

iPerspectives

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CRISIS



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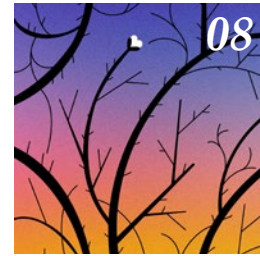
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FOREWORD

The online AIAS e-magazine *iPerspectives* that you have before you is a thematic fellows-driven magazine, offering interdisciplinary perspectives and insights on the topics with which the research fellows (former, current and associate) of the Aarhus Institute of Advanced Studies (AIAS) are occupied. In issue 1 it was nothing larger than *Life*; in issue 2 it was the always ‘on the move’ *Migration*.

This third issue of *iPerspectives* is dealing with the topic of *Crisis*. We imagine that the late AIAS Director Søren Keiding would have been very pleased with the topic that fellows have decided on. Søren was equally concerned with the numerous crises that are amidst us, as he wrote in his last contribution to the AIAS Annual Report in his ‘Directors Account 2021-2022’:

“Be it the climate crisis, the pandemic, the overpopulation, the return of brutal wars in Europe, or the uneven distribution of wealth and opportunities, it is evident that all of these challenges must be addressed using a plurality of disciplines.”

Søren was not only concerned with the many societal challenges, or crises, that we are confronted with: he also points out the capacity and relevance of AIAS, as an “Institute for Advanced Study” (a community of interdisciplinary scholars who are concerned with the challenges we face).

Just as AIAS provides a space for researchers from different disciplines to collaborate and exchange ideas, so does the magazine bring together a multitude of disciplinary perspectives to shed light on this very timely topic of *Crisis*. The first years of this decade of the 2020s are certainly marked by one crisis on top of the other – to such an extent that we now even talk about an ‘Era of Crisis.’ In only a few years, we have been hit by a climate crisis, a migration crisis, a corona crisis, a crisis between Ukraine and Russia and war in the European continent, an energy and security crisis, a financial crisis, and a crisis at AIAS with the loss of our director Søren Keiding on 4 March 2023 to cancer.

AIAS cares, acts and responds to changes, challenges and crises in society.

Fellows and former fellows have responded to the corona crisis by adapting and expanding their research expertise to focus on the pandemic: from viral research, over the collection of data on the role of music during lock-down, to providing governmental advice by a political behavioural scientist.

AIAS as an institution has similarly responded to another crisis, the invasion of Ukraine by Russia, by immediately offering fellowships for researchers fleeing the war. AIAS has now hosted 12 researchers

from Ukraine for a year since March 2022, just after the war broke out. AIAS and IASes are and should be safe havens for researchers by offering academic freedom and research shelter regardless of their nationality, ethnicity, religion, political conviction or gender. Two of the contributions in this issue are from the Ukrainian fellows who are reflecting on the impact of the war and the future to come.

It is important for researchers to react and do something very tangible, such as help developing new drugs for treatment of SARS-COV-19 or providing advice to the government. But it is equally important for researchers to contribute with the less tangible. To step back, look back in time and look forward to the future, to compare, predict and reflect over the cascading effects of a crisis or on the long-term consequences of a crisis, and to offer bids for potential solutions to crises.

We hope that the interdisciplinary and global contributions in this third issue on *Crisis* will offer you insights and reflections that you would not otherwise have encountered. This 2023 issue is also an Anniversary Issue celebrating the 10 Years of AIAS, from 2013-2023, with interdisciplinary and international challenges, crisis and scientific responses in the form of research dialogues and research solutions.



Photo: Lars Kruse

Lotte Holm
AIAS Acting Director



Photo: Lars Kruse

Lena Bering
Special Consultant at AIAS

EDITORS' NOTE

Crisis has become so persistent in many parts of the world that Adeline Masquelier argues they are becoming the new normal. Having studied the impact of a plethora of crises on Nigerien society, Masquelier suggests that the notion of “permanent crisis” erodes not only established gender roles and collective identities, but also a sense of predictability that, in the long run, is undermining the usefulness of the very concept of crisis. Similarly, Samuel McCormick’s discussion of identity crises in communication draws out the centrality of the crisis in communication itself.

What most contributions have in common in this *iPerspectives* issue on *Crisis*, however, is the notion that crisis does not necessarily mean despair. More than a year into Russia’s war, Sophia Opatska sees formidable strength in her fellow Ukrainians to overcome this most existential of crises, and to grow in this process, too, both as individuals and as society. This capacity to deal with crises is something that, according to Ronald Fischer, has had an enormous impact even on our evolution as a species. As Fischer suggests, the urgent need to respond to crises has forged us humans into the social animals we are today. In the past as well as in the present, these critical moments have often seen the birth and subsequent revival of cultural concepts and narratives that provide justifications for the past and hope for the future. It is thus no wonder, Lauritz Holm Petersen and Armin W. Geertz argue, that end time stories feature so prominently in contemporary religious thought and practice. Indeed, as Jaap Timmer and Nadiia Pavlyk show, crisis can refigure our understanding of time itself. As Pavlyk discusses, war disrupts traditional psychological connections between past, present and future, and as Timmer shows, climate change, similarly, calls for a reconceptualization both of large-scale timeframes and of our lifespans within them.

Similarly, science, which despite huge technological advances and striking discoveries in the latest decades, now faces crises of its own, such as the reproducibility crises, as discussed by Renée van der Sluis and Manja Idorn. The ability to produce reliable results harms our advances in the field and the trust in scientists. It is, thus, not surprising that a field embracing biology and the mind has faced difficult times to translate the most relevant discoveries into changes in the psychiatric practice, as noted by Rodrigo Grassi de Oliveira. Trust in science is similarly affected by the crisis in gender representation in research, as Corina Ciobotaru discusses in relation to mathematics in particular.

Many of the fields represented here are aware that present crises can only be understood through recourse to past ones – historical, as Felix Riede illustrates in relation to past climactic changes and as Helen Van Noorden articulates in relation to ancient apocalyptic thought, geological, as Jeff Kerby’s compelling photographs demonstrate, or cognitive, as shown by Morten Overgaard’s contextual view of behavioural science.

We trust that these photographs, combined with the diverse perspectives offered by the writers, might act as a prompt for further interdisciplinary thought and, ultimately, for further interdisciplinary action.

Bridget Vincent
Philipp Reick
Sâmia Joca
Cici Alexander
Jennifer Galloway



Photo: Lars Kruse



Photo: Ida Jensen



Photo: Melissa B. Kirkeby



Photo: Anders Trærup



Photo: Søren Kjeldgaard



Homo Sapiens' Need for Endless Crises: A Provocative Look at Human Evolution

By **Ronald Fischer**

*A possible representation of
Gilgamesh in an Assyrian palace
relief from Dur-Sharrukin.
The image by Jastrow has been
released into the public domain.*

Pandemics, extreme weather events, civil war, terrorism... Endless crises and an impending sense of doom appear to be themes of our days. We might be tempted to think that this concern with crises and a possible end of the world by our own undoing is a new phenomenon of our contemporary times of rapidly accelerating technology, deadly wars and climate change. I want to step back and offer a different perspective: My central point is that humans have thrived on such crises and our current civilization

would be unthinkable if there was not a constant sense of crisis. In fact, if there was no immediate crisis, somebody would invent one and convince the rest of us that it is real. Our evolved social brains may be wired to crave the next crisis, which gives us something to bond together and fight for (or against). And as a result of this constant crisis fighting, we are exchanging these views on crises in an electronic magazine, sipping Indonesian coffee roasted in Italy and sold by a recent immigrant. Let me unpack my claim.

Agriculture as Crisis

Let's take the emergence of agriculture, which is routinely taught in school as the defining moment that allowed civilization to transition from a hunter and gatherer lifestyle to a higher form of social organization. Certainly, the availability of a large surplus of food has enabled our current form of civilization to dominate the globe. Yet, undoubtedly, agriculture has had disastrous effects on the planet, the ecosystem and our health. The agricultural transition caused significant cascading effects in the natural environment: archaeological evidence tells us of deforestations followed by giant floods, droughts, hyper-salination, desertification, pretty much anywhere where humans experimented with agriculture. With the labour-intensive work of tiling and tending to the soil, cheap labour was needed which incentivized raids and war on neighboring tribes to get slaves to work as cheap and expandable labour, from antiquity till, unfortunately, modern days. When humans started living in close quarters with lots of other humans and animals, epidemics emerged and ripped through these population centers on a regular basis.

Crisis in Ancient Epics

The epic of Gilgamesh is one of the earliest surviving pieces of world literature and is rife with examples of these issues. Gilgamesh subdues and conquers neighboring tribes and kills forest aliens, cuts down trees high up in the mountains, digs wells and builds massive city walls. At the same time, even demigods die of war and of mysterious diseases that spread like pandemics through the early cities. In one version of the epic, distraught by the untimely death of his friend Enkidu, Gilgamesh roams the ends of the world to find the secret of life, symbolizing a search for wisdom that

Crises in our past have shaped how our minds work today.

requires humans to explore and search far beyond. When we analyze the text, subtle cognitive cues about our thinking in the past start to emerge. Embedded within the story are person descriptions used by the ancient storytellers to breathe life into actions of the heroes that can be analyzed using modern natural language processing methods. Focusing on the co-associations of terms that the scribes used to describe the individual characters on these clay tables allows us to unravel at a cognitive level how our ancient ancestors saw each other and the world around them. Important for my point here, the struggle to dominate other humans was one of the core themes that was being used to describe characters within the epic. In other words, the domination of 'others' beyond the city walls was embedded in the story at multiple levels, conveying messages even at a subtle linguistic level.

The Impact of Past Crisis on the Contemporary Mind

Another analysis of the text suggested that along the two millennia in which the epic circulated, the increasing institutionalization and hierarchical organization of society was associated with cognitive shifts in the person descriptions that start to resemble the cognitive architecture of today's citizens. The construction of hierarchical societies with social classes such as warriors, merchants and slaves together with



*The Flood Tablet
from the Epic of
Gilgamesh. The
image by Fæ is
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CC BY-SA 3.0.*

expansive foreign policy geared towards territorial expansion were associated with greater differentiation of person descriptions within the epic. The changes in social organization went in lockstep with changing conceptions and descriptions of other human (and semi-human) characters. This is a second important point to my argument. Crises in our past have shaped how our minds work today.

From Crisis to Collective Ritual

Let's take another look at the concept of the warrior and war. There is now increasing evidence suggesting that a state of war and continuing intergroup competition was a constant feature of our past. Organized warfare bonded humans into more cohesive and well-coordinated groups that in turn were able to defend themselves and dominate other groups more effectively. Central to this success was the invention of marching in training and into battle, the singing at the campfire the night before the battle and the joint prayer at dawn. Through these ancient cultural innovations and practices of synchronized action, cultural evolution hijacked some innate biological attention mechanisms in our brain and as a result yielded more cohesive and coordinated groups. Marching with our brothers, shouting in unison at our enemies, chanting with our families for victory, we are turning into one big collective body.

At the same time, we imbue these activities with sacred meaning. Dare you question my prayer or my favourite song! Such group bonding patterns can be recreated even in minimalistic lab studies, and we can demonstrate how they influence sharing of resources across real-world religious and secular groups. A real or imagined crisis just ramps up these dynamics even more, leading to reinforcing circles that feed on each other.

The history of Homo sapiens is a history of crises, be it war, diseases or climatic catastrophes. But the epic of Gilgamesh also carries in it the seed of hope that lies with wisdom.

I paint a very dark and nihilistic vision of humanity. There have been other forms of social organization and alternative visions and imaginations of social organization in our human history. Yet, these have often succumbed to the version that we are living and breathing today. Crises make us tick. Crises make us come together. If there is no crises, we often lose focus, and leaders invent crises to energize and rally populations.

Crises as Opportunities for Innovation

Yet, crises also challenge us to innovate to overcome these crises. The crisis of losing a friend made Gilgamesh roam the world and encounter the story of the great flood. I think in this lies the hope for humanity. Crises demand action, which carries potential for a different way of living and organizing. Major disasters can be the harbinger of positive change, if there is a collective will. Sure, innovations have the

tendency to unleash other unintended consequences, creating other crises down the track. But at least, within crises there is hope. The history of Homo sapiens is a history of crises, be it war, diseases or climatic catastrophes. But the epic of Gilgamesh also carries in it the seed of hope that lies with wisdom. Crises made us who we are today. By constantly inventing and responding to crises, we invent and innovate to create a different world, crisis by crisis. We would not be human if there was no crisis.

Further reading

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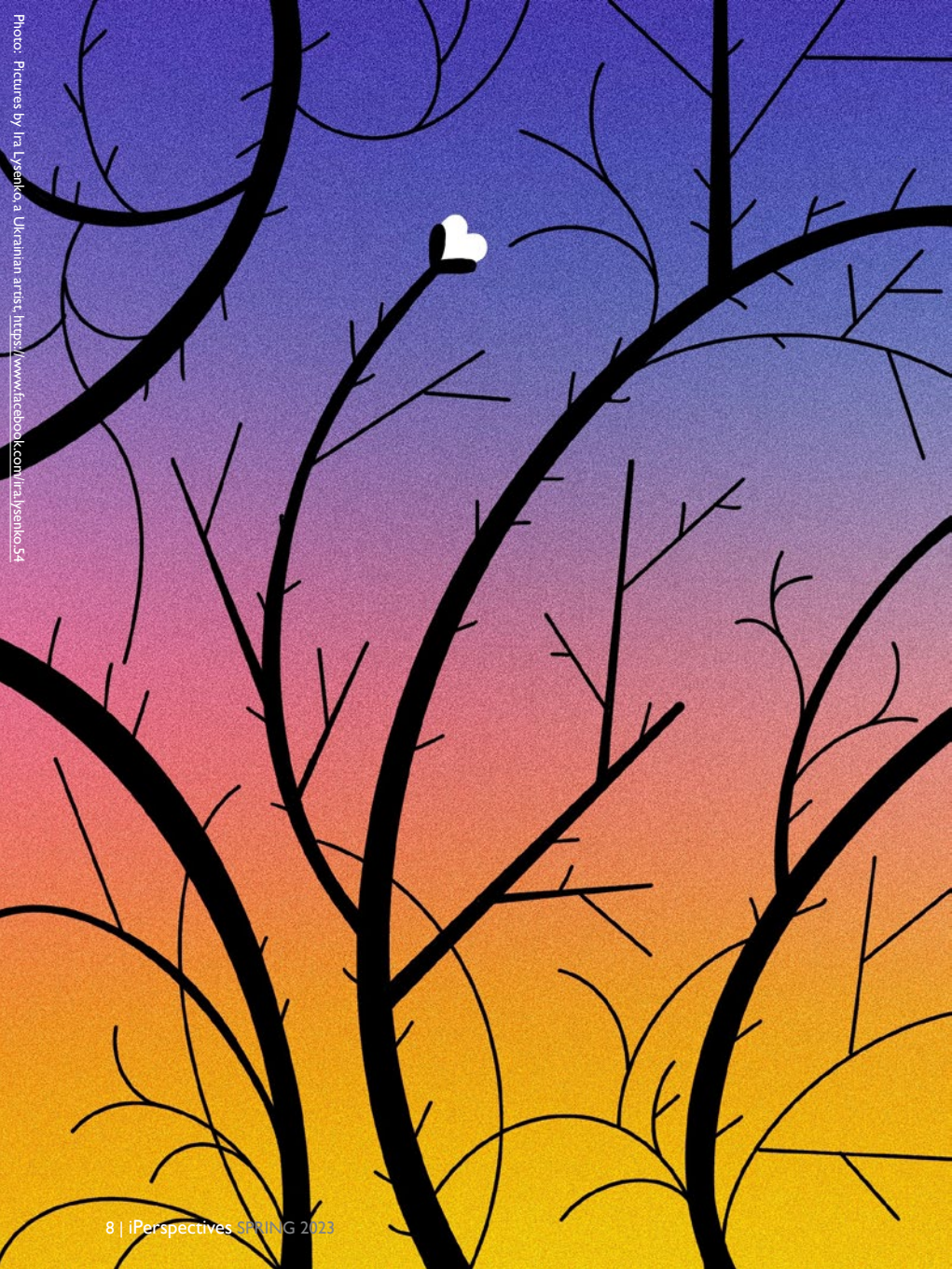
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Ronald Fischer works at D'Or Institute for Research & Education, Brazil and investigates cultural and evolutionary dynamics of values, personality and wellbeing. He is a Fellow of the Royal Society New Zealand, the Association for Psychological Science and among the top 10 most cited researchers of culture in psychology. From 2015 to 2016, he held an AIAS-COFUND fellowship at the Aarhus Institute of Advanced Studies.



Ukrainian Grit

By **Nadiia Pavlyk**

Planning, dreaming, making blueprints, setting goals, imagining events, drawing the future: these are natural parts of human life. The future is a part of life: it's where we can find some emotional resources and inspirations for today's actions and efforts; where we can be happy despite all past and present troubles; where we can summarize the results of our past and certainties. The future is at once the logical continuation of the present and a reward for the past.

The psychological and social "norm" is to be able to describe yourself within these three dimensions of past, present and future. A 1967 study by Cottle shows that a typical reaction from military men is lack of connection between past, present and future, when future acquires a huge, detached form from the present moment. I hypothesise that repeating this study with Ukrainians during the wartime could give similar results: while

the future looks great and meaningful in terms of victory and security, it is separate from the present and the past in that it is impossible to be influenced directly by my present.

Indeed, crisis events can change our ability to think about past, present and future. For example, children in orphanages can't describe their past as they don't have recorded or documented memories, such as photographs, family memories, or the presence of a person

**- How old are you?
- I am three years old.
Nearly five. Ten is soon.**

A quote from my dialogue with a three-year-old boy

who has seen the child continuously from birth to the present. This lack of memory alters many of the social and psychological processes of these orphans: self-identification, adaptation, self-concept and the conception of others (Prikhodzhan & Tolstykh, 1990).

Just as orphanhood affects the perception of the past, so too can war influence a person's idea of the future and perception of the present. My personal crisis started with a feeling that there is no longer any future, that all life is concentrated only in the present moment. This feeling was accompanied by a reflection on the insignificance of our dreams in comparison with the power of the weapon and politics. I have felt so clearly only one task: to save the people nearest to me. During the first week after 24th of February, I felt just the paralyzing fear about the moment that replaced all other feelings or needs. There was no feeling of hunger, no need to take care of the body, no desire to socialize, and nothing else that makes up the normal content of daily life. The only acceptable option was to monitor constantly the news to fill the present moment and understand what was happening right now.

I remember the state when all body sensations were reduced to absolute hearing as a condition of survival. In order to preserve the present moment and survive, it seemed that it was necessary to understand what was happening right now and therefore hearing and listening became the main need. I had the feeling that I had turned into these huge ears, like the ears of an elephant, trying to catch and understand

every sound from the outside. Later, my ideas about the future narrowed down to understanding basic needs: I had to plan what my family would eat and drink, where we would get money and gasoline, and in which direction we would run in case of danger.

The past: memories that matter

"That people's memories are maybe the fuel they burn to stay alive. Whether those memories have any actual importance or not, it doesn't matter as far as the maintenance of life is concerned. They're all just fuel. Advertising fillers in the newspaper, philosophy books, dirty pictures in a magazine, a bundle of ten-thousand-yen bills: when you feed 'em to the fire, they're all just paper. The fire isn't thinking, 'Oh, this is Kant,' or 'Oh, this is the Yomiuri evening edition,' or 'Nice tits,' while it burns. To the fire, they're nothing but scraps of paper. It's the exact same thing. Important memories, not-so-important memories, totally useless memories: there's no distinction - they're all just fuel."

Haruki Murakami, After dark.

I reflect on the past in several directions and forms: as an experience that became significant in the conditions of war; as memories and their physical confirmation in the form of things, photos, diaries; and as history, which is the only one of these forms capable of answering the question of why this war happened to us.

I realized the role of experience during communication with other Ukrainians: among

Ukrainian grit is hard work in the present for a better future, in memory of the past.

us there were people from the Luhansk and Donetsk regions who already had the experience of moving and building a "new" life in 2014. In my environment, these people turned out to be the most resourceful and supportive. I thank my loved ones Olena and Svitlana, who found the strength to support the shocked, gave effective advice and found surprisingly wise words. I remember when I received the invitation to be a part of AIAS and was tormented with the decision and guilt (wouldn't it be a betrayal to leave my country at such a difficult time?). In addition, how decisive was Olena's phrase about the fact that guilt is not natural; every time you feel it, you should ask who benefits from it. That being said, I hope our experiences have made us stronger and wiser.

Running away from home is accompanied by the impossibility of taking memorable things with you. Firstly, they seem unimportant, but later they turn into cornerstones, which keep our memory and worth. They are about home. Moreover, there are Ukrainians who have no home at all now. Nevertheless, they have



memories. The war caused Ukrainians to return to their history; to search for national identity and for a reinterpretation of experience. This will be the subject of an article based on the results of interviews with 18 Ukrainian women with children in Denmark.

The present and the people keep it

*“Suddenly felt
that I don’t want anything
and I don’t know where to go
that wasted time
that missed opportunities
that neither the universe,
nor my loved ones,
nor Ukraine have any benefit from me.
I know that I don’t even have a place at home
And there is no right to a home here.
And I don’t belong to myself.
I know it will pass.
I know that this is a morning without the sun.
I know that spring is coming soon.
But...”*

Public post on Facebook, originally in Ukrainian

My present is related to AIAS where 12 AUFF-Ukraine Research Fellows are restoring their ability to create ideas, plans, ambitions, dreams and goals; it was a significant process of restoring trust in the future. I am grateful to the people around me; their interest restores faith that I can be interesting (thanks to Birgitte, Bridget, Helen, Iwona, Magdalena, Shiru); their support allows me to finally breathe and relax (thanks to Vibeke, Søren, Lotte, Dorte, Kamilla, Helle and Lena); their trust inspires me to try new activities

(thanks to Nanna and Simon); their presence creates a sense of belonging (thanks to Alina, Elmira, Lyudmyla, Anastasiia, Oleg and Boris). I guess the only one way to keep humanity is through people; past, present and future depend on people: they are because of people, they exist for people and with people. This war underlines the values of people in my life.

AIAS became the place where I was first asked what I wanted and what I needed. I learn here every moments like a thirsty person drinks water: more and more. The present, for me, now derives from people and from learning. I worked here with Ukrainian refugees, and dialogues with them confirm that my experience is not unique; almost every woman I interviewed talked about the role of supporting people and the need to learn.

The future: bridges towards achievement

*“Everything will be difficult, if there’s no dream”
Hryhorii Skovoroda, The Garden of Divine Songs*

The war destroyed my ability to plan, to imagine or to see my future completely. I got tired quickly, I didn’t see any prospects, I didn’t understand what all this science was for when people were dying and I didn’t feel the desire to achieve anything: memory, imagination, attention did not work.

In the first months of the full-scale invasion, the general trend for Ukrainians was to utter the phrase “after the victory” when making any plans for the future. The impossibility

of planning anything due to dependence on air alarms, enemy actions, and external circumstances led to the construction of a corresponding reality. We can arrange a meeting, but it is not certain; it will definitely be after the war. We can plan the learning process, but the timing is not accurate; will definitely be in peacetime. We may live happily ever after, but it is not certain; it will definitely be after the victory.

We are praying for the best future of our children and elders. We are donating for the best future of our country. We are dreaming about an independent and strong Ukraine. The idea of the future has never seemed so big and significant:

- How old are you?

*- I am forty-four years old. Nearly fifty.
Centenary is soon.*

Conclusions

*«I am helped by thoughts that this is also life,
that no one promised anything, and that from
happiness to unhappiness is one moment, in
both directions».*

Comment to a public post on Facebook, originally in Ukrainian.

Grit is a phenomenon described in the literature as the perseverance of effort, a consistency of interest and a passion for long-term goals; it is an excellent predictor of success and performance (Credé, 2018). However, for me, grit is the bridge between the past and the future, placed over the present chasm formed by the war. Grit is the fundamental hope for Ukrainians who have lost

the past, save the present every day and do not imagine the future without victory. The grit of Ukrainians is their power and their resource: the war is powerless to take it away. Grit is a confidence that we can and we will. Ukrainian grit is hard work in the present for a better future, in memory of the past.

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Making Sense of “Crisis” when Crisis is Everywhere

By **Adeline Masquelier**

“C'est la crise!” In 1994, I often heard this expression from ordinary Nigeriens who were forced to cope with the devaluation of their currency and the catastrophic inflation that followed. Slashing the CFA Franc in half was supposed to make Niger more attractive to foreign investors and boost the

country's exports. In a matter of days, the cost of pharmaceutical products and other imports soared. And so did the price of nearly every basic commodity, including locally produced foodstuff, as merchants tried to make up for lost profit. The currency devaluation was part of a stringent set of economic reforms aimed at providing



Photo: Adeline Masquelier

temporary corrective measures, a bitter “policy medicine” with short-term side effects. Unfortunately, the side effects—widespread unemployment, low-quality education, restricted health services, and so on—turned into a permanent condition.

It has been almost thirty years since the price of everything from malaria medicine to rice to batteries doubled overnight. Today most Nigeriens lead precarious lives. Rapid population growth has compounded the challenges posed by endemic poverty, a poorly diversified economy, and inadequate government assistance. We might say that crisis has dissolved into chronicity. For many Nigeriens, especially among the younger generation, who face widespread unemployment and prolonged insecurity, the so-called crisis has become part of the new normal.

Crisis as the new normal

Insofar as crisis signals a suspension of the “normal,” how do we apprehend the experience of Nigeriens (or for that matter, anyone) confronting hardship and privation in contexts in which “crisis” no

longer refers to an emergency of circumscribed duration but is instead synonymous with an endless temporal horizon? When crisis becomes normalized, “emergency” takes on a double meaning, political theorist Achille Mbembe and anthropologist Janet Roitman (1995) observe. It names the seemingly never-ending period of suspension people find themselves in when the futurity previous generations took for granted dissolves. Paradoxically, it also gestures to emergent life forms and practices aimed at

rescuing the future—a whole register of improvisations people engage in to make life livable in contexts of uncertainty. In Niger, it is at the fadas—tea-circles where they gather to escape boredom—that young men forge new modes of belonging and new expressions of masculinity in the absence of conventional avenues to self-realization (Masquelier 2018).

Crisis and masculinity

As a place where young men drink tea, play cards, and hang out, the fada has many critics. Many,



Photo: Adeline Masquelier

For many Nigeriens, especially among the younger generation, who face widespread unemployment and prolonged insecurity, the so-called crisis has become part of the new normal.

among the older generation, say that the fada is for “lazy bums” who don’t want to work. When it does not blame youth for their lack of productivity, the discourse of idleness is steeped in the language of contingency, making space for certain narratives while excluding others. Among other things, it privileges the notion that young men’s inability to achieve mainstream ideals of masculinity is symptomatic of a wider crisis—a perspective that has inspired numerous studies of youth in the Global South.

Uncertainty and constant crisis

Anthropologists seeking to describe African men’s experience of disempowerment in the post-industrial age initially spoke of the “crisis of masculinity.” In their works, crisis was often posited as the point at which the ethnography began, enabling the author to address “what went wrong.” It was useful to throw into relief the failure of postcolonial aspirations, the damaging effects of austerity programs, and the patchiness of global flows, among other things. Two generations later, the concept has lost much of its semantic usefulness in contexts



Photo: Adeline Masquelier

When the crisis
in question
acquires a kind
of permanence,
however, we
confront the
limitations of
“crisis” as a
conceptual tool.



where both men and women live in conditions of protracted dysfunctionality and semi-permanent collapse. Arguing that the concept of crisis obfuscates the complexities of human experience, some anthropologists have focused their attention on “uncertainty” to highlight the risky and unpredictable nature of contemporary life in contexts of hardship, volatility, and constraints (Makhulu, Buggenhagen, and Jackson 2010). Uncertainty is a useful concept for describing the diverse tactics Africans use to negotiate conditions of instability and to introduce order and predictability in their lives (Cooper and Pratten

2015). For anthropologist Henrik Vigh (2006), on the other hand, “constant crisis,” as an oxymoron, captures something of the messy and dangerous realities experienced by many youths in Guinea-Bissau.

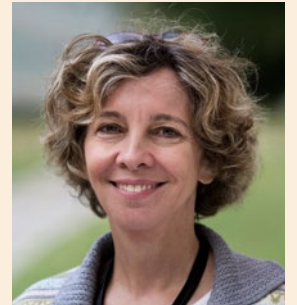
Is crisis in crisis?

As an analytic, crisis denotes a turning point, a decisive moment in history when “things are no longer the same” and we are forced to think otherwise. It signals an acute temporary problem that surfaces and then, presumably, resolves itself. In other words, it helps make events legible by giving them historical significance. When the crisis in question acquires a kind of permanence, however, we confront the limitations of “crisis” as a conceptual tool. Janet Roitman (2013) invites us to recognize these limitations when she writes that the term “crisis” serves as a placeholder—a concept so self-explanatory it requires no explanation even if it ultimately explains very little about the event it encapsulates. Put differently, crisis is not an observable event. Yet, its genericness allows it to effectively paper over the very specificity of the history it

purports to describe. The lesson I take from all this is not that we should avoid talking about crisis but that doing so required that we lay bare the categories that are mobilized to define this state of emergency. For those of us writing about Africa, it means being mindful about what assumptions we smuggle in and what singularities we erase when we talk about Africans (or Africa) in crisis.

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Crisis Communication

By Samuel McCormick

Human communication is always, to some extent, crisis communication. So much so that adding “crisis” to “communication,” as I’ve done in the title of this essay, runs the risk of redundancy.

“Crisis” derives from the Greek verb *krinein*, meaning to separate and to distinguish, much as a strainer separates and thus distinguishes cooked pasta from boiling water. Similarly, “communication” descends from the Latin verb *communicare*, meaning to impart

**Human communication
is always, to some extent,
crisis communication.**

and, more profoundly, to share – much as a bowl of cooked pasta, when shared with others, is divided out.

What, then, is the basic crisis of human communication? To my mind, it’s an *identity crisis*. Let me explain.

All speech is addressed. And all speech, because it is addressed to others, has the same basic structure, a holy communicative trinity of sorts comprised of speaker, speech, and spoken to. Or, if we widen the gyre of “speech” to include other modes of communication: self, medium, and other.

By “others,” I don’t just mean other people — neighbors, friends, lovers, and the like. On the contrary, I’d like to suggest that the most significant other in each of our lives is, in fact, ourselves. It’s

because I don’t know myself that I’m inclined to speak with you, and vice versa. Whatever else human communication involves, it typically starts here, in reciprocal states of identity crisis.

Most of what we say to each other is an extension of this shared identity crisis – and never more so than when we speak about ourselves. I have a friend, for instance, who resembles Meghan Markle – or, at least, who claims to have heard as much from others. “Do you agree?” I’ve sometimes heard her ask. “Do you think I look like Meghan Markle?”

How many “I”s are at work in this question? I count at least two: there’s the “I” that appears in the question, and the “I” that feels compelled to ask it.

The first “I” is strictly grammatical, appears only at the level of language use, and shows my friend to be

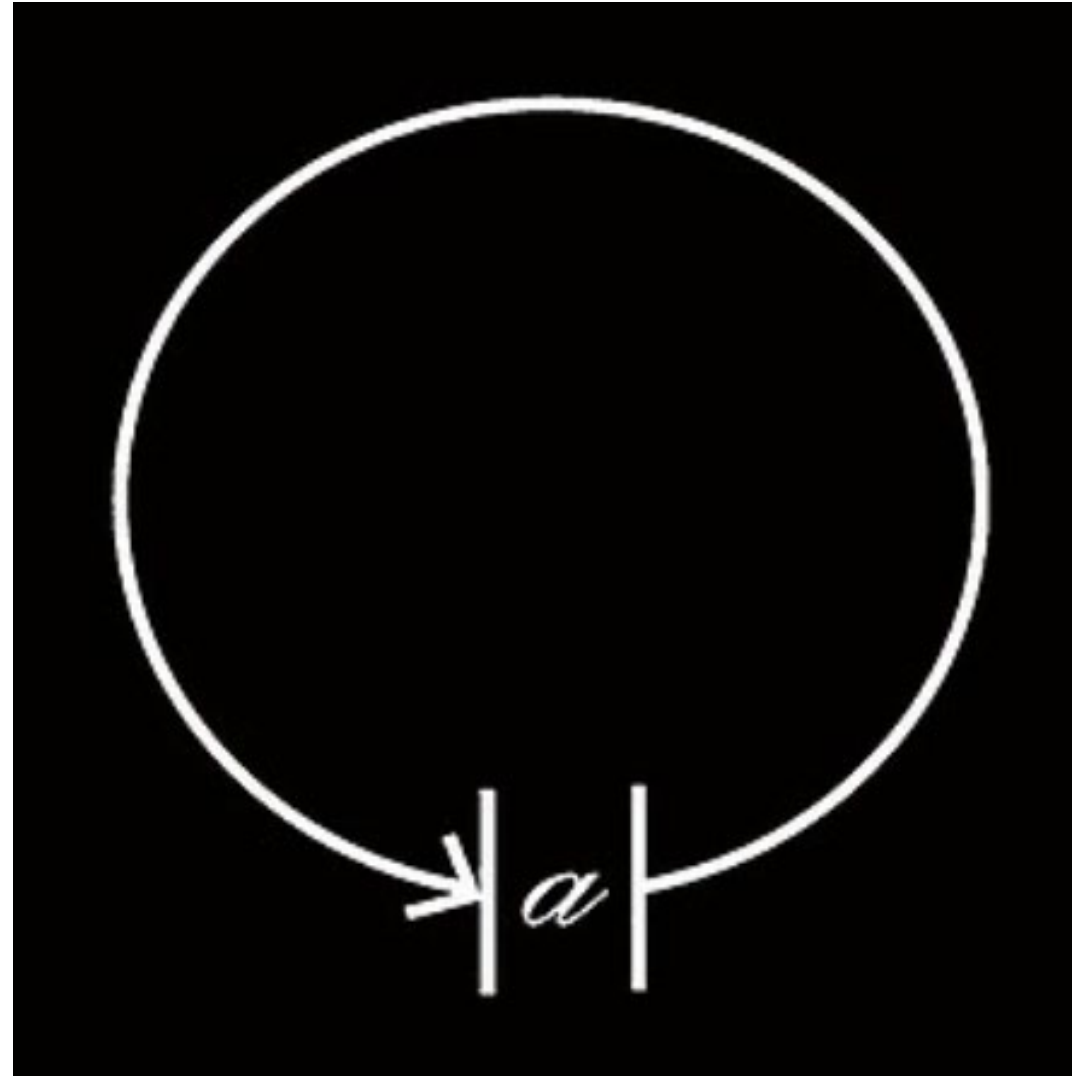
a *spoken subject* – an abstract, disembodied being who exists as a vertical pronoun in the question, “Do you think I look like Meghan Markle?”

Subtracted from this question, however, is the “I” which feels compelled to ask it – a lived, embodied sense of self that often feels neither regal, nor glamorous, nor even likable, and thus turns to others in hopes of hearing otherwise.

But the affirmation my friend seeks only deepens the insecurity that drives her to speak, for now her sense of self-worth is not only dependent on a likeness to Meghan Markle but also reliant on someone else’s acknowledgement of this dependency.

Let’s be clear: The ancient Greeks did not eat pasta. As near as I can tell, pasta didn’t arrive in the West until the first century. So when the ancients used the word *krisis*, it wasn’t in the context of noodle making. Instead, they understood *krisis* in medical terms. A *krisis* was a turning point in the progression of a disease, specifically a moment signaling that someone was likely to recover or die.

The identity crisis we’ve been considering, in which we often feel like others to ourselves, and thus in need of validation by others, is no exception. I don’t know much about Instagram, Tiktok, and the like, but one thing seems obvious: More than social media platforms, they’re crisis communication hotlines. I just wish we knew how to answer each other’s calls.



Lectures on Lacan:
<https://linktr.ee/lecturesonlacan>
hosted by Samuel McCormick.



About the author

Samuel McCormick is Professor of Communication Studies at San Francisco State University and was EURIAS & Marie-Curie Research Fellow at AIAS in 2017-2018. His latest book, *The Chattering Mind: A Conceptual History of Everyday Talk*, was published by the University of Chicago Press in February 2020.

History – One Damn Crisis after Another

By **Felix Riede**

A precious token of existential fear from the climate crisis of the 6th century CE: a so-called bracteate, offered to the gods near the small Swedish town of Söderby.

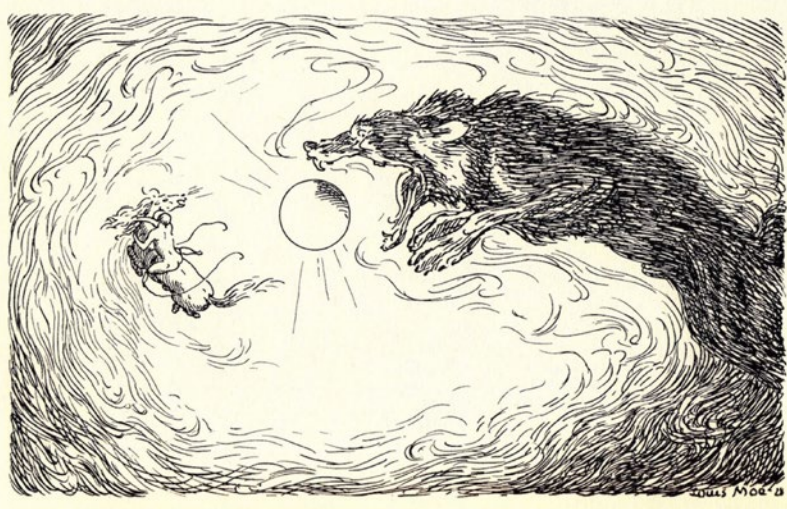


Aert van der Neer's (1603–1677) 'Riviergezicht bij Winter', conceived in the midst of the Little Ice Age between 1655 and 1660, this painting illustrates the Dutch Republic's urban infrastructure as well as the use of its many frozen canals. Copyright: Rijksmuseum Amsterdam.

In a famous saying, well-known historian Arnold Toynbee criticised some of his colleagues for viewing history as merely 'one damn thing after another,' as devoid of pattern and cause. Not many historians, I wager, truly subscribe to the view that

no regularities exist in historical processes but one driving force that has been rarely considered is climate. The day I started drafting this very text, the summary report of the newest Intergovernmental Panel on Climate Change's (IPCC) sixth Assessment Report was

released, and the media aftermath is unfolding. The evocative graphics and wording of the report leave no room for doubt: societies the world over are in the midst of a historical crisis precipitated by human-induced global warming and its many and manifold side-effects. Instrumental data for the last 150 years alone demonstrate clearly that global temperatures are rising, alongside a number of other biophysical indicators suggesting that many subsystems of our remarkable planet – biodiversity, ocean circulation to name just two – are spiralling out of control. The rising natural scientific indicators correlate with a swath of other indicators that instead point at the behavioural and societal processes that have been changing just as rapidly in the most recent past: tourism, the number of McDonald's restaurants, and of cars, paper consumption and many more. Arguably, these latter indicators point at the cause, while



The Fenris wolf swallows the sun – an evocative painting of Norwegian-Danish painter Louis Moe (1857–1945). Arguably, echoes of the societal crisis that unfolded in the wake of the volcanic eruptions and the subsequent cooling in the 6th century CE are reflected in the eschatology of the Nordic religion.

the former at the consequence of the present crisis. For many, this planetary crisis is so profound as to signal the beginning of a new geological epoch ushered in by human action: the Anthropocene.

Notably, the projections for the next few hundred years of climate presented in the IPCC are not only based on data coming from the last 150 years. Major advances in climate science over the last decades – first and foremost the investigations of the changing chemical composition of ancient air trapped in the annually

laminated ice-cores of Greenland and Antarctica – have allowed us to see just how climates have changed over the last many thousands of years. More than historians perhaps, archaeologists have long been interested in the climate and environments of the past. Collaborating with and drawing on the results of neighbouring disciplines such as geology and palaeoecology, archaeologists commonly integrate such knowledge in their reconstructions of past life and livelihoods. Until the advent of the highly resolved ice-core data and other recent improvements in sampling and analysis, our understanding of past climate, environment and how these changed was of low granularity, however. The ice-cores revealed just how volatile past climates were. They indicate, for instance, that climatic changes of a rate similar to the one we

Societies the world over are in the midst of a historical crisis.

Monuments of crises past. The ruins of the abandoned Hvalseyffjord church in Greenland and the similarly abandoned church at the Jamestown colony in North America are silent witnesses of hardship and of societal crises under the climatic strain of the Little Ice Age. Copyright: National Museum of Denmark / Beinecke Rare Book & Manuscript Library, Yale University.

are experiencing now occurred on multiple occasions over the past millennia. They also revealed major droughts as well as correlations between major volcanic events and subsequent periods of changed climate.

Is the message then not to worry about the present given that humans have always mastered changing climate? On the contrary. Having unlocked these icy archives of past climate, it has become evident that many periods of societal change that we can identify in the archaeological record through the careful analyses of artefacts and their distribution correlate uncannily with periods of climate change. The scales of such impacts range from local to global, and they often display a complexity on par with our present crisis.

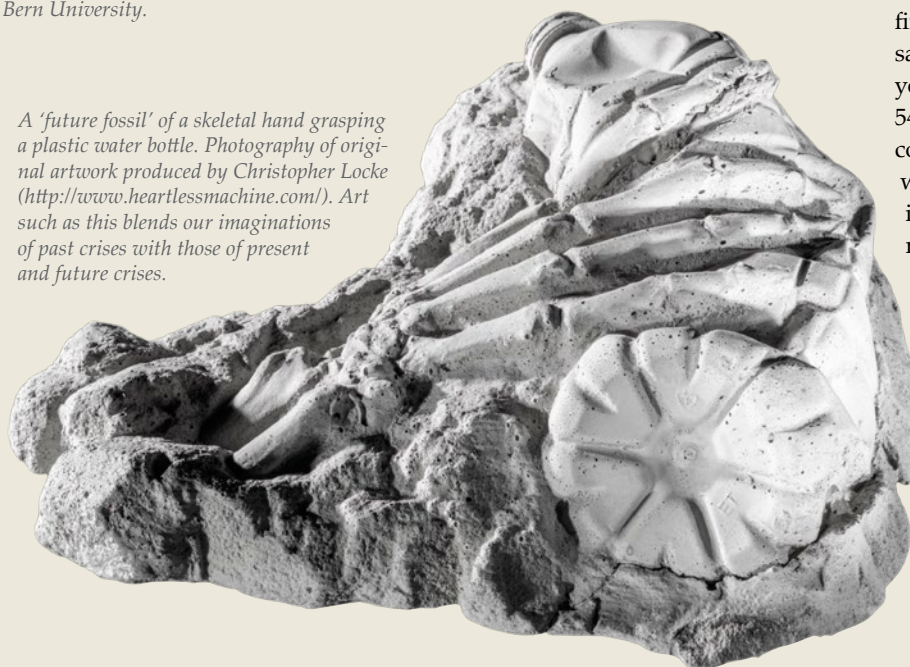




A piece of ice-core taken fresh out of the Greenlandic inland ice. The air trapped inside miniscule bubbles in this ice contains many a secret about past climate. Copyright: Michael Sigl, Oeschger Centre for Climate Change Research, Bern University.

The so-called Little Ice Age, for instance, lasting from about 1300 to about 1850 CE, left European colonists in Greenland and North America struggling. The Viking settlers in Greenland disappeared by the 15th century, while several early colonies in North America such as Roanoke and Jamestown dwindled to the point of extirpation in the chilly 16th and early 17th centuries. All the while, however, the tiny Dutch Republic – an urbanised, maritime, and mercantile nation – benefited from

A 'future fossil' of a skeletal hand grasping a plastic water bottle. Photography of original artwork produced by Christopher Locke (<http://www.heartlessmachine.com/>). Art such as this blends our imaginations of past crises with those of present and future crises.



Genuine societal change occurs in punctuated bouts in particular moments of crisis.

both the changing climate and the hardship it caused its rivals (Degroot, 2018). So, looking back in time a few centuries, climate change emerges as one key cause of societal change, as a framework for decision-making and stimulus for those 'damn things' to chase each other as they did.

Looking further back in time, we can identify many such moments of crisis. Often major volcanic eruptions are the culprits causing sustained climate cooling, which lead to economic uncertainty, and in turn to socio-political and even religious instability. The first half of the sixth century CE saw one such crisis when, in the year 535 and again in 540 and 547, eruptions caused regional cooling lasting decades. This was especially pronounced in Northern Europe. Many regions in Sweden, Norway but also in the north of Denmark became depopulated as the agricultural communities of the Iron Age were overwhelmed. Some argue that the end of the world as understood in the Nordic religion – Ragnarok, preceded by the harsh Fimbulwinter – refers to this period. The

climate proxies and models for this time strongly indicate cooler climate while the archaeological evidence indicates depopulation, religious change, and geopolitical unrest. Further back in time still, we see the flourishing and failure of empires, cities, and communities in the wake of climate change. Causality is not always straightforward and the pathways of response always contingent on the specific historical circumstances in question.

The historical sociologist William Sewell Jr. argued that genuine societal change occurs in punctuated bouts in particular moments of crisis. Human societies have survived many such crises, but the costs have always been substantive and often unevenly and unjustly distributed. Current climate change is likely to lead to the latest crisis that, hopefully, will not be our last.

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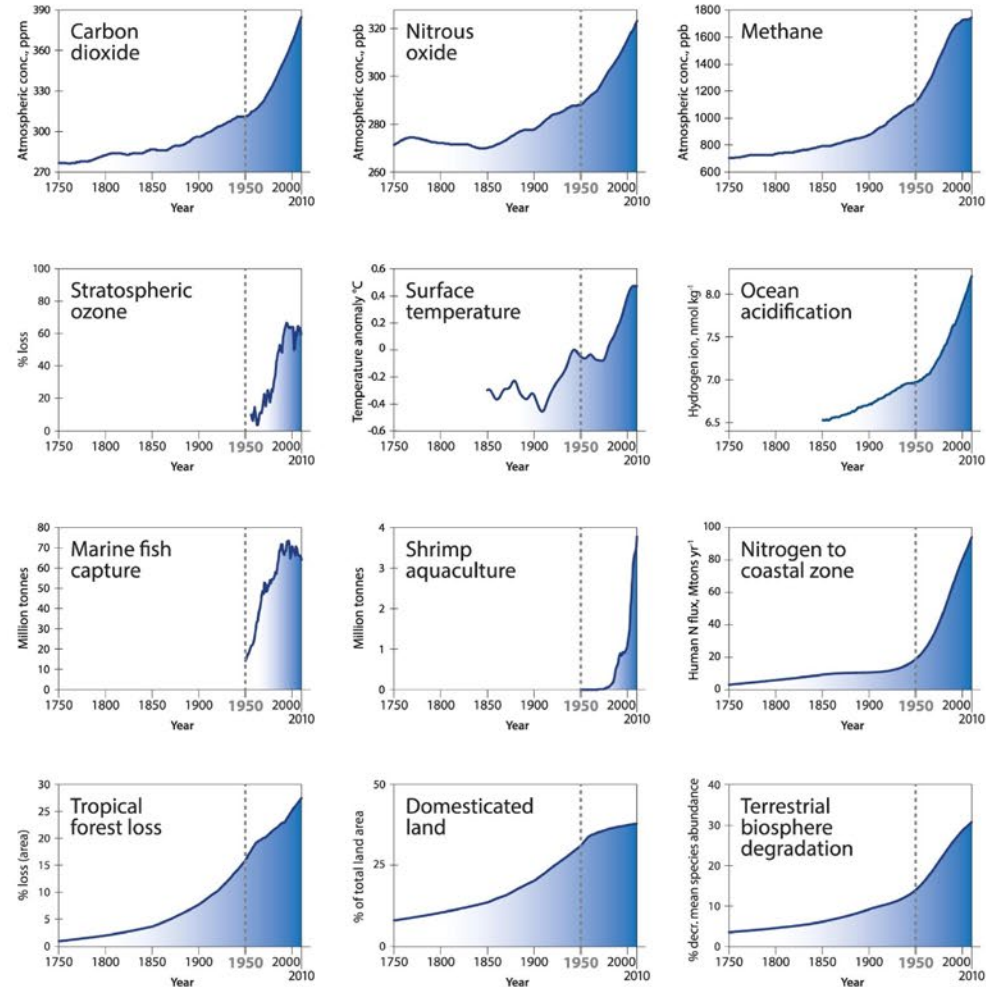
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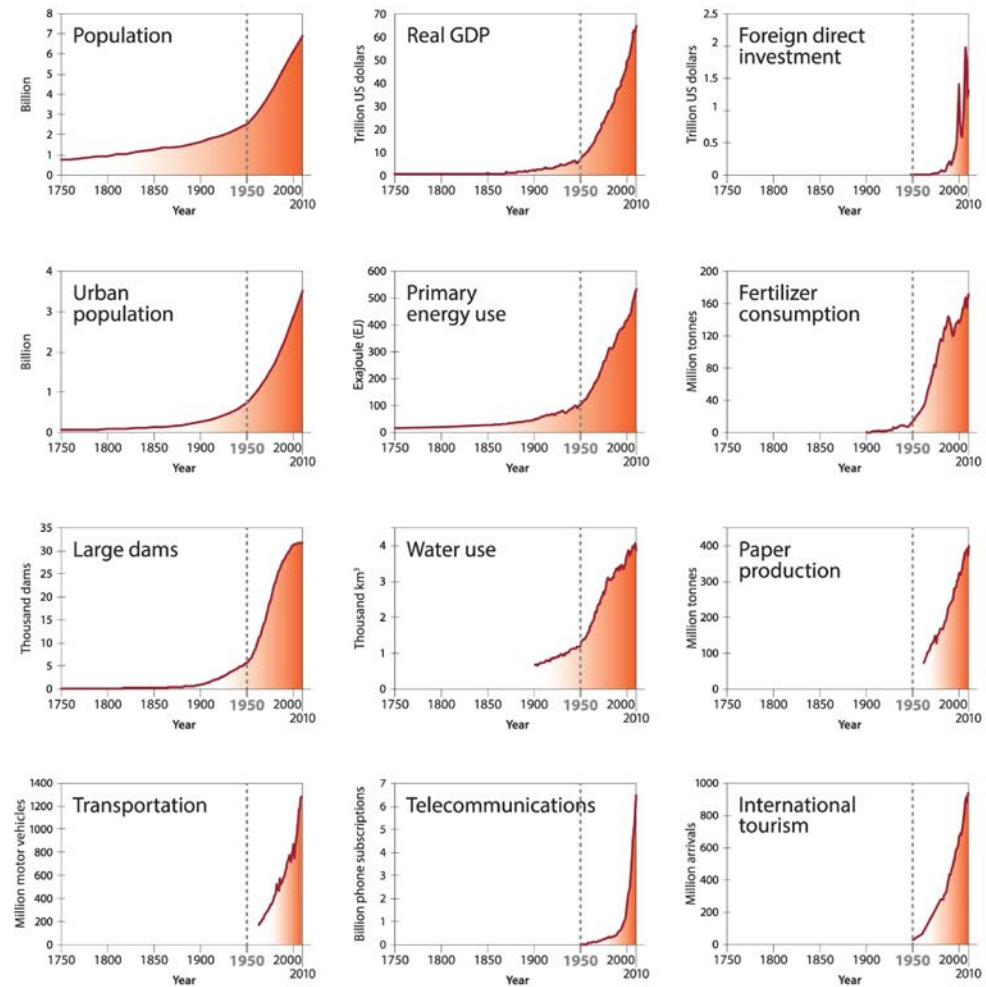
About the author

Felix Riede is Professor of Archaeology at Aarhus University and an Associate Fellow at AIAS. His work reaches across archaeology, climatology, and ecology to understand the way in which humans are impacted by their environment and vice versa. His newest book on climate change and Danish prehistory, *Klima og katastrofer i Danmarks oldtid* (Turbine), was published in May 2023.

Earth system trends



Socio-economic trends



The symptoms and causes of the Anthropocene as captured by earth system and socio-economic indicators. For the last 150 years or so, many of these can be observed and measured directly; beyond, various proxies – chemical, artefactual, or otherwise – can be used to track their trajectories back in time. As many curves rise steeply from around 1950, this is often marked out as the beginning of the so-called ‘Great Acceleration’. Modified from Steffen et al. (2015).

Steffen, Will, Wendy Broadgate, Lisa Deutsch, Owen Gaffney, and Cornelia Ludwig. “The Trajectory of the Anthropocene: The Great Acceleration.” *The Anthropocene Review* 2, no. 1 (April 1, 2015): 81–98. <https://doi.org/10.1177/2053019614564785>.

Northeast Greenland. Filling in the Gaps...

By Jeffrey Kerby

A self portrait with research engineer Ebbe Poulsen as we gaze over the 1200m cliff that falls from Bastionen, a high point on Ella Island. Far below, a small gravel runway and the red buildings of a research station sit next to a natural harbor. These few buildings and landing area make Ella Island a hub for scientific research in the Northeast Fjord Region of Greenland.

As the planet heats up, the Arctic warms faster, and this frozen region is thawing.



Left: The research station Ørnereden (The Eagle's Nest) on Ella Island hearkens to an earlier era of scientific exploration. Built in 1931 by the Three Year Expedition led by Lauge Koch, this main station building on Ella Ø has variously been a hub for research, the Sirius Dog Sled Patrol, and other activity for almost a century.

Top Right: Inside Ørnereden, the past and present of Arctic research exist in parallel. Here, researcher Signe Høgslund prepares to head outside while carrying polar bear deterrents.

Centre Right: Relics from past scientific investigations on Ella Ø are mingled with modern day scientific monitoring gear. The strange fossilized crystals on these rocks from the island relate to a period of complete global glaciation approximately 700 million years ago known as 'snowball earth'.

Bottom Right: Research buildings and the summertime base for the Sirius Dogsled Patrol are all nestled into a small harbor below the looming cliffs of Bastionen. Inside a small shipping container sitting near the shore, solar- and wind-powered data loggers and communication links connect to cameras and environmental sensors that continuously monitor nearby land, sea, and atmospheric conditions. Other containers like this one are being deployed throughout NE Greenland National Park as part of the Greenland Integrated Observation System (GIOS) network.

The world's largest National Park sprawls across Northeast Greenland, spanning nearly 1 million km². Within its borders are no hotels, no public airports or roads, and no commercial harbors. Only a few dozen people live here, nearly all of them short-term residents at weather and research stations or military outposts.

Yet the park's inaccessibility belies its global relevance. Water and organic carbon are locked up in its ice-sheets and permafrost respectively. As the planet heats up, the Arctic warms faster, and this frozen region is thawing. As some of this water and carbon re-enters ecosystems, the science and policy communities ask: 'when', 'how much', and 'what next?'

Research engineer Wieter Boone works to install a connection to one of the underwater sensors linked up to a GIOS container, itself pictured with the small windmills in the background. Various sensors monitoring environmental change on land, sea, and in the atmosphere are linked to the container, which can transmit data live to a server based in Denmark year round.



While there are no roads connecting locations in NE Greenland, the icy fjords are a highway for boats used to deploy sensors and take water measurements throughout the summer.



Not all activities are automated in NE Greenland. Here a Sirius Patrol sled dog takes some time off to play while researchers take water samples from a small lake on Ella Island.



Photos: Jeffrey Kerby

The answers to these questions affect both Greenlanders and everyone else on the planet. ‘We’re all doomed!’ or ‘The risks are overblown!’ are news-friendly narratives that depart from the reality on the ground. The situation is indeed an urgent and complex crisis, but it’s also one where there is still space for informed decision making and action. For hope.

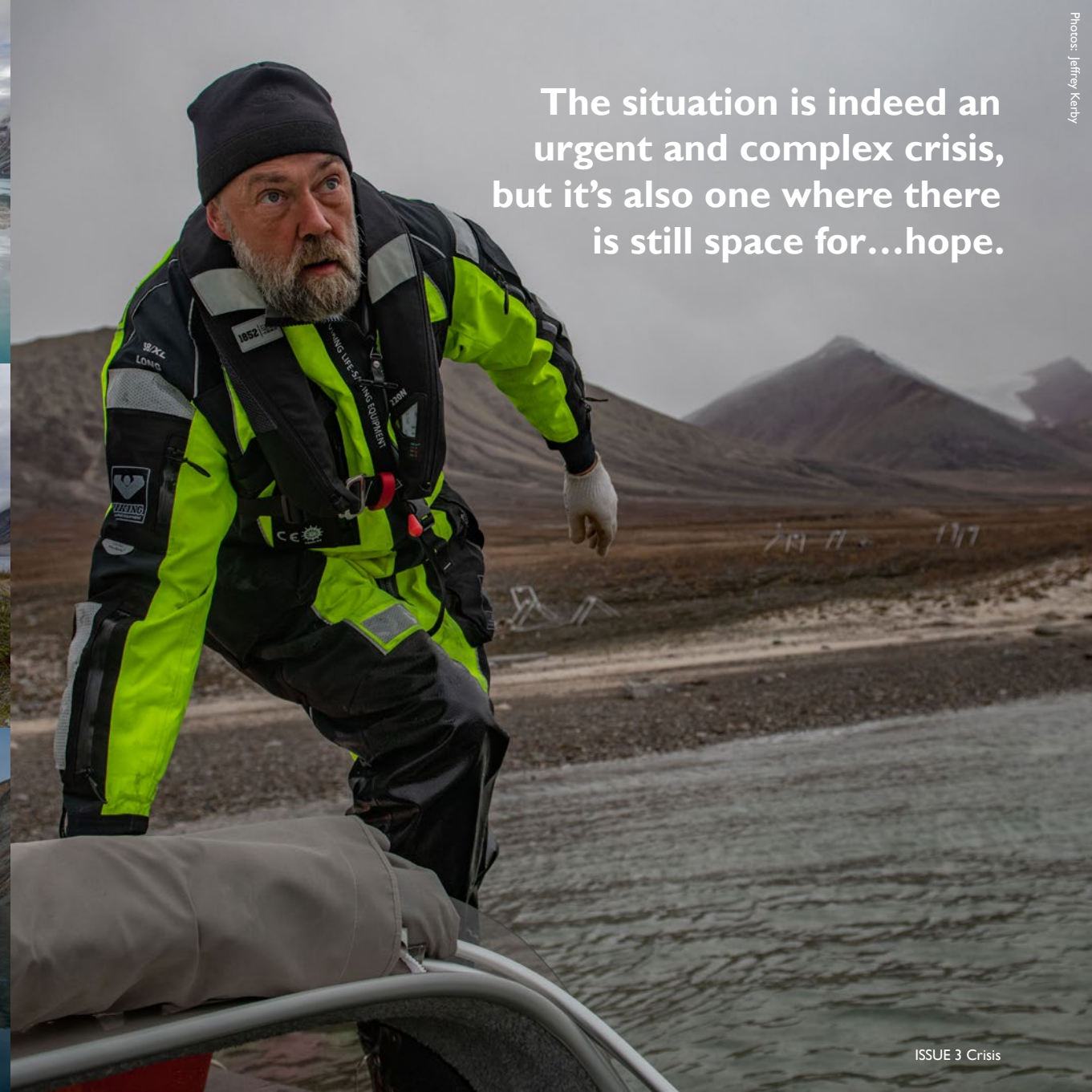
Environmental monitoring in the Northeast Greenland National Park, by Pinngortitaleriffik and other government, academic institutions, informs action. We are entering a new era where uncrewed monitoring systems - like the Greenland Integrated Observing System (<https://gios.org/>) - can run year-round in regions with minimal logistical support.

Top Left: Land, sea, ice, and atmosphere all interact in NE Greenland to determine environmental feedbacks on climate. The GIOS team places instruments along natural gradients in these environments to capture these interactions. Here, three small boats are visible at the natural harbor - two modern MOPAs built specially for Arctic expedition work, and one abandoned wooden boat - a relic of the fox trapper era that spanned the early 1900s to 1960.

Centre Left: Near the shore, the remnants of a hut used by fox trappers over 70 years ago sits in disrepair. Hundreds of these small structures dot the shores of NE Greenland, and several have been restored to serve as emergency shelters and living museums by the Northeast Greenland Kompagni NANOK, and they can also serve as infrastructure for mounting scientific sensors. Here, Egon Frandsen walks past the remains of an abandoned boat from the trapping era.

Bottom Left: The MOPA boats used by the research team offer a means of transport, but also act as scientific workbench and emergency shelter if the weather turns.

Right: Researcher Søren Rysgaard pushes the boat back from shore after helping set up time-lapse camera infrastructure on shore. These cameras take photos every minute throughout the summer to capture when plants begin to grow and pull carbon out of the atmosphere and to create a record of the timing and identity of different insect pollinators that visit them.



The situation is indeed an urgent and complex crisis, but it's also one where there is still space for...hope.



Top: Scientific monitoring gear, like these components of a time-lapse camera installation, go through repeated rounds of testing in Denmark and in Greenland. Despite this, they face a variety of challenges to function properly when left alone to gather data for long periods of time. The weather takes its toll, but so does wildlife. Arctic Foxes are extremely curious animals, and will ‘taste’ nearly any foreign material they find out on tundra. Unfortunately, it seems they particularly enjoy the taste of rubber coated wires...

Bottom Left: Foxes are not the only curious creatures on the tundra. Here Simon Kortegaard inspects fresh polar bear tracks near a stopover point. These are important reminders to stay vigilant while installing infrastructure.

Bottom Right: Like foxes, polar bears are curious about nearly any novel object they find on the Arctic tundra and will rigorously investigate what it might taste like! This can be a problem when designing and setting up environmental monitoring gear, as it must be able to withstand all sorts of bumps and exploratory bites. Curiosity is a critical trait for animals living in landscapes where food can be hard to come by. Here curiosity is often a means to survival.



In parallel with existing monitoring strategies, this new infrastructure will fill knowledge gaps beyond a scope that any human based monitoring system could ever fill. For example, how do you discover exactly when and which insects pollinate a flower across its entire lifetime? Or when does a pulse of fresh water emerge from underneath the snout of a fjord-terminating glacier? These seemingly esoteric questions are small but important missing pieces to the much larger puzzle that is understanding ecosystem function, and ultimately, large-scale climate feedbacks.

This photo essay shows some of the infrastructure that will help solve these ecological puzzles, but also glimpses of the people, places, and processes involved in deploying and maintaining it in this globally unique region.

Top Left: Sometimes curiosity can lead to human-wildlife conflict. Here a flare illuminates the nighttime sky in an effort to scare away a polar bear. Moments earlier the bear had broken open a window to the room where Toke Høye (another former AIAS fellow) and I were sleeping. Fortunately neither the bear nor any researchers were harmed in the encounter.

Top Right: Night disappears during the peak summer months at these latitudes, but it begins to creep back in as August fades into September. This adds a new dimension to long boat journeys home after installing sensors many kilometers away from camp on Ella Island.

Bottom Left: Researcher Torben Christiansen secures a small boat to shore while it is being helmed by Peter Schmidt Mikkelsen, director of NANOK and a former Sirius Patrol member. This location is at the mouth of a rich, vegetated valley with many muskoxen, hares, foxes, and other wildlife.

Bottom Right: At this point in history, people are only visitors in this part of Greenland. The information we gather from the park feeds into broader management and policy initiatives, but researcher presence here is fleeting. It is home to numerous plants and animals that have to adapt to its changing conditions. Scenes like this were uncommon in decades past, but polar bears are now more commonly seen on land by researchers during spring and summer, as their preferred sea ice habitat has diminished with rapid Arctic warming. What sights will we see another two decades from now?



Photos: Jeffrey Kerby



About the author

Jeff Kerby, a former AIAS fellow, is an ecologist and photographer whose work focuses on polar and alpine regions. He is currently based at Arctic Research Centre and the Section for Ecoinformatics and Biodiversity in the Department of Biology at Aarhus University.



AFTER WAR: Between Happy End and Hard Work

By **Sofiya Opatska**



A UCU coffee mug in a bomb-shelled kitchen.

My friends and colleagues in Ukraine would argue that the title should be different—"Victory in War: Between Happy End and Hard Work" as it is the belief in victory that keeps Ukrainians moving forward. As intellectuals, we clearly understand that it will be hard work because achieving freedom requires hard work. Freedom comes with

responsibility. Historian Timothy Snyder from Yale University, whose video lectures on Ukraine have gained immense popularity over the past year, emphasizes that currently many people around the world are rethinking the meaning of freedom as it entails taking responsibility for our actions. Something indecent is happening and Ukrainians are reacting in a very humane way.

On a Saturday morning in March 2023, the UCU Business School in Lviv hosted a breakfast for 25 Ukrainian business leaders. Despite the rainy weather, they came to meet a prominent design thinking expert from California, Barry Katz, who was teaching at our school. As this was a fundraising event, all 25 generously donated to a scholarship fund named after Oleg Vorobyov, a student who was killed by Russian occupiers. During the event, our guest speaker asked the attendees about their biggest challenges.

Over the next one and a half hours, we had a thoughtful and engaging discussion about the many challenges Ukrainian businesses are facing today. However, rather than focusing solely on their individual businesses, every participant was thinking about how their company could be a proactive element of the larger ecosystem that is Ukraine. The discussion highlighted five major challenges that Ukrainian business leaders are currently grappling with, which are deeply important to all of us.

At the heart of these issues is the overarching theme of how not to lose victory after victory.

Challenge 1: Traumas

The challenge of addressing the trauma caused by the war in Ukraine is immense, given that it is one of the largest armed conflicts since World War II, with an active front line spanning over 1,500 kilometers. The global community can observe the war as if it were a reality show, and the horrors of war are evident whenever Russian troops withdraw from any city or town, leaving a trail of devastation. According to the Prosecutor General of Ukraine, more than 72,000 war crimes have been recorded in Ukraine since the full-scale Russian invasion began. Approximately 1.5 million

individuals in Ukraine have been or are currently located on the front lines, and many will require physical and/or mental support. Society and organizations must be prepared to offer the necessary resources and support to aid in the successful reintegration of our courageous men and women who have put their lives on the line for their country.

Challenge 2: Past vs. future?

Balancing society's needs and expectations between past and future is a complex issue, particularly in the aftermath of war. It is essential to recognize the widespread demand for justice

Achieving a delicate balance between past and future needs and expectations in society following war requires careful consideration and collaboration among all stakeholders, including those advocating for justice and those focused on building a better future.

It requires a great deal of effort to overcome the challenges faced by the country, such as addressing the trauma caused by the war, balancing society's needs and expectations between past and future, and finding ways to bring back the millions of refugees and displaced persons who have left the country.

that arises due to the brutalities of war. However, the pursuit of justice often involves a focus on past events, potentially creating tension between these efforts and the imperative of prioritizing the future.

Achieving a delicate balance between past and future needs and expectations in society following war requires careful consideration and collaboration among all stakeholders, including those advocating for justice and those

focused on building a better future. It is essential to acknowledge that different individuals may play varying roles in this process, and their state of mind may differ, with some emphasizing empathy and others emphasizing hopefulness. But when we push for both justice and progress, we can work towards building a sustainable and stable post-war society.

Challenge 3: Flight and return

Ukraine faces an acute danger of brain drain resulting from the mass exodus of refugees and displaced persons to Europe and beyond. While the exact numbers remain unknown, 4.5 million Ukrainians are registered in other countries, with two-thirds of them women and children, and only a small number of elderly. 70 percent of the women who fled had a university degree, suggesting that the very educated and skilled left the country in high numbers.

What is particularly worrying is that despite the overwhelming desire of many Ukrainians to return home, the recognized Ukrainian migration expert, Professor Ella Libanova, has expressed caution regarding how many can be brought back.



Students make camouflage nets at the UCU campus.

Photo: Sofya Opadka and the Ukrainian Catholic University

Research on local conflicts in the 20th century has shown that only around 30 to 40 percent of those who had left returned. We must strive for a higher percentage, however, given the entrepreneurial mindset of the majority of those who left, and the skills they bring to the table.

Fortunately, there is a silver lining. Many Ukrainians have come to realize that despite the poor infrastructure, they have had a relatively good standard of living in their home country, including access to services they cannot afford abroad. To further improve the situation, we must create an environment that encourages those who have left to return and contribute to the rebuilding. Equally important is maintaining strong ties with those who have chosen to remain abroad, as they can play a crucial role in soft diplomacy and developing partnerships around the world.

Challenge 4: Active citizens

Throughout Ukraine's long history as a nation, the state has often been perceived as an enemy to the nation, as we have been conquered by other states for extended periods. However, over

the past three decades, the state has become ours, and this realization has become especially pronounced since 2014. It is vital that Ukrainians learn to live in a state for which they are responsible, without relying on paternalistic expectations in society toward the state. Instead, we must strive to become active citizens and move away from opposing the state at every turn.

Challenge 5: Accountability

When discussing Ukraine with our international partners, we agree that there has been tremendous support from international organizations. However, there is also growing concern about potential chaos. Currently, coordination between donors is limited, and most recognize the need to transition from an emergency mode to an operational long-term mode. Reconstruction efforts are already underway, with a focus on combining seemingly incompatible objectives—such as building high-quality homes for 600,000 people with limited resources, and doing so quickly. It is crucial that we, as Ukrainians, do not just rebuild but build forward, with a clear vision for the future. Additionally, our international

partners insist on accountability from us, which is essential for building trust and long-term partnerships.

Stronger than ever

In conclusion, the end of war in Ukraine is not a happy end that comes without hard work. It requires a great deal of effort to overcome the challenges faced by the country, such as addressing the trauma caused by the war, balancing society's needs and expectations between past and future, and finding ways to bring back the millions of refugees and displaced persons who have left the country. However, the Ukrainian people have shown resilience and a commitment to building a better future. By prioritizing justice and progress, and working together towards a sustainable and stable post-war society, Ukraine can overcome these challenges and emerge stronger than ever.



Photo: Sofiya Opatska and the Ukrainian Catholic University



About the author

Sofiya Opatska is a Vice Rector for Strategic Development of the Ukrainian Catholic University www.ucu.edu.ua, Founding Dean of the UCU Business School www.lvbs.com.ua, and in 2022 she was an AUUFF-Ukraine Research Fellow at AIAS and at the Department of Management at Aarhus University. Currently she continues research with colleagues from Aarhus University on 'How to maintain organization future-preparedness for times of crises?' based on the experience of Ukrainian companies during war time.



Demonstrator with a sign that reads 'We can't recycle wasted time' at a protest against climate change (51059103426), by Ivan Radic, licensed under Creative Commons BY 2.0.

Crises of Time

By Jaap Timmer

Our experience of the world is currently dominated by a multitude of crises. These various crises all have temporal aspects. The conflict in Ukraine serves as a reminder of the impact of a demagogic and nostalgic interpretation of Russian history, which is pitted against the Western view that 1989 marks a division between their stagnant past and our progressive future. In most autocratic centralized states, leaders often come from a single ethnic or religious group and may use the notion of minority groups' backwardness to justify discrimination and acts of violence. These groups are then pressured to leave behind their supposed traditional ways and embrace modernity as rational contributors to the nation's future. At the same time, countries with

traditions of social democracy appear to be losing future certainties as they face populist backlashes, qualms about the truth, and the implications of climate change.

Climate change is arguably the most concerning temporal challenge we face. In his recent book, *Chronos: The West Confronts Time* (2022), French historian François Hartog addresses the deep uncertainties the West now faces as we reckon with the Anthropocene. He asks whether we will be capable of comprehending the changes we wrought to our planet's climate over a few generations that once took place across geological epochs. The attempt to situate the Anthropocene in the time of those epochs shrinks our presence on earth and fundamentally challenges taken-for-granted temporal constructions. Once we deal with the millions of years of climate changes, the old, currently still widely taken of granted orders of time take away our certainties. If we let go of these certainties, what does that mean for how we relate to our ancestors or to the way we have situated Europe's civilization in relation the ancient Greeks and Rome? What do such events as the French Revolution, or the fall of the Berlin Wall mean on the scale of epochs of climate change?

It is the imaginary that creates the real, that things could have been different, that presentism is only one outcome of a wide variety of possibilities.

In other words, the Anthropocene brings temporal uncertainty as it requires us to relate to new pasts as markers of our identity and agency. Hartog labels this a crisis of time which he defines as ‘the rise of the present ... as the future slips from the leading role it assigned it by modern time’ (ibid.: 114). In his previous book, *Regimes of Historicity*, Hartog writes that this ‘presentism’ is characterized ‘at once by the tyranny of the instant and by the treadmill of the unending now’ (2015: xv). In *Chronos*, Hartog argues that the temporal constructions that are threatening to become less dominant in light of the emergence of this presentism also resulted from a crisis of time.

This crisis dates back to the early Christians who, as a result of Jesus’ birth, death, resurrection, and second coming, initiated a new order of time and fostered a willingness to live under two temporalities (Hartog 2022: 38). Jesus initiated a new covenant with God, replacing the old covenant sealed with Moses. The new covenant brought

a new economy of time that upended the then taken-for-granted relationships between old and new. The new covenant meant the ‘death’ of Moses (the original covenant), while the ‘death’ of Jesus (the final covenant) turns a new covenant into a New Testament. ‘The ‘New’ reaches into the past to constitute the ‘Old’; it opens onto a new present’ (Hartog 2022: 22). The Mosaic covenant and the Old Testament became a prologue and this observation impels Hartog to ask: if this prologue is the ‘bearer of the new and realization of the ancient, what then of the future?’ (ibid.: 24).

Obviously, the future is the return of Jesus, the Apocalypse, the Day of Judgement. But while the end time is yet to come, the unveiling of Jesus is happening in the present of those of faith. The co-presence of these two temporalities, the end of normal regular linear time (*Chronos*) and the time of the imminent presence of Jesus, means Christians live in a time that remains, a present dominated by two temporalities: a time with a clear beginning (Genesis) and a clear end (the Apocalypse), with Jesus’ imminent coming during the time that remains. The evolving Christian view of history thus proposes an accelerated concept of time and an orientation to the future.

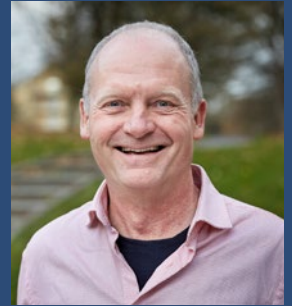
With the spread of Christianity, this experience of time has come to dominate the European relationship to time. Tracing the genealogy of this order of time, Hartog shows that this Christian time is only recently ebbing away with the advent of modernity. Modernity gave rise to the notion of relentless progress and an ever-faster march toward a future until current presentism. And with

the emergence of the realization of climate change this order of time is now also challenged. Both modern time and the Christian time that continues to run in tandem with it fail to provide us with the temporal scope to comprehend the temporality of climate change.

However, to the extent presentism is the dominant post-modern temporality in the West, it is not uniformly distributed. There are many other temporal orientations because our societies are diverse and multicultural. There has never been single pasts and futures for all human societies. The way others in, for example, political organizations, open their futures by mobilizing their own pasts and universes should remind those who are becoming passive in their presentism that the world hosts a plurality of histories and a wide variety of alternative futures. This plurality namely shows that it is the imaginary that creates the real, that things could have been different, that presentism is only one outcome of a wide variety of possibilities. As Senegalese professor and writer Felwine Sarr states, ‘the future before us is therefore not predetermined’ and ‘alternative history is a forceful driver of change’ (2023: 124). We must be open to different histories and futures for tackling our current crises of time.

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The Meta-Crisis of Psychiatry

By Rodrigo Grassi-Oliveira

In 1910, Karl Jaspers (1883-1969) wrote an essay on pathological jealousy, laying the foundations of psychopathological phenomenology. However, it was in 1913 that Jaspers published his most important work: *Allgemeine Psychopathologie*. Jaspers defended that Psychiatry would be the profession, the practice, but Psychopathology would be the Science. We celebrate 110 years of Jaspers' work in 2023, and Psychiatry is still struggling to incorporate Science into its practice. I know that many psychiatrists feel uncomfortable about critics of our profession. After all, we have a long history

of being attacked, discredited, and targeted by the media, the public eye, and even our medical colleagues. But our pain should not blind our sight. We should be honest about existing gaps between Psychiatry and Science.

Psychiatry is rehearsing a paradigm shift, or at least it should. More

than a decade ago, one editorial published in the official journal of the World Psychiatric Association (WPA) suggested that Psychiatry was in "crisis" (Jablensky, 2010). He argued that there was a steady decline in the number of medical graduates who opt for the speciality mainly because of the relative loss of "competitive

We have a long history of being attacked, discredited, and targeted by the media, the public eye, and even our medical colleagues.

*Self-reflection by
Rodrigo Grassi de
Oliveira.*

Psychiatry's numbers have increased yearly since 2011 and had a post-pandemic peak effect.

advantage” concerning other medical disciplines. Jablensky points out that significant advances in basic sciences have drastically transformed medical practice in areas such as oncology, cardiology and immunology. Medicine has become increasingly “molecular” and, therefore, more attractive and intellectually more challenging for young doctors. However, Psychiatry’s numbers have increased yearly since 2011 and had a post-pandemic peak effect. COVID-19 clearly increased the awareness of social determinants of health, bringing attention to the psychiatric perspective of care. In parallel, we had significant developments in Neurosciences, catapulting Psychopathology to a developmental multi-omics perspective and leading to discoveries and new understanding about mental health.

Science now challenges Psychiatry (again). Unfortunately, hardly any discoveries in Neurosciences, Molecular Biology, or Genetics have been transposed into new technologies for psychiatric practice, disease markers, treatments, and interventions. So far, there are no new conceptual paradigms for understanding the

aetiology of mental disorders, which has kept Psychiatry in the same framework for the last 30 years. We have advances in our practice (digital medicine, diagnostic accuracy, outpatient programs, etc.), but the core treatment still relies on prescribing slightly different variations of the same drugs. Per se, this is not a problem since we have been using antibiotics to treat bacterial infections for the last 70 years. However, that didn’t stop infectious diseases specialists from beating HIV and, recently, COVID-19.

This fast development is not happening with Psychiatry. Although we see skyrocketing rates of psychiatric medications being prescribed, in 2020, the number of people living with anxiety and depressive disorders rose by almost 30% due to the COVID-19 pandemic (WHO, 2022). Moreover, suicide rates increased by 35% from 1999 to 2018 in the United States and continue to grow. Those numbers should not discredit Psychiatry. Instead, they should support the opposite direction; we need Psychiatry even more! But we need a Psychiatry that embraces Clinical Medicine in

real-life practice. Based on all the scientific evidence we have so far, we need a Psychiatry that does not resume its practice of uncritically following psychopharmacological guidelines based on DSM(1) criteria and expert opinions. We need a Psychiatry that can be preventive by introducing profound changes in the patient’s living environment. A discipline that will include physical exercise, and medical, nutritional and social interventions as fundamental stones of any further psychotropic prescription. We need a Psychiatry with a systemic and developmental approach, prioritizing early and late life interventions. And then, after all those “needs”, we are still searching for how we could do that—the true crisis.

The paradox is that psychiatrists are trained to help others to cope with crises. We are used to dealing with crises. What happens if we are unable to see how we see? If we demonstrate an apparent lack of interest in understanding how we understand? If we fail to perceive how we perceive or to know how we know? Well, then we qualify for a Meta-Crisis. The way psychiatrists face Psychiatry’s crisis is part of the crisis.

We need a Psychiatry with a systemic and developmental approach, prioritizing early and late life interventions.

Notes

(1)DSM: refers to the Diagnostic and Statistical Manual of Mental Disorders, a reference book published by the American Psychiatric Association to guide the diagnosis of mental disorders.

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The Data Reproducibility Crisis Requires a Cultural Change towards Article Retraction

By Renée M. van der Sluis and Manja Idorn

Science builds on the self-correcting mechanism that involves the testing of hypotheses and peer-review to prevent bias in research design, research conduct, data interpretation, and reporting [1]. Additionally, scientific findings require scrutiny and replication to ensure the validity and reliability of the results. Without these processes, science cannot truly be considered scientific, can it?

In this *iPerspectives* issue, we aim to give a brief overview of the scale of the data reproducibility crisis, the potential consequences and some tips and ideas to ponder that may help change our culture.

In 2016, *Nature* conducted a survey to explore researchers' experiences with data reproducibility. Scientists from different disciplines were invited to complete a short online questionnaire, and given the opportunity to share their opinion on this topic [2]. Of the 1,576 researchers that participated, 70% answered that they had experienced the inability to reproduce another scientist's experiments and more than 50% had failed to reproduce their own, indicating that lack of reproducibility is a common phenomenon. Almost one third of the participants believed that failure to reproduce published results meant the result or conclusion was probably wrong, but most participants stated that they still trusted the published literature. This suggests that most of the participating scientists trust the system we have in place (e.g., peer-review and self-correcting practices) to validate our findings. So, what did the survey participants do with their observations? Only 24% said that they had either published or attempted to publish the reproduction of data or the failure thereof, indicating that the vast majority did not act upon their observations.

Of the 1,576 researchers that participated, 70% answered that they had experienced the inability to reproduce another scientist's experiments and more than 50% had failed to reproduce their own, indicating that lack of reproducibility is a common phenomenon.

The inability to reproduce someone else's observations, either published work or the work from your co-worker, can become an uncomfortable topic to bring up for discussion. "What if I am not equipped sufficiently to perform these experiments?" or other crises of confidence may surface, and the vocalization of such experiences may be daunting: we do not want to look incompetent and lose credibility or behave in an accusatory manner. Yet uncomfortable or not, it is pivotal that we talk about these experiences, and publish negative findings to maintain science as a self-correcting institution.



Sceince is self-correcting, see reference [1].

Why is it not more common that we (attempt to) publish the reproduction of experiments? The answer is potentially as simple as “That is not what pays the bills.” However, the reality is probably more complex, especially considering the competitive environment in which we perform scientific research at academic institutions.

The academic research system utilizes our productivity, measured predominantly by publication lists with high-ranking papers, as the key selection criterium in decisions for hiring, promoting, and allocating financial support [3, 4]. Scientists thus compete for grants and academic positions based on their publication track record. In addition, publishing in high-ranking journals, requires novel

groundbreaking results, where negative results or studies reproducing/solidifying previous findings are undervalued. This adds tremendous pressure on needing to publish in prestigious journals and may lead to an increase in questionable research practice, where for example, scientists increase productivity through reducing the sample size of a study or skip repeating key experiments to accelerate the publication process. This, therefore, may promote publication of false positive results. Indeed, data indicates that the methodological quality of scientific experiments does not increase with increasing rank of the journal [3-5].

Evidence of inapt scientific quality can lead to article retraction. The number of articles being retracted is increasing [6, 7] but according to Ivan Oransky,

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co-founder of the blog Retraction Watch, this is not enough [7]. Retraction Watch’s investigations via surveys, studies, and reports from sleuths, yielded evidence that estimate 1 in 50 papers would meet at least one of the criteria for retraction. Oransky states that the increase in retractions is good because it is a sign that science is becoming more scrutinized and rigorous and that the scientific self-correcting publishing system is doing its job, but we need to do more [7]. If retraction is so great, then why do we not regularly amend or retract our work when we figured out that a mistake was made?

Ideally, no published work gets retracted. This would show that the work was done rigorously and with integrity, and that scientists don’t make mistakes. But we can and we do make mistakes. Set aside our attempts to prevent mistakes, such as training in statistics, meticulous protocols to perform experiments that can be reproduced, and other techniques in our arsenal to be scientifically pristine, what about receiving material, for example a cell line or plasmid, from a colleague? Do we spend the time or pay the money to the get material validated? And what about when we cannot reproduce the work from a colleague, how do we speak up and if we do, how well are these

Criteria for retraction according to the Committee on Public Ethics (COPE [10]) include:

- Clear evidence that the findings are unreliable, either due to major error (e.g., miscalculation), or because of fabrication (e.g., of data) or falsification (e.g., image manipulation).
- Plagiarism.
- Unethical research.
- Publication due to compromised peer-review process.
- Authors have failed to disclose major competing interests.

This adds tremendous pressure on needing to publish in prestigious journals and may lead to an increase in questionable research practice.

There is nothing more “sciency” than admitting to being wrong.

Tips to change the stigma on retraction

1. Share experiences and boost awareness – Make discussions on data reproducibility in the face of the competitive research environment part of your mentorship of students, this trains the next generation and may inspire your peers to do the same.
2. Discuss without judgement – this makes it easier for people to approach you and start the discussion.
3. Reproduce key experiments – Make validation of key experiments part of the scientific training.
4. Correct your published work if a mistake is discovered – be the change!

observations received? What if we only learned about a mistake after a paper was published, do we dare to amend the publication or perhaps even retract? One may think that the cost of this will be high, not just the actual money spent paying for cell line verification, time spent on extra experiments, costs of publishing, but also the figurative price for one’s career: it simply “looks bad” when you cannot reproduce someone’s results or when your article is retracted, and some may see it as an erosion of credibility [8]. We argue the opposite: there is nothing more “sciency” than admitting to being wrong, showing that previous information is incorrect, or a hypothesis proven false, but it requires an atmosphere where this can be discussed without anyone losing credibility and thus requires a change in our scientific culture.

Changing our culture of amending and retracting papers from being a sign of failure to a sign of strength requires a robust effort from the scientific community. Because our reputation depends on credibility and trustworthiness, it has become the norm for the majority to not admit to mistakes. But if we do not change, the price will be higher, and the consequences will extend beyond our careers and could affect public health, for example by making it more difficult to successfully complete clinical trials and treat disease [9]. Moreover, hiring, promoting, and funding scientists who publish unreliable science eventually erodes the public’s trust in science [3, 4].

In conclusion, it is clear that the data reproducibility crisis in science requires a cultural change towards article retraction. To maintain the integrity of science as a self-correcting institution, we must create an

environment where the publication of negative results and the reproduction of experiments is encouraged, and where the pressure to publish in high-ranking journals does not lead to questionable research practices. While it may be uncomfortable to admit to mistakes, the ability to correct them and learn from them is what makes science truly scientific. It is time for us to embrace the importance of scientific humility and adopt a culture that values the truth above all else.

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Cognitive Neuroscience in a Time of Crisis

By **Morten Overgaard**

My academic interests have now for three decades centred on what could be seen as a scientific crisis – how subjective experience can exist in a world we attempt to describe in physical terms, how subjective states may interact with physical states, and how we can use scientific methods to study such questions. If we cannot answer these questions, they will eventually question our current scientific models of the world.

Such and many other complex scientific questions have been pursued by cognitive neuroscience and its neighbouring disciplines with several innovative research methods and important findings. Yet, when serious worldly crises such as pandemics, wars or climate change appear, cognitive neuroscience seems surprisingly silent, and is rarely considered a central discipline in the attempt to find new solutions. In the case of the climate crisis, affordable, scalable solutions are already available to enable countries to transit to cleaner, more resilient economies. Accordingly, the sustainability crisis relies on human choices now more than ever. From this perspective, behavioural research should arguably receive a high priority as an instrument to find solutions.

One type of intervention has been to provide information explicitly hoping this will change attitudes, intentions, and in turn behavior. However, the effect is debatable – and in some situations reverse (Barr & Gilg, 2002). Studies that do indicate an effect of information on



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attitudes often do not find that a change in attitude translates into a change in behaviour (Mairesse et al, 2012). In fact, numerous studies have reported an increase in global environmental concern but have shown that environmental engagement is not adjusting in accordance (Landry et al, 2018). Other interventions have focused

on behavior rather than attitudes, e.g. nudging as in behavioral economics (Thaler & Sustein, 2008). Nudging has been criticized for having a minimal effect (Maier et al, 2022), and no lasting effect. So, whereas nudging may influence behavior in single situations, there seems to be no transfer of information to attitudes.

Accordingly, one scientific challenge is how to overcome what is sometimes referred to as the attitude-behavior gap, i.e. to understand why choices and actions in many cases do not follow thoughts, beliefs and attitudes.

By far, the majority of cognitive science has investigated behavior in isolation under very controlled experimental settings based on the belief that by having a better control of all circumstances, we will be better able to create universal, bias free, models of the mind. This approach does, however, involve some important and unwarranted assumptions. The idea that mental states operate in context under normal circumstances yet can be studied and completely analyzed in isolation seems to assume that mental states are additive in a simple sense – that they

can be investigated taken out of context, and hereafter “reinserted” (Overgaard, 2004). However, increasing evidence from perception and decision-making research suggests that seemingly identical experimental settings give very different results depending on the context – including the “cognitive context” of expectations and interpretation of the experimental situation (Andersen et al, 2022).

Current research on contextual effects is fragmented and has never been systematically pursued or integrated into the mainstream understanding of behavior and the mind in cognitive neuroscience. Nevertheless, solutions to current societal problems, such as climate change and the recent pandemic, necessarily involve human decision-making in contexts and groups. In order to investigate such effects, one must identify the nature of different types of contextual effects in order to understand their relative importance.

Mental context

The mental context can be defined as the concurrent thoughts, memories, and emotions as well as background states of

alertness or drowsiness. There is already much evidence that expectations and instructions modulate experience top-down, and it has been shown that false feedback based on performance can change the threshold of visual consciousness. Such findings do not only demonstrate behavioural effects, but also neural effects, i.e. that neural correlates related to the processing of the same stimulus may vary depending on instruction and interpretation.

Under hypnosis, instructions to watch coloured stimuli as black and white have even been found to downregulate primary visual cortex activity. Research from multisensory integration has repeatedly shown

that perceptions in one modality may alter the experienced content in other modalities. Instructions about which task to perform based on the same visual stimuli and experimental paradigm modify the neural correlates of the perceptual visibility threshold (Andersen et al, 2022).

Bodily context

The physical body can also be interpreted as a context – not just in terms of background pains or urges, but also as potentials and limitations. Some theories argue that our physical bodies shape our cognition – e.g. that the amount of objects we can attend to at a time is limited by how many objects we can interact with (Overgaard,

A scientific crisis – how subjective experience can exist in a world we attempt to describe in physical terms, how subjective states may interact with physical states, and how we can use scientific methods to study such questions.

By far, the majority of cognitive science has investigated behavior in isolation under very controlled experimental settings based on the belief that by having a better control of all circumstances, we will be better able to create universal, bias free, models of the mind.

Preston & Aspell, in press). It has been found that our actions and bodily movements structure our perception (Desantis & Haggard, 2016) and our experience of time (Desantis et al, 2016). There is even evidence that visual threshold differs between different bodily modalities used to report about the presence of absence of visual stimuli (Overgaard & Sørensen, 2004).

Environmental context

The surrounding environment of objects, people, light, and temperature is also a context - perhaps in a more every day

understanding of the term. Several studies have shown that variations in the environment have an impact on decisions, e.g. just the mere presence of other people (Sidarus et al, 2020). Experiments have shown that working memory is modulated by watching natural scenes vs city scenes and that the colour of objects affect our behaviour towards them (e.g. Pedales & Santangelo, 2015; Oordt, Ouwehand & Paas, 2023).

Effects relating to different types of contexts can be investigated with already existing methodology. Just as we have found correlations between measures of a high variety of mental states and neural events, we can find correlates between measures of action and attitudes on the one hand, and contextual events on the other. In a similar way, theoretical understandings able to understand action and mental states within a context also exist. As a few examples, predictive coding (e.g. Clark, 2013) has suggested how our expectations and predictions shape our perceptions of objects in the world. The REF¹ model has argued that mental states should be analyzed as strategies dynamically restructured to realize behavior based on feed-back propagations

(Mogensen & Overgaard, 2020; Overgaard & Mogensen, 2020).

From this perspective, a cognitive neuroscience able to analyze contextual factors seems far from impossible and can rely on variations of existing methods and novel but existing theories – with a change of focus that accommodates for crisis.

Notes

¹REF: Reorganization of Elementary Functions.

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The Crisis of Women in Mathematics

By Corina Ciobotaru

Many of us tend to think that women and mathematics, or any other exact science like physics or computer science, are two non-compatible concepts. From an early age, both in school and at home, many little girls are strongly 'encouraged' to focus on soft sciences. They simply say: *The exact sciences are too hard for you! Those are for boys!* And I would immediately ask: Do you have scientific proof for that?

The continuous repetition, over many years, of this short-to-state but very powerful viewpoint creates the delusion that women are not meant to do any exact sciences. Even worse, depending on each individual personality, the consequences can be: inferiority in the society, lack of self-confidence



MARIA GAETANA AGNESI



MARIE-SOPHIE GERMAIN

Maria Gaetana Agnesi (1718 – 1799) was an Italian mathematician, philosopher, theologian, and humanitarian.

Marie-Sophie Germain (1776 – 1831) was a French mathematician, physicist, and philosopher.

Augusta Ada King, Countess of Lovelace (1815 – 1852) was an English mathematician and writer.

Sofya Vasilyevna Kovalevskaya (1850 – 1891) was a Russian mathematician.

Amalie Emmy Noether (1882 – 1935) was a German mathematician who made many important contributions to abstract algebra.

Maryam Mirzakhani (1977 – 2017) was an Iranian mathematician who became (2014) the first woman and the first Iranian to be awarded a Fields Medal.

Maryna Sergiivna Viazovska (1984 –) is a Ukrainian mathematician who became (2022) the second woman to be awarded a Fields Medal.



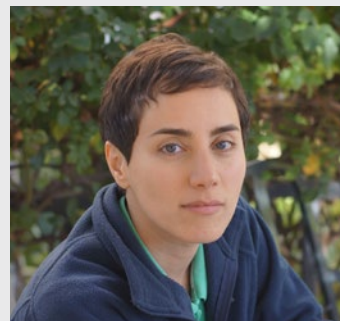
AUGUSTA ADA KING



SOFYA VASILYEVNA KOVALEVSKAYA



AMALIE EMMY NOETHER



MARYAM MIRZAKHANI



MARYNA SERGIIVNA VIAZOVSKA

The crisis of women in exact sciences is a complex problem that has deep roots in our society and with consequences in the long run.

Graduated from STEM-education by sex. 2020

per 1,000 of population aged 20-29

Males Females



STEM: Natural sciences, mathematics and statistics; Information and Communication Technologies; Engineering, manufacturing and construction

Chart: ullage@norden.org • Source: Eurostat • Get the data • Created with Datawrapper

in solving science problems and pursuing an academic career, the impression that, by default, women are soft in the head and men are smart as a whip, and the list can continue.

Deeply impregnated in girls' minds, deliberately or not, we unconsciously live with it and behave in the same manner because we were 'naturally trained' to do so. As Thomas Mann once said: 'Everything is just politics!' And when we consciously realize the true

nature of this delicate matter, it appears tricky to fight back, not only in society, but mostly with ourselves. Furthermore, for some of us it might seem to be too late to take the correct turn in our personal development.

The crisis of women in exact sciences is a complex problem that has deep roots in our society and with consequences in the long run. One can just count how many female Master's and PhD students, or even professors, are at the exact science departments

*Graduated from
STEM-education
by sex in 2020.*

to picture the crisis. As some female math students recently pointed out: 'We are finishing our math studies, and so far, have had no woman math teacher or professor. It is very hard for us to teach in front of a class without having such a model.'

I have more than once been part of math seminars, full of gentlemen mathematicians, where you would not dare to ask math questions without being labelled as addressing rather silly ones. For sure next time one would think twice before doing so, with the result that women keep quiet and invisible in these settings.

What would be the solution? The first step is to embrace the problem. It is just there in front of us! Second step? Encourage and support little girls, female students, and even adult women, to discover and pursue both their 'soft and exact' skills. They are definitely more than capable of cracking challenging problems in exact sciences, if they want. And next time when someone suggests you cannot do something because you are a woman, smile nicely, say thank you, and do it!

In 2021, I initiated and now co-organize 'Women in Mathematics Aarhus' (WoMA), a supportive, friendly and inclusive network that brings female math students and mathematicians at all career stages together at monthly events: <https://math.au.dk/en/cooperation/woman>



About the author

Corina Ciobotaru is a Romanian assistant professor in the Department of Mathematics at Aarhus University and an AIAS-COFUND Fellow. She completed her PhD in Mathematics in 2014 from UCLouvain, Belgium, and worked as a mathematician in many EU countries. Her field of research is geometric group theory. In 2023, she was awarded a VILLUM Young Investigator grant to start her own research group.



Painting of a Cumaean Sibyl in the Sistine Chapel ceiling by Michelangelo, in the Vatican state, Rome.

The Ancient *Sibylline Oracles*: Recyclable Responses to Crisis

By Helen Van Noorden

Among the ancient texts that speak to our own crisis-ridden times is a collection of *Sibylline Oracles*, ancient Jewish and Christian Greek apocalyptic verses attributed to the legendary prophetess Sibyl. ‘Apocalyptic’ derives from a Greek verb meaning ‘uncover’; applied to a text or world view it has the specific connotation of revealing a divine plan for humans collectively. More than 4200 lines of *Sibylline Oracles* have been transmitted from antiquity, divided unevenly into 12 ‘books’. They present, in untidy cross-section, the evolution of a distinct Judaeo-Christian Greek genre of apocalyptic literature in the meter of Greek epic poetry. Composed, edited and compiled over several centuries from the 2nd century BCE onwards, these texts offer viewpoints on

empire from the world of the Jewish diaspora across the Mediterranean, navigating the rising power of Rome, and the vicissitudes of Roman Imperial rule. Even as they aim for recognition of historical events, however, they strive to be re-applicable further ahead and to equip their readers for the end times.

The narrator constructed by the Sibyllists (the anonymous composers of these texts) is a Sibyl-figure of such great antiquity (she claims to be part of Noah’s family from before the flood) that she enjoys a kind of authority over all peoples (and outdoes in knowledge and prestige the oldest Greek epic poets). This Sibylline voice has the longest possible view on human history as a sequence of races or empires,

Among the ancient texts that speak to our own crisis-ridden times is a collection of *Sibylline Oracles*, ancient Jewish and Christian Greek apocalyptic verses attributed to the legendary prophetess Sibyl.

as well as a wide-lens vision of the clashes of East and West. The *Sibylline Oracles* encompass world history, moral instruction, and apocalyptic prophecy, comforting the righteous nations, denouncing their earthly enemies, and envisioning the end times. Exploiting the fiction of periodically inspired prophecy, the Sibyllists created a stop-start aesthetic, an allusive and heavily metaphorical idiom and a tendency to structure prophecies in patterns, all of which defies attempts to pin down more than a few verses at a time to specific dates or places of origin. Therefore, my challenge, in dealing with this Greek literature, very well known in Roman, Jewish and Christian circles in antiquity but long overlooked by modern Classicists, is to situate this distinctive literature in contexts that recognize its recyclability and bids for relevance over centuries.

One important step is to emphasize both the popularity and the variety of the Sibyl prophet-figure in the Roman world. Her prestige in Rome derived partly from the official ‘Sibylline books’, kept under lock and key in the Temple of Jupiter and consulted only by selected Colleges of priests as a form of public crisis-management in reaction to portents. Very few of these survive except by report of their practical, ritual

recommendations for appeasing the gods. By contrast, following longer literary traditions, prominent Roman poets, such as Virgil, associated the uniquely long-lived Sibyl with big-picture prophecy of the fate of Rome.

A prime strategy of recyclable authority found in both the Virgilian and the Jewish Sibylline literature is that of retrospective prophecy. Describing an event in the guise of a prophecy about its details gives the impression of divinely inspired foreknowledge and puts those events in a comforting longer scope. Consider, for example, the Jewish Sibyl’s treatment of the crisis of the destruction of the Jerusalem Temple:

A leader of Rome will come to Syria, who will burn the Temple of Jerusalem with fire, at the same time slaughter many men and destroy the great land of the Jews with its broad roads.....

But when a firebrand, turned away from a cleft in the earth in the land of Italy, reaches to broad heaven, it will burn many cities and destroy men.

Much smoking ashes will fill the great sky, and showers will fall from heaven like red earth.

Know then the wrath of the heavenly God, because they will destroy the blameless tribe of the pious.

Sib. Or. 4.125-7, 130-6



Detail of panel III.40 of the medieval French *Apocalypse Tapestry*, produced between 1377 and 1382, represents John, and Satan (the Dragon) giving power to the Beast of the Sea. [Wikimedia Commons](#), [CC BY-SA](#).

Predicting the emergence of a firebrand that rains ash from the sky (an allusive reference to the eruption of Vesuvius in 79 CE), the Sibylline narrator interprets the event as a form of punishment to the Romans for destroying the Jerusalem Temple (70 CE). One would expect any ancient audiences to recognize these as past events. Therefore, the rhetorical function of this, the oldest surviving literary response to the eruption that destroyed Pompeii, is building Jewish community

identity and reassurance that God is monitoring Roman behaviour. By not actually naming Vesuvius, however, the writers made it possible for these lines to be referred to in different contexts in the future.

The use of retrospective prophecy within apocalyptic literature is for today’s reader not always so clearly distinguished from genuinely expectant prophecy, in the context of ongoing perceived crises. New sets of

Sibylline oracles were produced in response to Roman rule. Following the destruction of the Jerusalem Temple in 70CE, certain oracles containing more bitter invective against Rome have been judged part of the atmosphere that fostered Jewish revolts against Roman rule, such as the Bar Kochba revolt, in the 2nd century CE. Whether or not this was the case, we can at least point to a modern example of that alarming form of real-world impact for apocalyptic literature through misreading it as genuine prophecy rather than a rhetorical bid for authority.

Ancient apocalyptic texts make veiled historical allusions through names that have become symbolic, or through devices such as the use of *gematria*, calculations of the numerical value of names from their letters. *Sibylline Oracles* 5, a very anti-Roman ‘book’ of prophecies, is roughly contemporary with the foremost example of an ancient apocalyptic text, the Book of Revelation (Apocalypse of John), around the end of the 1st century CE. As in Revelation, ‘Babylon’ is most often employed as code for Rome. And both texts repeatedly allude to the Emperor Nero, who died in 68CE, in describing a great beast whose appearance signals the imminent end of the world, because he is the last opponent of the rule of God. This discourse, shared by pagan Roman texts, inflated contemporary rumours of Nero’s supernatural post-mortem return.

The well-documented instance of how *not* to read Revelation has been recorded by an American Classicist. ‘President George W. Bush...unsuccessfully attempted to enlist the support of President Chirac

Part of a fresco of Sibyls above the pulpit in Aarhus Cathedral. The Cumaean Sibyl is in the top row, the Hebrew prophet Jeremiah at the bottom. Photo credit: Helen Van Noorden.

Jewish Sibylline literature has been credited with a critical role in turning the ancient world... from polytheism to monotheism.



of France for his ill- fated invasion of Iraq, declaring to him, “Gog and Magog are at work in the Middle East. Biblical prophecies are being fulfilled.” Bush would have been mainly reacting to their mention at Revelation 20:8, entirely unaware, however, that Revelation addresses the late first century CE. The passage is part of Revelation’s thematic use of retrospective prophecy.¹

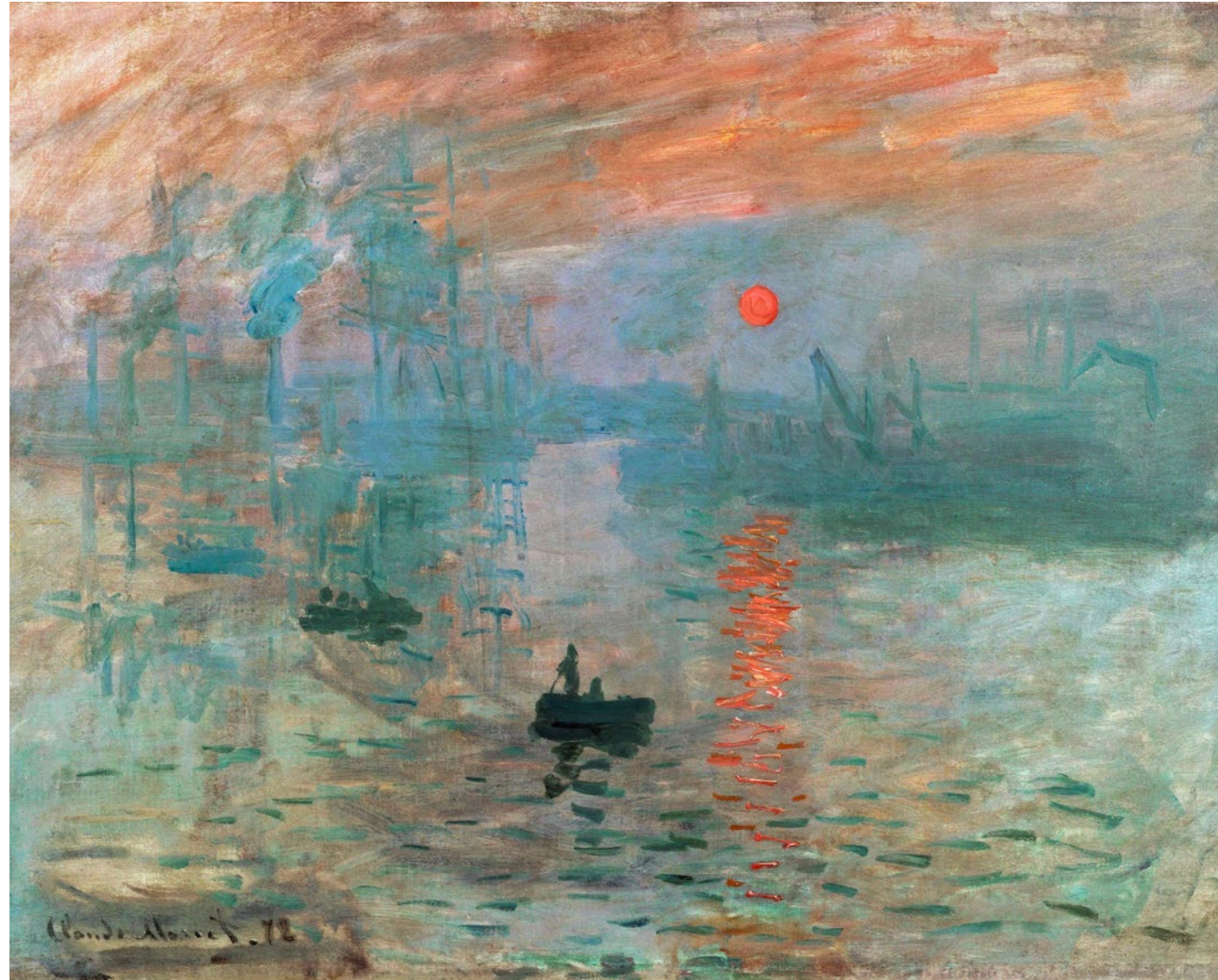
The irony is that Christian inscription and interpretation of Jewish *Sibylline Oracles* as genuine prophecies is what has ultimately preserved them. In the 3rd and 4th centuries CE, the oldest parts of the Sibylline corpus, which refer to a coming saviour, antagonist and king, start to be frequently quoted by the early Church Fathers, and the author-figures of our *Sibylline Oracles* are treated as the foremost ‘pagan’ witnesses to Christian truth. Because of this, the Jewish Sibylline literature, which has plenty to say about God, has been credited with a critical role in turning the ancient world from the worship of many gods, as in the cultures of pagan Greece and Rome, to the worship of one god: from polytheism to monotheism. Their role is summed up in the popular medieval Latin poem *Dies Irae*, famous to us as the text of Latin *Requiem* Mass: the first verse translates as *The day of wrath, that day / Will break up the world into ash / As David and the Sibyl testify*. Equally famous is Michaelangelo’s depiction of five Sibyls with seven Hebrew prophets on the ceiling of the Sistine Chapel. Images of Sibyls in Cathedral interiors across Europe, from Siena to Aarhus, attest to the high status ascribed to the *Sibylline Oracles* as pagan witnesses of Christian truth.

The Jewish-Christian Sibylline Oracles, like a Monet scene, are made up of individual elements that seem peculiarly coloured or illogical or fuzzy-edged when viewed up close, but from a distance gain a coherence and representational agenda.

Impressionism, whose chronological and regional boundaries are debated, has been used as an analogy to explain debates within Biblical Studies about which texts constitute the core of the conversation about definitions of apocalyptic literature. 'But I find it helpful for thinking about the recyclable texture of this apocalyptic literature also'. The Jewish-Christian *Sibylline Oracles*, like a Monet scene, are made up of individual elements that seem peculiarly coloured or illogical or fuzzy-edged when viewed up close, but from a distance gain a coherence and representational agenda. Rearrangement of these individual motifs in different contexts offers a recyclability inbuilt into the genre from the accumulated wisdom of its exponents, applicable to crises until the end of days.

Notes

¹ Bruce Loudon (2018) *Greek Myth and the Bible*. Routledge. 226-7



Claude Monet, 'Impression, Sunrise' (1872). Monet painted six different views of the port of Le Havre. [Wikimedia Commons](#).



About the author

Helen Van Noorden is an Associate Professor at Girton College, University of Cambridge and was an AIAS Fellow from 2020-2022. Her work on apocalyptic discourses invites collaborations between theology and Classics, such as the edited volume *Eschatology in Antiquity: Forms and Functions* (Routledge 2021).

The End Is Nigh: Antecedents and Functions of Religious End Time Narratives

By **Lauritz Holm Petersen** and **Armin W. Geertz**

In Western cultures, stories about the impending end of the world have historically served as a fundamental cultural resource for sense-making and critical evaluation of contemporary affairs, particularly in relation to socio-political crises. Today, amid what complexity scholars have termed a

polycrisis—a situation characterized by the spread of multiple interacting crises within and across global systems (Lawrence et al. 2022)—such narratives continue to serve as effective ways for humans to form meaningful understandings of the challenges they face. In the following, we will briefly

*“The End is Near!
Colostomies 2:18”
by skpy is licensed
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discuss the possible psychological, social, and cultural antecedents and functions of such narratives, drawing largely on insights from the evolutionary and cognitive sciences of religion.

Cognitive appeal

One way of understanding the popularity of religious end time narratives is to see how they appeal to human cognitive architecture. Studies in evolutionary psychology and cultural evolution show that human cognition seems biased towards attending to certain types of fitness-enhancing or memorable information, such as social, negative, or future-relevant information, as well as information that breaches ontological expectations (Mesoudi et al. 2006; Bebbington et al. 2017; Boyer and Ramble 2001). Consequently, stories that contain such information types hold a privileged position in the informational landscape. Religious end time narratives, furthermore, are densely packed with information that addresses complex social issues like morality and persecution, and they often do so by painting dramatic pictures of contemporary times as an age of moral decay, soon to be destroyed in a predetermined end

time scenario. Thus, by deploying narrative tropes that touch upon sociality, the supernatural, and the future-relevant, one can argue that such narratives captivate our imagination simply because they appeal to how our cognition has evolved.

But content is only one side of the story. The *context* in which a story is told drastically affects how the story is transmitted and internalized. Studies have shown that we are biased towards information conveyed by authorities and prestigious individuals, and that we tend to adopt those ideas and values explicitly promoted by in-group members (Chudek et al. 2012). Such contextual biases can help us explain why beliefs on impending end times seem to flourish in some cultural contexts more than others, despite the universal architecture of human cognition. According to a recent poll, four in ten U.S. adults believe that they are living in ‘the end times,’ and one in ten U.S. adults believe that Jesus will probably or definitely return in their lifetime (Diamant 2022). In the context of the prevalence of apocalyptic discourses in the U.S., these numbers make sense.

Contextual changes, such as societal crises, can be expected to affect the dissemination of religious end time narratives. Scholars have long argued that collective eschatology constitutes a kind of crisis-theology, emerging in relation to situations characterized by societal upheaval and uncertainty. While seldom explaining why this is, such perspectives indicate that religious end time narratives might be instrumental in processes of *meaning-making*—the assignment of meaning to an event via integration into a global meaning system (Park 2010). Religious end time narratives have a peculiar ability to establish relations between otherwise unrelated events and agents, often based on their shared indexical relation to a postulated impending end time scenario. This structural property,

Contextual changes, such as societal crises, can be expected to affect the dissemination of religious end time narratives.



Photo: Chad Davis from United States

we argue, facilitates the bridging of situational and global meanings, allowing events to be meaningfully integrated in uncertain and ambiguous situations, and thus partially explains the upsurge of end time beliefs in times of crisis.

Social functions

In addition to the psychological dimensions, religious end time narratives are, perhaps more importantly, social phenomena. They address social issues, are told

in social situations, and have been related to numerous groups and social movements for millennia—often serving as the ideological basis for collective actions in opposition to dominant powers. Viewed from the perspective of cultural evolution, religious end time narratives might have played a role in the success of certain collectives by promoting social cohesion and facilitating coordinated behaviors. Storytelling in general has proved effective

in promoting social cohesion as well as aligning and maintaining collective identities (Smith et al. 2017; Geertz 2011). End time narratives in particular constitute clear-cut tools for establishing, promoting, and maintaining social boundaries. Thus, by clearly addressing the in-group as a collective entity and orienting it toward a postulated future scenario, such narratives are particularly efficient for promoting social cohesion, establishing group identity, and mobilizing coordinated behavior.

Cultural functions

Lastly, we will consider the cultural functions of religious end time narratives. Assuming that end

time narratives serve adaptive social functions, we further argue that their proliferation in crisis situations constitutes manifestations of a given cultural system's *self-regulation*. From a systems approach (Rappaport 1999), religion can be considered a *general-purpose system* that seeks to uphold *homeostasis* by adapting to external influences. This is done by cultivating different kinds of regulatory mechanisms that allow a given system to accommodate contextual challenges in a flexible manner. Unforeseen events constitute an ever-existing threat to the plausibility of a cultural system like religion. Consequently, such systems must seek to fill out the meaning-vacuum left by such events in order

to ensure the system's status as plausible. One way of doing this is by making available narrative structures that allow people to meaningfully interpret given events within the symbolic borders of their particular cultural system. Thus, viewed from a systems approach, we consider the mobilization of religious end time narratives as one of the ways in which cultural systems self-regulate in light of circumstantial challenges in order to uphold their own relevance.

Concluding Remarks

The presented framework is meant to serve as a theoretical vantage point for future analyses of end time narratives. As they have historically, so today, such

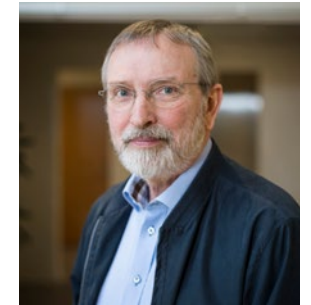
End time narratives in particular constitute clear-cut tools for establishing, promoting, and maintaining social boundaries.

narratives play a significant role in shaping public opinion in light of socio-political events, possibly motivating radical behaviors. Currently, algorithmic social media platforms constitute the primary arena for processes of narrative negotiation and dissemination, propelling such narratives far beyond the borders of religious online communities. Therefore, further studies are needed in order to fully appreciate their potential socio-political effects.



About the author

Lauritz Holm Petersen is a Ph.D. Fellow at the Department of the Study of Religion, Aarhus University, Denmark. With a background in the study of religion and cognitive semiotics, Lauritz examines how endtime narratives shape collective behaviors and processes of meaning making. Using computational analyses of online communities, with a focus on alt-right subcultures.



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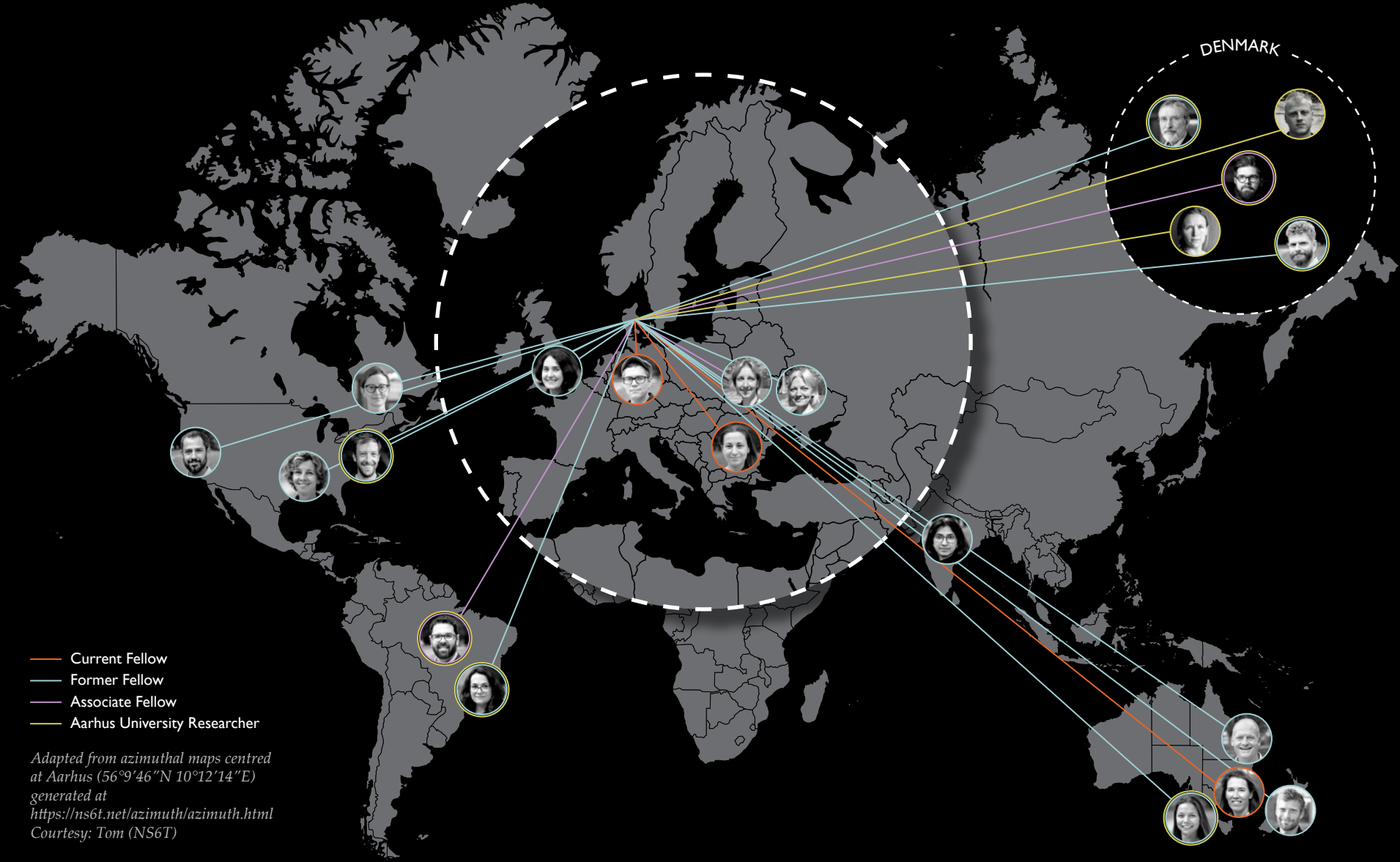




Photo: Maria Randima



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