This text was published in Arctic Archives. Ice, Memory, and Entropy. Eds. Susanne Frank and Kjetil A. Jacobsen. Bielefeld: Transcript 2019, 197-217. It is posted here by permission of transcript Verlag for personal use only, not for redistribution.

An Arctic Archive for the Anthropocene

The Svalbard Global Seed Vault

REINHARD HENNIG

INTRODUCTION

In 2000, Paul J. Crutzen and Eugene F. Stoermer argued that through human activity our planet had entered a new geological era for which they proposed the name ›Anthropocene‹. They gave as a reason for this that humans had taken into use most of the planet's resources of among others fossil fuels, arable land and drinking water, multiplied the rate of species extinction many times over, and changed the composition of the planet's atmosphere and thus the global climate through the massive release of greenhouse gasses. The Anthropocene concept and with it the notion that the human species has become a geological force has since received widespread scientific and scholarly attention (e.g. Zalasiewicz et al. 2008; Steffen et al. 2011), and increasingly attempts are made to even communicate the concept and its implications to a broader public. Thus the Deutsches Museum in Munich displayed a special exhibition titled ›Welcome to the Anthropocene‹ (5 December 2014 – 30 September 2016). Amid this exhibition's many examples of how humans are changing the planet's ecosystems to the worse stands out one example of human farsightedness and caring for future generations: the Svalbard Global Seed Vault.

This Vault is located close to the town of Longyearbyen on the island of Spitsbergen. With more than 860,000 different samples of seeds from all around the world by January 2016 (Crop Trust 2016), it houses today the largest collection of crop seeds worldwide. It is sometimes referred to as a ›gene bank‹ or ›seed bank‹, which means a facility for maintaining crop diversity through storing and conserving seeds in a frozen state. Such conservation is regarded as highly necessary, because due to the industrialization of agriculture, only very few crop varieties are

in commercial use today while most traditional crop varieties are no longer cultivated. Yet these traditional variants can possess qualities which may become valuable again for food production under changed socio-ecological circumstances in the future. Gene banks therefore both conserve crop seeds and provide access for the use of the stored genetic material. More than 1,700 such institutions exist around the world.

The Seed Vault, however, is not a gene bank in this conventional sense. Instead, it serves as a backup for the actual gene banks, as it stores duplicates of their seed collections. Such a ›reinsurance‹ is considered to be necessary, since material stored in individual gene banks can be exposed to risks from wars, natural catastrophes or simply bad maintenance due to insufficient funding or equipment failure for example. In case a certain crop variety were lost both *in situ* – in the actual environment – and *ex situ* – as seeds archived in a gene bank –, this particular variety could then be restored using the backup copy from the Vault. Svalbard was chosen as the location for the Vault because it is far away from the world's areas of conflict and unlikely to be exposed to any natural catastrophes. Also, despite its remoteness, Svalbard is easily accessible because of the infrastructure in place, which facilitates the transporting of seeds. Norway, to which the archipelago belongs, is the world's highest developed country according to the United Nations' Human Development Index (UNDP 2015) and is therefore expected to be able to guarantee both political stability and a well-functioning administration.

Additional safety for the seeds was achieved through excavating the facilities for the Vault into a mountainside. After the entrance portal, a 100 meters long tunnel leads towards three storage rooms, which together have the capacity to store 4.5 million different seed samples. Although an artificial cooling system is used to keep the temperature inside the Vault at -18° Celsius, the location's natural qualities contributed to its choice of place: it is estimated that if the electricity supply should fail one day, the permafrost inside the mountain would still keep the seeds in a frozen state for about 200 years, even in the case of a substantial warming of the climate (Fowler 2008a: 191).

The Vault has received considerable media attention since the start of construction in 2006 and the formal opening in 2008. Many newspaper articles, several documentary movies[1] and a richly illustrated book by Norwegian writer and photographer Pål Hermansen (2013)[2] deal with the Vault. It has even appeared in

1 For example, *Seed Warriors* (2009), directed by Katharina von Flotow and Mirjam von Arx, *Prosperous Mountain* (2013), directed by Heidi Morstang, and *Seeds of Time* (2014), directed by Sandy McLeod.

2 The book's Norwegian title is *Frø til verden*. In the same year, an English version titled

works of fiction, such as the novel *Chimera* (2011) by Norwegian writer Gert Nygårdshaug, in the cartoon series *Futurama* (2010), and – in modified form – in the fictional framing narrative of the semi-documentary film *The Age of Stupid* (2009). As Cary Fowler, one of the project's initiators, wrote already in 2008, the Vault »has captured the public's imagination more than almost any agricultural topic in recent years« (Fowler 2008a: 190). Since very recently, the Vault is moreover increasingly highlighted explicitly as an admirable human achievement representing a ›good‹ Anthropocene. The above mentioned Anthropocene exhibition at Deutsches Museum, US nature writer Diane Ackerman's book *The Human Age* (2014: 154-155), and the international online project »Seeds of a Good Anthropocene«, which aims at presenting positive visions of the future in order to counterbalance dystopian scenarios (Peterson 2015), all praise the Vault.

But why is the Vault considered to be such a notable representative of the Anthropocene? What exactly constitutes the Vault's symbolic potential with regard to this concept and its implications? I will in the following argue that the Vault in the aforementioned portrayals is represented in such a way that it can satisfy expectations of both those who promote a ›good‹ Anthropocene, of those who are worried about the Anthropocene's socio-ecological implications, and even of those who criticize or reject the Anthropocene concept altogether. This is due to the Vault being interpreted in such a way that it reconciles apparently contradictory notions of the Arctic, of the relation between non-human nature and human culture, of optimism and pessimism, and of the role of the national and the global.

THE ARCTIC

An obvious connection between the Vault and the Anthropocene concept arises from the former's location. Built close to the town of Longyearbyen and thus at 78° northern latitude, the Vault is truly an Arctic archive, and the Arctic is arguably the most ›Anthropocenic‹ part of the planet. It has in recent years not only been called the place with »the world's most severe toxic contamination« (Cone 2005: 2), affecting mammals and humans depending on Arctic animals as food. It is also warming much faster than the rest of the planet, measurable and indeed very visible through the rapid decline in the amount of polar sea ice, the receding of glaciers and the thawing of permafrost soils. Moreover, shipping in previously

Seeds for the World was published. I will, however, in the following refer only to the Norwegian version. All translations from the Norwegian in this article are my own.

impassable parts of the Arctic, such as the Northern Sea Route, is gradually becoming possible, and resource competition in the region is increasing, as the Arctic nations start exploiting resources such as oil and natural gas lying under the seafloors, which are now becoming accessible through the melting of the sea ice. Environmentalists fear that the use of these resources will contribute to even more global warming, and also warn that an oil spill in the Arctic would lead to irreparable ecological damages (e.g. Henningsen/Römmelt 2011: 200-202). As a result of these ongoing changes, the Arctic is today looked upon as a ›showcase‹ for climate change and as »an illustration of Earth having moved into a new geological era that has been called the Anthropocene« (Christensen et al. 2013: 164).

Yet the picture of the Arctic usually drawn in connection to representations of the Vault is a very different one. Hermansen, for example, states about Svalbard that »up here, there's still ice age«[3] (2013: 85). The photographs included in his book do not show melting glaciers, but instead seemingly intact Arctic landscapes characterized by glacial ice, mountains covered in snow, colorful vegetation and a huge variety of wildlife such as walrus, Arctic foxes, polar bears, reindeer, and snow grouse. These photographs convey an impression of Svalbard as an undisturbed nature idyll – an »Arctic oasis«[4] (98), as Hermansen himself calls it. He further supports this impression through his texts, when he for example writes about Svalbard that »this Arctic world is the host landscape for the Global Seed Vault – a world as far removed and different as possible from all noisy metropolises where the other seed banks lie. Up here, nature is ruling, while people only play a peripheral role«[5] (85).

In this way, Hermansen evokes an image of the Arctic that is very different from the one connected to the Anthropocene concept and the anthropogenic environmental change the latter implies. He presents the Arctic as a remote region that is practically free from human influence – even as the exact opposite of human civilization. In this way, he connects to late 19th and early 20th century images of the Arctic as an idealized counterpart of a rejected urban modernity (see e.g. Ryall/Schimanski/Wærp 2010). In doing so, Hermansen uses a very conventional symbolism of ice and snow as embodiments of purity, beauty and innocence – a symbolism which also can be found in media reports about the Vault, some of which

3 »Her oppe er det fremdeles istid«.

4 »En arktisk oase«.

5 »Denne arktiske verden er vertslandskapet for det globale frøhvelvet – en verden som er så fjern og forskjellig som tenkelig fra alle summende metropoler, hvor de andre frøbankene ligger. Her oppe er naturen i førersetet, mens menneskene bare spiller pikkolofløyte bakerst i orkesteret.«

even claim that Arctic nature itself in the form of polar bears is guarding the seeds stored inside the Vault (e.g. Lamprecht 2006). The Arctic as a whole and Svalbard in particular appear thus in such portrayals of the Vault as unaffected by anthropogenic environmental change – as, so to say, pre-Anthropocenic.

Representing Svalbard in this way means, however, to ignore not only the ongoing environmental changes, but also the human part in the archipelago's environmental history. After Svalbard's discovery by William Barents in 1596, local populations of whales, walrus, reindeer and birds were relentlessly exploited until long into the 20th century. The result was a drastic decline and the near extinction of several species, from which the once vast populations have never managed to fully recover – despite the hunt having been strictly limited for many decades now. Huge amounts of bones still visible in the landscape testify to this past. Even though the hunt has ended, Norwegian and Russian coal mining, which has been conducted on Svalbard on a commercial scale since the early 20th century, continues to the present day, and there are no plans to abandon it (McGhee 2006: 175-189). The picture of Svalbard as a ›natural‹ place on which humans have had no considerable influence is thus hardly true.

Today, climate change adds to the changes caused by human activities in past centuries. In 2013, reports about a dead polar bear found on Svalbard made it into the international media. The bear is believed to have starved due to the increasing lack of sea ice, on which the species depends for hunting seals (Carrington 2013) – one of many examples of how the polar bear in recent years has become a symbol of the connection between global warming and the threat of species extinction. In addition, there is evidence of Svalbard's polar bears' health being affected negatively by high concentrations of chemicals such as PCB in their bodies (Cone 2005: 38). Against this background, Hermansen's assertion that »Svalbard is today the world's most excellent place for watching the polar bear in its authentic environment«[6] (2013: 98) may appear as almost ironic.

The reality of global warming is not denied in Hermansen's book. Yet although the author acknowledges in his texts that climate change will probably have detrimental environmental effects even on Svalbard, he does not comment on the causes of global warming or on possible mitigating measures, but instead presents an easy relief from this threat – at least as far as Svalbard is concerned: seeds of Arctic plants from the archipelago are stored inside the Vault so that »most of them can be reinvigorated after a long slumber deep inside the gray mountain«[7]

6 »Svalbard er i dag verdens fineste sted å se isbjørn i sitt rette miljø«.

7 »De fleste av dem skal kunne vekkes til live igjen etter en tornerosesøvn langt inne berget det grå.«

(112). Archiving seeds in the Vault thus appears in Hermansen's book as an all-round solution not only to conserve food crops, but also to save some part of the Arctic flora for an undefined future. Problematic developments connected to the Anthropocene, such as anthropogenic climate change, are in Hermansen's book alleviated through the Vault, which is portrayed in such a way that it reconciles pre-Anthropocenic with Anthropocenic notions of the Arctic.

NATURE AND CULTURE

A philosophical implication of the Anthropocene which is frequently emphasized by scholars in the environmental humanities is that, as a concept, it »undermines the nature/culture distinction itself, the difference between natural history and human history« (Clark 2014: 86). According to Christian Schwägerl, »the Anthropocene idea [...] firmly links humans with everything that goes on around them and integrates humans into what used to be called the natural world« (2013: 32). As human activities are changing nature on a geological scale, it can no longer be differentiated between what is artificial or influenced by human activities and what is ›natural‹.

The Vault could be considered as an especially plausible manifestation of this indistinguishability of nature and culture. It makes use of its site's ›natural‹ qualities in form of a mountainside and of the permafrost there in order to store plant seeds in a deep frozen state. Thus it may be tempting to compare it to so called ›natural archives'‹ such as ice caps or peat bogs. Yet the seeds inside the Vault are kept not in ice or soil, but in uniform boxes neatly put into metal shelves – quite similar to how documents in conventional cultural archives are stored. Also, conscious selection takes place: only seeds of food crops are to be stored inside the Vault. Despite originating from wild plant species, these seeds are not the product of spontaneous evolution but of purposeful breeding in order to serve human needs. It could therefore be argued that the Vault is a combination of a natural and a cultural archive: that in it, human culture and non-human nature are harmonically and inextricably united.

Yet the notion that the Anthropocene concept would make the nature/culture distinction obsolete is not as widely accepted as one might assume. Timothy LeCain, for example, criticizes the term Anthropocene as being »unapologetically anthropocentric« (LeCain 2015: 3). In his view, the Anthropocene concept legitimizes human domination over nature through overemphasizing humans' ability to form the environment according to their own needs through technology. The concept would thus even be reinforcing the nature/culture distinction (LeCain 2015:

21-22). Through this critique of anthropocentrism, LeCain links the discussion of the Anthropocene concept to questions of environmental ethics.

Environmental ethics asks which values and norms should define our approaches towards non-human nature (Ott 2010: 8). These approaches can differ considerably depending on which types of ethical arguments for the protection of the non-human environment (or of certain parts of it) are taken as point of departure. So called anthropocentric arguments relate to the value of the environment for human beings. This value can be instrumental or functional, as in the case of natural resources that are necessary for the fulfillment of basic human needs, such as air, water and food (Ott 2010: 82-83). Anthropocentric arguments can thus establish a right of all human beings to the conservation of nature and the environment as far as these constitute resources of vital importance for them. Moreover, such arguments allow an extension of ethical responsibility towards future generations: all concepts of sustainability represent an anthropocentric environmental ethics, as they are explicitly motivated by the needs of human beings both in the present and in the future (Sarkar 2012: 160).

Biocentric and ecocentric environmental ethics are based on different points of departure. A biocentric ethics means that all life forms have an intrinsic value, and an ecocentric ethics would claim the same for ecosystems in their entirety. Intrinsic value implies a strong normative position and that everybody has duties towards what is endowed with this sort of value (Ott 2010: 102-103). A biocentric or ecocentric ethics is most often associated with the so called deep ecology movement, whose founding father is the Norwegian philosopher Arne Næss (1912-2009). Næss advocated »biospherical egalitarianism« as a basic attitude and the recognition of an »equal right to live and blossom« of all organisms instead of the prevailing rule of humans over all other life forms (Næss 1973: 95-96).

It is obvious that the construction of the Vault was motivated by an anthropocentric environmental ethics. With the mentioned exception of some plant seeds stemming from Svalbard itself, only crop seeds are stored inside the Vault. These are conserved in order to ensure their continued potential availability for food production. The seeds embody a resource which is to be conserved for future generations who might need them to fulfill their basic needs. In this sense, the Vault represents an attempt to contribute to long-term sustainability within agriculture.

Such an anthropocentric environmental ethics is predestinated to invite objections from those who adhere to a biocentric or ecocentric ethics. Thom van Dooren, for example, argues that selective *ex situ* conservation as it is practiced in gene banks and in the Vault represents a reductionist understanding of nature and a practice which cannot substitute for *in situ* conservation of biological diversity. From van Dooren's point of view, it is not enough to save genetic information of

crop seeds that serve as resources for humans. Instead, non-human organisms should be regarded as being »valuable in and of themselves« (van Dooren 2009: 108), irrespective of their potential use value.

This is clearly a bio- or ecocentric argument, and it can be found even in a fictional text using the Vault as a motif, namely in Norwegian writer Gert Nygårdshaug's ›eco-thriller‹ *Chimera* (2011). This novel is set some 15 to 20 years in the future, at a time in which ecosystems are undergoing tremendous changes due to the effects of global warming. The text focuses on scientists based at a research station in the Virunga National Park in the Democratic Republic of the Congo, where they are busy registering species found on site. In their time, the Vault has been opened for the storage of all kinds of seeds – irrespective of their use value: »Seeds from every single plant and bush were sent to the international seed depot that Norwegian scientists had established under the tundra on Svalbard«[8] (Nygårdshaug 2011: 82). From these scientists' point of view, biodiversity in general should be protected, not only species that can contribute to feeding humans (107).

The Vault has thus in Nygårdshaug's novel been transformed from an anthropocentric into a biocentric project in – an archive based on the acknowledgement of an intrinsic value of all life forms and dedicated to their conservation. It so to say makes the distinction between an anthropocentric and a biocentric environmental ethics obsolete, since it fulfills the demands of both. Two seemingly contradictory ethical approaches to the environment are thus reconciled through the motif of the Vault. The practicality of conserving all kinds of seeds inside the Vault is, however, not discussed in the novel, and neither is the question of what these would be stored for eventually if the original ecosystems – such as the rainforests – were not preserved at the same time. The Vault appears thus here – similarly as in Hermansen's book – as a simple quick fix to actually very complex social and environmental problems.

WORST CASE SCENARIOS AND THE GOOD ANTHROPOCENE

In the texts analyzed here, the Vault is also reconciling expectations of environmental catastrophe with optimistic views of the future in a very similar way as the Anthropocene concept itself does. Most or all of the changes that Crutzen and Stoermer (2000) name as indications of the Anthropocene, such as global warming

8 »Frø fra hver eneste plante og busk var sendt til det internasjonale frødepotet som var etablert av norske forskere under tundraen på Svalbard«.

and species extinction, are usually considered to be highly problematic and as possibly leading the world into a socio-ecological catastrophe. As Timothy Clark notes:

»The major irony of the Anthropocene is that, although named as that era in the planet's natural history in which humanity becomes a decisive geological and climatological force, it manifests itself to us primarily through the natural becoming, as it were, dangerously out of bounds, in extreme or unprecedented weather events, ecosystems being simplified, dieback, or collapse«. (Clark 2014: 79)

Yet simultaneously the Anthropocene concept seems to facilitate an enormous confidence in the human ability to develop technological solutions for all sorts of environmental problems (LeCain 2015: 4). There are thus many proponents of what often is called a »good« or even a »great« Anthropocene, who argue that the ›Human Age‹ offers unprecedented chances to shape the planet according to human desires (e.g. Ellis 2012; Schwägerl 2013; Ackerman 2014; Asafu-Adjaye et al. 2015).

The Vault, as it was and is presented in the media, is connected to both anxiety about the future and to such unrestricted optimism. A rhetoric referring to the anticipation of catastrophe has accompanied media coverage of the Vault ever since the start of construction in 2006. The two most common metaphors used for the Vault are of Biblical origin: it is frequently called a »Noah's ark for seeds« and a »doomsday vault« (e.g. Mellgren 2006). In this way it becomes linked both to the Flood in the Book of Genesis and to the apocalypse in the Book of Revelation.

As a response to these metaphors, Fowler has repeatedly emphasized that the Vault was not built in anticipation of a global catastrophe, such as a nuclear war. According to him, the main reason why copies of crop seeds should be stored inside the Vault is the everyday loss of crop seed varieties in gene banks having to do with »institution specific management, infrastructure, and funding problems« (Fowler 2008b: 12), as well as risks from military conflicts and natural disasters in some parts of the world.[9] It is thus locally or regionally limited loss of genetic diversity that the Vault is intended to protect the seeds against – not a looming worldwide ›apocalypse‹. It might be, however, that Fowler – contrary to his intention – himself has fueled speculations about global disaster, for example

9 The first and so far only withdrawal of seeds from the Vault was requested in 2015 by the International Center for Agricultural Research in Dry Areas, which, having previously had its headquarters in Aleppo in Syria, had become affected in its work by the Syrian civil war that began in 2011 (see Robins-Early 2015).

through stating that the Vault »would likely survive almost anything« (Fowler 2008b: 15) and that even the most powerful bombs existing today could not manage to destroy the Vault if dropped directly on the mountain in which it is located (Fowler 2008b: 19) – as if there might indeed be anybody planning to bomb the Vault.

The use of the aforementioned metaphors for the Vault has at any rate not diminished. Of course, a rhetoric of looming catastrophe has accompanied environmental discourse for a long time, with e.g. the study *The Limits to Growth* (1972) as an early example. Today, catastrophic environmental expectations seem to be flourishing more than ever, as among others a marked increase in novels, movies and computer games based on such scenarios indicates (Almond 2013).

In many if not most cases, such scenarios – whether scientific or fictional – are supposed to function not (or at least not only) as a prediction, but rather as a warning. Ecocritical scholar Lawrence Buell even states that »apocalypse is the single most powerful master metaphor that the contemporary environmental imagination has at its disposal« (Buell 1995: 285). The assumption is, then, that catastrophic future scenarios will encourage action precisely in order to prevent them from ever becoming true. They would then not be intended to produce fatalism and adaptation to a declining environment, but to encourage action in order to create a different future than the one predicted if business-as-usual is continued (Killingsworth/Palmer 1996).

An example of recent environmentalist fiction that, interestingly, includes an Arctic archive as a central element of a narrative of global environmental catastrophe is the British film *The Age of Stupid* (2009) directed by Franny Armstrong. This film is set in the year 2055, at a time in which the earth's ecosystems and human civilization have been entirely destroyed by runaway climate change. The main character is an old archivist, working in what is called the »Global Archive« (TC: 00.03.19), an institution storing humanity's entire cultural heritage – artworks, books, films and other media – mainly in digital form. Through watching ›old‹ video footage from the mid 2000s, the archivist tries to find out why humans didn't save themselves and their civilization despite knowing what was happening and having had the possibility to change the run of things.

The motif of the »Global Archive« functions therefore in the film as a warning to today's humans that future generations will be informed very well about everything their ancestors did and will condemn them for it – unless the necessary action against resource depletion, species extinction and climate change is taken timely enough to prevent the catastrophic future scenario from becoming reality. It serves as evidence of present day humans' guilt against future generations, and at the

same time as an admonition for those living in the present to do the right thing before it is too late.

This »Global Archive« is in the film located on an artificial platform »800 kilometers north of Norway« (TC: 00.03.23), and thus probably on the Svalbard archipelago. It is never explained in the film why precisely this location was chosen. Yet it is quite likely that the placing of the fictional »Global Archive« was directly inspired by a real-world archive on the same archipelago – the Vault, which was constructed and opened precisely during the time the film was produced. The »Global Archive«, however, serves not the same purpose as the Vault. The largely digital archive in *The Age of Stupid* is not even on the fictional level itself conserving biodiversity or any kind of utilizable resources for future generations. The only thing it can do is to inform humans in the future about what went wrong, and to – in the best case – encourage conservation measures in the audience's present in order to avoid a looming socio-ecological catastrophe. The goal of conservation is therefore not achieved through this archive itself.

This is different in the case of the Vault: other than the fictional archive, it exists as a real, material entity, and it is not intended as a call to action, but is itself part of conservation measures thought to be necessary in order to secure the future availability of a certain resource – the genetic variety of food crops. This means also, however, that while in the case of the fictional archive, the worst-case scenario it is part of may indeed encourage people to take action for a different future, with regard to the Vault, the Biblical apocalyptic rhetoric applied to it is likely not to achieve such an effect – as the metaphors used for describing the Vault indicate. In the Bible, both the Flood and doomsday are unavoidable. Even Noah – although favored by God – could do nothing to prevent all humans and terrestrial animals not accommodated aboard the ark from drowning (Genesis 6: 7-8). And according to the Bible, doomsday has long been determined by God (Mark 13: 32). It can therefore be neither prevented nor delayed by human action.

The underlying narrative of the apocalyptic metaphors used for the Vault is therefore that the world existing today is unavoidably going to be destroyed. What the Vault – as it is represented in most media reports – adds to this narrative is the idea that it might be wise to carry at least some valuables through the time of decline and catastrophe in order to be able to start anew in an anticipated post-catastrophic world. While Noah took animals on board of the ark, the Vault protects crop seeds from an expected disaster. The necessary conservation measure – storing seeds inside an Arctic archive – is thus already taken care of. With a »Frozen Garden of Eden« (Goodall 2014: 118) available, as the English primatologist Jane Goodall, using another Biblical metaphor, calls the Vault, no other efforts

would be needed. A »doomsday vault« would thus not necessarily encourage humans to environmental action. Instead, storing some seeds inside this »ark« appears as the only meaningful thing to do in view of challenges such as climate change and species extinction. The media reports' portrayals of the Vault reconcile thus somewhat paradoxically anxieties about the future and anticipations of global catastrophe with an optimistic confidence that the necessary precautions are already taken and that business can continue as usual.

FROM SPECIES TO NATION

As has been repeatedly emphasized, the Anthropocene concept requires humans to adopt a truly global perspective not only on environmental change, but also on humans themselves as a species and on the ways in which this species is changing the planet (Chakrabarty 2009: 213). As Clark expresses it:

»The Anthropocene represents, for the first time, the demand made upon a species consciously to consider its impact, as a whole and as a natural/physical force, upon the whole planet – the advent of a kind of new, totalizing reflexivity as a species. Individual acts of generosity, cultural change, national achievement, and so on, now become something that must be conceived at this higher, unprecedented level of self-reflection.« (Clark 2014: 86)

Yet such calls for a ›species perspective‹ have also been criticized as blurring uneven social and national responsibilities for the problematic developments that led to the Anthropocene, and as drawing away attention from that e.g. the negative effects of climate change do not equally affect the entire human species, but rather hit many of those hardest who are the least responsible for causing them. Andreas Malm and Alf Hornborg, for example, point out that it had been only a very small part of the human species – those capitalists who had the necessary financial means – who in the 18th and 19th centuries started and carried out the transition to fossil fuel based economies, which frequently is named as the actual initiation of the Anthropocene (e.g. Crutzen/Stoermer 2000; Steffen et al. 2011). Malm and Hornborg also emphasize that enormous differences concerning the amounts of greenhouse gas emissions exist both historically and contemporary between nations and within individual societies (Malm/Hornborg 2014: 64). According to them, therefore, »species-thinking on climate change is conducive to mystification and political paralysis. It cannot serve as a basis for challenging the vested interests of business-as-usual« (67). It should also not be overlooked that, while inter-

national institutions for dealing with many environmental questions exist, the implementation of measures takes usually place at the national level, and national policies for e.g. mitigating climate change are not necessarily based on ›species thinking‹, but often rather reflect specific national contexts and interests.

Such inherent contradictions and ambivalences concerning the global and the national can also be seen in many portrayals of the Vault. Establishment and operation of the Vault itself are based on an international initiative and managed jointly by the Norwegian Ministry of Agriculture and Food, the Nordic Genetic Resource Center (a cooperation between Denmark, Finland, Iceland, Norway and Sweden), and the Global Crop Diversity Trust, an international organization founded by among others the UN Food and Agriculture Organization (FAO) and financed by a huge variety of donors from around the world. The Vault is supposed to enhance food security worldwide and deposits can be made free of charge, thus making differences between nations with regard to financial capacities irrelevant and helping in particular developing countries to secure the genetic diversity of their food crops. The Vault could thus be interpreted as a manifestation of truly global, Anthropocenic ›species thinking‹.

Yet despite all this, the Vault is commonly described as though it was a solely Norwegian institution – »the Norwegian government's farsighted gift to the world«, as US nature writer Diane Ackerman calls it (2014: 155). This is also how it is represented in Nygårdshaug's novel. The text's central character is a zoologist called Karl Yver Lyngvin, who originally is from Norway, and the reader is told about the Vault that it is »an institution, which Karl Yver Lyngvin – as a Norwegian – of course was extremely proud of«[10] (Nygårdshaug 2011: 82). Such national pride concerning the Vault is also clearly discernible in Hermansen's book. Hermansen calls the Vault »the world's most important room«[11] (2013: 155). He states that huge international attention is desirable from a Norwegian point of view and calls the Vault an »important and positive ›trademark‹«[12] for Norway (139). According to him, when the idea for the Vault came up, it had been obvious »that Norway should take up a natural role as a leader«[13] (126) in the project, and that »the Vault fitted well in as part of Norway's longstanding commitment precisely to contribute to international cooperation for biological diversity«[14] (126).

10 »Et foretak som Karl Iver Lyngvin – som nordmann – selvfølgelig var svært stolt av«.

11 »Verdens viktigste rom«.

12 »En viktig og positiv ›merkevare‹«.

13 »At Norge burde innta en naturlig lederrolle«.

14 »Passet hvelvet fint inn som en del av Norges mangeårige engasjement nettopp for å bidra til internasjonalt samarbeid for biologisk mangfold«.

The background of such statements is formed by the dominant conception of Norwegian national identity. Besides a national self-image as one of the world's most democratic and egalitarian countries, the view that Norway, as a small country without a colonialist past, can – and should – take over an exceptional international responsibility through altruistically supporting peace, democracy and human rights worldwide has been advocated since at least the end of the Second World War (NOU 2003: 51-52). Norway was one of the United Nations' founding members in 1945 and has ever since been one of their most important financial contributors (Leira 2007: 20). The idea of Norway as a nation of peace is even older, as it traces back to ›national hero‹ Fridtjof Nansen's commitment to refugee and famine relief after the First World War (Leira 2007: 11). The Nobel Peace Prize, annually awarded in Oslo since 1901, contributes further to an image of Norway as an international promoter of peace. In the 1990s, this image was reinforced through Norwegian mediation between Palestinians and Israel in the so called Oslo Accords (Eriksen et al. 2003: 449).

The Norwegian state is also acting as a supporter of poor countries and as a global promoter of human rights (Leira 2007: 16). Norwegian development aid started in the 1950s and was expanded considerably in the following years, so that Norway in relation to its GDP became one of the largest donor countries around 1980 (Furre 1993: 293). Besides material support, the promotion of democracy and human rights became the central task of Norwegian development aid from the 1990s on. Not only is the state active in this field, but also a large number of NGOs and volunteers, who raise considerable funds for these purposes (Tvedt 2010: 480). Development aid plays thus a far more central role in the Norwegian public than in those of other countries (Tvedt 2010: 482). The national self-image as an altruistic helper meets broad approval in the population and is supported by all political parties, with the exception of the right-wing populist Progress Party (Leira 2007: 17). Historian Terje Tvedt has coined the critically intended term »national regime of goodness« for this consensus between people, political parties and government (Tvedt 2010: 80).

The »regime of goodness« is, however, not limited to peace facilitation and development aid, but manifests itself also in an image of Norway as forerunner of global environmental protection. This image arose at the latest when the former minister of the environment and then Norwegian prime minister Gro Harlem Brundtland chaired the United Nations' World Commission on Environment and Development from 1983 to 1987. As a consequence, Brundtland was – in Norway – called »the world's minister of the environment«[15] (Eriksen et al. 2003: 464). In

15 »Verdens miljøvernminister«.

addition, Norway has since the 1990s been presenting itself internationally as a decided supporter of a strong global climate protection agreement. This commitment became during the 2000s explicitly linked to the conservation of rainforests and thus of global biodiversity: through the so called Climate and Forest Initiative, Norway provides several billion U.S. dollars as compensation for countries such as Brazil and Indonesia if these in return ensure the protection of rainforests on their state territories (Klima- og miljødepartementet 2014). This initiative is regarded as »an important part of the green and altruistic Norwegian self-image« (Nilsen 2010: 54).

It can therefore be said that taking over extraordinary humanitarian and environmental responsibility in a global context forms an integral part of what is understood as Norwegian national identity today. There has, however, also been put forth critique against this self-perception through pointing to where Norway draws the funds for its international involvement from: the extraction and export of fossil fuels. Oil and natural gas extraction on the Norwegian continental shelf started in 1971 in the North Sea, and within few years it became the country's most important economic sector (Furre 1993: 351). Via ownership of the undersea resources and through the state-owned oil company Statoil, the Norwegian state ensured that it received the bulk of the revenues, which soon constituted an important part of the national budget (Furre 1993: 360). In 2009, more than 50 per cent of Norwegian export earnings came from the petroleum sector and about 15 per cent of all jobs in Norway were directly or indirectly bound to it (Schiefloe 2010: 34-35).

Already in the 1970s, however, environmentalists criticized the Norwegian oil industry, who they said was badly prepared for possible accidents and endangered marine ecosystems (Berntsen 2011: 259). Yet despite higher environmental risks in colder waters, oil well drilling north from 62 degrees North latitude was permitted in 1980 (Furre 1993: 357). Today, Norwegian petroleum production is still expanding northwards. Natural gas production and the search for oil as far north as the Arctic Barents Sea have been initiated in recent years (Berntsen 2011: 329).

Environmental NGOs in Norway fear that an oil spill in Arctic waters would damage the marine ecosystems there irreparably. Moreover, Statoil is increasingly criticized for its activities abroad, which are not subject to Norwegian environmental standards. An example is the mining of tar sands in Canada, which is considered to be the most environmentally harmful way of petroleum production (Curtis 2010: 17). In view of anthropogenic climate change and its predicted consequences, parts of the Norwegian environmental movement even doubt the country's right to continued petroleum and natural gas production in general.

Often, a contradiction between a fossil fuel economy on the one hand, contributing directly and indirectly considerably to global warming, and the Norwegian self-image of altruism and global environmental commitment on the other hand is pointed out. Concerns have been uttered that Norway's current material affluence and the social changes it has brought with it – such as a very high level of consumption – might endanger national identity. Eriksen et al. (2003: 476), for example, write that the oil wealth is »an embarrassing defeat for the Norwegian self-image of careful modesty, of the belief that we are more reasonable than others.«[16] Yet the authors also assume that this wealth in turn increases a felt need to help less privileged people in order to not be perceived as corrupted by material affluence (436).

Such a need for national self-affirmation is discernible also as the background of both Nygårdshaug's and Hermansen's depictions of the Vault as a particularly important manifestation of Norwegian altruism and environmental commitment. Hermansen endorses the Norwegian »regime of goodness" when he – in response to conspiracy theorists who claim that Norway has evil secret plans for the seeds inside the Vault – writes that »maybe it simply appears to be too good to be true that a state can behave future-oriented and altruistic, for the best of humankind?«[17] (139). He emphasizes that the Vault is especially important for poor countries who themselves lack the resources for proper gene banking and thus profit enormously from being allowed to store crop seeds inside the Vault free of charge (129). That Norway's fossil fuel based economy contributes considerably to global warming – one of the main threats to agriculture particularly in those countries the Vault is especially supposed to help to increase food security – is mentioned in neither Hermansen's nor Nygårdshaug's works; nor is the risk that Norwegian oil drilling might pose to the Arctic environment, among others in the Barents Sea very close to Svalbard itself. Instead, the Vault serves in both texts as the ultimate confirmation of Norwegian ›goodness‹ and altruistic ›species thinking‹. It is thus also used implicitly as a means of denying any specifically Norwegian responsibility for global warming and other problematic aspects of the Anthropocene that arise from the use of fossil fuels and from the high consumption rates of the wealthiest part of the human species. It can therefore be said that the Vault – as it is represented

16 »Et pinlig nederlag for det norske selvbildet av forsiktig nøysomhet, for troen på at vi er fornuftigere enn andre.«

17 »Kanskje virker det rett og slett for godt til å være sant at en stat kan opptre framtidsrettet og altruistisk, til menneskehetens beste?«

in these texts – is used in order to reconcile the antagonisms of Anthropocenic ›species thinking‹ and nationalism, and to deflect attention from the contradictions between both.

CONCLUSION

Essentially, the Svalbard Global Seed Vault is an Arctic archive that contributes to the conservation of crop seeds' genetic variety. Yet in the media as well as in fictional and non-fictional portrayals, it becomes much more than that: an outstanding symbolic and material representation of the Anthropocene and of all the implications and inherent contradictions that this concept of a new geological era brought about by human activities comprises. The Vault is used in order to restore an image of the Arctic in general and of Svalbard in particular as pre-Anthropocenic, as being unaffected by human civilization and by detrimental environmental change. The Vault's mixture of ›natural‹ and ›cultural‹ characteristics can be interpreted as an expression of the Anthropocenic indistinguishability of human culture and non-human nature, and in the analyzed texts, the Vault even serves as a motif that reconciles apparently antagonistic positions in environmental ethics, such as anthropocentrism and biocentrism. Anxieties about a possible global environmental catastrophe and the technological optimism characteristic for notions of a so-called ›good Anthropocene‹ are likewise reconciled in many portrayals of the Vault. Finally, the global ›species thinking‹ that the Anthropocene concept is supposed to encourage is brought together with a specifically Norwegian form of nationalism that at the same time facilitates and legitimates a continuation of business-as-usual concerning the use of fossil fuels and the maintaining of high levels of material consumption – and thus of human practices that are not only responsible for problematic environmental changes, but that even counteract the Vault's purpose of increasing food security on a global level. The contradictions and ambivalences inherent to the Anthropocene concept are thus bundled and intensified in the analyzed representations of the Vault, which may justify positing it as an especially significant materialization of the new geological epoch.

This is also the case in a 2010 episode of the US animated science fiction series *Futurama*, which is set in the 31st century. In this series' 101st episode, titled »The Futurama Holiday Spectacular«, it is Christmas and one of the characters sorely misses a pine tree for the celebration. The problem is, however, that pine trees have been extinct for more than 800 years. Yet as the Professor – a mad scientist and one of *Futurama*'s main characters – explains: »There is one hope – and as

usual, it's Norwegian!« (TC: 00.02.41). Consequently, the crew travels to Svalbard in order to obtain pine tree seeds from the Vault. Yet these turn out to be contaminated through germs from the nearby Germ Warfare Repository. This causes the pine trees to grow and spread at an extremely rapid rate until they cover the entire Earth. Though this at first seems to return the planet to a pleasantly green, wildlife-filled state, it soon turns out that the trees' uncontrolled growth produces too much oxygen in the atmosphere. When robot Bender lights a cigar, it therefore ignites the air and burns the entire planet. Through its parodic approach, the episode highlights thus many of the inherent contradictions and problematic ambivalences on which the notion of the Vault as an Arctic archive with an extraordinary significance for the Anthropocene is based.

BIBLIOGRAPHY

Ackerman, Diane (2014): The Human Age. The World Shaped by Us, New York/London.

Almond, Steve (2013): »The Apocalypse Market Is Booming«, in: The New York Times Magazine 27.09.13, http://www.nytimes.com/2013/09/29/magazine/the-apocalypse-market-is-booming.html, accessed online May 2019.

Asafu-Adjaye, John, et al. (2015): An Ecomodernist Manifesto, http://www.ecomodernism.org/s/An-Ecomodernist-Manifesto.pdf, accessed online May 2019.

Berntsen, Bredo (2011): Grønne linjer. Natur- og miljøvernets historie i Norge, Oslo.

Buell, Lawrence (1995): The Environmental Imagination. Thoreau, Nature Writing, and the Formation of American Culture, Cambridge, Mass.

Carrington, Damian (2013): »Starved polar bear perished due to record sea-ice melt, says expert«, in: The Guardian 06.08.13, http://www.theguardian.com/environment/2013/aug/06/starved-polar-bear-record-sea-ice-melt, accessed online May 2019.

Chakrabarty, Dipesh (2009): The Climate of History: Four Theses, in: Critical Inquiry 35, pp. 197-222.

Christensen, Miyase/ Nilsson, Annika E./ Wormbs, Nina (2013): »Changing Arctic – Changing World«, in: Miyase Christensen/Annika E. Nilsson/Nina Wormbs (eds.): Media and the Politics of Arctic Climate Change, Basingstoke, pp. 157-171.

Clark, Timothy (2014): »Nature, Post Nature«, in: Louise H. Westling (ed.): The Cambridge Companion to Literature and the Environment. Cambridge, pp. 75-89.

Cone, Marla (2005): Silent Snow. The Slow Poisoning of the Arctic, New York.

Crop Trust (2016): Svalbard Global Seed Vault, https://www.croptrust.org/what-we-do/svalbard-global-seed-vault/, accessed online May 2019.

Crutzen, Paul J.; Stoermer, Eugene F. (2000): »The ›Anthropocene‹«, in: Global Change Newsletter 41 (May), pp. 17-18.

Curtis, Mark (2010): Doublethink: The Two Faces of Norway's Foreign and Development Policy, Oslo.

Ellis, Erle (2011): »The Planet of No Return. Human Resilience on an Artificial Earth«, in: Breakthrough Journal 2, http://thebreakthrough.org/index.php/journal/past-issues/issue-2/the-planet-of-no-return, accessed online May 2019.

Eriksen, Trond Berg; Hompland, Andreas; Tjønneland, Eivind (2003): Et lite land i verden. 1950-2000, Oslo (= Norsk idéhistorie 6).

Fowler, Cary (2008a): »The Svalbard Global Seed Vault and Crop Security«, in: BioScience 58.3, pp. 190-191.

— (2008b): The Svalbard Global Seed Vault: Securing the Future of Agriculture, http://www.croptrust.org/documents/Svalbard%20opening/New%20EMBARGOED-Global%20Crop%20Diversity%20Trust%20Svalbard%20Paper.pdf, accessed online May 2019.

Furre, Berge (1993): Norsk historie 1905-1990. Vårt hundreår, Oslo.

Goodall, Jane (2014): Seeds of Hope. Wisdom and Wonder from the World of Plants, New York.

Henningsen, Thomas/Römmelt, Bernd (2011): The Arctic. Treasure of the North, Munich.

Hermansen, Pål (2013): Frø til verden. Svalbard globale frøhvelv, Oslo.

Killingsworth, Jimmie M./Palmer, Jacqueline S. (1996): »Millennial Ecology. The Apocalyptic Narrative from Silent Spring to Global Warming«, in: Carl George Herndl/Stuart C. Brown (eds.): Green Culture. Environmental Rhetoric in Contemporary America, Madison, Wis., pp. 21-45.

Klima- og miljødepartementet (2014): Klima- og skogsatsingen, https://www.regjeringen.no/nb/tema/klima-og-miljo/klima/klima--og-skog-satsingen/id2000712/, accessed online May 2019.

Lamprecht, Bill (2006): »Arctic Vault is Designed to Save World's Seeds«, in: St. Louis Post-Dispatch 19.06.2006.

LeCain, Timothy James (2015): »Against the Anthropocene. A Neo-Materialist Perspective«, in: International Journal for History, Culture and Modernity 3.1, pp. 1-28.

Leira, Halvard (2007): Norske selvbilder og norsk utenrikspolitikk, Oslo.

Malm, Andreas; Hornborg, Alf (2014): »The geology of mankind? A critique of the Anthropocene narrative«, in: The Anthropocene Review 1.1, pp. 62-69.

McGhee, Robert (2006): The Last Imaginary Place. A Human History of the Arctic World, Oxford.

Mellgren, Doug (2006): »Norway to House Seeds in Doomsday Vault«, in: USA Today, 19 June, http://usatoday30.usatoday.com/tech/science/2006-06-19-norway-noah-seeds_x.htm, accessed online May 2019.

Nilsen, Torbjørn Tumyr (2010): Landscape of Paradoxes. The Norwegian Climate and Forest Initiative, Master's thesis, Senter for utvikling og miljø, Oslo.

NOU - Norges offentlige utredninger (2003): Makt og demokrati. Sluttrapport fra Makt- og demokratiutredningen, Oslo.

Nygårdshaug, Gert (2011): Chimera, Oslo.

Næss, Arne (1973): »The Shallow and the Deep, Long-Range Ecology Movement. A Summary«, in: Inquiry 16, pp. 95-100.

Ott, Konrad (2010): Umweltethik zur Einführung, Hamburg.

Peterson, Garry (2015): Svalbard Global Seed Vault, http://goodanthropocenes.net/2015/09/30/svalbard-global-seed-vault/, accessed online May 2019.

Robins-Early, Nick (2015): »Syrian War Causes the Global Doomsday Seed Vault's First Withdrawal«, in: Huffington Post 22.09.15, http://www.huffingtonpost.com/entry/global-seed-vault-svalbard-syria_us_560152ebe4b00310edf87694, accessed online May 2019.

Ryall, Anka/Schimanski, Johan/Wærp, Henning Howlid (2010): »Arctic Discourses: an Introduction«, in: Anka Ryall/Johan Schimanski/Henning Howlid Wærp (eds.): Arctic discourses, Newcastle upon Tyne, UK, pp. ix-xxi.

Sarkar, Sahotra (2012): Environmental Philosophy. From Theory to Practice. Chichester, West Sussex.

Schiefloe, Per Morten (2010): »Oljelandet«, in: Ivar Frønes/Lise Kjølsrød (eds.): Det norske samfunn, Oslo, pp. 19-40.

Schwägerl, Christian (2013): »Neurogeology: The Anthropocene's Inspirational Power«, in: RCC Perspectives 3, pp. 29-37.

Steffen, Will; et al. (2011): »The Anthropocene: conceptual and historical perspectives«, in: Philosophical Transactions of the Royal Society 369, pp. 842-867.

Tvedt, Terje (2010): »Det nasjonale godhetsregimet. Om utviklingshjelp, fredspolitikk og det norske samfunn«, in: Ivar Frønes and Lise Kjølsrød (eds.): Det norske samfunn, Oslo, pp. 479-503.

UNDP (2015): Norway, http://hdr.undp.org/en/countries/profiles/NOR, accessed online May 2019.

van Dooren, Thom (2009): »Genetic Conservation in a Climate of Loss: Thinking with Val Plumwood«, in: Australian Humanities Review 46, pp. 103-112.

Zalasiewicz, Jan; et al. (2008): »Are we now living in the Anthropocene?«, in: GSA Today 18.2 , pp. 4-8.

FILMS

The Age of Stupid (2009) (GB, D: Franny Armstrong)

The Futurama Holiday Spectacular (2010), in: Futurama 6. (USA, D: Ray Claffey)