Michael Baers

A First Step Towards a Regional Risk Assessment

Preface

Late in March of this year I attended a lecture by Professor Anna Lowenhaupt Tsing at Haus der Kulturen der Welt, where she presented a collaborative project, the Feral Atlas, an online repository of stories about the Anthropocene and how humans and nonhumans together make worlds at scale. In her introductory remarks, she spoke of the demand often put forward by humanist colleagues to tell hopeful stories about the Anthropocene rather than view it as an undifferentiated destructive force slowly approaching a zero hour, a reckoning that will come too late.

In her talk, Tsing spoke of the Anthropocene as "patchy," with development arising in specific places and through specific human interventions, producing unforeseen ancillary effects (a conceptual framework that also structures her recent book, *The Mushroom at the End of the World,* an anthropological study of the international trade in matsutake mushrooms, a delicacy in Japan, that grows in "disturbed" forests). Tsing takes "patch" from "patch dynamics," a term first coined by scientists in the 1940s to describe the interactive structure and dynamics of plants occupying discrete ecosystems, since used by ecologists when referring to the mosaic of heterogeneous, interactive sub-ecosystems found within specific biotopes. In Tsing's usage, "patch" embraces both plant and human interactions resulting from capitalist disruption of natural habitats and modes of production: monoculture cotton farming (with the plantation as a model for industrialization) that transformed the boll weevil from minor nuisance to a major pest throughout North and Central America; or global trade, as in the recent introduction of the parasitic water mold *Phytophthora* from Germany to the Western United States, where it has killed off natural woodlands. The Anthropocene is "patchy" because capitalism directs the long-distance destruction of specific locales; because disturbed landscapes disrupted in the process of capitalist wealth accumulation make humans and nonhumans into resources for investment across scales; because supply chains snake from one capitalist patch to another, necessitating "acts of translation across varied social and political spaces." She terms this process "salvage accumulation," where differing environmental and labor standards are effaced in the process of turning goods into computer-managed inventory, the cornerstone of accounting.[1]

"Patch" may be a useful term to establish a distance from monolithic conceptions of the Anthropocene and capitalism alike (and to refrain from the "crippling assumption" of

Illustration by Rutger Sjogrim used in the original publication of “A First Step Towards a Regional Risk Assessment,” Antipyrene Publishing, 2015.

progress as a single hegemonic current). Yet it is deficient in modeling that other feature of the Anthropocene: climate change. It may be unnecessary to repeat the scientific consensus that a mean temperature increase above 2 degrees centigrade will lead to unpredictable disruptions to the environment – adding a further degree of complexity into an already stochastic world – but the question of how to avoid the most disastrous effects of climate change explicitly involves scalar considerations that pose the specific and the local against the far-reaching and endemic. Thus, absorbed as I was by Tsing's stories of the ways in which global commerce and industrial agriculture remake ecosystems, another part of my mind had cycled back to a question prompted by her introductory remarks: What is this imperative put forward by humanists to tell hopeful stories?

"We tell ourselves stories in order to live," Joan Didion, a writer not known for an excess of optimism, wrote long ago:

> We look for the sermon in the suicide, for the social or moral lesson in the murder of five. We interpret what we see, select the most workable of the multiple choices. We live entirely, especially if we are writers, by the imposition of a narrative line upon disparate images, by the "ideas" with which we have learned to freeze the shifting phantasmagoria which is our actual experience.[2]

Thinking of the news stories that had caught my attention over the course of the past year, this was certainly the case. The wildfires in California and the landslides that followed; the series of catastrophic hurricanes visiting disaster on cities ringing the Gulf of Mexico and Caribbean islands; the mass bleaching events across Australia's Great Barrier Reef; baleen whales slowly starving to death, their bodies tricked into satiation by an overabundance of micro-plastics suspended in the sea; reports of unprecedented and accelerating shrinkage of Arctic winter sea ice; and a single video, widely distributed across the internet, of a starving polar bear loping across the Arctic tundra, perhaps only hours from death – these had melded together in a narrative arc producing a singular vision of ecological collapse, to which my response was, invariably, melancholic paralysis or terror. Whether things will end badly or well, the fact that things *will* end already imposes a narrative line, separating a before from an after, or an inside from an outside.

Tsing's work appears to offer a corrective to this prevailing habit – or at least my own prevailing habit – of viewing climate change through the scrim of eschatological thinking. But this does not prevent the contrary response – to seek out hopeful stories about the Anthropocene – from evading conceptual bias. As much as I understand the wish for hopeful stories Tsing ascribes to her humanist colleagues as, in some sense, a corrective to the terrifying onslaught of the daily news cycle, there is an element of denial in it; a denial as well of that other strand of the Western humanist tradition exemplified by Aby Warburg, who sought with his *Mnemosyne Atlas* to bring to light an encrypted historical memory of trauma in the persistence of gestural motifs transferred from classical antiquity to Renaissance painting, fashioning a model of the mnemonic where even the most limpid depictions of beauty become colored by death and disaster, and, per Benjamin Buchloh, "in which Western European humanist thought would once more, perhaps for the last time, recognize its origins and trace its latent continuities into the present."[3] "The tendency to reproduce the language of gesture in clear outline," wrote Warburg in his introduction to the *Mnemosyne Atlas*, "which only *seemed* to be purely a matter of artistic appearance, led, by its own inner logic, bursting out of its chains, to a formal language that was suited to the submerged, tragic, stoic fatalism of antiquity."[4] Warburg's *Atlas* suggests human resilience and cultural continuity do not function in spite of social upheaval but because of it. For all the other dangers climate change presents to human and nonhuman life forms, it also threatens this repository of past disasters codified in cultural artifacts.

A conundrum appears: the threat presented by the future is also a threat to past recollections of danger and disaster, to the sum total of human experience. Perhaps it is possible, I thought while sitting in the packed lecture hall of HKW, to extend this idea outside the gestural realm of pictoriality. Perhaps a preoccupation with disaster, regardless of scale, is a way of preserving memory against the depredations of those forms of forgetting that secure history for its victors – to brush history against the grain, to borrow Walter Benjamin's famous formulation. Perhaps this preservation begins by salvaging what Sebald called "the recurrent resurgence of images which cannot be banished from the memory, and which remain effective as agencies of an almost pathological hypermnesia in a past otherwise emptied of content."[5] Disaster is infrequently a blameless event. It is the concern of certain cultural producers to return disaster to human cupidity, indifference, malice aforethought, petty self-interest, and so on, as part of this project of brushing history against the grain. Could pessimism be considered a

hopeful form of resistance rather than an ironic means of consigning hopefulness to the immobility of despair?

Amongst the disjointed notes penned during Tsing's lecture, I had written down this phrase: "to grieve and hope at the same time." Perhaps we need to cultivate a notion of resistance indifferent to futility or foreclosure, I thought, including our resistance to those forms of economic exploitation addressed in Professor Tsing's intellectual project that pay no heed to the different unique, particular, non-scalable ways of doing or being threatened by globalized capitalism: to make and do and resist in the face of the near impossibility to alter a disastrous historical trajectory. As I wrote in an unsolicited e-mail I would later send Professor Tsing:

> Your talk reminded me of the example of Jean Améry, how he speaks about the importance of resistance, and its ethical challenge as well. As W.G. Sebald, a writer not prone to an overabundance of optimism, writes: "One of the impressive aspects of Améry's stance as a writer is that although he knew the real limits of the power to resist as few others did, he maintains the validity of resistance even to the point of absurdity. Resistance without any confidence that it will be effective, resistance *quand même*, out of a principle of solidarity with victims and as a deliberate affront to those who simply let the stream of history sweep them along, is the essence of Améry's philosophy."[6] I have tried to keep these words present in my mind and to act in accordance with them, even though I am often discouraged, especially when confronting a topic as difficult and depressing as the Anthropocene. The thought that we are not only confronting the profound and ongoing destruction of the natural world but the possible obliteration of an existential horizon of possibilities is a thought I wrestle with. How can I make art, an activity presupposing human culture as something enduring through time, despite periodic disasters, when that presupposition has been so radically destabilized?

With this e-mail, I attached the text you are about to read (with minimal revisions), developed during a residency at the International Programme for Visual and Applied Artists

Battle of Brunkenberg, artist unknown.

(IASPIS) in Stockholm in the winter of 2013–14, when the discourse on climate change was relatively marginal in artistic circles. [7] It takes its title from a 2012 position paper drafted by the Swedish Civil Contingencies Agency – written at the behest of the EU in an effort to "gain more knowledge on cross-border risks and dependencies among Member States."[8] My text is a peculiar composite – part science fiction scenario set in a notional Stockholm in the year 2040 (an ironic play on a city-boosting publication from 2007, *Vision 2030*, that set out to position Stockholm as the future capital of Scandinavia), part work of citation, and part oral history, extracting from interviews conducted during my IASPIS residency with a heterogeneous group of Stockholm-based activists and researchers.

My original text was motivated by concerns similar to those expressed in my e-mail to Professor Tsing, as well as an intuition felt at the time that the only way to deal with my free-floating anxiety about climate change was to face my fears head on – thus, to ask: What happens to knowledge when it becomes knowledge of the disaster? Its composition was also driven by a curiosity regarding how climate change remediation and disaster preparedness was being approached in a specific national context such as Sweden, a country that has long prided itself (sometimes to an irritating degree) on being eminently sensible. Whatever its blind spots, the Swedish approach stands in stark contrast to the willful ignorance of the current American administration, which has abrogated federal responsibility for climate change by leaving policy on disaster remediation, resiliency, and risk abatement up to individual states and private actors.[9] In contrast, the policy paper authored by the Swedish Civil Contingencies Agency reviews a comprehensive list of "Identified Risks," including not only extreme weather events, but cyber and terrorist attacks, civil unrest, and general societal instability, suggesting possible responses and strategies for risk abatement. Not included in this list, however, were the possibility of an influx of climate refugees, the collapse of international trade, or, less easily calculated, widespread social anomie.

Edmund Husserl writes in his *Cartesian Meditations* that there is "a horizon of the past, as a potentiality of recollection that can be awakened; and to every recollection there belongs a horizon, the continuous intervening intentionality of possible recollections … up to the actual Now of perception."[10] Behind the other intentions motivating my research lay this final question: When deprived of a stable collective horizon of possibility, how will cultural producers react to climate change once they face it as a present catastrophe and not some distant, statistical uncertainty? Will the result be a general state of inanition and withdrawal, or will something of Améry's "resistance even to the point of absurdity" galvanize creators to action, just as the horrors of World War I inspired the Zurich and Berlin Dadaists in their efforts to upend polite society? Admittedly, this question is only briefly addressed outright in the text that follows, although it remains omnipresent on a methodological level, a kind of gravitational force orienting the direction of my thinking.

I would like my piece to be read as pre-apocalyptic epic poetry, conceived somewhere between scavenging and parasitism, gleaning dialectical images from our modern and postmodern detritus. It is an embodied form of "writing the disaster," a notion emblematized in some lines from book three of William Carlos Williams's epic poem *Paterson*, quoted extensively in what follows: "Papers / (consumed) scattered to the winds. Black / The ink burned white, metal white. So be it."[11] It can also be a guide of sorts for negotiating the two forces, stochastic complexity and invariant regularity, that are the two poles around which our comprehension of the contemporary world oscillates.

This narrative about Stockholm's historical past and future is also intended to function synechdocically, standing in for the uncertain, patchy heterogeneity of the future metropolis. It cannot stand for all the environmental challenges different cities or countries will face, and it was never my intention that it do so. Suffice it to say that it was a first step in an exercise of imagining. Other steps necessarily must follow.

– Michael Baers, April 2018

0.

The past above, the future below
and the present pouring down:[12]

During the first days of the crisis at Chernobyl nuclear power station, Valeri Alexeyevich Legasov, deputy director of the Atomic Power Institute, at great personal risk, flew by helicopter over the site to better appraise the situation, passing repeatedly through the radioactive cloud billowing from the wrecked fuel reactor. Legasov's ceaseless efforts during the disaster transformed him into a national hero, but behind the optimistic veneer he maintained while on site, Legasov was deeply disturbed. He had realized the disaster was a sign of deeper systemic problems – in the education of engineers, and in the Soviets' general attitude to

technology. Some months after the accident, Legasov gave an interview to a Moscow paper in which he was quoted as follows:

> It's easy to think or imagine that the enemy is the nuclear reactor. But the enemy isn't technology. I have come to the paradoxical conclusion that technology must be protected from man. In the past, in the time that included the older actors, the time ended with Gagarin's flight into space, the technology was created by people who stood on the shoulders of Tolstoy and Dostoevsky. They were educated in this period of the great humanitarian ideas, in this period of a beautiful and correct moral sense. They had a clear political idea of the new society they were trying to create; one that would be the most advanced in the world.
>
> But already in the generations that succeeded them, there were engineers who stood on their shoulders and saw only the technical side of things. But if someone is educated only in technical ideas, they cannot create anything new, anything *for which they are responsible*. The operators of the reactor that night considered they were doing everything well and correctly, and they were breaking the rules for the sake of doing it even better. But they had lost sight of the purpose, what they were doing it for.[13]

Legasov would play a leading role in the committee formed to address the Chernobyl disaster's long-term consequences. Later, he testified in Vienna before the International Atomic Energy Agency, although on that occasion he did not share his distress over the secretive nature of the Soviet Union's nuclear power protocols. Two years to the day after the accident, he committed suicide.

1.

Stockholm 2040:

When the storm surges come from the east, and the Nacka levee sing its metallic song under the wind's ministrations, an atmosphere of anxiety sweeps over the city, over the glittering city center – Södermalm, Norrmalm, Östermalm, and Gamla Stan – and the outlying suburbs, their skyscrapers rocking in the wind, a wind that cuts through you as if you hardly exist. People read the weather for omens, just as in the age of Classical Greece oracular priestesses crooned over sacrificial doves, divining signs of the future in strings of entrails. When the sky takes on a yellowish cast, and dogs and birds become skittish, people know a storm approaches and think: Will this be the one? The one that upends everything, inundates everything, overwhelms the civil authority's ability to cope and the individual citizen's capacity not to give in to despair?

Everything happens more quickly now. The psychic insulation from natural shocks provided by humanity's technological armature no longer taken for granted, one feels the weather acutely, as an inimical force from which there is no protection. Nobody is sure when disaster will strike, but now it is perceived, in ways difficult to express, as an inundation threatening the interior of the self, an invasion of weather into the core of being.

> a secret world,
> a sphere, a snake with its tail in
> its mouth
> rolls backward into the past[14]

Karin Bradley (assistant professor of urbanism, Kungliga Tekniska Högskolan, Stockholm): If you're supposed to picture a future that is desirable, it becomes, of course, very personal, and maybe also forces one to ask what will happen to existing social problems? When you imagine a future, are you ignoring all society's structural problems? It's important to train yourself in thinking alternative futures, because we don't do that so much. We are taught that we cannot remake the future.

Stockholm 2040:

Sweden has not suffered greatly from climate change. As predicted in a government white paper published in 2007 entitled "Sweden Facing Climate Change – threats and opportunities," Sweden has indeed benefited from longer summers and a corresponding increase in arable land and lumber yields.[15] *Also, as predicted, coastal erosion, flash floods, and storm surges, algae blooms on Sweden's lakes and rivers, and the restricting of the reindeer population to the very north of the country have all come to pass. On the other hand, no one could have predicted the total collapse of the Baltic Sea ecosystem, which by 2030 had turned into a vast acidic sink where jellyfish are the predominant life form.*

Despite the surrounding upheaval, Sweden has become an industrial force, a leader in renewable energy technology, biotech, digital surveillance and encryption, and weapons manufacturing. A tenuous stability has turned Stockholm into a new center of international

Illustration by Rutger Sjogrim.

finance, data storage, and international diplomacy. The most significant change, however, is that which has occurred in the collective psyche of Sweden's population.

2.

If disaster means being separated from the star (if it means the decline which characterizes disorientation when the link is cut with fortune from on high), then it indicates a fall beneath disastrous necessity.[16]

Stockholm 2040:

On sunny days one is dazzled by sunbeams reflecting off solar panels mounted on fifty thousand rooftops. To the east of the city, a ring of giant locks fitted with innovative fuel-efficient reverse-osmosis filters stretch across the archipelago, protecting the integrity of the Lake Mälaren water supply. Weather and social instability have become a twinned threat. The waterfront has been heavily fortified against storm surges, and the city center transformed into a series of gated enclaves where bands of privately contracted security agents patrol the fortifications separating the city center from the outlying areas. Control centers monitor the banks of CCTV cameras that survey the streets with blank, sardonic eyes from atop metal traffic standards.

Stockholm's most privileged citizenry have gradually adapted to these changes, becoming accustomed to the retinal scans required for entry to the center zone and the constant construction work necessary to keep municipal services functional under the pressure of severe winds and storms; just as they became accustomed to periodic shortages in essential goods, power failures, the omnipresent threat of social turmoil lurking just beyond the carefully circumscribed boundaries of daily life. But despite the sensation of something having become tenuous and provisional in the sphere of the everyday, the streets are still crowded with shoppers patronizing cafes and restaurants, clothing boutiques and retail outlets selling computer gadgetry and the latest in personal security hardware. Something of social life continues, unaffected by the vagaries of social transformations, but something has also changed, made brutal and strange in the face of contingent circumstance.

In the suburbs, too, life carries on, provisionally. Kitchen gardens have sprung up on every rooftop, in the courtyards, the median strips along sidewalks and roadways. Goats are kept in the courtyards of apartment blocks or forage in the outlying strips of forested area. But people ask: Where is the state? Self-organized militias augment a feeble police presence, municipal services are scant and irregular, and in the vacuum created by this withdrawal, self-governance has become the rule.

Owen Gaffney (director of communications, International Geosphere-Biosphere Program): After the IPCC (the Intergovernmental Panel on Climate Change) produced their 2007 report, one of the big gaps identified was in the way it handled future scenarios, and some problems with how they did it in the past.[17] They sent out a challenge to the scientific community to improve those scenarios, to work out what would be more policy relevant and more practical for the scientists … For a whole load of reasons, the scenarios that were created made it difficult for a lot of scientists from different disciplines to work logically on them to produce useful results.

So the IPCC asked the IGBP and the World Climate Research Program to coordinate a new initiative. We created a series of four scenarios, called the "Representative Concentration Pathways" – RCPs.[18] And in our work, we tried to model some different emission scenarios. What would the climate look like in the future? We had a high-emissions future – business as usual – two medium-emissions futures, and one very low-emissions future that, in fact, involves taking carbon dioxide out of the atmosphere somehow. And this low-emission future is the scenario we need to get on if we want to reach the two-degree target. So when the latest report came out last September, it had these new RCP's in them. Since those emissions scenarios came out, the IPCC was able to use them to show what the impact would be on the global climate over the next hundred years.

One of the worrying things about the scenarios is that the higher emissions scenarios were deemed by the scientists and the policy makers who created them to be the maximum; we would not be able to go higher than that. Since they were developed – four or five years ago now – the world is actually charting above them year by year. We are actually going above what was said to be the highest possible scenario. That's deeply concerning for the scientific community … that there's no political change and in fact emissions are growing, not reducing.

To read what was never written.[19]

Isadora Wronksi (nuclear coordinator, Powershift Europe, Greenpeace): The European Union was doing their 2050 scenario.[20] They had decided that we need emission cuts in the frame between 80–95 percent reductions to 2050, and then they started a process to look into what kind of scenarios can we look at in order to achieve those emission reductions. So they looked into five different scenarios and one reference scenario. And also Sweden was looking into doing a 2050 scenario for itself, so we wanted to feed into that process and show that a 100 percent removal system is possible. You can't say it's impossible just because you don't want to calculate it.

Karin Bradley: Every fourth year Stockholm has a large survey of what they call "environmental behavior." They have sixty different questions about what you do in terms of being related to the environment. And these questions deal with lots of details about exactly what material you recycle, how you get to work, whether you buy ecological products, whether you buy fair-trade products, how much time you spend in nature, etc. But there are no questions about your overall consumption level – no questions about air travel, which is strange. If you're looking at ecological footprints, *that* is a big thing. And nothing about the size of housing – how large your house is. It's rather what kind of heating you have in your house. All of these factors that are actually the biggest part of an ecological footprint – size of housing, consumption, and air travel – are not even looked at. I think if you have a consumption-based perspective, then that also leads you to look particularly at high-income groups, because there's a statistical link between income and emissions or resource use. You can see that in the national statistics: higher income correlates with more consumption, more transportation, more everything.

And if you consider the rise in terms of consumption levels, imported goods, and flying, then we have increased the amount of emissions in the last ten years. In the official politics we say we have "decoupled" our economy, we have both had economic growth and less greenhouse gas emissions. But, I mean, we haven't. That's simply not true. It depends on how you calculate.

This is how the reporting system is. It's not only Sweden; it's the whole UN system that needs to be changed.

3.

Tor Lindstrand (architect, assistant professor, Kungliga Tekniska Högskolan): If there will be bigger shifts in catastrophe, what will happen eventually is that the city will fortify itself. First there's a surge and then there's a cleansing movement.

One of the oldest documented fires to ravage central Stockholm occurred on April 14, 1297. Conflagrations then erupted in 1330, 1344, 1407, 1411, 1419, 1445, 1458, and 1495. The cause of a 1407 fire was said to be lightning strikes. Sources claim it caused sixteen hundred deaths.[21]

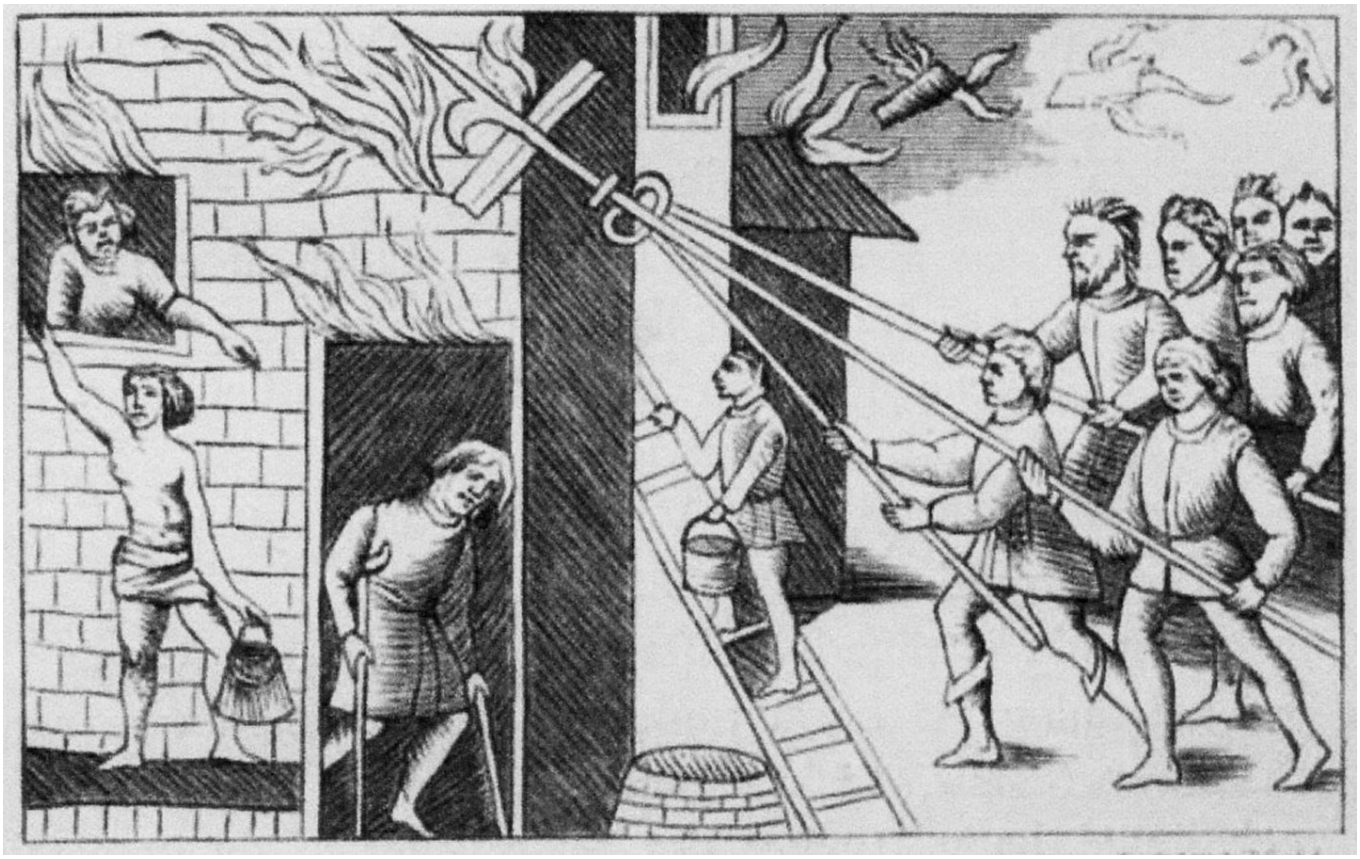
Beautiful thing
– the whole city doomed! And
the flames towering[22]

After 1501, no wooden houses were allowed within the city walls. In 1552, the ban against fire hazards was tightened – wooden houses in the town center were demolished and replaced with stone structures. However, flammable wooden buildings remained in all the yards.

In 1555, a fire started by burning pitch at the new fort along the shore on Stadsholmen's west side destroyed all the houses from the Great Gråmunkegränd to Kornhamnstorg, just outside the city wall. Citizens had to run clear to the east side of Stadsholmen to collect water.

Ah!
rotten beams tum-
bling,
an old bottle
mauled[23]

Aaron Malthais (postdoctoral fellow, University of Stockholm): Politically, we're not really very good at dealing with these slow-onset, long-term problems. When we think about the nature of the problem of climate change, people often describe it as a "super-wicked problem." This is a technical term in political economy and economics. They're basically talking about the incentives that actors face, and that there's a combination of incentives … Climate change has this characteristic that you need to make large cuts in greenhouse emissions now to have a positive effect quite far into the future. And once you're



Ol. Magni, *Eldsvådor, c.* 1500s. Photo: Wikimedia Commons

having large climate effects, at that point you're not able to improve your situation by making large cuts in emissions. So any time you make large cuts in emissions, those benefits largely land in the future, and that's just a basic structural problem in dealing with this kind of environmental threat.

Karin Bradley: Stockholm claims that it has decreased its greenhouse gas emissions. Basically, the official story is that we are on a very good track, we have solved *all* environmental problems, the world should look at us; we're well on the way to being fossil-fuel free, which is not true at all. There is some kind of idea about being the best in the class – general equality, most things, somehow. And if you listen to most of the politicians, they say, "Yeah, Sweden's really a forerunner in terms of environment. Now it's about helping others, and this clean development mechanism." We want to make investment in green technology in other countries, but don't see that we actually overconsume resources.

4.

Stockholm 2040:

Air traffic from the Arlanda, Nyköping, and Bromma airports is a fraction of what it once was. One no longer hears the familiar roar of jet turbines passing overhead, commercial jet traffic having been outlawed in 2035. The hybrid solar/hydrogen fuel cell gliders that have replaced the outmoded jet fleets remain prohibitively expensive, restricting air travel to all but the very affluent. In any case, there are fewer reasons to travel and fewer places to travel to, the population of continental Europe having been reduced by a third due to famines following a series of catastrophic crop failures. The EU still nominally exists, although the mobility promised by the Eurozone and the Schengen agreement have turned out to be a temporary aberration to the normative urge of states to control their borders. Greece, Spain, and Portugal left the Euro in 2019. The Schengen agreement was modified, reinstating border controls not long after, an attempt to control northerly waves of migration from a beleaguered southern Europe and beyond ...

As the weather becomes increasingly unpredictable, regional conflicts multiply, usually stemming from disputes over shared natural resources, or the expropriation of resources from adjacent territories. No industrial production is entirely free from the ethical taint of warfare.

Karin Bradley: Sweden has a lot of non–fossil fuel energy sources – water and our three nuclear power plants. What we don't think of when considering nuclear energy is that it's dependent on imports of uranium. And to expand solar energy, you need silicon, and rare earth metals for wind power and wind power shields. So a lot of the green technologies are reliant on scarce resources that at some point will become unavailable. For instance, rare earth metals are found in China and they're restricting their exports because they need it themselves.

Now we're thinking that basically we could keep the same kind of lifestyle but replace the energy sources and the materials.[24] I think we need to think about reduction, too.

But I think it's very unclear what to do about this. Because then you come into very difficult questions, since our whole economic growth is very much reliant on increasing consumption, and if you look at where the new jobs are created, a lot of them are within retail. So, to get people to consume is important for the whole economy but also for jobs in the retail sector. Some would argue that, okay, we can have a more service-based economy. But even though we have a lot of service jobs, material-goods consumption has gone up as well. It's not that easy to have an economy based only on services.

There are two sides to each man's life: his personal life, which is the more free the more abstract its interests, and his elemental swarmlike life, where man inevitably fulfills the laws prescribed for him.[25]

Isadora Wronski: Throwing away thirty percent of all food, that's not very resource effective.[26] Taking up huge amounts of land in Brazil, planting soya beans, feeding them to European cows, and then throwing away the milk or meat ... We need to take an even bigger systems perspective. In the end the approach that is needed is internalizing the costs, that you have a product pay also for the emissions it's producing, because in the end the society and the taxpayer will have to pay for the harm those emissions will cause. Then you will see a completely different price for that item than if its cost had been determined only by production

costs … We need to see the *actual* production cost.

5.

Stockholm 2040:

In 2045, military patrols guard the southern borders of Belgium, Germany, and Poland, partially financed by the Scandinavian countries, who have come to view Western and Central Europe as a first line of defense against migration. Despite these attempts, fortress Scandinavia could never be more than a dream. Immigrants still attempt the passage across the Baltic Sea in converted fishing trawlers run by gangs of coyotes operating along the Baltic coast, hoping to join the throngs crowded into shantytowns on the outskirts of Stockholm's suburbs.[27] *Here one can find representatives from nearly every country on the planet. And whereas in the world of 2014, the distinction between developed and underdeveloped worlds was a function of geography, today one finds the latest technological innovations alongside practices going back millennia: electric cars share the streets with rickshaws and donkey carts; inner-city apartments come equipped with computer systems monitoring every aspect of the domestic environment while a few kilometers away, clothes are washed by hand in scavenged plastic tubs.*

These new shantytowns nourish a burgeoning informal economy retaining something of the appearance of a global bazaar. Population groups have reconstituted themselves in miniature, configuring the favelas as an archipelago of tiny ethnic islands – Gambians next to Tamils, Bangladeshis abutting Mongolian tribesmen. Different peoples bring with them their traditional foods, religious practices, and modes of social organization. In kitchen gardens are grown fruits, vegetables, and medicinal plants that fifty years ago could never have grown in Sweden's mild summer weather, and people trade and barter fresh produce and scavenged goods, while tradesmen like electricians and plumbers (many of whom trained as engineers and architects in their native countries) occupy a privileged place in the social hierarchy.

A profusion of religious practices flourish and intermingle in a syncretistic orgy of heterodoxy. Ecstatic Christian millenarians join in prayer with Central Asian shamans, West African voodoo practitioners, Sufi dervishes. In Gamla Stan it is rumored that in the favelas magic is practiced as commonly as personal hygiene, a fact confirmed by a team of anthropologists hired by the city of Stockholm, some of whom fell victim to mysterious ailments in the course of their research. But despite the risk, efforts to infiltrate the favelas' complex social structure continue, as they have become essential to Sweden's industrial and agricultural sectors, an important reservoir of surplus labor. After the contraction of mainland China's industrial output following widespread ecological failure and a series of catastrophic famines (African states having long ago expropriated China's agribusiness colonies), domestic industrial output has, for the first time in generations, assumed a prominent role in the Swedish economy. Emergency orders, drawn up long ago and continuously extended, allow laws governing industrial labor to be habitually suspended on account of "extraordinary circumstances." Extraordinary conditions have become the norm. This has led to the resumption of labor conditions not seen in Scandinavia since the nineteenth century.

Periodically, labor agitation sweeps through the shantytowns – sit-down strikes and walkouts, demonstrations where shamans cast spells to defeat the industrialists and mullahs oversee hit-and-run attacks against the city-center defenses. This has led to a protracted cat-and-mouse game between émigré labor organizers, their allies on the Swedish left, and the intelligence forces of the combines who effectively control domestic industrial production and maintain their own private police force.

Karin Bradley: As the current welfare system is constructed, if Sweden were to accommodate really large shares of climate refugees, you would need to reform the economic and welfare system. There are those who argue that the welfare system will be put under so much stress that at some point there won't be a welfare system, which is not that strange.

I think of course for many people who come as immigrants or refugees to Sweden, either they *must* flee or they seek a better life. But the reason for that is often because they can't find a good enough life where they live … It's not that people dream about the *goods* so much necessarily.

And of course there are also these scenarios that maybe the Gulf Stream will change its course, which could then make Sweden very, very cold, a less desirable place even for native Swedes.[28]

6.

The past haunts the present; but the latter denies it with good reason. For on the surface

Illustration by Rutger Sjogrim.

nothing remains the same.[29]

From 1397 to 1523, Danish and Swedish forces battled for control of Sweden. Possessing Stockholm was crucial to this enterprise and various Swedish/Danish factions regularly besieged the city. In 1471, Sten Sture the Elder defeated Christian I of Denmark at the Battle of Brunkeberg, losing the city twenty-six years later to Hans of Denmark. Sture managed to seize power again in 1501, and a lengthy Danish blockade ensued.

In January 1520, Hans's son, Christian II, backed by a mercenary army of French, German, and Scottish soldiers, again besieged the city, felling the regent Sten Sture the Younger, who was unceremoniously dragged from his horse and pierced through the chest by a lance as he lay squirming on the ice of Lake Mälaren.

Hastily gathered in Uppsala, leaders of the Swedish nobility quickly agreed to capitulate, provided amnesty was granted Christian's political opponents.

Meanwhile, Sture's widow Dame Kristina Gyllenstierna had regrouped the remnants of her army, defeated by the Danes at the Battle of Uppsala, behind Stockholm's city walls. The Danish forces, camping outside the city gates, waited for the Danish fleet's return. In May, Stockholm finally was encircled from land and sea. For four months Dame Kristina's forces rebuffed the Danes, until in the fall, Christian, wearying of the protracted siege, delivered a proposal offering advantageous terms in exchange for the city's surrender, swearing all acts against him would be forgotten. Gyllenstierna herself was enticed with the offer of a large fiefdom.

After a document agreeing to these terms had been drafted and signed, Stockholm's mayor handed Christian the keys to the city and his forces marched through the city gates as the assembled citizenry watched in silence. He then sailed back to Denmark.

> **Aaron Malthais:** Something people are talking about now concerns a philosopher named John Broome, who is one of the lead authors at the IPCC. He has this idea – it's not part of his IPCC work – where he says, "Well, basically we're creating an externality when we pollute the atmosphere, and that creates costs on future generations and this current generation takes the benefits." His idea is we could borrow from the future to finance reducing emissions today.[30] And there are various proposals about how you could do that, various ways of taking on national debt, but especially changing behavior. We could work less so we would also pollute less, and we could consume more low-carbon types of natural goods and use less fossil fuel. We could invest less in buildings and roads and more in new energy sources, and so on. We could try to make this transition in a way that would not really affect our welfare that much.
>
> Now, that raises this question: Is it legitimate to borrow from the future to finance not imposing this environmental problem on them? Some people say: well, yes, it's not only legitimate but that's the way it should work, because the future is going to be richer than us. So it's a kind of cost-benefit analysis. (They have this assumption that they're going to be richer than us!) And some people say, well, it's not really the best, it's kind of like extortion, but given that we're having such a hard time getting political action now, maybe this is really a good strategy. It's a way to do something. It's not the nicest thing, but on the whole, it's a good second-best option.
>
> And my reaction to this idea: I just doubt we can borrow from the future in that way.

In this sense, the past devours the future.[31]

> **Aaron Malthais:** So, the worry is that no generation has a strong enough self-interest to cut emissions, because they're not able to alter the climate change they'll experience over their lifetimes to a very significant degree. And the worry is that if, let us say, this generation – the decision-makers, the adult taxpayers – doesn't invest heavily in mitigation, then our children and their children will come and think, "Wow, this is really terrible, they didn't have our interests in their political decisions" ... and so forth. But they will be faced with the same kind of decision we have, that we didn't invest because it wasn't going to make a large difference to our lives. And when they're sitting there with a bunch of climate impacts, they'll have to deal with them, of course, but they'll be faced with the same question: "Do we invest heavily in mitigation and cutting greenhouse gas emissions, or we do invest in adapting to these climate problems we're facing now? Because the investments we'll make in mitigation, that's not going to help us that much it's going to mostly help people in the future."

On November 4 1520, pro-unionist archbishop Gustavus Trolle (whose fortress at Stäket had previously been besieged by Sture the Younger's troops) crowned Christian II of Denmark king inside Stockholm's *Storkyrkan*.

Christian's celebratory banquet lasted three days. On the evening of the third day, he summoned a group of Swedish leaders to a private conference at the palace. It lasted through the night and into the next day. That evening, as the invited guests suffered through another meal, Danish soldiers entered the great hall of the royal palace, removing several noble guests. Several hours later, more guests were led away. The following day, a council headed by Trolle began charging the Danish king's political enemies with heresy. By noon, the anti-unionist bishops of Skara and Strängnäs were being led out to the *Stortorget*, where a raised platform had been erected. The executions continued throughout the day: chief executioner Jörgen Homuth counted eighty-two killings in all.

When Gustav Vasa conquered the city three years later, he noted that every second building in Stockholm was abandoned.

> (so close are we to ruin every day!)[32]

> **Aaron Malthais:** And so you can see how each generation gets stuck in this motivational problem, and so the real worry is that we'll be perpetually in this situation of delay that is, of course, bad for humanity as a whole, but for each generation makes sense in terms of their own time perspective.

7.

The disaster is related to forgetfulness – forgetfulness without memory, the motionless retreat of what has not been treated – the immemorial, perhaps. To remember forgetfully: again: the outside.[33]

Stockholm 2040:

The changes to the environment have above all affected distinctions between inside and outside, interiority and exteriority, the endogenous and exogenous – between the natural world and the impulses of the central nervous system; between Stockholm and its surrounding zones; between Sweden, its regional neighbors, and the world at large. It is not that distance had been abridged, but that the magnitude of catastrophe has created its own collapse, as if the wind itself could transport the residue of distant events directly into the city. This is how it feels. Weather and its ancillary effects have no conception of national boundaries. Whatever Stockholm does to mitigate new climate risks, the possibility remains that these measures will be insufficient.

> **Karin Bradley:** I've been thinking a lot about urbanization, because the mainstream discourse is that Stockholm will continue to grow, while smaller towns in the countryside are losing people and that will just continue, like it's a natural law. I'm not sure of this, because as David Harvey has shown, urbanization and capitalism and economic growth are different sides of the same coin.[34] If you had a serious economic crisis, you might also see a de-urbanization process beginning. Some researchers like Richard Heinberg argue that everything today is reliant on cheap fossil fuels.[35] In addition to relying on fossil fuel, industrial agriculture relies on phosphorus as well. I don't know if we've seen peak phosphorus or are close to it, but when the price of phosphorus rises, so will fertilizers. Large-scale agriculture will not be as profitable as before. He argues that within fifty to hundred years we'll see a process of ruralization, actually. People will have to live closer to the land … You'll need more manpower in food production.
>
> I think, in fact, there's something risky in losing all these skills and knowledge about how to produce food. And not only food but basic crafts – knitting, doing practical things. It's very important to keep it alive somehow, even though we'll not necessarily be self-sufficient. Now I think these skills are being forgotten and it's gone quite fast really. It's a difficult process to reverse once its begun.

8.

The disaster: stress upon minutiae, sovereignty of the accidental. This causes us to acknowledge that forgetfulness is not negative or that the negative does not come after affirmation (affirmation negated), but exists in relation to the most ancient, to what would seem to come from furthest back in time immemorial without ever having been given.[36]

Stockholm 2040:

Long ago, the Swedish Civil Contingencies Agency released a document on risk assessment which contained chapters on the following subjects: floods, landslides, storms, earthquakes and volcanic eruptions, solar storms, heat waves, forest fires, vermin infestation (pests), infectious

disease outbreaks, resistant bacteria and resistance to antivirals, disruptions in the supply of medicines, risks associated with nuclear and radioactive materials, risks associated with chemicals, dam failures, disruptions to food and drinking water supply, extensive fires in buildings and tunnels, disruption in electronic communications, disruptions in energy supplies, disruptions in payment systems, oil spills, disruption of transport and major transport emergencies, terrorism, cyber-attacks, risk of societal instability and civil unrest.[37] *This list is now updated on a routine basis and new chapters are added according to circumstance.*

As a meditative practice, people have been known to browse through the report on their digital readers, trying to imagine in the mind's eye the different scenarios. Again: the outside.

In 1710, refugees from Livonia and Estonia fleeing the Great Northern War brought a ferocious strain of plague to Central Sweden. By June it had arrived in Stockholm, most probably via a ship from Pärnu. The Collegium Medicum denied there was a plague outbreak for another two months, despite buboes being visible on the bodies of victims from both ship and town.

The plague continued for a year, primarily affecting women and children in the poorer quarters outside the Old Town. "They died by the hundreds, both day and night, and all were thrown in ditches and covered with earth," wrote a Stockholm merchant. "As soon as those ditches were filled, more were dug. So many died that all believed it was the end of the world. And I, Magnus Brandel Norling, buried my five children with my own hands." Another Stockholm chronicler wrote: "The condition of the people was pitiable to behold. They sickened by the thousands daily, and died unattended and without help. Many died in the open street; others, dying in their houses, made it known by the stench of their rotting bodies. Consecrated churchyards did not suffice for the burial of the multitude of bodies, which were heaped by the hundreds in vast trenches, like goods in a ship's hold and covered with a little earth."

From Stockholm, the plague began to spread in late summer to other places in Uppland. The court was hurriedly evacuated to Sala, the *riksrådet* to Arboga a month later. From Uppland, it spread southward with equally devastating effect. People cast about for a cause: Was it the foul mists, or did domestic animals transmit the disease? Orders were promulgated forbidding peasants and burghers from keeping livestock inside the towns, and an abundance of stray pigs that thrived on the garbage discarded in the streets were killed. People fled to the surrounding countryside, and in the towns, trade in linen and woolen goods was suspended, or they lit huge bonfires in hopes of driving off the bad air.

> The night was made day by the flames,
> flames
> On which he fed – grubbing the page
> (the burning page)
> like a worm for enlightenment[38]

9.

The "climate change sublime," a contemporary manifestation of eighteenth-century philosopher and politician Edmund Burke's Enlightenment-era cross-referencing of aesthetic experience with physiological affect:

> The passion caused by the great and sublime in nature . . . is Astonishment; and astonishment is that state of the soul, in which all its motions are suspended, with some degree of horror. In this case the mind is so entirely filled with its object, that it cannot entertain any other.[39]

Stockholm 2040:

Something is out of kilter. The seasons still pass, one after the other, but those old enough to remember what weather was once like, despite its stochastic variations, react to an unidentifiable haze in the air, or an exceptionally hot summer day with horror, as another proof of nature knocked irreversibly askew. Horror, terror, panic. Some people react by deadening their awareness of the experience of the external world, keeping to controlled environments, focused on screens. Others develop a hypersensitivity to external stimuli so that every abnormal occurrence – birds singing too loud, birds entirely still; a gust of wind, a sudden, violent rainstorm; an unexplained clamor, an unnatural calm – is taken as a harbinger of the coming disaster.

In his *Outline of a Theory of the Emotions*, Jean-Paul Sartre differentiated between horror, which occasions feelings of revulsion, a contraction inward, and terror, which on the other hand is characterized by a feeling of radical exteriorization, of being "invaded" by the external world – a sudden collapse of distance between inside and outside. This distinction was first made by the Romantic-era writer Ann Radcliffe, who characterized horror as an unambiguous reaction to atrocity, while connecting terror to "obscurity" or indeterminacy in our reaction to potentially horrible events that expand the soul and awaken the faculties – an indeterminacy leading to the sublime. Burke had written earlier:

> With regard to such things as affect by the associated idea of danger, there can be no doubt but that they produce terror, and act by some modification of that passion; and that terror, when sufficiently violent, raises the emotions of the body just mentioned, can as little be doubted. But if the sublime is built on terror, or some passion like it, which has pain for its object; it is previously proper to enquire how any species of delight can be derived from a cause so apparently contrary to it.[40]

Herein lies the sublime's ambivalence: awe and aesthetic appreciation are prompted by the very thing that terrifies, as if Freud's repetition compulsion could be displaced onto aesthetics. Something of this is apparent in the futurists' aesthetic appreciation of World War I's depravities – the smoke and noise, the blinding speed of munitions, and the white light of explosions. Something of this is apparent in our morbid fascination with the visible evidence of the climate's unravelling.

Burke has come down to the twenty-first century as a conservative philosopher, a traditionalist – a vocal opponent of the French Revolution who, by the time he wrote *Reflections on the Revolution in France*, had transferred what was once a nonmoral analysis of aesthetic categories (because, as David Bromwich writes, "they were planted in us, we could not imagine human life without them, and to call them good or bad would be superfluous").[41] His response to revolution comes down to us in our horror when the beautiful things of the past are threatened with ruination, no matter their iniquitous origin. His appreciation of the sublime comes down to us in our awestruck reaction to glaciers calving enormous icebergs, despite the awareness such events lead directly to sea-level rise.

10.

Stockholm 2040:

And what of Stockholm's artistic community – the theorists, curators, and artists, with their training in aesthetic sensitization – how will they react to the climate change sublime? Will Stockholm's artists and culture workers respond to environmental and societal pressures with radical engagement, retreat into solipsistic fantasies of denial, or, in the face of an abiding existential uncertainty, lose faith in the artistic project altogether? These are predicaments both practical and philosophical in nature. Stockholm's art scene persists at a greatly reduced scale, and in the face of the diminished social currency of cultural heritage. A smattering of public and private galleries remain in Stockholm's center zone, while the city's two art schools, Konstfack and Kungliga Akademien för de fria konsterna, operate with a reduced faculty and a greater emphasis on applied arts and design. After graduation, Swedish artists are confronted with degrees of financial instability not seen since the Great Depression, but according to the sociologists who have studied the matter, the level of psychological resiliency within the artistic community echoes that of the broader population. As in every era, some artists remain sequestered in their ateliers, some give up art altogether for reasons of economic necessity or psychological despair, and some seek patronage from the government or from tech, environmental-remediation, and risk-management companies. Others have joined the exodus from the city to alternative communities in the countryside – who eke out a living from the soil, and by resuscitating handicrafts and local folk traditions – or by uniting in small scavenger collectives to occupy vacant buildings in the city center, living off the refuse of the affluent. Others have adapted the communication skills learned in art school to labor and environmental activism in the suburbs and shantytowns – the latest incarnation in a long tradition of radical negation, practicing art as a strategy of withdrawal. Yet others have chosen a middle path, continuing to operate within the "official" art system while joining secret clandestine societies that make common cause with radical groups to undermine the prevailing "technocratic inclination" keeping the city's surface normalcy in place.[42]

Twenty-five years earlier, a Berlin-based researcher had written, "In confronting our possible futures, whether for artists or the broader society, there is a negotiation I continually find myself making between an anticipated and a hoped-for outcome. The problem is this: on the one hand, no one who really thinks about it would advance chaos and social disintegration as a desirable future. On the other hand, there are so many patently unsustainable aspects of present-day society that I find myself resistant to positing its continuation as desirable." Having forsaken an image of the "good life" as a possible telos for artistic projects, most of Stockholm's artists in the year 2040 find themselves in an ambivalent negotiation between utopianism and bricolage, scavenging in the debris of the present moment to construct a vision of a future anterior, wondering all along whether their efforts will suffice.

11.

Those of us who have not lived through war or known hardship suppose something vaguely resembling the present will continue indefinitely. Trained by cinema and television, we cannot imagine a world where disaster – whether

natural or man-made (here including the realm of politics as a category of the catastrophic) – do not follow a narrative arc but follow one after the other, without resolution, like an occupying army who first harass then ultimately exhaust a civilian population. We cannot imagine this world for, at least those of us in the West (although many elsewhere know all too well the predicament of being caught up in endless conflict and its attendant miseries), have not lived through such protracted periods of chaos, the sort of degradation described by C. V. Wedgwood in her history of the Thirty Years War:

> In ten years of war, more than half the empire had borne the actual occupation or passage of troops, the immediate disaster leaving a train of evils behind – disease among the cattle, famine for man and beast, the ineradicable germs of plague. Four bad harvests in succession between 1625 and 1628 added their burden to the tale of German misery. Plague took terrific toll of the hungry people and wiped out whole encampments of wretched refugees. … In Tyrol in 1628 they ground bean stalks for bread, in Nassau in 1630 acorns and roots … The harvest of 1627 on the banks of the Havel had promised well, but retreating Danes and pursuing imperialists destroyed it.[43]

If something like a climate change sublime exists, it would be a crystallization of the terrifying capacity of nature to overwhelm human subjectivity.

History as the ruin of nature could not be given meaning.[44]

What sort of person will the future deliver? What sorts of stories will be told, what coalescence of forces will push people into conflict or cause them to align in pursuit of a common project? To read what was never written is to divine a future anterior. Without risking the dark alterity of difference, we cannot imagine a world shaped according to a better set of principles than those currently in play – principles in line with Legasov's "beautiful and correct moral sense." Instead we are living history as a phenomenon in which a multitude of persons are driven "to fulfill the will of isolated and weak men and be brought to that by a countless number of complex, diverse causes."[45]

> **Owen Gaffney:** One of the problems with the international assessments on climate change, for example, if we carry on business as usual, sea level might be forty-eight centimeters to eighty-five centimeters higher than presently. But it's not going to stop there. The thing is, they only looked to 2100; sea-level rise is going to continue past that. And if emissions continue, we get into hitting danger zones, potentially destabilizing elements of the earth's system, creating feedback loops that accelerate the change.
>
> These are the big worries. Policy-makers say, well, we need to know what's going to happen in the next ten, twenty, thirty years – that's what's relevant to policy-makers. But the scientists are saying, what's relevant to humanity is this huge long-term shift that the human race is going to have to face, including policy-makers. Policy-makers will minimize economic losses if they deal with climate change now. But there's a huge disconnect.

We are failing in our effort to imagine, much less construct, a viable future world.

If we were to withdraw our faith in endless technological fixes, perhaps we might then surrender ourselves to the necessary dimension of myth in our efforts to imagine a world that has not yet come into being. This might be our last tool in confronting the future.

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1
Anna Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton University Press, 2015), 62.

2
Joan Didion, *The White Album* (Simon & Schuster, 1979), 11.

3
Benjamin H. D. Buchloh, "Gerhard Richter's Atlas: The Anomic Archive" *October* 102, no. 88 (Spring 1999): 122.

4
Aby Warburg, "The Absorption of the Expressive Values of the Past," trans. Matthew Rampley, *Art in Translation* 1, no. 2 (2009): 282.

5
W. G. Sebald, *On the Natural History of Destruction*, trans. Anthea Bell (Penguin Books, 2004), 153.

6
Sebald, *On the Natural History of Destruction*, 159. Speaking of Maurice Blanchot's irony with respect to a categorical faith or trust (*confiance*) in language, Ann Smock writes in her introduction to *The Writing of the Disaster* that it is a defiance – distrust – "*of* language, situated *in* language, which finds within itself the terms of its own critique." Maurice Blanchot, *The Writing of the Disaster*, trans. Ann Smock (University of Nebraska Press, 1995), vii.

7
My text was subsequently published in Swedish as part of the book *Reform*, a collaboration between publik (Copenhagen), Bergen Kunsthall, Konsthall C (Stockholm), and Antipyrene Publishing in Aarhus.

8
As Director General Helen Lindberg phrased it in the foreword to *A First Step Towards a National Risk Assessment* (MSB, 2011), 3.

9
In his 2018 budget blueprint, Trump has proposed a $600 million cut to the budget of the Federal Emergency Management Association (FEMA), even as the sixteen extreme weather events visited upon the United States in 2017 affected 47 million people and cost an estimated 300 billion dollars. See Ron Nixon, "Trump's Leader for FEMA Wins Praise, But Proposed Budget Cuts Don't," *New York Times*, July 21, 2017 https://www.nytimes.com/2017/07/21/us/politics/trumps-leader-for-fema-wins-praise-but-proposed-budget-cuts-dont.html.

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Edmund Husserl, *Cartesian Meditations: An Introduction to Phenomenology*, trans. Dorion Cairns (Martinus Nijhoff, 1960), 44, 45.

11
William Carlos Williams, *Paterson* (New Directions Paperbook, 1963), 117. Ann Smock, again, in words that succinctly encapsulate the difficulty of putting down in words our possible future: "'The writing of the disaster' means not simply the process whereby something called the disaster is written – communicated, attested to, or prophesied. It also means the writing done by the disaster – by the disaster that ruins books and wrecks language. 'The writing of the disaster' means the writing that the disaster – which liquidates writing – is, just as 'knowledge of the disaster' means knowledge as disaster, and 'the flight of thought' the loss of thought, which thinking is." Blanchot, *The Writing of the Disaster,* ix.

12
Williams, *Paterson*, 144.

13
My italics. This episode is recounted at the conclusion of episode six ("A is for Atom") of Adam Curtis's BBC series *Pandora's Box*. For the full text of the interview, see https://archive.org/stream/DTIC_ADA350993/DTIC_ADA350993_djvu.txt.

14
Williams, *Paterson,* 214.

15
See http://www.government.se/sb/d/574/a/96002.

16
Blanchot, *The Writing of the Disaster*, 2.

17
See http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm.

18
See http://www.igbp.net/news/features/features/oneplanetfourfutures.5.1b8ae20512db692f2a680002917.html.

19
Line jotted down in my notebook during a talk by W. J. T. Mitchell.

20
See https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/2050-energy-strategy.

21
All historical information on Stockholm is from Wikipedia and other carefully vetted online sources.

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Williams, *Paterson*, 116.

23
Williams, *Paterson*, 117.

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Gregor Peter Schmitz, "Europe to Ditch Climate Protection Goals," *Spiegel Online*, January 15, 2014 http://www.spiegel.de/international/europe/european-commission-move-away-from-climate-protection-goals-a-943664.html.

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Leo Tolstoy, *War and Peace*, trans. Richard Pevear and Larissa Volkhonsky (Vintage Books, 2007), 605.

26
Rebecca Smithers, "Almost half of the world's food thrown away, report finds," *The Guardian*, January 10, 2013 http://www.theguardian.com/environment/2013/jan/10/half-world-food-waste.

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See http://en.wikipedia.org/wiki/Environmental_migrant and http://climatemigration.org.uk/report-summary-climate-refugees-legal-and-policy-responses-to-environmentally-induced-migration/ and http://www.unric.org/en/latest-un-buzz/28883-the-invisible-climate-refugees.

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Damian Carrington and John Vidal, "IPCC climate report: the digested read," *The Guardian*, September 27, 2013 http://www.theguardian.com/environment/2013/sep/27/ipcc-climate-report-digested-read .

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Susan Buck-Morss, *The Dialectics of Seeing* (MIT Press, 1991) 292.

30
John Broome, "The Ethics of Climate Change: Pay Now or Pay More Later?" *Scientific American*, June 2008 http://www.scientificamerican.com/article/the-ethics-of-climate-change/.

31
See Norman O. Brown, *Life Against Death* (University of Wesleyan Press, 1985), 262–72.

32
Williams, *Paterson*, 45.

33
Blanchot, *The Writing of the Disaster*, 3.

34
David Harvey, *The New Imperialism* (Oxford University Press, 2003). See also Jason W. Moore, "Ecological Crises and the Agrarian Question in World-Historical Perspective," *Monthly Review*, November 1, 2008 http://monthlyreview.org/2008/11/01/ecological-crises-and-the-agrarian-question-in-world-historical-perspective.

35
See http://en.wikipedia.org/wiki/Richard_Heinberg.

36
Blanchot, *The Writing of the Disaster*, 3, 4.

37
See https://www.preventionweb.net/organizations/4466/view.

38
Williams, *Paterson*, 117.

39
Edmund Burke, *A Philosophical Enquiry into the Sublime and the Beautiful*, ed. J. T. Bolton (Routledge, 2008), 57.

40
Burke, *A Philosophical Enquiry into the Sublime and the Beautiful*, 132.

41
David Bromwich, "Edmund Burke, *Reflections on the Revolution in France*," in *A Companion to Romanticism*, ed. Duncan Wu (Blackwell Publishers, 1998), 113.) to a defense of the types of society that provide a place for beauty and guarded the survival of lovely things for their own sake, even if these were an outcome of aristocratic privilege or gross inequality. Burke opposed the revolution in France on the basis of aesthetics and a distaste for excess and vulgarity, a "disposition to preserve, and an ability to improve" being his "standard of a statesman."[footnote Burke, *A Philosophical Enquiry into the Sublime and the Beautiful*, 266–67.

42
These models for culture workers' response to climate change and societal instability were originally developed in my contribution to *Art Workers: Material Conditions and Labour Struggles in Contemporary Art Practice*, eds. Airi Triisberg, Erik Krikortz, and Minna Henriksson (2015), 199–229 http://www.art-workers.org/download/ArtWorkers.pdf.

43
C. V. Wedgwood, *The Thirty Years War* (Anchor Books, 1961), 247, 248.

44
This line appears in my notebook from the period of my Stockholm research.

45
Tolstoy, *War and Peace*, 605.