environ. Resour* 36 (2011): 417-40.

version of this document, he stated that future human population growth might be modified by ‘moral restraint’.

‘Roommates’ expresses the fear that poverty and underdevelopment will be an inevitable, inescapable byproduct of extreme overcrowding. That too many of the wrong sorts of people will thrive is the underlying message as expressed through close, and startlingly disdainful, descriptions of the abominable Belicher family. Mr Belicher bellows about his rights, yet neither him nor his wife appear to have any concept of societal responsibility, caring not for their children as individuals; ‘three of the younger Belichers had perished through indifference or accident’ (142), but only as a means to acquire financial support, with Mrs Belicher producing multiple children in order to ‘swell the Relief allotment upon which they survived.’ (142) This depiction contrasts sharply with descriptions of Sol who, with his freely offered political opinions and memories of more comfortable, more complex times, seems to be able to think beyond the immediate here and now. The Belichers are presented as monstrous, uneducated and uncaring; products of a society out of control; a rendering of the concept of the ‘great unwashed’ as described by Bulwer-Lytton in his 1830 novel *Paul Clifford* in reference to the lower classes. This scene is resonant of the cosy catastrophe genre, in which texts such as *The Day of the Triffids* can be read as a reaction to the rapid rise and mobility of the working class.

Sol’s windowbox herbs are symbolic of persistence, hope, dignity and quality of life. Through them and other small embellishments, as provided by his education and sense of humour, life is made worth living, despite persistent deprivations. Yet when he dies they are ruined through ignorance.

Andy looked around and he saw that two of the boys had found the packets of herbs that Sol had grown so carefully in his window box, and were tearing them open, thinking that it was food of some kind.

‘Put those things down,’ he shouted, but before he could reach them they had tasted the herbs, then spat them out. (143)

When Sol dies, hope dies with him. The uncontrollable Belicher children spit the herbs onto the floor.

‘Burn my mouth!’ the bigger boy screamed and sprayed the contents of the packet on the floor. The other boy bounced up and down with excitement and began to do the same thing with the rest of the herbs. They twisted away from Andy and before he could stop them the packets were empty. (143)

Tab expels the children into the hall, then explains to Andy that the law is the law and there is nothing he can do to stop the family moving in. Shirl retreats into their half of the room. The story ends with Tab helping Andy move furniture into his half of the partitioned room: ‘Their footsteps crackled on the dried herbs and seeds that littered the floor and Andy did not answer him.’ (144)

The horror in ‘Roommates’ is evoked through mundane, oppressive detail. No evil overlord, brutish technology or invading army is responsible for the city’s bleak predicament, but instead a failure of society as a whole to take responsibility for its actions and adjust itself accordingly. Water supplies are dangerously depleted, city dwellers are being taxed at eighty percent to cover raised welfare payments, and yet birth control regulations are not introduced until the eleventh hour, far too late to save New York City from itself. The hopelessness of this future is relentless and absolute. There are no heroes, only survivors and that survival is day-to-day, incident-to-incident. Parents do not demonstrate care for the welfare of their children—the mother in the water line gives her sick child’s protein supplement to her old man as a treat; Mrs Belicher’s youngest is a ‘sore covered infant, which stank abominably and cried continuously’ (142). The baby at the bottom of the stairs is tethered to a man who might be sleeping or dead. This society is pro-birth but not pro-life. That it endures is the most that can be said about it.

Timothy Clark is critical of fictional overpopulation dystopias and their oversimplification of scenarios, believing that they result in the topic being taken less seriously as a real world issue for discussion:

they raise a contemporary issue of population growth and then, instead of conceptualising it more fully, they extrapolate it into a dystopian scenario whose extremisms then become objects of repulsion and rejection according to current moral norms.¹⁶⁶

Demographers concerned with fears of planetary population expansion beyond ‘carrying capacity’ focused on developing nations with high birth rates. However, fiction writers tended to describe scenarios playing out in hellishly overcrowded Western cities, thus translating ecological concerns into social fears about the fate of the individual in urban society, the erosion of privacy and resultant ‘serious social, psychological and economic consequences.’¹⁶⁷ In ‘The Virtual Crowds—Overpopulation, Space and Speciesism,’ Heise describes 1960s and 1970s overpopulation dystopias as ‘dated’ due to variance in perspectives reliant on ‘conventional and rather simplistic notions of both individual identity and social control mechanisms’, pointing out the down-side

166 Timothy Clark, “‘But the real problem is...’: The Chameleonic Insidiousness of “Overpopulation” in the Environmental Humanities,’ *Oxford Literary Review* 38, no. 1 (2016): 7-26, 22.

167 *ibid.*

of the shift from an ecological to a socio-cultural emphasis, treating overpopulation as a problem concerning humans specifically rather than the ecosystem as a whole—an ‘anthropocentrism in the treatment of space and species.’¹⁶⁸

As several critics including Heise have highlighted, the anecdote related by Paul Erlich in the opening chapter of *The Population Bomb* about his emotional response to ‘one stinking hot night in Dehli’ where the streets were alive with ‘people people people people’ and he and his family were frightened reads more today as a passage describing a claustrophobic fear of foreigners than anything else. Heise explains that ‘overcrowded urban living conditions, in other words, can function as a dystopian image of the future only for a readership that is privileged enough not to have to cope with such conditions in the present.’¹⁶⁹ In portraying an overcrowded New York City, Harrison’s story participates in these dynamics.

In ‘Anthropocene Panic: Contemporary Ecocriticism and the Issue of Human Numbers,’ Lawrence Buell is also critical of apocalyptic future overpopulation scenarios of the 1960s and 1970s.¹⁷⁰ He points out some of the elements not foreseen or well understood during those decades and immediately beyond: the successful impact of the Green Revolution, a drop in worldwide fertility and comprehension of the cruelty inflicted by highly publicised cases of coercion in which millions of women in developing countries were forcibly sterilised. He outlines more recent, more hopeful outcomes resulting from urbanisation such as the rising status, education, and aspirations of women and the dissemination of social prosperity and other factors, and observes the benefits of creative media directed at popular audiences as an alternative to scaremongering dystopic SF as a way of globally encouraging smaller families.

Buell points out that modernisation tends to increase the average human’s ecological footprint, with affluent westerners having the largest footprints of all. Considering suburbs as an ecologically inferior option to cities because they house large numbers of people on small areas of land, Kim Stanley Robinson has come out in support of E.O. Wilson’s ‘Half Earth’ concept in which half of the Earth’s surface and oceans should be maintained free of humans: part wilderness and part ‘working landscapes, commons perhaps, where pasturage and agriculture might still have a place,’ a necessary move if we are to create a civilised and ongoing permaculture.¹⁷¹

Buell is also critical of the way that apocalyptic speculative fiction ‘has conditioned most consumers of the genre into the doublethink of notional agreement that we may well be living in the end times, but that THE REAL END probably isn’t going to

168 Ursula K. Heise, ‘The Virtual Crowds: Overpopulation, Space and Speciesism,’ *Interdisciplinary Studies in Literature and Environment* 8, no. 1 (2001): 1-29. <http://www.jstor.org/stable/44087426>.

169 Heise, ‘The Virtual Crowds,’ 8.

170 Lawrence Buell, ‘Anthropocene Panic: Contemporary Ecocriticism and the Issue of Human Numbers,’ *Frame* 29 (2016): 2.

171 Kim Stanley Robinson, ‘Empty half the Earth of its humans. It’s the only way to save the planet,’ *The Guardian*, 20 March, 2018, <http://www.theguardian.com/cities/2018/mar/20/save-the-planet-half-earth-kim-stanley-robinson>.

happen anytime soon,’ and that ‘apocalypticism is a mismatch for the “slow violence” of how environmental deterioration actually works.’¹⁷²

Intriguingly, today neither ‘Roommates’, nor *Make Room! Make Room!* are the versions of Harrison’s story that linger in our cultural memory and imagination, but, rather, the 1973 film version *Soylent Green*, with its catch-cry ‘Soylent Green is people!’, which refers to the revelation that human corpses are being processed into food for humans in a desperate attempt to feed the masses. In his memoir, Harrison wrote that:

My idea was to set the book in our own lifetimes—twenty or thirty years ahead—and make the worst prediction I could, writing it as a warning of what may happen. Dystopia is something science fiction does very well—shaking the admonitory finger... But someone decided to turn it into a film. A film that wasn’t about overpopulation.¹⁷³

In his introduction to *The Ruins of Earth*, with Harrison being one of the authors specifically namechecked, Thomas Disch states that the stories within:

... have played a significant part in the very urgent business of saving the world. Not just because they have illuminated, in their stories here and there, central aspects of the crisis now upon us, but because for two decades, while most of us listened, enraptured to the siren-songs of technology, they have never ceased to warn of the reefs awaiting us on the other side of the song.¹⁷⁴

Harrison apparently had no illusions about his work being widely read or appreciated beyond the science fiction field:

When [*Make Room! Make Room!*] was published it had the spectacular success that science fiction usually had—it sold a few hundred copies in total! It came out too early, before the world at large became aware of these problems, and vanished.¹⁷⁵

And yet he devoted his life to the science-fiction genre, editing anthologies and producing more than fifty novels and countless short stories across a career, in which he earned a reputation for subverting science-fiction tropes, using science fiction’s tools to offer comment and criticism on serious real-world issues. While the memory of ‘Roommates’ and the novel it was based on has been overtaken by the cultural icon

172 Lawrence Buell, ‘Anthropocene Panic: Contemporary Ecocriticism and the Issue of Human Numbers,’ *Frame* 29, no. 2 (2016).

173 Harry Harrison, *Harry Harrison! Harry Harrison! A Memoir* (New York, Tor Books, 2014).

174 Disch, *Ruins*, 16.

175 Harrison, *Memoir*, 273.

of *Soylent Green*, this story remains a significant expression of environmental and overpopulation anxieties of the period.

Windmill by Poul Anderson

Toma Nakamuha is one of the Sea People, a member of the Maurai Federation, descendants of Māori peoples of N'Zealann and other Polynesians, also incorporating a diverse array of ethnic and racial groups, now dominating the Pacific and Indian Oceans. The story begins with him travelling as an agent of the Ecological Service by airship to Hope, a settlement of a thousand or so adults and their children founded a decade and a half ago, flourishing in the Muahvay fringe, in what was once the United States of America. Toma hopes to discover the fate of Wiliamu Hamiltonu, his friend from boyhood, who had travelled to Hope on a fact-finding mission for the community and never returned. This account of Toma's mission is related in the form of a private letter to his girlfriend Elena Kalakaua, a chieftain's daughter who has never travelled outside the Maurai islands federation. Toma has visited Meycan ports before in his sailor days and is hoping to pass as Don Miwell, a Spanyol *cab'llero*. Ever since the War of Judgement, people live under the Law of Life, rules established to ensure the planet's surviving resources do not get overtaxed.

The War of Judgement wiped out cities outright, but most died in the famines, plagues and worldwide political collapse that followed. The resources of impoverished planet Earth became unable to support a gross overpopulation when the industrial machinery faltered for just a few years: 'that very unnaturalness brought on the mass lunacy which led to thermonuclear war'.¹⁷⁶

An indication of cultural decline is presented by the eroded names of both places and people: California has become Californi, Santa Cruz—Sannacruce, San Antonio—S'Anton, American—Meycan, Hawaii—Awaii. Jesus Christ—Lesu Haristi, Daniel—Danil, Dorothy—Dorthy. This suggests that spoken English persisted beyond the war, but perhaps not the written form as successful survivors, such as those in the Hope community, focus their energies on working the land.

Toma and the crew are travelling by dirigible, but not because modern technologies and conveniences have been forgotten or abandoned—the knife he carries has sophisticated electromagnetic devices built into its handle. What advanced technology still exists must be prioritised for important use only. Toma muses:

For a mutinous moment, I wished we could have come in a jet. But no,
I understand well, such machines are too few, too precious, above all too

176 Poul Anderson, 'Windmill,' in *The Wounded Planet*, eds Roger Elwood and Virginia Kidd (New York: Bantam, 1973), 149. Subsequent page references are in parentheses in the body of the text.

prodigal of metal and energy; they must be reserved for the Air Force.
(151)

The Maurai Federation takes the issue of ongoing sustainability extremely seriously. This policy is the foundation stone of their society and Toma—a volunteer—is risking his life to perform this dangerous mission because he believes ‘this work matters more than any other.’ (151)

The dirigible deposits him in the desert. Toma takes note of his surroundings: the night sky, the ‘black weird outlines of joshua trees’ (153), the cold wind and coyotes yipping from afar.

Deserts had never much appealed to me. But this one was different: natural, not man-made. Life had not died because water was gone, topsoil exhausted, poisons soaked into the ground. Here it had all the geological time it needed to grow into a spare environment. (153)

Guided by constellations, he walks through the night and into dawn, appreciating his natural surroundings, from the grandeur of the wild sheep’s horns, to wildflowers and lesser animals as well as acknowledging difficult aspects of moving through the hot, rough terrain. ‘I discovered that I cared for the desert, not as a thing which the books said was integral to the whole regional ecology, but as a miracle.’ (154) When he finally reaches Hope and sees its windmills, he experiences a chill. ‘Seven of them were much too many.’ (154) Toma finds the windmills ugly and speculates that the contraptions must have been fashioned ‘from ancient railway tracks or bridge girders hauled across burning emptiness, re-forged by the muscles of men who could themselves not be bent’. (155)

In Hope, Toma is met by Mayor Danil Smit, and invited to lodge with Danil’s ranger son Briun, his wife Jeana and their five children. From Danil, Toma learns that the settlement of Hope split off from Sannacruse after growing discontent with its thuggish Overboss, Charl, who has chosen to follow Maurai advice on matters such as reforestation, soil care, bio-control, wildlife management and fisheries. This behaviour means the Sea People have left him alone to govern as he sees fit.

Despite their growth and accomplishments since branching off from Sannacruse, Hope embodies discontent. Its citizens want more land and resources to keep up with their growing population, whereas the Maurai favour birth control, a practice supported by their doctrine the Law of Life. Eventually Toma discovers the truth he has been expecting—that the windmills are driven by pistons, that there isn’t any recently-discovered spring, only a water table being pumped dry, an act that goes against the Law of Life. The Hope community has been founded on the exhaustion of groundwater vital

to an entire ecology—an ecology that will eventually be ruined with herds of cattle and sheep. Confronting Smit about the truth on Windmill Ridge, Toma tells him:

‘We must resist this wherever it appears. Otherwise, in the end—if we can’t, as a whole species, redeem ourselves—will be an Earth given back to the algae, or an earth as bare as the moon.’ (169)

Toma’s worst fears are confirmed—his friend Wiliamu is dead. He bluffs about the size and strength of Maurai back up for his mission, risking being shot outright, going on at length to explain why the future must be protected at all costs. In the end, Hope’s founding father, Danil Smit, standing ‘in the last rags of his patriarchy’ (168) confesses to the town’s crimes and breaks down.

Despite the fact that Toma’s dear childhood friend and two guides were murdered in an attempt to preserve Hope’s secret, Toma does not choose to seek retribution. On the contrary, he has come to love these people, despite their differences. He tells Elena that he plans to recommend to his admirals a radical break with tradition:

‘Give the pioneers topsoil and seeds, give them rainwater cisterns and solar stills, teach them palm and breadfruit culture and the proper ranching of the sea. Man does not have to be always the deathmaker.’ (170)

In his letter, Toma implores Elena Kalakaua to speak to her father and her friends in Parliament to get them to help Smit and the citizens of Hope because they ‘could be made into some of our strongest lifebringers... Remember we have an entire worldful of people, unimaginably diverse, to educate thus, if we can. We must begin somewhere’ (170)

Danil Smit accepts that he and his associates might be hanged as an example. They ask only that their loved ones be granted exile rather than be returned to the brutal Overboss in Sannacruse. But as the story ends, Toma asks Elena not to mention to her father the one last thing that happened in Hope, only to think about it as Toma himself intends to do. When Danil and Toma stood staring at the stars:

He [Smit] raised a hand toward them. His smile was weary and terrible. ‘You’ve won this round, Nakamuha, you an’ your damned nature worshippers,’ he said. ‘My children an’ children’s children ‘ull fit into your schemes, because you’re powerful. But you won’t be forever. What then, Nakamuha? What then?’ (170).

Speculative fiction stories set after the fall of humanity were plentiful throughout the 1950s, 1960s and 1970s, just as they continue to be today. Few, however, posit what kinds of infrastructure and long-term strategies might need to be put in place

to prevent a return to the bad old mechanisms that caused civilisation's downfall, not just rebuilding society but remaking it in new, sustainable forms, with new values and ongoing solutions.

Anderson's 'Windmill' stands out in this regard. No utopian fantasies are put forward. The kind of ugly details that often feature in post-apocalypse literature rate only the briefest mention:

A deeper dark, blotted far inland, must be the ruins of Losanglis. The few fires which twinkled there gave no comfort, for the squatters are known to be robbers and said to be cannibals. (150)

Life is hard for the Maurai Federation people as well as for those in the surviving mainland cities and new, small under-resourced frontier towns like Hope. The Maurai Federation carries with it a heavy burden of responsibility: The Law of Life and its enforcement. A Law that requires putting the Earth and the future of the planet first at all times, even when doing so might run contrary to the morals and aspirations of particular, well-meaning individuals.

Murai spy Toma Nakamuha is a man of his people. He is able to put aside his own potential personal desire for revenge at the murder of his childhood friend in order to support the bigger picture, the seeding of sustainability amongst the citizens of Hope.

And yet the final note we are left with is a warning. 'Windmill', for all its radical positivity, is rendered down to a cautionary tale by its final line: 'I looked up into the whirling skeletons, and suddenly the cold struck deep into me.' (170) Smit's warning suggests that some of the darker aspects of human behaviour will potentially resurface over time, no matter what positive infrastructures are put into place.

This story stands out amongst others of its time and oeuvre in its acknowledgement that reality is chaotic, civilisations run along complex lines and that there are no simple answers that will effectively solve all of humanity's problems—or, perhaps, any of them. No single culture has governed the Earth at any time past and none are likely to do so in times future.

Most heroes depicted in post-apocalypse narratives are presented as physically strong, men and women willing to commit 'necessary' acts of violence to protect the good from the bad, the civilised from the barbarous. Toma's strength comes from his unwillingness to commit such acts, making him a different model of future heroism, strong, resourceful, capable, yet far removed from the imperial and colonial conquerors of history. In volunteering for this dangerous mission, he is willing to give his life to protect the earth.

The Maurai Federation sees strength as manifest in the ability to learn from past mistakes. Toma's intelligence and sophistication is shown through his poetic appreciation

of the natural landscape as well as his personal integrity. He sees things that others might not notice:

Stars held out in a westward darkness, above the dunes and eldritch trees.
But those were remote, driven away by fields and canals carved from the
tender desert. And a mordant wind made the mills on the bridge overhead
creek and clang and roar as they sucked at the planet. (170)

In the typical cosy catastrophe, civilisation must generally be restarted, humanity given a chance to get back on its feet. There is nothing cosy about this future—the Law of Life exists to ensure that society never resumes its old, extractive, self-serving, consumerist behaviours. Yet as the story's close indicates, there are no guarantees.

Speculative fiction functions best when doing more than merely entertaining or eliciting a visceral response. Its finest examples speculate on human futures and the human condition, our ongoing relationship with culture and the wider world. 'Windmill' is a stand-out projection of genuine speculation: that true civilisation might come in the form of restricting rather than encouraging development, of forgiving even violent transgressors in order to serve the greater good, of imagining our culture as part of the environment rather than as developer. In Anderson's story, the meek inherit the Earth, but are tasked with fighting to preserve it by use of non-violent means—means that may not serve them in the long run.

Poul Anderson was a prolific science fiction writer who rose to prominence in the 1950s alongside other writers of speculative adventure stories such as Robert Silverberg and John Brunner. Described by Brian Aldiss as a 'sword-among-the-stars-man',¹⁷⁷ he had a big fan following and is still remembered and respected today as evidenced by the tribute anthology *Multiverse: Exploring Poul Anderson's Worlds* (2014), featuring stories based on Anderson's own work by C.J. Cherryh, Tad Williams, Nancy Kress, David Brin, and many other big name contemporary SF authors.¹⁷⁸ Across his lifetime, Anderson was to win multiple Hugos and Nebulas, the John W. Campbell Award, The Locus Poll Award, the Skylark Award, and the SFWA Grandmaster Award given for Lifetime Achievement.

'Windmill' is one of a series of short stories collected as *Maurai and Kith* (1982) and one novel, *Orion Shall Rise* (1988) set in a post-nuclear conflict Earth a few centuries in the future. There has been little scholarship produced on what are known as Anderson's Maurai series in which the Maurai Federation, an islander-based, diverse collective of ethnic groups, work to prevent the reinstatement of nuclear power and the reinstatement of unsustainable ecological practises. Yet it is clear that he strove to imagine an alternative future civilisation to that most often portrayed:

¹⁷⁷ Aldiss, *Trillion Year Spree*, 251.

¹⁷⁸ *Multiverse: Exploring Poul Anderson's Worlds*, eds Gardner Dozois, Greg Bear and Astrid Bear (Michigan: Subterranean Press, 2014).

So much American science fiction is parochial—not as true now as it was years ago, but the assumption is one culture in the future, more or less like ours, and with the same ideals, the same notions of how to do things, just bigger and flashier technology. Well, you know darn well it doesn't work that way...¹⁷⁹

Instead, the Maurai are depicted as a group who embrace a blend of traditional and technological practices, in favour of the 'scientific method', which is described as:

... just as applicable to wind and sun and living matter as it was to oil, iron, or uranium. By studying genetics we learned how to create seaweeds, plankton, fish that would serve our purposes. Scientific forest management gives us adequate timber, organic-synthesis bases, some fuel. The sun pours down energy, which we know how to concentrate and use. Wood, ceramics, even stone can replace metal for most purposes. The wind, through such principles as the airfoil or the Venturi law or the Hilsch tube, supplies force, heat, refrigeration; the tides can be harnessed.¹⁸⁰

This combination of traditional visions of ecological interconnectedness with sustainable scientific management practices stands out amongst work of its time. The Maurai stories can be read as a precursor to contemporary Solarpunk and other anthropocene fictions in their presentation of an alternate mindset to fossil fuel dependent cultures so often portrayed in SF of the period.

The New Atlantis by Ursula K. Le Guin

First published in 1975 in *The New Atlantis and Other Novellas of Science Fiction*¹⁸¹, alongside stories by James Tiptree Jnr and Gene Wolfe and edited by Robert Silverberg, 'The New Atlantis' is set in a near-future America, its opening paragraphs a snapshot of the precise moment of the beginning of the extinction of the human race. This alarming fact is not immediately evident; protagonist Belle is sitting on a bus, heading back to Portland, Oregon—her hometown. Belle is darned blue stockings, no doubt a reference to the 18th-century Blue Stockings Society, a term applied primarily to educated, intellectual women, providing a hint as to her strong sense of individuality in this society.¹⁸² Belle is most certainly the antithesis of the society she is encumbered by. Her

179 'Poul Anderson: Fifty Years of Science Fiction,' *Locus Magazine*, April 1997, <http://www.locusmag.com/1997/Issues/04/Anderson.html>.

180 Poul Anderson, 'The Sky People,' *Maurai and Kith* (London: Gollancz), Kindle.

181 *The New Atlantis and Other Novellas of Science Fiction*, ed. Robert Silverberg (Portland: Hawthorne Books, 1975).

182 'Bluestocking|British Literary Society,' *Encyclopedia Britannica*. Accessed November 28, 2017. <http://www.britannica.com/topic/Bluestocking-British-literary-society>.

survivalist humour and strategic detail-dropping reveals mismanagement snarls, useless transportation systems, totalitarian brutality, disintegrating social structures, rising waters, devastated wilderness, bureaucratic nightmares. Coming back from what she describes as her enforced Wilderness week, Belle is unwittingly introduced to the notion of a new continent rising from the sea, and the reader is introduced to what has become of the world—a recognisable exaggeration of 1970s hyper-capitalist consumer society that is not too dissimilar to our own.

This America is governed by the Corporative state, an unholy blend of extreme capitalism and totalitarian collectivism. The point has been reached where state and private enterprise enforced cultural absurdity has attained critical mass and begun to quietly self-implode.

Upon returning home, Belle is surprised to find her husband Simon has been released from rehabilitation camp. He is twenty pounds lighter and in need of medical attention, which Belle sources via a black-market doctor: both female doctors and aspirin are illegal.

Despite a visit from the FBI, who bug their apartment, Simon resumes consorting with fellow intellectuals regarding the process of ‘direct energy conversion’ and the ‘sun tap’ they have collectively and clandestinely invented—a device designed to efficiently collect and store solar energy without generating pollution, while Belle practices her viola in the bathroom to cover the sound of their talking.

After twelve days together, Simon is rearrested by the Bureau of Health, Education and Welfare. Belle sets out on foot towards Salem to search for him against a backdrop of earthquakes, tidal waves, and ‘rising land masses in the South Atlantic and the Western Pacific’.

The government demonstrably will take no responsibility for ameliorating devastation when the earthquakes start—the best the U.S. Geodetic Service can do is provide advertising, such as a big billboard that says ‘IT’S NOT OUR FAULT!’ featuring a cartoon beaver pointing to a schematic map. This government is prepared to, literally, sink into the sea rather than change its unsustainable behaviours.

Belle and Simon’s story is interspaced with a narrative related by ancient creatures who are gradually reawakening beneath the ocean and finding their way back to land, reacquainting themselves with, at first, the little lives of sea creatures and, eventually, the stars. These are the Atlanteans, failed utopians come to reclaim their lands, having been given a second chance by unexplained circumstance. They rediscover their sunken city, gain ‘a sense of space and of direction’, discover ‘a red light flickers on the horizon: It is the reflection in smoke of a city on the distant mainland, burning’¹⁸³, and ‘begin to hear the deep thunder, and the high voices crying’. Eventually they are able to hear music

183 Ursula K. Le Guin, ‘The New Atlantis,’ *Lightspeed Science Fiction and Fantasy* 58 (March 2015), <http://www.lightspeedmagazine.com/fiction/the-new-atlantis/>, unpaginated.

performed by Belle on her viola, but no more substantial connection beyond sound is possible as one species is phasing out and another being ushered in: ‘Where are you? We are here. Where have you gone?’

When the ‘odd sort of man’ sitting beside Belle on the broken-down bus first tells her that the old continents sinking to make way for the new can be seen, she agrees with him immediately. The effects of climate change are not news to her—‘Manhattan Island is now under eleven feet of water at low tide, and there are oyster beds in Ghirardelli Square.’ She mentions polar melt and he comes back with the potential inhabitability of Antarctica due to the greenhouse effect of pollution, situations existing as part of the background to their everyday lives. Facts are accepted, just as Belle accepts that she was required to endure a Wilderness Week as ‘planned implementation of recreational leisure as defined by the Federal Union of Unions,’ and that the ‘Supersonic Superscenic Deluxe Longdistance coal-burner, with Home Comfort’ is merely a glorified bus with a toilet.

This near-future world is depicted as malfunctioning and depleted: buses break down with boiler trouble when they try to go over thirty, steak houses sell meatless hamburgers, the only books you can buy are best sellers, there are frequent lengthy power outages, despite the proliferation of atomic fission plants powering the Greater Portland Area. Unpatriotic citizens are interned in lice-infested rehabilitation camps and Federal Medical Association Hospitals where behaviour modification is implemented. Home apartments are bugged and searched, women are not admitted into medical schools, aspirin is a black-market drug, marriage is illegal and ‘universities don’t teach much but Business Administration and Advertising and Media Skills anymore.’

By the time the continents start fracturing, the expertise to fix such problems does not seem to be available, only dodgy landfill, dangerous nukes and advertising to talk people into accepting things the way they are. Accurate perception of reality is punished by incarceration and brutality in this society. Citizens are expected to conform.

In his oddness, the man beside her on the bus is a harbinger of the new emerging reality. He has unwittingly become a conduit, tuning in to a message about the world’s genuine state of play, unlocking information about the dark sea rising to wash away the evolutionary dead end that humanity has become. This event will give the new Atlanteans another chance on the stage, after so long sleeping deep below in darkness.

Anne Maxwell describes Le Guin’s story as ‘a timely reminder of the human capacity to keep dreaming of better worlds no matter how the grim the actual situation’.¹⁸⁴ Maxwell situates the story within the tradition of 1970s literary utopias by registering the ‘fundamental human drive to dream of something better’ as well as functioning as a fierce criticism of the directions society has taken under capitalism, powered by science and technological advancement. She interprets the rising of the

184 Anne Maxwell, ‘The Utopian Impulse in Ursula Le Guin’s *The New Atlantis*,’ *Social Alternatives* 28, no. 3 (2009): 15-19.

Atlanteans as a sequenced dream of increasing clarity experienced by Belle, a ‘vision of a more beautiful or ethical world.’¹⁸⁵

I interpret this story differently to Maxwell, as speculative fiction, a blend of science fiction and fantasy. The rising Atlanteans are no dream, but as real as Belle and Simon and the earthquake-shattered human cities. Belle is not perceiving the Atlanteans as humanity’s salvation, as Maxwell argues. Rather, the Atlanteans are to be humanity’s replacement. ‘The New Atlantis’ chronicles the last days of one civilisation and the rebirthing of another, older one.

In refusing to become contaminated by the cruelty and grand scale stupidity enforced by the authorities, Belle, Simon and their friends have, in effect, achieved a transcendental state. Their world is doomed, there is no point in fighting to save it. Belle and her music connect with the Rising Atlanteans, the ones who will inherit the broken Earth, reinhabiting sunken palaces and streets.

The story relies on the reader having at least a passing familiarity with the parable of Atlantis, written by Plato in approximately 360 B.C. The island empire was said to be a mighty power that came forth out of the Atlantic Ocean, a culture pre-eminent in courage and military skill, the leader of the Hellenes. Despite its superiority, Atlantis was destroyed in a single day and night of violent earthquakes and floods after falling out of favour with the gods. Le Guin depicts corporate America as suffering the same fate by the hand of its current preferred deity—capitalism—and the Atlanteans are being given a second chance. Not that they yet have any understanding of what has come to pass. Having connected through Belle’s music, they are surprised to find themselves alone. The new Atlanteans have been called into existence, manifested from the depths by the point of fracture far above. It is an event they recognise, even though they are slow to waking and comprehending their emergence into the new world: ‘We saw the moment. The moment is a point of light.’ They do not see much at first, but eventually begin to remember the stars and planets, which leads them to the conclusion that the other lights growing in the darkness, ‘lamps, dots, rows, scintillations—ome near at hand, some far’ are ‘like the stars, yes, but not stars. It is not the great Existences we are seeing, but only the little lives.’

Those little lives belong to ugly lantern fish who are all mouth and eat each other whole. They keep on pushing up towards the light in search of their own sunken city, which they had forgotten along with the forgetting of themselves. ‘We remembered the towers. We remembered the city. We had forgotten it. We had forgotten who we were; but we remembered the city, now.’ In blending near future science fiction with outright fantasy, Le Guin invites us to consider which of these story elements might actually be more plausible than others. There never was a real city of Atlantis, yet its myth permeates contemporary western culture. Civilisations of past eras have collapsed for many

185 Ibid.

reasons—warfare and invasion, epidemic, geological upheaval, environmental change, economic unsustainability—and those of the present are not immune. Modernity does not protect us from any of these factors, nor from hubris—and it certainly will not protect us from relentless resource depletion.

Once stirred to wakefulness, the Atlanteans slowly push towards the surface. It is the natural order of things as their memories return:

We are here. When we break through the bright circle into life, the water will break and stream white down the white sides of the towers, and run down the steep streets back into the sea. The water will glitter in dark hair, on the eyelids of dark eyes, and dry to a thin white film of salt.

Belle aside, the humans experience no such surge of comprehension as their civilisation falls and the dark sea rises to claim the land.

Belle and Simon's ongoing rebellion under constant threat of authoritarian retaliation speak to their recognition of the absolute necessity of preserving the human soul. They have managed to retain their humour and have chosen not to be afraid, to keep their souls intact, despite the ever-present danger of the authorities. Despite awareness and experience of harsh punishments that could be dealt out to them at any time, their broken government cannot break them further. The broken world is beyond repair and there will be no going back for any of them. While Belle sits beside Simon on their bed, trying not to cry, she says: 'It is enough to make you understand why most languages have a word like "soul." There are various degrees of death, and time spares us none of them. Yet something endures, for which a word is needed.'

Belle's second encounter with the new, emerging continent takes place in her own home, in the liminal space created when radio news and advertising blend into a contentless audio soup. The words she hears are not as they are spoken by the radio announcer, they are other words, just as the odd man on the bus was reading words on his brochure that were not there. Belle has developed the facility of reading between the lines, listening between the tracks, hearing the song of Atlantis. Her deep connection to her art has enabled her to connect with the dark sea and a reality beyond her drab confines. 'The dark sea... I had almost forgotten it with my waking mind.'

When Belle plays her viola, she creates a metaphysical conduit, enabling both Simon's colleagues and the Atlanteans to experience what they do not yet fully understand to be the new world rising. In response to Belle's music, Rose Abramski says:

'I saw it. I saw the white towers, and the water streaming down their sides, and running back down to the sea. And the sunlight shining in the streets, after ten thousand years of darkness.'

‘I heard them,’ Simon said, very low, from the shadow. ‘I heard their voices.’

Belle’s music is a language in purest form, powerful in a realm where the value of human sentences has become diluted and contaminated by bureaucratic gobbledygook and false description. Powered by her strength of character, the power of her music has forged a bridge, an opening, permeated the membrane. The new Atlanteans can hear her and come to seek her out: ‘Whose voice? Who called to us?’

At the end of the story, before Belle sets off to Salem in search of Simon, who has been taken away by the authorities once more, she hears on the news about the plan to stop the tidal waves in Florida by nuking Miami, ‘reattaching Florida to the mainland with landfill,’ and advertising real estate for housing developments upon it. The government has clearly abandoned all pretence of reason as a baseline, having finally achieved mass delusion by increment. She might as well walk to Salem with her viola. There is nothing left for her in Portland.

By time the new Atlanteans eventually emerge, it’s too late. Belle has gone and the world along with her.

The power generated by capitalism’s single-minded destructive directive in Le Guin’s fictional version of our Earth has caused a metaphysical fracturing, the equivalent of the earthquake that swallowed and drowned the Atlantis of myth. Le Guin invites us to consider how an appallingly ignorant and barbaric cultural scenario as presented in this story might be allowed to happen in today’s world. In depicting the sensible alongside the outlandish, Le Guin is sketching a diagram of the slippery slope that leads to rising seas and environmental collapse.

‘The New Atlantis’ is a snapshot of the last days of Capitalism’s dominion over a plundered and depleted Earth. It chronicles the moment of breaking point, of fracture and its gradual aftermath. The moment simultaneously awakens the Atlanteans who have slept for centuries at the bottom of the ocean. Their new beginning mirrors the beginning of the end for the land-dwellers who have rendered themselves extinct and obsolete through stupidity and obscene mismanagement.

‘The New Atlantis’ is remarkably and chillingly prescient, not only in its casual description of climate change in motion, but in its prediction of a civilisation failing to protect itself from what ultimately proves to be its greatest foe: itself. Darko Suvin sees this story as occupying a middle ground in the science fictional terrain:

This typical Le Guinian ambiguity already makes the story superior to either the unfounded optimism by which technological inventions automatically save the world bringing about decentralization and similar (e.g. the same device in early Simak), or the gloom and doom arising from exclusive

concentration—sometimes with an almost morbid satisfaction—on an ecologico-political breakdown (e.g. in Brunner’s very similar environment of *The Sheep Look Up*).¹⁸⁶

Le Guin’s story invites readers of today to consider our own world: that our society is not so far removed from the one depicted in the story. Readers will recognise many farcical elements as belonging to our current everyday lives: false advertising, bureaucratic nonsense, the lack of concern at what is clearly devastating and irreversible environmental degradation in the face of both data and solutions.

By mixing fantasy elements with realistic and all-too-familiar ones, Le Guin reminds us that the earth is vastly older than the humans who live upon it: a complex, interconnected system comprised of organic and inorganic elements—including powerful, geological forces. Utopia cannot be enforced. Neither can obedience. Without balance, any dominant system is vulnerable to grinding itself to oblivion. If abused too far, what we think of as the reality of our mastery over the Earth, its elements, its resources, things our cultures take for granted might fracture and dissolve, ushering in a new and hitherto unforeseen age.



The stories examined in this chapter are representative of much science fiction of the 70s, focused on highlighting a specific set of dangers facing humanity in the wake of rapid technological achievement and implementation undertaken without due consideration of environmental impact. Each scenario is offered as a warning in the belief that it is not too late to change. As a literature of ‘what if?’ ecocatastrophe science fiction hopes to influence culture into adopting new behaviours in light of having been alerted to inherent dangers.

The 1960s and 1970s were decades energised by countercultural groundswell and belief that despite bad actions perpetrated by institutions, authority figures and corporations, forces could be mobilised, truths could be uncovered, a time of philosophically grounded transformation empowered by new media technologies which made people cognisant of corruption and pollution. A time of belief that protest could achieve a deconstruction of middle class values and bring about genuine social change. Science fiction demonstrated its awareness of how the future is seeded and developed in the present and that how we respond today constructs tomorrow by showcasing the road to dystopia, illuminating the futures we did not want to come to pass. Naively its authors perhaps did not comprehend how deeply capitalist structures and desires and fossil fuel dependency were embedded in both the mechanisms of industry and

¹⁸⁶ Darko Suvin, ‘Parables of De-Alienation: Le Guin’s Widdershins Dance,’ *Science Fiction Studies* #7, Volume 2, Part 3, (November 1975).

the collective human psyche and that so much more than the empowerment and mobilisation of the young through art, music, literature and social revolution would be required to stop the machines.

Chapter 3:

Contemporary Climate Fiction

Introduction

Public awareness of climate change and its potential impacts can be observed emerging into public consciousness at several key moments: James Lovelock's 'Gaia' proposal in the 1960s that organic and non-organic elements of the Earth function as an integrated system akin to a living organism; Professor James Hansen's 1988 Congressional testimony on climate change; or Al Gore's 2006 documentary *An Inconvenient Truth*. Adam Trexler states that 'Around the time of the formation of the Intergovernmental Panel on Climate Change (1988) and the Rio Earth Summit (1992), sustained, speculative explorations of climate change in fiction began to emerge.'¹⁸⁷ In his introduction to the first of these, *Future Primitive: The New Ecotopias* (1994), editor Kim Stanley Robinson criticises the limitations of much past SF imagery of urban industrial futures. He advocates attempts to 'imagine sophisticated new technologies combined with habits saved or reinvented from our deep past... reject the inevitability of the machine future, and ask again the old questions, What is the healthiest way to live?'¹⁸⁸ There is a sizeable gap until the next two anthologies: *I'm With The Bears: Short Stories from a Damaged Planet*, ed. Mark Martin (2011), and *Welcome to the Greenhouse: New Science Fiction on Climate Change*, ed. Gordon Van Gelder (2011). Since *Loosed Upon the World*, edited by John Joseph Adams and published by Saga Press in 2015, there has been at least one ecologically-themed anthology of speculative fiction published every year.¹⁸⁹ These anthologies feature stories from a blend of big name authors and newer or emerging writers.

Today, science fiction is ubiquitous, no longer a genre that needs to explain itself as it has become part of the fabric of mainstream western cinema, television, fiction and game storytelling. The contemporary publishing landscape is much broader and more inclusive than it was in the sixties and seventies. Ten years ago, Amazon released Kindle, its e-reader, and there are many platforms on which to read such as computers, tablets and phones as well as traditional print books. Lightning source printing and crowdfunding platforms such as Kickstarter have enabled small presses, individuals and community groups to publish and distribute material that might not have broad commercial appeal. Most of these anthologies were published by large publishers.

Both *Ecopunk! Speculative Tales of Radical Futures* and *Sunvault: Stories of Solarpunk*

187 Trexler, *Anthropocene Fictions*, Introduction, Kindle.

188 *Future Primitive: The New Ecotopias*, ed. Kim Stanley Robinson (New York: Tor, 1994), 10.

189 John Joseph Adams, ed., *Loosed Upon the World* (New York: Saga Press, 2015).

and *Eco-Speculation* utilised the Kickstarter crowdfunding platform. *Everything Change* was made available as a free pdf download from the Arizona University website. In the introductions and forewords to these anthologies, editors and authors express the hope and belief that fiction has a role to play in raising awareness of climate change and its devastating planetary effects.

Future Primitive: The New Ecotopias notably contained a story by Ernst Callenbach, whose 1975 novel *Ecotopia*, a blueprint for sustainable urban living, is credited with igniting the Ecotopian ecological movement.¹⁹⁰ Ahead of the curve, yet very much in keeping with Robinson's own body of work as exemplified in his *Three Californias Trilogy*, *Mars* sequence, *Science in the Capital Trilogy* and other titles.¹⁹¹

Publishers Weekly described *I'm With the Bears* as 'gripping science fiction' that 'addresses the realities of climate change and portray potential future environments'. The anthology opens with an introduction from Bill McKibben, noted author, activist and environmentalist and a founder of 350.org, described as 'the first planet-wide, grassroots climate change movement'. He writes: 'The problem with writing about global warming may be that the truth is larger than usually makes for good fiction. It's pure pulp.'¹⁹² He outlines a selection of dramatic global warming events that took place across the previous year, 2010, with only a single degree temperature rise, warning that there are more degrees—and cataclysmic effects—to come:

And it's why a book like this is of such potential importance. Somehow we have to summon up the courage to act... These stories are an impressive start in that direction, and one shouldn't forget for a moment that they represent a real departure from most literary work. Instead of being consumed by the relationships between people, they increasingly take on relationship between people and everything else. On a stable planet, nature provided a background against which the human drama took place; on the unstable planet we are creating, the background becomes the highest drama.¹⁹³

Published in the same year, Gordon Van Gelder's *Welcome to the Greenhouse* is introduced by Elizabeth Kolbert, a journalist and environmental commentator who would go on to win the general non-fiction Pulitzer Prize in 2015 for *The Sixth Extinction: An Unnatural History*.¹⁹⁴ She states that 'the true "science fiction" of our time, peddled on talk radio and in the halls of Congress, is that global warming is a myth.'¹⁹⁵

190 Ernst Callenbach, *Ecotopia* (New York: Bantam, 1990).

191 Robinson bibliography: <http://www.kimstanleyrobinson.info/content/bibliography>.

192 350.Org. Accessed January 8, 2018, <http://www.billmckibben.com>.

193 Bill McKibben, 'Introduction,' in *I'm With the Bears: short stories from a damaged planet*, ed. Mark Martin, (London: Verso, 2011), 2.

194 Elizabeth Kolbert, *The Sixth Extinction: An Unnatural History* (New York: Bloomsbury, 2015).

195 Ibid.

Edited by veteran anthologist John Joseph Adams, *Loosed Upon the World* contains stories by established authors such as Robert Silverberg, Nancy Kress, Greg Benford and Margaret Atwood as well as stories from newer authors. Adams writes:

Fiction is a powerful tool for helping us contextualise the world around us. By approaching the topic in the realm of fiction, we can perhaps humanise and illuminate the issue in ways that aren't as easy to do with only science and cold equations.

Everything Change resulted from a Climate Fiction Short Story Contest held by the Imagination and Climate Futures Initiative (ICF) in the lead up to The Paris Agreement (2015). The editors received 743 submissions from 67 different countries in response to their call for

... stories that in some way envision the future of Earth and humanity as impacted by climate change; that reflect current scientific knowledge about future climate change; and that illuminate and invite reflections on a climate-related challenge that individuals, communities, organisations, or societies face today.¹⁹⁶

The editors write in the introduction:

We believe that stories are empathy machines, devices that enable us to connect with people in drastically different circumstances, in futures we have not yet glimpsed but are even today helping to create with our decisions to act, or to not act.¹⁹⁷

The four stories that I will examine in this chapter approach impacts of climate change on humanity from very different angles. All acknowledge that what is taking place in the near future is a direct result of anthropogenic causes; processes that the reader will recognise as familiar. These stories reflect aspects of Clark's 'Anthropocene Disorder'—the intellectual, moral and political insecurity that accompanies the derangement of given norms; the general loss of ethical and political coordinates because no one can conceive a likely practicable response proportionate to the threats. Climate fiction is emerging as an active genre dedicated to providing a compelling literary response to an emerging global situation, an effort to build a bridge connecting science, data and human impact and affect. A non-didactic information delivery system conceived as a method of bringing the biosphere into the picture, making readers feel a part of something largely considered as being too big to adequately comprehend—what

196 Arizona State University 2016 Climate Fiction Short Story Contest: <http://climateimagination.asu.edu/everything-change/>.

197 Milkoriet, Martinez and Eschrich, *Everything Change*, xviii.

Timothy Morton describes as a ‘hyperobject’ and James Bradley considers to be more of a condition than an object in itself.¹⁹⁸ Between them, these stories represent a breadth and variety of stylistic approaches to fictionalising some of the issues raised by the collision point of climate change, capitalism, technology and sustainability, ranging from standard prose through to the poetic; from misery through hope, in some places utilising humour both to humanise and highlight graphic predicaments.

‘Shooting the Apocalypse’ by Paolo Bacigalupi is a grim, gritty and realistic portrayal of near-future Phoenix, a city at the end of its tether due to overcrowding and resource depletion. This story, which barely qualifies as science fictional in that many of its violent aspects already feature in today’s world, sits in sharp contrast to ‘Sunshine State’s’ depiction of a near future in which individuals can be valued as components of a swarm or greater mass, contributing towards the greater good. In ‘Apocalypse,’ humans surplus to requirements of the system are routinely dumped anonymously in mass graves or abandoned at the fringes to fight each other brutally over scraps, their struggles providing entertainment for others elsewhere via news media. Bacigalupi’s 2015 novel *The Water Knife* and several of his short stories have been set in this particularly harsh environment which has been extrapolated from current conditions in the Texas region.¹⁹⁹ The story interrogates the mindset and misery at the junction of a series of pressure points about to blow. As evidenced by contemporary attitudes towards refugees, we are not far from this fictional scenario, with its user-pays economies and unfeeling attitude to human life, and it is easy to see how we could get there from here with only a few tweaks and shoves.

Catherynne M. Valente’s ‘The Future is Blue’ is an eloquent, charming and elaborate fantasy landscape constructed from the detritus of neoliberal late-stage capitalism’s culture and excess. It wallows gloriously in outlandish rococo splendour, a blend of science fiction and fantasy tipping its hat at the absurdity inherent in a species that literally consumed itself to death, then burrowed down deep to make nests in its own detritus. Valente has fabricated a wonderland upon The Great Pacific Garbage Patch, part theatre, part circus, all sugar spun, dark carnival with a bleak, unrepentant heart.

‘An Incomplete Timeline of What We Tried’ by Debbie Urbanski is a fable for our social media-saturated times, perhaps the kind of story we deserve: harsh and sharp and utterly unforgiving. The narrative unfolds backwards, a jeremiad run in reverse, rendered as a series of headlines, revealing a litany of twenty-first century conceits, contempts and flaws, highlighting the many ways social media has effectively rendered people hyper-

198 Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World* (Minneapolis: University of Minnesota Press, 2013); James Bradley, ‘Writing on the Precipice,’ *Sydney Review of Books*, February 21, 2017, <http://sydneyreviewofbooks.com/writing-on-the-precipice-climate-change/>.

199 ‘In “The Water Knife,” extreme drought creates a dystopian America,’ *The Kansas City Star*, June 26, 2015, <http://www.kansascity.com/entertainment/books/article25589425.html>.

connected and yet utterly powerless in the face of impending catastrophe; ineffectual and useless despite, or perhaps because of everything. The story can be read as a fictional rendition of Ulrich Beck's 'unintended consequences,' in which 'Anthropocene disorder' is illustrated structurally and succeeds in avoiding intellectual minimisation by stripping away domestic realist staples such as characterisation and dialogue, leaving only skeletal descriptions of actions indicating pointless consequences.

Lastly, 'Sunshine State' by Adam Flynn and Andrew Dana Hudson was the winner in the abovementioned Climate Fiction short story competition, a solid example of envisioning a positive approach to the future blended from a cocktail of realistic science and technology, human motivations, conflict and troubleshooting. 'Sunshine State' contrasts sharply with Anderson's 'Windmill' in presenting a new frontier of cross-cultural cooperation achieved by *choice*, rather than *coercion*, in which alternative societal ecosystems thrive by identifying and inhabiting new niches in a rapidly changing socio-political landscape. The story employs a blend of what Clark calls 'communal super-subjectivity' and 'global cosmopolitanism,' picking a selection of moral trajectories and running with them, the direct opposite of the powers at play in Bacigalupi in which civilisation, rotten from within, is being ground to dust beneath the grinding, rattling, wheels of industry. The story's scenario presumes no end point or end game to climate crisis; only that crisis will be ongoing, perpetual change and problem solving will be the new human baseline; that we can no longer take anything for granted, especially not solid ground, and that new methods will be required if we are to successfully survive and prosper. The story outlines process, the bottom-up social and engineering scaffolding that might be required within a simple narrative framework and overarching positive outlook. The story's ultimately hopeful message is that we will make a go of things, despite ourselves.

Shooting the Apocalypse by Paolo Bacigalupi

Timo is a photojournalist scratching a rough living in parched, near-future Phoenix, Arizona. A man-made canal called the Central Arizona Project (CAP) supplies Phoenix with water from the Colorado river. A ten-foot chain link and barbedwire fence forms both a physical and psychological barrier: Phoenix on one side, mesquite and saguaro-studded desert on the other.

Timo decides to help new-in-town journalist Lucy Monroe find a new angle, a Phoenix story that had not yet been done to death or exploited beyond its cashable limits. His reasons for helping Lucy are unfocused; a mix of sexual attraction, respect for what he describes as 'grit', the chance to prove himself by showing off his superior skill set to someone new who ostensibly doesn't know what they're doing. There are not a lot

of winners in this brutal, competitive environment and Timo does not want to miss his chance to shine.

In the desert, journalism gets harder by the day, as does life itself: a blend of closeness, familiarity, insensitivity and brutality. The landscape is parched, both physically and culturally: ‘when the big dogs muscled in, little dogs got muscled out’.²⁰⁰ Timo’s working life involves ‘scraping for glamour shots of brains on windshields and trussed-up drug bunnies in the bottoms of swimming pools,’ (3) all of which has left him utterly desensitised, especially after the glamour and excitement of shooting lucrative photos in the wake of Hurricane Violet where he got, in his own words, lucky. Life in Phoenix is a ‘day-to-day grind of narco kills and starving immigrants from Texas’ (4). Scoops come from dumb luck and today he believes he has got lucky again when he finds a bloated corpse hanging on the chain link fence, hung with empty milk jugs. The corpse has been turned into a shrine, ‘black nylon flowers woven into the chain link around it,’ (6) alongside ‘black, guttered candles and cigarettes and mini liquor bottles’ (6).

Timo considers himself to be an artist: ‘Any asshole could snap a pic of some girl blasted to pieces in an electric Mercedes, but Timo knew how to make you cry when you saw her splattered all over the front pages of the blood rags.’ (7) A dead man turned into an offering and a wind chime is what passes for art in his world. ‘Old Tex here isn’t a warning. This motherfucker’s an offering.’ (11) Meanwhile, religion has risen to suit the times and the needs. Santa Muerte’s Skinny Lady is a saint who helps the poor and beyond-desperate, the ones who live their lives beyond the church. Narcos pray to her for a bullet in their enemies. Timo prays for corpses he can photograph.

When Lucy arrives on the scene in her bio-diesel pickup, she identifies the dead man as a Merry Perry—Christian refugees attempting to pray their way back into god’s favour—strangled with his own prayer beads. She doesn’t initially comprehend that the dead man is an offering to the Skinny Lady, indicating just how desperate people are getting as living conditions worsen largely due to an influx of Texan refugees flooding in across the border. Phoenix survives because of CAP water transported expensively from the Rockies. Without it, they’d be in the same desperate predicament as the Texans.

Lucy crosses the CAP subdivision to Sonora Bloom Estates to interview angry locals calling themselves Defending Angels who show her their machine guns, basement war rooms and ammo dumps. They’re running low on water and willing to fight to shove Texas back where it came from (14). Her plan is to do a series: Phoenix’s Last Stand. Pulitzer-type stuff.

Timo has no sympathy to spare for Texans, believing they brought their apocalypse down on themselves, even while acknowledging the damage wrought by Hurricane Violet and drought. Listening to Lucy discuss her trust-gaining methods, Timo begins

200 Paolo Bacigalupi, ‘Shooting the Apocalypse,’ in *Loosed Upon the World*, ed. John Joseph Adams (New York: Saga Press, 2015), 1-24. Subsequent page references are in parentheses in the body of the text.

to suspect that he too has been played by Lucy, who is not quite as wet as she seems, and tricked into helping her get her story. He's upset enough to consider walking out on both her and the story—and, therefore, his payday. They fight while driving out to visit the Defending Angels. She calls him out for challenging her personal integrity, suggests he finds someone else to do the story if that's the way he feels. He's having second thoughts, arguing to try and make things right when they both see something that changes everything through the chain link fence. The Central Arizona Project completely drained of water.

Timo prides himself on having the eye, on being able to see the stories others miss. But he cannot see the bigger picture, he's too chronically embedded in his own immediate concerns, focused on the short term, not the long view. Excited at the prospect of earning money, but all he can imagine spending it on is top-shelf tequila, diapers for his sister's baby and a better battery for his car. The concept of buying his way out of this hellhole simply does not occur to him, despite the many clear surrounding signs indicating that things are going to blow.

Timo is horrified when Lucy decides to properly investigate the shooting of the strung up Merry Perry. Later, chilling out on the roof at Sid's café, she details how she was welcomed into people's subdivision homes and told all about the plan for Phoenix's Last Stand. Timo sees Lucy as crazy-ass and unstoppable—attractive features in this brutal culture. He doesn't pause to question the why of any of it. Where exactly the Pulitzer potential of this shabby environment might lie.

Lucy pushes Timo to come up with more sophisticated imagery to accompany her story. Big picture stuff, not just the sensationalism of gross violence. She points out that Phoenix only survives because of the CAP. That without it, they'd become north-bound refugees themselves.

Timo surprises himself by feeling empathy for the dead Texan strung up on the wire.

Maybe this guy had seen the apocalypse coming but he'd just been too rooted in place to accept that he couldn't ride it out. Or maybe he'd had too much faith that God would take care of him. (17)

Yet he still can't see the reality of his own bleak and rapidly advancing future, the precariousness with which Phoenix survives. That he is like the prairie dog being shot at by drunk tourists 'who couldn't see the bullet screaming in on him'. (17) Timo suffers from an innate lack of imagination. He praises himself for his inbuilt artistic vision, yet is completely unable to grasp the bigger picture, the fact that the whole parched region is a tinder box with arbitrary borders and not enough water to go around. His lack of human empathy is as ravaging as the drought itself.

More than merely a solid product of his environment, he's a part of it, a minor facilitating organ of the beast. Phoenix is itself a corpse suspended precariously in wire. It will not take much to ignite the tinderbox and plunge the whole region into apocalyptic lawlessness.

Bacigalupi states that the Merry Perrys are based on Rick Perry, governor of Texas and a presidential candidate. In the midst of a terrible 2011 drought, Governor Perry organised prayer circles, considering praying for rain as a solution.

It was one of those moments when it seemed like our leadership was in free fall, that somehow magical thinking would save us. It was deeply disturbing. That's not how you make a good outcome for people. People who are open-eyed and realistic are the ones who survive.²⁰¹

In another interview, Bacigalupi adds: 'It occurred to me at that moment that I wasn't actually standing in the middle of a drought, I was time traveling, ... I had just leapt into the future.'²⁰²

In his Foreword to *Loosed Upon the World*, Bacigalupi writes of the gap between the visceral and the abstract when it comes to human comprehension:

Sometimes, I've discovered, it is possible for a fiction writer to perform a kind of hack on a reader's mind, making them feel things that do not yet exist. And if we writers do our jobs well, when the reader closes a book, they will see the world differently.²⁰³

In the creation of a made-up world, the real world is revealed, 'more sharply and clearly'. His stated aim is not to make people engage with the future, but with the 'intense realities of our present—the realities that were previously passing them by.'²⁰⁴ He casts doubt on the possibility that clever techno-fixes are likely to save Earth from its climate change predicament, even going so far as to label such as yet unproven options 'fantasy'.

He acknowledges both the power and the danger of imaginative storytelling and calls on us to look beyond the rocket ship and the techno-fix and to reach for the wisest tool:

What if we dreamed a different future, one where we did this profoundly unsexy thing, and actually cared for the garden that we evolved within? It

201 Bacigalupi, 'Extreme Drought.'

202 'This Sci-Fi Novel's Post-Apocalyptic Future Could Become Reality All Too Soon,' *Think Progress*, June 25, 2015, <http://thinkprogress.org/this-sci-fi-novels-post-apocalyptic-future-could-become-reality-all-too-soon-cfb3f7f97d56/>.

203 Adams, *Loosed*, xiv.

204 *ibid.*

seems to me that this is a future with potential... And maybe a myth worth dreaming.²⁰⁵

Timo is an everyman, unable to see the forest for the trees. The proverbial frog in the slowly heating kettle. Readers might consider him uneducated and be easily able to recognise his ignorance, but are perhaps unwilling to see themselves reflected in him: the way he has become complacent and desensitised to violence, uncharitable to neighbours enduring terrible conditions beyond their control.

Eric C. Otto considers Bacigalupi as an ecotopian using the literary form to mobilise 'critical utopianism in the interest of critiquing social and cultural forces that degrade nonhuman nature and the human communities that are imbedded in this nature'.²⁰⁶ In 'Shooting the Apocalypse,' Bacigalupi demonstrates the unsustainability of culture in the face of extreme resource depletion, showing that more than human lives will be forfeit. Culture expands to fill the gaps, as evident in the corpse offering to the Skinny lady, but it is a culture of dust and bones.

Bacigalupi's harsh, droughted world is unnervingly close to our own. For example, both The Intergovernmental Panel on Climate Change and The United Nations warn of future altercations between countries over sufficient water access. Billions of people will lack access to potable water by the middle of the century.²⁰⁷ The International Organisation for Migration (IOM) states that

...future forecasts vary from 25 million to 1 billion environmental migrants by 2050, moving either within their countries or across borders, on a permanent or temporary basis, with 200 million being the most widely cited estimate.²⁰⁸

The Australian government has recently displayed cruelty towards refugees attempting to reach the mainland by boat, a policy presumably aimed at discouraging further attempts by other displaced and desperate people. In a warming world heading for a projected population of 10 billion by 2050, traditional borders, mechanisms and entitlements are not likely to prove adequate or reasonable when it comes to mitigating human misery en masse and working towards sustainable solutions.

Bacigalupi captures and condemns such prevalent xenophobia through the characterisation of Timo: the disdain Timo expresses towards refugees, not

205 Adams, *Loosed*, xvii.

206 Eric C. Otto, "'The Rain Feels New': Ecotopian Strategies in the Short Fiction of Paolo Bacigalupi," in *Green Planets: Ecology and Science Fiction*, ed. Gerry Canavan and Kim Stanley Robinson (Middletown: Wesleyan University Press, 2014), 179-191 (179).

207 Alok Jha, 'Wasting Water is a Luxury We Can No Longer Afford,' *The Guardian*, May 30, 2015, <http://www.theguardian.com/commentisfree/2015/may/29/wasting-water-luxury-shortage-four-billion-people>.

208 'The International Organisation for Migration,' *International Organization For Migration*, accessed January 9, 2018, <http://www.iom.int/migration-and-climate-change-0>.

comprehending that there but for fortune go all of us, that mere luck is the primary reason some of us are born in more favourable circumstances than others. Timo's circumstances are about to change. Our own may not be far behind.

The Future is Blue by Catherynne Valente

Tetley Abednego and her twin brother grew up in Garbagetown, born fifty years after an event known as the Great Sorting, following on from a catastrophic global deluge. Tetley claims to be the most hated person in Garbagetown, yet despite this, considers herself lucky to have been born in this time and place. She lives alone in Candle Hole, which features hills, mountains, caverns and dells 'stacked and somewhat melted into a great crumbling gorgeous warren of wicks and wax'.²⁰⁹ She describes herself as hardly ever going hungry, appreciates small treasures when she finds them, such as a ruby ring and a New Mexico license plate found inside the belly of a tuna.

Tetley is forced to endure insults, graffiti and daily physical assaults by other residents of Garbagetown as punishment for having committed a crime, the nature of which is not immediately explained; a crime so grave it is said to have resulted in the annihilation of hope and the butchering of the future.

The people who lived in the world as it once was are known as Fuckwits. Most were drowned, but some survivors inhabit Misery Boats, sailing around hopelessly in search of land. Garbagetown itself has been constructed atop the Great Pacific Garbage Patch, a real-world France-sized mess of ocean trash that is rapidly accumulating plastic waste ranging from microplastics to abandoned fishing gear as a result of commercial and consumer carelessness. Although it is not solid enough to support structures, The Garbage Patch, also known as The Great Pacific Gyre, has proved popular with authors of both fiction and non-fiction as it is a potent symbol of environmental degradation.²¹⁰ The Plastic Oceans Foundation, in conjunction with LadBible applied to the United Nations to recognise the 'Trash Isles' as the world's 196th country in an effort to draw attention to the ocean's plight.

In his introduction to *Green Planets*, Gerry Canavan draws attention to Samuel R. Delany's writings on the Junk City and what Delany terms as the 'Culture of the Afternoon,' in which great beauty can be fabricated from the detritus of a fallen, garbage-strewn civilisation: 'the way a sunset, shining splendidly through the smog, glistens off the antifreeze'.²¹¹ 'The Future is Blue' is a prime example of this particular postmodern realisation, fitting alongside the Lo Tek culture in Gibson's *Johnny*

209 Catherynne Valente, 'The Future is Blue,' in *Drowned Worlds: Tales from the Anthropocene and Beyond*, ed. Jonathan Strahan (Oxford: Solaris, 2016). Subsequent page references are in parentheses in the body of the text.

210 See, for example, William Gibson, *The Peripheral* (New York: Berkley Books, 2014).

211 Gerry Canavan, 'Introduction: If This Goes On,' in *Green Planets: Ecology and Science Fiction*, ed. Gerry Canavan and Kim Stanley Robinson (Middletown: Wesleyan University Press, 2014), 1-22.

Mnemonic and, as pointed out by Canavan, the Disney movie *Wall-E*, in which robots fashion a functional, aesthetic landscape out of ‘plastic trash and consumer junk’.

After the deluge, Sorters spent a lifetime moving rubbish from one end of the patch to the other, fabricating a country where babies could be born. Valente has provided an assortment of delightful and descriptive Garbagetown place names such as Scrapmetal Abbey, Pill Hill, Toyside, Teagate, Aluminumopolis, Spanglestoke, Flintwheel Hill, Far Boozeaway, Lost Post Gulch—and the biggest and brightest place, Electric City. Children, however, don’t get names until they’ve survived to ten years old. Names are bequeathed by angry strangers and you must walk until you are given one. Tetley’s is scored when a voltage jockey from Electric City notices a bright blue teabag wrapper with TETLEY CLASSIC BLEND BLACK TEA stuck to her shirt and yells out abuse accordingly. Rather than returning home, she decides to investigate Electric City, glamorous by her standards.

Electric City burbled and bubbled and clanged and belched and smoked
just like the bad old world before it all turned blue. (364)

On Hazmat Heath, she meets a boy called Goodnight Moon, who presents her with a gas mask and plays her lucky charm, Madeline Brix’s Superboss Mixtape ’97, in his tape-player, the first time she has ever heard it played, an emotional moment that makes them both cry.

A man’s voice filled up my head from my jawbone up to the plates of my
skull. The most beautiful and saddest voice that ever was. A voice like
Candle Hole all lit up at twilight. A voice like the whole old world calling
up from the bottom of the sea. The man on Madeline Brix’s tape was saying
he was happy, and he hoped I was happy, too. (368)

When she is seventeen, a ship called Brighton Pier comes to dock in Electric City. Tetley, her parents Time and Life, twin brother Maruchan and all of Garbagetown, pours in to Electric City to see the amazing ship, which is literally a section of Brighton Pier with an engine affixed. Brighton Pier is a floating fantasy, the spirit of the old world in motion, garish and vivid, travelling the world trading its beauty for food and fuel. Its master, Emperor William Shakespeare the Eleventh claims to have seen dry land with his own eyes. The message the ship and its performers broadcasts is we can get the old world back again. Amidst all the excitement, Tetley is reunited with Goodnight Moon. Emperor William Shakespeare promised Garbagetowners that they’d inherit the Earth, but a Peep Show girl tells Tetley and Goodnight Moon the truth after she catches them having sex during her stage performance, which consists of her reading from the dinner menu of the Dorchester Hotel circa 2005. The truth is that there is no dry land left anywhere:

The Peep Show girl's glittering eyes filled up with tears. She put her hand on the glass. 'Oh... oh, baby... that's just something we say. We always say it. To everyone. It's our best show. Gives people hope, you know? But there's nothing out there, sugar. Nothing but ocean and more ocean and a handful of drifty lifeboat cities like yours circling the world like horses on a broken-down carousel. Nothing but blue.' (378)

Electric City's renovators had been busily disassembling hoarded engines in order to construct one big one, pooling fuel and practicing ignition sequences. Inspired by Brighton Pier, they were planning to turn Garbagetown into a Misery Boat and sail off in search of non-existent land, rather than make the most of the community survivors had constructed for themselves.

Tetley understands on an instinctive level that Fuckwit humanity has ended up with what it deserved. As the song from school she sings on her journey states, Garbagetowners are 'free and clear'. The future is not a pointless sea voyage trying to recapture what was lost. The future is right in front of them:

The Lawn stretched out below me, full of the grass clippings and autumn leaves and fallen branches and banana peels and weeds and gnawed bones and eggshells of the fertile Fuckwit world, slowly turning into the gold of Garbagetown: soil. Real earth. Terra bloody firma. We can already grow rice in the dells. And here and there, big, blowsy flowers bang up out of the rot: hibiscus, African tulips, bitter gourds, a couple of purple lotuses floating in the damp mucky bits. I slept next to a blue-and-white orchid that looked like my brother's face.

'Orchid, what do you want to be when you grow up?' I whispered to it. In real life, it didn't say anything back. It just fluttered a little in the moonlight and the seawind. But when I got around to dreaming, I dreamed about the orchid, and it said: a farm. (361)

So Tetley stops them by blowing up Electric City.

The story's title refers both to the endless ocean containing no dry land, to depression, and to Tetley herself, who was born blue with her umbilical cord wrapped around her neck, 'born already a ghost.' (361) Supposed to die—only she didn't. Displaying unwelcome signs of individuality young: 'a deceitful wicked little show-off child.' (361). Tetley is not like everybody else in that she sees beauty in her surroundings; she feels fortunate to have the good things in her life, values her friendship with her animal friends—a seal called Big Bargains and a bird called Grape Crush—and even the nameless hibiscus flower growing from her roof. She loves her twin brother unconditionally, even though he has abandoned her.

In her younger years, Tetley worshipped Oscar the Grouch, a puppet from the TV show *Sesame Street*, as a saint:

St. Oscar, keep your mighty lid closed over me. Look grouchily but kindly upon me and protect me as I travel through the infinite trashcan of your world. Show me the beautiful usefulness of your Blessed Rubbish. Let me not be Taken Out before I find my destiny. (362)

She lives in the now, rather than in the regretted historical past or the impossible, unattainable future. She accepts reality for what it is, takes each day as it comes, each new insult scrawled across her door, each new act of violence performed upon her body.

Dark undercurrents pool beneath Garbagetown's hyper-colourised, phantasmagorical surface. Tetley always carries a knife. Even when she was ten years old she was not naive enough to presume she wouldn't get raped.

On the one hand, Tetley can be seen as hopeful in that she endures in bright spirits what the remainder of the world cannot: truth. That life is precious and that she saved everybody from the 'dark salt nothing of an empty hellpromise'. (380)

Say you understand. I had to. I'm not a nihilist or a murdercunt or a terrorwhore. They were gonna use up every last drop of Garbagetown's power to go nowhere and do nothing and instead of measuring out teaspoons of good, honest gas, so that it lasts and we last all together, no single thing on the patch would ever turn on again, and we'd go dark, really dark, forever. Dark like the bottom of a hole. They had no right. They don't understand. This is it. This is the future. Garbagetown and the sea. We can't go back, not ever, not even for a minute. We are so lucky. Life is so good. We're going on and being alive and being shitty sometimes and lovely sometimes just the same as we always have, and only a Fuckwit couldn't see that. (380)

But on the other hand, although Tetley may well have been technically correct, taking away hope from the descendants of Fuckwits to prevent them from behaving like Fuckwits can be seen as an act of violence in itself—or at the very least, cruelty. Is it useful to expect too much from people who don't have very much of anything—and no experience of envisioning a realistic picture beyond their immediate environments?

Garbagetown is only beautiful when viewed through Tetley's eyes. All the other citizens are merely surviving, enduring the present in the optimistic hope of something better arriving and spiriting them away. As Tetley's father tells her: 'There's a place on Brighton Pier where if you look just right, it's like nothing ever drowned.' (375) Tetley accepts her ongoing punishment and chooses to continue living in her own version of

the here-and-now, a revolutionary who cannot be thrown off course. The future is blue because she cannot change anybody else's mind, because her only friends are animals and even her beloved twin brother has abandoned her.

Far from a cautionary tale, Valente has presented us with a confectionary delight, defiantly excavating the last vestiges of beauty in a defeated, all-but-extinct species. 'The Future is Blue' is a lurid snapshot of the damned, a literary rendition of Hieronymus Bosch's *The Garden of Earthly Delights*, enduring Hell as a result of our unworthy lives on Earth. The Garbage Patch in Valente's story serves as a symbolic representation of the ruins of the despoiled planet—an environment no longer capable of offering either solid land or safety, only the detritus of unvalued, disposable consumer products. There is no soil safe from contamination and survivors are left to pick over the scraps, making the best of their predicament any way they can.

While the story is not a fairy tale exactly, it utilises phantasmagorical imagery to evoke a sense of wonder and florid imagination. Yet the darkness underpins and grounds the reader, for this is a violent future, anchored with cruel laws, its inhabitants lost in intoxicating dreams. In destroying all this beauty without consultation, Tetley Abednago did commit a crime of violence—obliteration of hope—and she did it for herself as much as anyone.

She fulfilled her destiny as she saw it, and is therefore prepared to wear the consequences as a result. But she also blew up Electric City to cut herself off from temptation: 'In Electric City, the lights of the Fuckwit world were still on.' (363) Earlier in the story, when she sees 'a girl wearing a ballgown out of a fairy book, green and glitter and miles of ruffles' (365), she simultaneously hates and wants to be that girl. She believes she saved everyone from themselves, but one might also suspect her of actually performing the act in order to save herself from Electric City's shiny temptations. That destiny had led her to that dangerously tempting place and set for her a test:

it seemed to me like life was happening to me on purpose, and Electric City couldn't keep a darkgirl out anymore... we both dreamed we were beautiful Fuckwits running through a forest of real pines, laughing and stopping to eat apples and running again and only right before we woke up did we notice that something was chasing us, something huge and electric and bound for London-town. (373)

Tetley Abegnado has been condemned by her own genetic and cultural Fuckwit ancestry to commit an act of gross and violent fuckwittedness. No matter her reasoning, apologetics or justifications, she ended up causing wilful damage to the Earth on a whim, to satisfy her own desires.

Valente is known for the lush, poetic beauty of her prose. In her *New Yorker* review, Stephanie Burt describes ‘the sheer volume of rococo invention’:

If most fantasy and Y.A. novels are like the breakfast cereals that kids sift in search of marshmallows and clusters of fruit, Valente’s novels are all marshmallows and clusters, with every page a symbol, a saying, and a display, either of quasi-steampunk feminist magic turned up to ten, or of the same thing turned up past eleventy.²¹²

‘The Future is Blue’ is typical of her work in this regard, distilling poetic beauty from detritus:

I climbed up Flintwheel Hill, my feet slipping and sliding on the mountain of spent butane lighters, until I could see out over all of Garbagetown just as the broiling cough-drop red sun was setting over Far Boozeaway, hitting the crystal bluffs of stockpiled whiskey and gin bottles and exploding into a billion billion rubies tumbling down into the hungry sea. (360)

She conjures a certain postmodern lyricism and humour in imagining an unlikely luxury item:

Her breath punched me in the nose before she did. I got a lungful of what Diet Sprite down at the Black Wick optimistically called ‘cognac’: the thick pinkish booze you could get by extracting the fragrance oil and preservatives out of candles and mixing it with wood alcohol the kids over in Furnitureford boiled out of dining sets and china cabinets. (368)

Of her own work, Valente says:

But if there is a theme, I would say it’s lost things, and giving voice to the voiceless, whether that’s *Sleeping Beauty* or a couple of Argentinean cartographers.²¹³

Tetley Abednego is another lost thing. Being the only sensible-thinking person in a land of dazzle and illusion is no kind of life. She blows up the last vestiges of the old Fuckwit world, demolishing their resources rather than permit them to be squandered—an action that could potentially be understood as cutting off one’s nose to spite one’s face.

212 Stephanie Burt, ‘A Wildly Inventive Fantasy Series That Began on the Web and Became a Best-Seller,’ *New Yorker*, June 7, 2016, <http://www.newyorker.com/books/page-turner/a-wildly-inventive-fantasy-series-that-began-on-the-web-and-became-a-best-seller>.

213 Chambers, Selena, ‘An Interview with Catherynne M. Valente,’ *Bookslut*, last modified June 2009, http://www.bookslut.com/features/2009_06_014534.php.

The essence of capitalism endures in *Electric City*: culturally fluid, always seeking expansion, growth and new horizons, its citizens happy to be dazzled by the bright and shiny, even when they know it must be lies. She believes her brother still loves her, which seems like the biggest illusion of all. She accepts her punishment as in some way inevitable: ‘Some people are just born to be despised.’ (356)

They hate Tetley because she takes away their fantasy of rescue. Tetley’s truth is not welcome here. Truth is not a valued commodity in this garbage future. Not in our current-day world either—we all know the truth about climate change and its effects, but we continue on as usual.

Valente’s future is a lush and intricate landscape layered from the garbage of our time. ‘The Future is Blue’ can be read as an analogy of here and now, how we have so much, yet appreciate so little, how we should be measuring out our good, honest gas, so that it lasts and we all last together. We have more than we need already. Our quest for more can only lead us to a darker place.

An Incomplete Timeline of What We Tried by Debbie Urbanski

Debbie Urbanski’s apocalypse story (to be distinguished from post-apocalypse) begins with the end: the apocalypse itself—human extinction. It then regresses the reader back to an origin point—not *the* origin point, but one which Western urban dwellers will clearly recognise as reflecting their own contemporary lives. The narrative is presented as a straightforward list of mostly small, everyday acts we are encouraged to perform in the belief that we are mitigating or at least slowing down climate change and ecological devastation: carpooling, composting, going solar, turning off lights, boycotting products from offending corporations, buying organic produce and, most of all, believing we are making a difference. The kinds of acts we might consider harmless at the very least. This story suggests they are anything but harmless as, aside from performing no useful overall function in light of the seriousness of the Earth’s predicament, they generate a sense of complacency and contribute to a lack of comprehension and awareness of the bigger picture and the direction in which our civilisation is heading. For example, ‘Watch a video that shows a stunning threatened place of natural beauty. Cry. Post a link to the video on Twitter,’²¹⁴ and: ‘Encourage the buying of Coca-Cola soda with polar bears on the cans to raise awareness.’

The backwards-running narrative generates a sense of displacement and time distortion reminiscent of the opening line of Orwell’s *1984*: ‘It was a bright cold day in April, and the clocks were striking thirteen.’²¹⁵ Something is not right with the world

214 Debbie Urbanski, ‘An Incomplete Timeline of What We Tried,’ *Motherboard*, December 16, 2017, unpaginated, http://motherboard.vice.com/en_us/article/xwvgeq/an-incomplete-timeline-of-what-we-tried.

215 George Orwell, *1984* (London: Secker and Warburg, 1948)

and we are locked into that narrative of wrongness from the get go. We cannot escape because time is locked and the most dire prediction—the end of the world—has already come to pass. Unravelling the temporal threads reveals causal factors that fall well within contemporary imagination. The banality of each stepping stone in this apocalyptic narrative permits its weight and credence: promises made but not kept; ideas conceived of but not carried through, a clear version of fiddling while Rome burns, expressed through a sequence of pointless achievements such as the de-extinction of the passenger pigeon, for what is the point of resurrecting one single species when some estimates put the extinction rate at about 1,000 times more frequent now than in the 60 million years before humans came along.²¹⁶

Likewise, the consumer boycotting of named, individual items, such as Kellogg's cereal, seems a pointless gesture when the whole Western economy is founded upon the exploitation of natural resources. Environmentally aware bumper stickers placed on fossil fuel belching motor vehicles is the very epitome of hypocrisy. This story is brutal, offering no chance at redemption whatsoever, just a literal catalogue of failures. A list of statements of events, no further explanations required, the presumption being that the reader already has all the information they need to unpack the underlying details for themselves, faced as they are by a daily stream of reputable news reports, publications and online articles detailing the worsening condition of the global environment.

The reader is expected to fill in the gaps. The reader knows what's missing as they have very likely done some of the things on the list already: turning off lights, carpool, make yoghurt, send emails, believed they were making a difference.

Western consumers themselves are the protagonist of this narrative. This is an anti-hero's journey in which heroic action is the missing element. Humanity has long behaved like it believed itself to be the 'chosen one', with the Earth available—and intended for exploitation. Acknowledging, committing, believing you are making a difference are all things that make us feel better but do nothing to address the overarching, deadly issues. Woven in-between the innocent, innocuous acts are the deadly toxic actions with wide-reaching ramifications: 'Elect politicians who deny climate change into public positions of power', and 'Pretend future generations do not exist, only the current generation exists'. Which, in effect, we are all complicit in doing right now.

Several items on this list are current topics of journalistic attention and discussion: rewilding, consumption of powdered insect protein, boycotting of unsustainable produce from certain regions, politicians in denial about climate change, fracking, eat local movements, non-violent protest. Many of the things on this list are already being implemented: experimental pollination drones already exist, lab-raised meat is being

216 'Extinctions during human era worse than thought,' Brown University, September 2, 2014, <http://news.brown.edu/articles/2014/09/extinctions>.

tested, mandatory solar panels are being placed on new residential builds. Individuals are producing art and literature warning of climate change and its effects, including, of course, the author of this story, who gives the activity two separate mentions in her narrative: ‘Cautionary short stories are written about what might happen if none of these ideas work’; and ‘Eco-fiction is a genre.’ This self-referential acknowledgement of futility reinforces the story’s status as the opposite of a cautionary tale, with the author acknowledging her own defeat by embedding herself within the narrative and dismissing any possibility of her work’s agency in the fight to save the future.

This story represents a cut-and-paste To Do list rather than a plan of action, highlighting the disconnect between thought and action, reminiscent of perpetual corporate culture. The reader is squarely placed within this picture, despite there being no characters to root for, no protagonist and a collective villain: all of us. The events take place through our collective inaction, unresponsiveness, failure to care. Even the title itself suggests a certain laziness and a lack of focus on our part: incomplete, tried.

Utilising a list rather than a fleshed-out story achieves distance and coldness, highlighting the act of doing and being seen to be doing in place of actual achievement. The story has a sardonic tone, referencing the fact that our lives today contain an aspect of performance. We don’t just do things—we broadcast the fact, the minutiae of our lives to family, friends and strangers alike.

Voluntary sterilization. Included in the procedure is a colourful shoulder tattoo so that everybody will know who has done their part versus who here continues to be the problem.²¹⁷

This is indicative of a culture in which going through the motions and being seen to be doing something grants a form of consumer action status regardless of the usefulness of outcomes, an idea echoed in other listed items: ‘The extinct stuffed animal and plant collection: 10% of profits donated to frozen zoos. A great stocking stuffer this holiday season.’

This is a narrative of failure and non-engagement, of disbelief and ineffectual posturing, illuminating the ways in which we respond to events like consumers rather than citizens because that is all we know how to be. The revolution in this timeline comes too late—in truth, it doesn’t come at all, only sharp bursts of reactionary violence well past the point of no return. This story implies we are dead already, doomed to failure, it’s already too late. That climate change is bigger and badder than the sum of all its parts, that we have become part of the planet-killing machine.

This story is thus not a cautionary tale—the author makes it clear that both she and the readers are past that point of no return. Nor can it be considered science fiction,

217 Urbanski, ‘Timeline’, unpaginated

despite mentions of aliens and space travel. Most science fiction is about the future—things that have not yet come to pass—and this story presents us with no future, only a shameful, fragmentary past in which the best that could be made was a bunch of lists.

This story highlights the overarching pointlessness of fragmentary efforts. The list structure emphasises the fact that there is no unity of concept, no overarching plan, no revolutionary spirit uniting communities and propelling forward motion and global solutions. No actual revolution at all, just clinical action, reaction and experimentation. The fact that the sequence of events plays out in reverse order heightens its lack of momentum and ultimate futility. There is no hope, no opportunity of redemption, only uncomfortable revelation as the reader recognises themselves in some of the listed actions.

Aspects of this story echo Ursula Le Guin's 'The New Atlantis', discussed in the previous chapter: when the earthquakes start the U.S. Geodetic Service provides billboards stating IT'S NOT OUR FAULT! Similar dissimulations are found in 'An Incomplete Timeline of What We Tried': 'Redefine the word wilderness', and 'We had nothing to do with it. It is a natural occurring shift of temperature.' Both art and acts of activism and protest are revealed to be impotent and pointless in the long run: effectively statements and performances by and for individuals, rather than viable cogs in a co-ordinated, planet-saving movement. This story seems to be saying that we are what capitalist culture has made us: consumers rather than citizens, locked into hopeless patterns of 'ethical consumption' without wider structural impact or hope for change.

Underlying this story's dismal conclusion lies an implicit message: saving the Earth, our own species and others is a monumental task requiring cohesion, large-scale planning, broad community connectivity and participation, and focus of resources. Instead, what you have is a series of marketing decisions paying lip-service to ecological symbols, for example, Coca Cola partnering with environmental non-profits and using the images of polar bears as marketing tools, which merely leads to 'another' campaign to save the bears before the last of them finally dies. Whatever awareness may or may not have been raised, no effective manoeuvres took place and consumers were not able to buy their way to a better future.

This story was published late in 2017 so there has been limited time for critical response, but I concur with Cory Doctorow's concise *Boing Boing* review:

It's a small miracle of novel storytelling, managing to imply characters, a dramatic arc, wry humor and mounting tension—it's a very McSweeney's-esque exercise, but less jokey—and the gravitas makes a difference. It's a brilliant piece of work.²¹⁸

218 'Superb science fiction story in the form of a list of failed attempts to stave off climate extinction,' *Boing Boing*, December 19, 2017, <http://boingboing.net/2017/12/19/dystopian-listicles.html>.

In a March 2017 blog post, Urbanski discusses the use of list-making as a narrative device after being impressed by *The Throwback Special* written by Chris Bachelder:

His lists have this great rhythm to them but I also love how he breaks the rhythm with dialogue or grammatical variation or by varying the length of a list item. And also I love the emotional variation of his lists too.²¹⁹

In her own story, Urbanski wields emotion by omission rather than application, denying the reader the familiar comfort of dialogue or emotional variation. Those responses are to be experienced by the reader personally and privately, without the benefit of authorial cues, a situation reinforcing once again the sterility and coldness presented by this story.

In 2009, Kim Stanley Robinson commented to fellow science fiction author Terry Bisson that ‘Anyone can do a dystopia these days just by making a collage of newspaper headlines.’²²⁰ It seems no coincidence that only one of the listed actions in ‘Incomplete Timeline’ is longer than a Tweet, the 280 character social media communication method favoured by the busy and reminiscent of the media sound bite—so quick to broadcast and easy to forget.

Urbanski has, either intentionally or unintentionally in response to Robinson’s challenge, riffed off this idea a few times. Her story ‘The Sixth to Last Human Chat Ever Recorded,’ published earlier in 2016, can clearly be read as a direct thematic precursor to ‘An Incomplete Timeline of What We Tried.’²²¹ The end of humanity’s time on Earth is revealed through a conversation between two strangers on gChat, both trapped indoors as a result of deliberate toxic-to-humans environmental changes, both sterile and waiting to die, both anticipating other forms of life such as earthworms and bamboo to reclaim the Earth.

By removing the voices of individual characters from the narrative altogether in ‘Incomplete Timeline’, Urbanski effectively sterilises the conversation, implying that the extinction of humanity became an event beyond human control, or even participation. It was something that happened to us collectively. More than a story, this is a requiem, a form of epistolary poem for the Twitter generation.

To quote an old saw attributed to Edmund Burke: ‘The only thing necessary for the triumph of evil is for good men to do nothing.’ This story is all about the nothing we are doing.

219 Chris Bachelder, *The Throwback Special: A Novel* (New York: W. W. Norton & Company, 2017).

220 Terry Bisson, ‘Galileo’s Dream: A Q&A with Kim Stanley Robinson,’ *Shareable*, <http://www.shareable.net/blog/galileos-dream-a-qa-with-kim-stanley-robinson>.

221 Debbie Urbanski, ‘The Sixth to Last Human Chat Ever Recorded,’ *Motherboard*, April 23, 2016, http://motherboard.vice.com/en_us/article/9a3kbz/the-sixth-to-last-human-chat.

Sunshine State by Adam Flynn and Andrew Dana Hudson

‘Sunshine State’ is set in 2040, a time when India has been annexed, post-embargo Cubans have gained a reputation as dashing climate resistance gurus, waters are rising, weather is changing, wetlands dying, salinity increasing, Disney World’s rollercoaster has become a boneyard and Florida’s Keys have been destroyed.²²²

Ramses works as an insurance company negotiator, convincing stubborn holdouts to move off doomed properties on unfavourable land. Former colleague Jefferson Jackson persuades her to check out an environmental reclamation megaproject he’s involved with in the Florida everglades: The Myth, a moss and ivy-covered tower topped with a ‘Mobius-loop of solar mirror’ surrounded by a flotilla of colourful houseboats:

The Myth looked like a combination of botanical gardens, field laboratory, modern art gallery, and Roman bath. Definitely bizarre, but it was also the most beautiful thing she had ever seen. (6)

The Myth is a working prototype of an environmental reclamation project, built from scrap and salvage, staffed and run by volunteers. Ramses is introduced to aquatech Nina Mitra, who explains the true value of wetlands; how the swamp sequesters carbon and pulls pollution out of the air. The Myth has been constructed to function as ‘the Manhattan Project of permaculture’ maintained by aquatects and ecosystem hackers aiming to:

... turn the sputtering Everglades into an overclocked engine of carbon sequestration, desalination, water filtration, flood mitigation, and topsoil retention—a total package of environmental redemption. (8)

The plan is to scale it up using salvaged shipyard cranes and rollercoaster scrap and ‘globalized weeds, adapted for a new world’ (8). The project requires committed community partners—this is why Ramses has been brought in. She sets off in an effort to get local people onside, starting with park rangers and the land management officers, then tour guides and Seminole Indians. A year in, the State become alerted to what they are up to and a team led by Special Advisor to the Governor Mitchell Foote turn up to investigate. He starts talking paperwork, lawyers, investors and liability, suggesting the need for a fiscal sponsor. One emerges in the form of herbal supplement billionaire Bodhi Chakrabarti and his reality TV film crew. Not exactly what The Myth team had in mind.

²²² ‘Sunshine State,’ *Everything Change* (Arizona State University, 2016). Subsequent page references are in parentheses in the body of the text.

In an effort to draw alternative support for their project, Ramses, Nina, and Jeff sail down to attend The Renegade Olympics of 2040, hosted by Cubans, held on the deck of a container ship commandeered by Maldivian activist-pirates and now considered the premier diplomatic event for the world's aspiring nonstates—hundreds of globally displaced groups including the Kurds, the Tibetans, the Palestinians, Western Saharans, Cypriot nationalists, Cascadian separatists, the Québécois, and Sea Peoples.

Resistance in the 21st century is all about two things: infrastructure and attention. First, you cannot depend on global supply lines for anything. Power, bandwidth, water, food, sewage. They will cut you off and starve you out. (15)

They are advised to strengthen The Myth's position by participating in the R-Games, broadcasting their story and generating a fanbase via grassroots methods rather than traditional journalism. But when they return to Florida, they learn they have angered Foote. The Mythers barricade themselves inside their structure, preparing for a siege as the state sends in drones, followed by quadcopters. The Mythers do not smash the mechanical devices sent in to flush them out. Instead, they catch them and release them back into the wild as though they were living things. The Mythers broadcast footage of the siege and anything else they can think of to hold viewers' attention and stay viral, such as online forum Q&As, camera tours of The Myth's facilities, sharing oyster recipes and tips for mutant gardening, reenacting their R-Olympics music video.

Meanwhile, a Luxembourg-sized chunk of Antarctic ice shears off, dropping 200 billion tons into the sea and generating Tropical Storm Nyx, which is due to hit Florida in thirty-six hours. The government airboats abandon the siege and pull out, leaving The Myth to look after itself. Which it does. Rain falls and seas rise, leaving the state flooded. A flotilla of desperate, washed out Miamians head to The Myth in search of shelter. Ramses, Jeff, Nina and other Myth volunteers work hard to help as many people as possible—and to make sure that the plants that clean their water survive. Parts of the tower itself are dismantled in order to fashion crude shelters: trading magnificence for substance.

Support continues to be coordinated in tandem with the Coast Guard and other volunteers. The Myth project is acknowledged as successful, both for taking in refugees and absorbing excess water. New Wetlands copies are established across the global south. The disassembled Myth, their 'strange, swampy refugee town' is rebuilt by its new inhabitants: 'We've lost a monument, Ramses thought, but found a movement.' (23)

'Sunshine State' is a techno optimist fairy tale, rendered with a geek-chic sensibility and tone; the antithesis of 'An Incomplete Timeline of What We Tried's' dismal projection of failed engagement, shallow action and dis-attached entitlement.

Ramses, obviously, is a Pharaoh name, but there are no monarchs in *The Myth*. She is presented as tough and capable, having had experience of negotiating with difficult characters in times past. Forging solid connections with hard-headed strangers is her skill and she demonstrates leadership abilities in a time of instability and unrest.

This 2040 is a hands-on future, meaning all hands-on deck, community focus, individual agency, responsibility and participation. Maker culture states that it respects open source, risk taking, community building, creativity and constructivism. This is maker culture cut loose from legacy moorings, humanity functioning as part of a biomechanical hybrid ecosystem, working in simpatico with other cultural ecosystems, such as the R-Olympic Games, Indigenous people and the land-based law establishment that acknowledges it will not be able to protect citizens from worsening climate change events. Refugees are plentiful—and a permanent fixture of this future. Not excess people, but resourceful survivors who have founded a new kind of stateless state and specialise in providing useful commodities: coffee and rum and advice on climate resistance, which involves being in control of infrastructure and attention.

Mickey continued. ‘Put your story out to the masses. Get a fanbase. Cops don’t want that Ruby Ridge shit, not if you have a millionplus followers. Don’t talk to any journalists—first mistake every occupier makes. Do it grassroots, viralismo.’ (16)

Respect is shown for even non-living, non-sentient creatures as part of the process of gaining what citizens of *The Myth* want: action and response, but no violence or destruction.

The quadcopters they could shoo away with a leafy branch, but the crawling drones had to be spotted and caught in hemp sacks before they could chew through any wiring. By the third night Foote had gotten hold of a pair of submersible drones, which swam under their gates and caused some minor havoc in the houseboat flotilla. These they lassoed with some animal control gear Jeff had stashed in a locker, and released gently back into the wild (18)

This story presumes a perpetually shifting baseline, that things will not return to the way they might have been in times past, that new landscapes of many kinds must be forged, and that this cannot happen unless people and systems pull together. These people are responsive, adaptable to a world that exists in constant flux, with no expectation of long-term dry and stable land, and accepting of the fact that displaced people are the new normal:

She forged a new Look—one dispelling debasement by seeing another as fully human. She deployed it for each boat of refugees that arrived, and the clouds in their eyes would clear for a moment. Ramses felt so present with everyone, she was almost light-headed. (21)

‘Sunshine State’ was chosen as the winner in the inaugural Climate Futures Initiative (ICF)’s Climate Fiction Short Story Contest, 2015.²²³ Of the stories submitted, the editors remarked:

[Authors] grappled with food availability, health, changing landscapes, changing professions, family and community relationships. Largely unconcerned with politics, they asked what life would be like in world with a new or still-changing climate... as our grand prize-winning story ‘Sunshine State’ demonstrates, there was also a strong focus on social innovation and resilience in small groups and communities. (xviii)

Stories such as ‘Sunshine State’ envision how environmental and social change might play out practically in real-world terms. We have one foot in this future already: these stories barely qualify as science fiction, being set in the very-nearly now in circumstances scientists routinely assure us are likely to come to pass, such as increasing incidences of extreme weather resulting in climate refugees.²²⁴ The ‘what-if’ in this story is behavioural, political and cultural, rather than a mere technological wonder: what if a group of people pulled together, pooled resources and built a successful, artificial wetland, then went on to share their space, their food and their knowledge when a big storm hit?

Co-authors, Flynn and Hudson, are both active participants in the Solarpunk movement, which imagines a future requiring radical social change via renewable energy, urban agriculture, or organic architecture and design.²²⁵ Solarpunks ask ‘what kind of world will emerge when we finally transition to renewables?’ rather than if it is likely to happen at all.

Contributing to the Hieroglyph project, Flynn names the Solarpunk movement as an alternative to denial and despair; it is about

... extending human life at the species level, rather than individually....
Our futurism is not nihilistic like cyberpunk and it avoids steampunk’s

223 Arizona State University Climate Fiction Short Story Contest, <http://climateimagination.asu.edu/everything-change/>.

224 Matthew Taylor, ‘Climate change “will create world’s biggest refugee crisis,”’ *The Guardian*, November 2, 2017, <http://www.theguardian.com/environment/2017/nov/02/climate-change-will-create-worlds-biggest-refugee-crisis>.

225 Adam Flynn, ‘Solarpunk: Notes toward a manifesto,’ *Hieroglyph*, September 4, 2014, <http://hieroglyph.asu.edu/2014/09/solarpunk-notes-toward-a-manifesto/>.

potentially quasi-reactionary tendencies: it is about ingenuity, generativity, independence, and community.²²⁶

The movement is in its nascent stages, its visual aesthetics are evolving in very futuristic directions, as are its concepts and scope. Flynn writes:

Imagine permaculturists thinking in cathedral time. Consider terraced irrigation systems that also act as fluidic computers. Contemplate the life of a Department of Reclamation officer managing a sparsely populated American southwest given over to solar collection and pump storage. Imagine “smart cities” being junked in favor of smart citizenry.²²⁷

Author Alice Robinson writes of literature as being constructive as well as reflective:

Fiction can underwrite understandings of what is deemed desirable and appropriate by a given culture; what is unacceptable, what is feared and abhorred. Novels rising from moments of conflict and hardship sharpen focus on the inequalities and struggles of those times. In doing so, such narratives raise awareness of key social issues and potentially move the culture toward empathy, understanding, change—or else underscore unfortunate cultural resistance, the failure of those things to eventuate.²²⁸

However, Gary K. Wolfe has a more negative view of what he thinks of as futurist fiction going back decades, its flaw being that readers are not invited to think of the human consequences:

It’s fiction based not in the idea of story, but fiction based in the concept of scenario... essentially what you’re invited to do is provide a scenario, that’s what the editors of these things seem to be interested in. The story, if you conceive of one at all, is icing on that cake.²²⁹

Yet Wolfe’s assessment remains caught in a model that this sort of ecofuturist solarpunk fiction is trying to surpass. What the reader is invited to do, I want to suggest, is think of the human consequences differently to the ways we are relentlessly encouraged to in dystopian and post-apocalyptic fiction. The idea that the story must come first is

226 *ibid.*

227 *ibid.*

228 Alice Robinson, ‘Writing for Good in the Contemporary Novel of Purpose,’ *The Conversation*, accessed May 23, 2018, <http://theconversation.com/writing-for-good-in-the-contemporary-novel-of-purpose-48104>.

229 Gary K. Wolfe, ‘Episode 318: The End of the Year,’ *The Coode Street Podcast*, December 16, 2017, 45:26, <http://jonathanstrahan.podbean.com/e/episode-318-the-end-of-the-year/>.

well enough. But too often that story amounts to little more than a rebroadcasting, rehashing and reiteration of one particular, very old story—how much we fear the dark, the stranger and the world beyond the comfort of our kith and hearth. Such stories have primed us to believe in—and expect—more of the same. Stories with a positive message can be casually dismissed as propaganda, yet the same view does not seem to apply to relentlessly dystopian or apocalyptic stories, even though the message of so many of them is the same: people are dangerous, untrustworthy, human nature swings towards the dark, resistance is futile. In their introduction to *Dark Horizons: Science Fiction and the Dystopian Imagination*, Baccolini and Moylan comment that:

The dystopian imagination has served as a prophetic vehicle, the canary in the cage, for writers with an ethical and political concern for warning us of terrible sociopolitical tendencies that could, if continued, turn our contemporary world into the iron cages portrayed in the realm of utopia's underside.²³⁰

However, Rebecca Solnit, writing about her investigation into human response to major urban disasters, says:

The assumption behind much disaster response by the authorities—and the logic of bombing civilians—is that civilisation is a brittle facade, and behind it lies our true nature as monstrous, selfish, chaotic and violent, or as timid, fragile, and helpless. In fact, in most disasters the majority of people are calm, resourceful, altruistic and creative.²³¹

Positivity involves laying down new conceptual soil, planting seeds of hope, new intellectual scaffolding and infrastructure, all of which is about human consequences—only here, the scope is broader than what the page has traditionally provided for.

Admussen argues that not only has global culture failed to adapt to contemporary challenges, it 'actively prevents' us from facing them. He suggests we need to 'break with our existing traditions of art and media,' to move away from stories about individuals profiting from narratives of progress, to abandon sentimental ideas about the natural world.²³²

230 Raffaella Baccolini and Tom Moylan, 'Introduction: Dystopia and Histories,' in *Dark Horizons: Science Fiction and the Dystopian Imagination*, ed. Raffaella Baccolini and Tom Moylan (London: Routledge, 2003), 2.

231 Rebecca Solnit, 'Hope is an embrace of the unknown': Rebecca Solnit on living in dark times,' *The Guardian*, July 15, 2016.

232 Nick Admussen, 'Six Proposals for the Reform of Literature in the Age of Climate Change,' *The Critical Flame: A Journal of Literature and Culture*, Issue 42, May-June 2016, <http://criticalflame.org/six-proposals-for-the-reform-of-literature-in-the-age-of-climate-change/>. For examples of mixed media explorations of climate change see *Living Data: Expressions of Connection* <http://www.livingdata.net.au/content/about/about.php>; *Julie's Bicycle—Sustaining Creativity*: <http://www.juliesbicycle.com/tippingpoint> and *Climarte—Arts for a safe climate*: <http://climarte.org/>; and The Climate Museum: <http://climatemuseum.org/>.

Whereas stories like ‘An Incomplete Timeline’ rely on the reader filling in the gaps with knowledge based on their own reading and experiences, ‘Sunshine State’ and stories like it are all about plugging holes with information and potential answers, leaving the reader with less space to fall back on fear and ingrained negativity. The story runs us through the processes involved: how we might respond to threat, what it might be like if we pull together, do not put our frightened selves and our property ahead of the lives of desperate strangers. How we might conceivably forge a future together. For these reasons, ‘Sunshine State’ sits alongside novels such as Kim Stanley Robinson’s *Green Earth* and *New York 2140*, to which the term ‘Utopian’ is sometimes applied.²³³ Other similarly constructive, eco-positive stories include Cory Doctorow’s ‘The City of Coordinated Leisure’, a vision of an urban future in which technology is coordinated communally to enable citizens to restructure their days and needs positively in response to unpredictable climate fluctuations; and Shauna O’Meara’s ‘Island Green’, about a reality TV show pitting battling teams of conservation innovators against each other, who become aware of the contaminating effects their efforts are having on the local environment.

In his preface to *Hieroglyph: Stories and Visions for a Better Future*, entitled ‘Innovation Starvation’, Neal Stephenson expresses his concern about ‘a general failure of our society to get big things done.’ He writes:

Good SF supplies a plausible, fully thought-out picture of an alternate reality in which some sort of compelling innovation has taken place.²³⁴

Further on, he discusses how an overarching narrative supplies a shared vision. He also states that:

... competition between the Western democracies and the communist powers obliged the former to push their scientists and engineers to the limits of what they could imagine ... A grizzled NASA veteran once told me that the Apollo moon landings were communism’s greatest achievement.²³⁵

If ever there has been a time for harnessing large-scale global community focus and resolve, surely it is now. Precedents for cooperation aimed at the global good exist, such as *The Montreal Protocol on Substances that Deplete the Ozone Layer*, which was signed 30 years ago by the international community in an effort to regulate ozone-depleting chlorofluorocarbons. A 2018 NASA study shows declining levels of ozone-destroying chlorine, resulting in less ozone depletion.²³⁶

233 Kim Stanley Robinson, *Green Earth* (London: Del Ray, 2015); Kim Stanley Robinson, *New York 2140* (London: Orbit, 2017).

234 Stephenson, *Hieroglyph*, xiv.

235 Stephenson, *Hieroglyph*, xvii.

236 ‘NASA Study: First Direct Proof of Ozone Hole Recovery Due to Chemicals Ban,’ *NASA*, January 5, 2018,

There's a radical charge to the notion of producing stories set in catastrophic near-futures that do not presume or default to the worst of human behaviour as a mechanism for generating or sustaining conflict, conflict being the main ingredient all writers are told to ensure as a major narrative element—stories showing leadership, cooperation and imagination stretching beyond urban apocalypse. Dystopian and post-apocalyptic storytelling has been preparing us for the worst across decades, propaganda based upon the very worst that humanity has to offer—can that not be seen as a self-fulfilling prophesy in itself? Writing in *The New Yorker*, Jill Lepore offers the point of view that

... dystopia used to be a fiction of resistance; it's become a fiction of submission, the fiction of an untrusting, lonely, and sullen twenty-first century, the fiction of fake news and infowars, the fiction of helplessness and hopelessness. It cannot imagine a better future, and it doesn't ask anyone to bother to make one.²³⁷

Three of the stories I have analysed in this chapter depict a future burnt out by capitalist excess, damaged beyond repair, with despair baked in, expressing the fact that we are set on an irreversible course to a bad place. Only 'Sunshine State' exhibits belief in the ability of humanity to construct something genuinely transformative, despite difficult ongoing circumstances and environmental upheavals. In her introduction to 'The Futures Industry', a special issue of *Paradoxa* on utopianism in SF, Sherryl Vint suggests:

... the resources of the speculative imagination can work as a counter to this exhaustion (of neoliberalism), a way of re-energising our capacity to believe in and hence work toward other sorts of futures.²³⁸

She sees speculative fiction as well suited to imagining alternatives to capitalist realism, stating 'the tools and techniques of science fiction can offer us examples and locations for an ethics of possibility'. The fact that literary authors are increasingly colonising speculative fiction's interstitial spaces suggests the value of speculative fiction's flexibility in responding to contemporary political and environmental challenges is being recognised.

<http://www.nasa.gov/feature/goddard/2018/nasa-study-first-direct-proof-of-ozone-hole-recovery-due-to-chemicals-ban>.

237 Jill Lepore, 'A Golden Age For Dystopian Fiction,' *The New Yorker*, June 5 & 12 Issue, <http://www.newyorker.com/magazine/2017/06/05/a-golden-age-for-dystopian-fiction>.

238 Sherryl Vint, 'Introduction,' *Paradoxa* 27 (2015): 7-20, <http://paradoxa.com/volumes/27/introduction>.

Conclusion: From Ecocatastrophe to Anthropocene Fiction—Full Circle or New Terrain?

Climate change is shaping up as the biggest story of our time, the story in which one single species holds an entire living planet to ransom, possessing the power of obliteration once wielded by asteroids and other natural forces, threatening a Sixth Mass Extinction Event. Fossil fuel-driven consumer capitalism is causing catastrophic climate change and threatening the future of life on earth. In *Capitalism in the Web of Life*, Jason W. Moore argues that according to the Cartesian narrative, Capitalism (encompassing modernity and industrialisation) emerged out of Nature and drew wealth from Nature, disrupting, degrading and defiling it in the process. This Nature/Society dualism, complicit in the violence, inequality and oppression of the modern world, is insufficient to ‘help us track the real changes unfolding, accelerating, amplifying before our eyes,’ and is a way of thinking that lends itself quite readily to the catastrophist and collapse narratives.²³⁹ An oft-repeated saying is that it is easier to imagine the end of the world than the end of capitalism. However, in her address to the National Book Council in 2014, Ursula K. Le Guin stated:

We live in capitalism, its power seems inescapable—so did the divine right of kings. Any human power can be resisted and changed by human beings. Resistance and change often begin in art. Very often in our art, the art of words.²⁴⁰

Science fiction literature is imbued with ecological awareness. By the time Asimov, Clarke and other writers of their generation reached their prime, this ecological awareness had become an embedded feature of science fictional discourse, assumed as an implicit component the landscape of a typical SF story, whether set on Earth, in space or on other worlds. Even the apparently most anti-ecological space travel subgenres took up as central questions the interdependencies of life and the conditions required for ongoing survival.

Ecocatastrophe stories are imaginative projections extrapolated from scientific data and observation—exacerbations of real-world fear and body horror, of the helplessness felt at the thought of finding ourselves trapped in situations beyond individual or even

239 Moore, *Web of Life*, Kindle.

240 Ursula K. Le Guin, *National Book*, YouTube, November 20, 2014, <http://www.youtube.com/watch?v=Et9Nf-rsALk&t=153s>.

social control. These science fiction stories of the 1960s and 1970s are imbued with clarity: functioning with mechanical intent, a literary physics of caution stating that if we do not check the worst of our collective human behaviours, the results are likely to be devastating. Authors meticulously detailed ‘what if?’ scenarios in which readers could vicariously experience future, corrupted projections of familiar environments: the polluted-beyond-salvation landscape, the hyper-violent or totalitarian society, mechanisms functioning beyond intended parameters with operators no longer in control. This was a literature of disaster and encroaching darkness: warnings designed to frighten readers and make them think about the long-term impacts of technology, political and cultural systems, choices and behaviours.

If these catastrophic scenarios and pessimistic imaginings still contained kernels of hope, such hope lay in the contrast to the reader’s context, the temporal grace that meant such ruins might still be avoided:

It is precisely the capacity for narrative that creates the possibility for social critique and utopian anticipation in the dystopian text... Dystopias maintain hope outside their pages, if at all; for it is only if we consider dystopia as a warning that we as readers can hope to escape its pessimistic future.²⁴¹

In the same way that some folklores allow that knowing a creature’s true name grants one power over it, giving identifiable form to dystopia empowers us to move against it by envisioning ourselves fighting back against overwhelming forces of oppression and negativity, to situate ourselves heroically, rather than as passive, helpless victims.

The extreme satire of some science fictional works of the 1960s and 1970s reveal a dark underpinning humour, ideas that were, perhaps, intended to come across as more than slightly outrageous, devised to shock the reader into response: what if this seemingly crazy, yet scarily plausible thing actually happened? Occasional aliens aside, ecocatastrophe science fiction imagined future events as the result of failed systems of governance. Our contemporary world is experiencing some of those outlandish projections while standing on the threshold of others. Warnings are being issued; most famously the ‘World Scientists’ Warning to Humanity: A Second Notice,’ cautioned that ‘a great change in our stewardship of the Earth and the life on it is required, if vast human misery is to be avoided.’²⁴² But the need to keep the wheels of capitalism in motion remains paramount.

As many critics have noted in a variety of contexts, as the twenty-first century unfolds, science fiction increasingly reveals itself as social realism rather than imaginative

241 Raffaella Baccolini and Tom Moylan, ‘Introduction: Dystopia and Histories,’ in *Dark Horizons: Science Fiction and the Dystopian Imagination*, eds. Raffaella Baccolini and Tom Moylan (London: Routledge, 2003), 7.

242 World Scientists’ Warning to Humanity: A Second Notice, *BioScience*, Volume 67, Issue 12, 1 December 2017, pp.1026-1028, <http://doi.org/10.1093/biosci/bix125>.

speculation with its focus on the permeation of technology into ordinary life. For Istvan Csicsery-Ronay Jr:

SF orients itself within a concept of history that holds that science and technology actively participate in the creation of reality, implanting human uncertainty into the natural/nonhuman world.²⁴³

As in the 1960s, today's societies are experiencing social upheavals in response to issues of race, inequality and embedded prejudice. Social media technology facilitates communication and interconnectedness, but also enables the polarisation and manipulation of political groups, as seen with the recent expose of Facebook's relationship with Cambridge Analytica.²⁴⁴ Today the gap between the here-and-now and outlandish futures is slim. We live in the science fictional future of yesteryear—with algorithms automating many systems, discussions of plans to mine the moon and colonise Mars, hackers threatening geopolitical stability, pocket supercomputers, semi-autonomous weapons, commuter jetpacks and flying cars at the product testing stage, cars beginning to drive themselves and robots replacing human workers.

SF was born of mechanistic, capitalist society and has evolved alongside technological ingenuity and invention, reflecting its times and places, political and social climates, predicting and reacting to invention and application, while racing ahead to warn of things to come. Delany proposes that 'SF is not about the future; it uses the future as a narrative convention to present distortions of the present.'²⁴⁵ If authors of literary fiction are plundering SF, as Robinson contends, perhaps it is because they can see the truth in it, the everyday ordinariness of encroaching dystopia, with the more imaginative embellishments stripped away. It is the mundane they examine, not the speculative.²⁴⁶

The current popularity of post-apocalypse and dystopian fiction in tandem with rising concerns about global issues—such as climate change, the potential of weaponised pathogens, unregulated synthetic biology, artificial intelligence, autonomous combat weaponry, computer hacking, terrorism, species extinctions, religious fundamentalism and the widening gap between rich and poor—is, therefore, unsurprising. These topics are no longer science fictional, not a frightening future option—they form part of our current world. As more of these once fantastical elements impact upon us, new dialogues

243 Istvan Csicsery-Ronay, Jr, *The Seven Beauties of Science Fiction* (Connecticut: Wesleyan University Press, 2011), 4.

244 Nicholas Confessore, 'Cambridge Analytica and Facebook: The Scandal and the Fallout So Far,' *New York Times*, April 4, 2018, <http://www.nytimes.com/2018/04/04/us/politics/cambridge-analytica-scandal-fallout.html>.

245 Samuel R. Delany, 'Some Presumptive Approaches to Science Fiction,' in *Speculations on Speculation: Theories of Science Fiction*, eds., James E. Gunn and Matthew Candelaria (US: Scarecrow Press Inc, 2005), 289.

246 Robinson, *Coode Street Podcast*, Episode 305.

and conversations will ensue. SF provided us with decades of thought experiments and practice runs at envisioning potential futures and their impacts, comprehending that ways of living would need to change as technology shapes society. The symbols, tropes and archetypes of science fiction flood today's popular culture and serve as a shared language for understanding the new landscapes we are entering. But if 'science fiction' as a label continues to block certain forms of literature from being taken seriously, perhaps it is time to retire the term and fashion something more acceptable in its place.

Ecocatastrophe vs Anthropocene

The SF anthologies of the period discussed in Chapter 2 feature stories set in future times dealing with ecological themes. The expectation of catastrophic futures is expressed in the anthology titles themselves: *Nightmare Age*, *The Ruins of Earth*, *Bad Moon Rising* and *The Wounded Planet*. The anthologised stories were intended to frighten people into action. They did not succeed. 1960s and 1970s ecocatastrophe science fiction was successful as entertainment but it did not change the world. Contrast those titles with those of contemporary climate fiction anthologies: *Future Primitive: The New Ecotopias*, *I'm With the Bears*, *Welcome to the Greenhouse*, *Loosed Upon the World* and *Everything Change*. These titles are suggestive of transformation rather than destruction. They do not set catastrophe in stone. Indeed, some propose solutions or escapes, whereas others imagine coming to terms with an irreparably polluted and broken world.

In *Silent Spring*, Rachel Carson wrote:

Behind the sudden appearance of nuclear and then environmental apocalypse thus lay an equally sudden world-historical change in humanity's understanding of its position in the world.²⁴⁷

Perhaps the time has come for another shift? A number of contemporary philosophers have argued that ecological consciousness of Gaian interconnection and climatic interdependency has called forth new political communities and forms of subjectivity, new economic and scientific regimes, new ways of understanding human agency in troubled times.²⁴⁸ James Bradley suggests that climate fiction:

... deals with expressions of deep and pervasive transformations of the world and ourselves [... and] embraces the broader disruption of natural and social systems by environmental change and capitalism... That we ourselves are being altered by the shifting terms of our engagement with what we would once have called the natural world.²⁴⁹

²⁴⁷ Carson, *Silent Spring*, 3.

²⁴⁸ Latour, *Facing Gaia*; Stengers, *In Catastrophic Times*.

²⁴⁹ Bradley, *Post-Naturalism*.

Human beings have long been wary of the harsher aspects of the natural world, be they wild animals, microscopic diseases, deadly weather or freakish astronomical events. Geological records hold evidence of past disasters; both art and history reveal responses intended to appease forgotten gods and unknowable elements. Yet the natural disaster we are faced with today is one that bears our own unmistakable imprint.

Once geological and paleontological evidence started revealing vast stretches of past time, imaginative writers of the Romantic era were enabled to imagine vast stretches of future time.²⁵⁰ That enlarged vision facilitated new vistas for the imagination alongside emerging evolutionary perspectives in science, such as natural selection. In a similar way that geology unlocked temporal imagination, climatology could be well positioned to facilitate new modes of comprehending the precariousness of our situation and imagining new ways in which we might live as part of the world. Anthropocene stories currently reflect journalistic reportage and science bulletins on topics as varied as melting permafrost releasing ancient disease, geoengineering concepts, terraforming Mars, unintended byproducts of genetically engineered organisms and iceberg piracy. As the evidence continues to mount of the extent to which human activity impacts the environment, we should expect more literature to be reflecting this—and other unraveling concerns.

Anthropocene fiction draws from traditions of pastoral, realist, apocalyptic and dystopian fiction to tell stories of human-wrought catastrophic global impact. Whether set in the present day, near, or far future, it differs from ecocatastrophic science fiction in that it contains embedded within its fabric the understanding that the processes underpinning the ‘what if?’ scenarios have already been set in motion to a greater or lesser degree. Any warning about the need to change our ways in order to stop things getting worse acknowledges the fact that destructive processes, such as extinctions estimated by scientists at somewhere between 100 to 1000 times the natural rate, have already started. Climate change is well and truly underway; as Timothy Morton puts it:

Global warming is like a very slow nuclear explosion that nobody even notices is happening ... That’s the horrifying thing about it: it’s like my childhood nightmares came true, even before I was born.²⁵¹

Agency, responsibility and hope are dispersed unevenly amidst this wreckage, with many transformative processes as yet unforeseen—and likely irreversible. There is no safe or pure ‘natural’ state to return to. Some outcomes will undoubtedly be worse than others, some solutions preferable, despite challenges.

250 David Higgins, ‘Why a volcano, Frankenstein, and the summer of 1816 are relevant to the Anthropocene,’ *The Conversation*, September 13, 2016, <http://theconversation.com/why-a-volcano-frankenstein-and-the-summer-of-1816-are-relevant-to-the-anthropocene-64984>.

251 Timothy Morton, Kathy Rudy and the Polygraph Collective, ‘On Ecology: A Roundtable Discussion with Timothy Morton and Kathy Rudy,’ *Polygraph* 22 (2010): 234.

Anthropocene tales do not merely warn of monstrous things to come, they acknowledge that feared events have been initiated and that we are the monsters—as are some of our grand scale, untestable ideas conceived of as potential methods of combatting the damage done by climate change. Many proposed geoengineering schemes seem as outlandish and satirical as some of the 60s science fiction stories I discussed in Chapter 2: technological fixes such as seeding the stratosphere with sulfur injections via high-flying jets mimicking effects of volcanic eruptions, or using ice crystals to dissolve heat-trapping clouds. The Swiss are already throwing blankets over some of their glaciers in an attempt to slow the melt, like a parody of coast-wrapping environmental artists Christo and Jeanne-Claude at their peak.²⁵²

To date, most anthropocene fiction has been easily classifiable as science fiction, but that is changing. Some of the most popular novels in the genre, such as Barbara Kingsolver's *Flight Behaviour*, contain no science fictional elements whatsoever. Alternatively, the term 'dystopian' rather than 'science fiction,' is applied to describe novels such as *American War* by Omar El Akkad and *Splinterlands* by John Feffer, which depict ecologically damaged futures. That climate fiction is being touted as a new genre by publishers and critics when it covers ground already well-trodden by SF across the past 200 years is an indicator of SF's ineffectiveness when it comes to reaching broad audiences with even its best examples.

Proto science fictions of the pre-Industrial era dreamed of the possibility of moving beyond the boundaries of Earth.²⁵³ Science fiction illustrated and embellished modernity. Anthropocene fiction can be understood as modernity's byproduct—we are not yet sure where this road will take us. As the literature both of the present moment and of geological time scales, deep pasts and futures, Anthropocene fiction serves to highlight the devastating economic realities and human impacts of climate change, encouraging the understanding that this a problem we have brought upon ourselves and that changes to energy and economic systems must be implemented if we are to survive. Climate change is a global problem that affects, quite literally, all life on Earth—indeed from a certain cosmological or science-fictional viewpoint, all the life we know for certain to exist. We are standing in it. It is bigger than we are as a species. It is a giant monster unearthed and unleashed, but unlike Godzilla and the Beast from 20,000 Fathoms—metaphors for the nuclear threat—this monster is global, amorphous and potentially unstoppable. As conditions worsen, Anthropocene fiction will react and respond by pushing in new directions.

As Admussen says, 'Literature can no longer hang outside the world. The coming of climate change requires the transformation of the relationship between imagination

252 Julissa Treviño, 'This Swiss Town Is Protecting Its Glacier With a Blanket,' *Smithsonian.com*, March 12, 2018, <http://www.smithsonianmag.com/smart-news/swiss-town-glacier-blanket-180968451/>.

253 Multiple tales in *One Thousand and One Nights* feature cosmic travel. Other examples include: Lucien of Samosata's 2nd century *Vera Historia*, Bishop Godwin's *The Man in the Moone* (1638), Cyrano de Bergerac's *The Other World: Comical History of the States and Empires of the Moon* (1657) and Voltaire's *Micromégas* (1752).

and actions.²⁵⁴ Already solarpunk has emerged as a subgenre with a dedicated focus—by showcasing renewable alternatives, solarpunk may also be pushing science fiction back in the direction of an earlier role: inspiring thinking about social change and revealing what might be possible. More than a literary category or genre, solarpunk considers itself an aesthetic, a mindset of cautious hopefulness and egalitarian values, an antidote to the pessimism of despairing future visions. Sheryl Vint emphasises the significance of imaginative work in constructing the future:

We are always in the process of making the future through our choices in the present, and there is a relationship between the role of the imagination in envisioning concrete images of the future and the difficult collective work of bringing such futures into being.²⁵⁵

According to the solarpunks.net community:

The aesthetics of solarpunk merge the practical with the beautiful, the well-designed with the green and wild, the bright and colorful with the earthy and solid. Solarpunk can be utopian, just optimistic, or concerned with the struggles en route to a better world—but never dystopian. As our world roils with calamity, we need solutions, not warnings.²⁵⁶

Drawing from philosophies of social ecology, Solarpunk puts forward the optimistic belief that we are not locked into dystopian futures of our own creation.²⁵⁷

New literatures are certain to emerge alongside new technologies, new attitudes, new hope. As James Bradley says: ‘Language and stories are our species’ way of making sense of the world, of ordering its meanings in ways that make them comprehensible, manageable.’²⁵⁸ Anthropocene fiction is always about the future, regardless of whether or not it is set in the present day. It has the marketing advantage, perhaps, of being considered by critics and readers as something other than science fiction or fantasy. Yet as I have demonstrated, it is a recent mutation of generic themes and techniques that SF has explored for decades, a transformation of SF into a different kind of creature capable of addressing our newly troubled times.

Undoubtedly, the coming decades will welcome the generation of myriad forms of ecologically focused, emergent literatures and arts utilising both new and old technologies to promote, enhance and energise movements grounded in positive social

254 Admussen, *Six Proposals*.

255 Vint, *Paradoxia*, 8.

256 ‘Solarpunk: a reference guide,’ Last updated February 6, 2018, <https://medium.com/solarpunks/solarpunk-a-reference-guide-8bcf18871965>.

257 For more information, see: ‘What is Solarpunk?’ *Solarpunk Anarchist*, Accessed May 24, 2018, <http://solarpunkanarchists.com/2016/05/27/what-is-solarpunk/>.

258 Bradley, ‘*Precipice*.’

and political transformations. Just as ecology calls for reform of capitalism, storytelling calls for the expansion of boundaries into frontiers, the pulling down of fences, the retiring of the old, the invigoration of fresh, new perspectives. There is no science fiction anymore, and soon all mimetic fiction will be climate fiction by default. The future is now; all fiction is speculative.

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