

# A LONGER-TERM PERSPECTIVE

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*'We have been telling cautionary tales of lost Edens since the earliest times, but 'collapse' is not an inevitable part of the human condition. Now, as we face the consequences of the Anthropocene, perhaps those populations that see themselves least at risk will be hardest hit – for the people who work the land, as always, have better capacity to ride a civilisation's collapse. If however our complex societies can repair their relationship with the land, perhaps then we will be able to arrest collapse before our systems crumble.'*

As an archaeologist and historian, it may seem curious that I have been asked to contribute to this document – the twin climate and biodiversity crises are very current, and the results are something which we perceive as happening now or lying in the future. This is true, but I believe that those who study the past in a holistic way and look at very long-term trends, can provide insight into what may happen and help develop ways to help prevent some of the more damaging effects of the current crises.

It is, of course, very clear that the factors which caused the current situation lie in our history, in our reliance on fossil fuels since industrialisation and in the tendency of our species to over exploitation of and disregard for, the natural environment. Data from numerous sources from ice cores to pollen analysis allows us to establish when these changes happened and to map their effect on even the most remote and 'pristine' places. Science has provided a mass of data on what effect the Anthropocene has had on our environment from profound changes to our atmosphere to soil health, deforestation and even sea chemistry, these are all archaeological events with a cumulative effect on the planet. With new research we are starting to understand how and when they happened and how

they relate to changing technologies, population growth and exploitation of resources.

How then can our understanding of our history inform how we deal with these crises, and how can looking at the past help us plan for the results of climate change and biodiversity loss, particularly food security? The answer, of course, is remarkably simple, it has all happened before, numerous times over many millennia, in societies of all types, complexities and cultures. To a large extent humans react to stresses caused by internal and external factors in a way which is universal and even predictable.

This isn't the place to explore this history in any depth, you may be familiar with many of the examples already, the dust bowls of the US in the 1930s, the Irish Potato Famine, the 1984 Ethiopian Famine, even recent history, and current events are littered with examples we can learn lessons from. Food insecurity and famine have been with us since antiquity and have shaped who we are, we have been telling cautionary tales of lost Edens since the earliest times. This does not mean it is an inevitable part of the human condition, yet, again and again, we ignore the lessons of the past and do often not see the conditions in which these horrors occur until it is too late.

It is useful to understand how examples from the past can help us plan and how we, as a species, react to changes, particularly in food security. Looking to history is sometimes already used in disaster management planning and in planning for humanitarian relief, but the focus tends to be on relatively recent events and on creating good outcomes for individual scenarios. If we are to really understand the implications for the species, we need to look further, both forwards and backwards in time and to understand the complexity we are dealing with, only then can we produce data which will be genuinely useful.

If we concentrate on food security, understanding the individual causes which could lead to problems is, of course essential. Drought, excessive rainfall, soil health, conflict and war are all decisive factors, and we are familiar with the vicious cycle of events any of these can bring about. Soil scientists can develop ways of preserving fertility, engineers can build irrigation systems or dams, military planners can develop strategies and contingencies. This is what we must do, what we urgently need to do, but it deals only with what we archaeologists think of as the very short-term (anything under 150 years), it is tactical rather than strategic and may only postpone outcomes.

We must also ask, what we are trying to avoid? We like to divide time into named societies or events we can understand terms like 'the Tang Dynasty, The Roman Period, The Inca Empire', we like these to have start and end dates we can define, and this allows us to understand history a little better and give rather random events meaning and we are doing it now, as we enter the Anthropocene. One product of this is the concept is that societies, or Empires or cultures somehow 'collapse' or 'fall'. To an extent this is true and can happen because of cataclysmic events, but of course the people generally remain the same and the world goes on, they may move away, who they think they are may change, but we adapt and change continuously. What can be lost during a 'collapse' are factors such as urbanism, technology and, most importantly,

concepts of freedom. Food security is generally the main factor in 'collapse' and 'fall', without secure food people simply move or perish and this pattern can be seen repeatedly throughout history.

Interconnectivity and complexity are key factors to understand. Almost all human societies rely on a complex series of connections, interactions, and relationships between groups. The complexity of these connections massively increases as a society grows, spreads or influences others around it. Interconnectivity often leads to inter-reliability and whilst this is a strength, it is also a weakness.

The 'collapse' of societies is almost never a one-off event, elements may take place surprisingly quickly, but they are often just a tipping point caused by many factors over a long period of time. This is why traditional planning and analysis which looks mainly at the short-term cannot really assess the complexity of unfolding events over the longer-term.

An example (amongst many) is the 'collapse' of Roman North Africa. These Roman colonies were once part of a thriving agricultural landscape of immense sophistication, where there are now ruined cities sitting in the desert. What happened should be easy to understand there is a mass of historical accounts, archaeological sites and environmental evidence but recent work has shown something of just how drawn out this process was.

The political factors were significant, but, in the past, have been overplayed to suit foreign narratives and even colonialism. Invasion by the Vandals certainly had an effect in the 5th century, as did the later Umayyad conquest in the 7th, the agricultural machine which existed to serve the Empire was no longer connected to its key markets, these all contributed to decline. Other factors were the marginalisation of native Berbers and a crisis within the church.

Recent work has shown that many urban centres were still flourishing at a late date (and continue to this day), whilst others were vanishing. The end (if there is ever such a thing) when it came, may have

been more sudden than we had previously expected, grazing by pastoralists and herders on arable land at just the same time as drought meant that complex irrigation systems ceased to be maintained. It is also probable that the clearing of forests for agriculture at the very start of Roman exploitation effectively started a cycle which reduced rainfall and the seeds for eventual collapse were there from the beginning. From an incredibly sophisticated rural and urban society to desertification and population movement may have been incredibly quick, but it is important to remember this was only the end of a process which has been developing for several centuries and which created a cumulative fragility in systems which would not have been apparent at the time. In addition, the nature of settlement and agriculture changed to more sustainable locations and in many areas continued uninterrupted until the present day.

There are numerous similar examples. The end of the civilisation of the Maya of Central America is also in recent years becoming far better understood, partly due to satellite imaging, analysis of lake deposits, luminescence in stalactites, remote sensing as well as conventional archaeology. These all give evidence of prolonged and severe droughts. Here again the 'collapse' takes places over several centuries. An important factor appears to have been pressure on farmers to produce more to support an ever-growing population; fields which were formerly left fallow to recover become over exploited. The scale of the farming and the deforestation is so great that it affects the climate, particularly rainfall. This was a society with considerable engineering skills and attempts are made to hold and harness water, but it is too late. As with North Africa, lack of food security is borne from a massive population growth which is ultimately unsustainable by the agriculture of the time. Such insecurity causes populations drift away and cities simply become superfluous. The Maya thrive today, but their incredible civilisation simply ceased to exist and the causative factors start centuries before the 'end'.

There are many hundreds, if not thousands, of analogues from prehistory onwards and throughout the archaeological record again and again we see a very similar pattern of causative factors building up, with environmental changes, leading to changes in society. The idea of 'collapse' is often overstated, particularly in rural settings the same people often continue similar lives, but on a smaller scale. Understanding the timescale is the key to understanding the sequence of events and this may be far longer than one would imagine.

Part of the study and analysis of history and archaeology is looking at questions such as these again and again. The data we produce is used by futurologists and by politicians and other scientists; it is compared to data produced by soil scientists, agronomists and climatologists. We do, however perhaps tend to look at our numerous case studies in isolation, as discrete events which happened in the past and in different parts of the world and which we can draw lessons from.

I think this approach isn't entirely helpful – we are no longer looking at countries or even regions being harmed by localised change – we all belong to an intricately connected technological world; we are now all part of a single civilisation with all the strengths and weaknesses that affords. The environmental change is no longer localised, it is in the atmosphere of the entire planet, in the most remote places and it is far greater than any which faced the many hundreds of past societies which underwent 'collapse' or 'fall'.

Whatever is achieved to combat climate change, if we want to keep something of our 'civilization' the most important step must be establishing the conditions for soil and food security. I am reminded of a set of frescos in Sienna's Palazzo Pubblico in Italy, painted in 1338 and 1339 by Ambrogio Lorenzetti. They are an allegory of good and bad government, the panels showing 'Good Government' depict a city with overflowing granaries, there is dancing in the street and building work, the countryside is rich and peaceful. In 'Bad Government', the countryside is bare and

stalked by armies and in the town the buildings are ruined, the granaries empty and people are simply leaving to make a better life elsewhere. In 2021 we are still faced by the same food security alternatives as in the 1330s and, as always, it is useful to look at the past when looking to the future.

In conclusion, perhaps those populations that see themselves least at risk will be hardest hit. For the people who work the land, as always, have the capacity to ride the collapse of our own civilisation. If our complex societies can repair their relationship with the land, perhaps we will be able to arrest collapse before our systems crumble. As we look to the future however, we have two great advantages over the societies that preceded us, firstly, thanks to archaeology, we know far more about past events, we have a mass of data which we can use to model possible futures and secondly, we have developed over the last 100 years the science and engineering which can perhaps help us understand and counter some of the worst effects. We are also a world-wide society where decision makers and scientists can communicate instantly and where public opinion

can be world-wide. We need to act now though and become one of those few societies which were able to break the familiar cycle which leads only to collapse.

*References:*

- The concept of 'futurology' has a very long history and researchers tend to illustrate possible scenarios with examples from human history. In recent years 'Collapseology' a multi-disciplinary systemic approach has gained acceptance and takes a view that industrial society may already be in collapse. See, Servigne, Pablo; Stevens, Raphaël (2020). *How Everything Can Collapse*. Cambridge: Polity
- The study of the end of civilisation has a long history and arguably starts an eschatology (the theological study of the end of humanity), works of apocalyptic literature, the early sociological and historiographical research of the likes of Sima Quian and Ibn Khaldun.
- The author is working on a long-running project investigating human impact on the remote sub-Antarctic island of South Georgia. Traditionally the impact has been considered as buildings, wrecks, the remains of the whaling, sealing and fishing industries, the reality is far more complex. The real effects are the massive changes wrought by climate change and pollution, this is evidenced in the glaciers, the soils, the lakes and most importantly in the sea. Even this most remote and supposedly 'pristine' of places has been massively directly impacted by human activity.