



The 200-year Cycle

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The 200-year Cycle: An Early Climate-based Reaction to the Crisis in the Sahel and its Uptake in 1973

Robert L. Naylor and Eleanor Shaw¹

Introduction

During the 1970s, the status of climatic change was elevated from a niche pursuit within the physical sciences to an issue seen as worthy of public support, coalescing in the first World Climate Conference in 1979.² The reasons for this are multifaceted and complex. Joshua Howe has highlighted charged debates regarding pollution from supersonic air travel as an early entry point for climate into the political arena in the late 1960s.³ Spencer Weart has argued that the rise of environmentalism as a respectable political force in the early 1970s permeated some sections of the scientific community, leading to environmental problems, including climatic change, becoming a more important part of scientific meetings and debates.⁴ Weart has also indicated that towards the end of the decade climate issues were utilised to promote the use of nuclear power—a tactic made more effective by successive oil shocks.⁵ As a final example, Naylor has shown how the panic surrounding the World Food Crisis of 1973-74, as prices of food and several other commodities skyrocketed, opened the political sphere to some climatologists to promote climatic change as the root cause of these problems. This influential minority of climatologists exploited the publicity surrounding several prominent climate-

¹ The authors would like it to be known that they should be considered joint first authors.

² Here we define ‘climatic change’ as global long-term changes to the atmosphere irrespective of causal mechanism.

³ Joshua P. Howe, *Behind the Curve: Science and the Politics of Global Warming*, 1st ed. (Seattle; London: University of Washington Press, 2014): 44–66.

⁴ Spencer R. Weart, *The Discovery of Global Warming: Revised and Expanded Edition*, 2nd ed. (Cambridge, Mass: Harvard University Press, 2008): 66–67.

⁵ *Ibid*, 102–103.

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related events in order to emphasise the climatic threat, including a famine in the Western Sahel at the turn of the 1970s.⁶

Many of these contributing factors reflect the new discursive environment that took root during the decade. Eric Hobsbawm identifies the period of 1973 to 1991 as the ‘Crisis Decades’ of the twentieth century, with increased concern globally about economic, social, and environmental problems.⁷ Daniel T. Rogers has argued that as a result of these various crises, the 1970s became an age of fracture, where long held common ideas and concepts in society came apart.⁸ So-called stagflation, the World Food Crisis, oil shocks and the end of formal colonialism in many places were just some of the forms of economic fracture and political fragmentation that impacted the production and circulation of knowledge. Due to the desire to respond to and prevent these kinds of crises, the 1970s saw particular resonance afforded to predictions about the future.⁹ The desire on the part of American security actors, including the Ford Foundation, to not just predict but prevent apocalyptic futures hailed by movements such as environmentalism, produced the rise of future studies, a branch of futurology.¹⁰ Jon Agar argues that the ‘burgeoning interest in longer-term, futurological study’ made it possible for scientists to justify the importance of climatic change to the UK government.¹¹ Rogers also identifies the period as one of contagion where, in the face of economic crisis and identity conflict, “versatile sets of ideas” moved through increasingly permeable disciplinary boundaries, reworked and reused for new occasions.¹² Michael Egan uses Michael Soule’s term “crisis disciplines” to frame the response of scientists to the new challenges of the 1970s.¹³ Egan argues that a section of the scientific community, faced with social challenges and the threat of ecological collapse, reformulated itself into a reactionary, adisciplinary, politically engaged, “acting before knowing all the facts” corpus. One of the intentions of these crisis disciplines was to “rehabilitate” science with an increasingly disparaging public by directly engaging with those issues deemed most pressing. Crisis disciplines combined the increased appetite for predictions of the future, and the tendency to collapse disciplinary boundaries into a new set of academic practises.

⁶ Robert L Naylor, “Reid Bryson: The Crisis Climatologist,” WIREs Climate Change, 2021, e744. In this paper we have primarily referred to the crisis in the Sahel in the early 1970s as a famine as this emphasises the impact on the people of the Sahel and the multifaceted causes, as opposed to the term drought that is understood in the popular imagination as a lack of rainfall. Controversy over several incidents of food insecurity have led to long-running discussions about the appropriate scales and definitions of famine. For more information: Paul Howe and Stephen Devereux, “Famine Intensity and Magnitude Scales: A Proposal for an Instrumental Definition of Famine,” *Disasters* 28, no. 4 (December 2004): 353–72. It should also be noted that the term ‘drought’ has a number of definitions, some of which have little to do with rainfall: Donald A. Wilhite and Michael H. Glantz, “Understanding: The Drought Phenomenon: The Role of Definitions,” *Water International* 10, no. 3 (January 1985): 111–20.

⁷ Eric J. Hobsbawm, *The Age of Extremes: The Short Twentieth Century, 1914-1991*, repr (London: Abacus, 2011).

⁸ Daniel T. Rodgers, *Age of Fracture* (Cambridge, Mass: Belknap Press of Harvard University Press, 2011).

⁹ Locher, “Neo-Malthusian Environmentalism, World Fisheries Crisis, and the Global Commons, 1950s-1970s”; Jenny Andersson, “The Great Future Debate and the Struggle for the World,” *The American Historical Review* 117, no. 5 (December 1, 2012): 1411–30.

¹⁰ Andersson, “The Great Future Debate,” 1413.

¹¹ Jon Agar, “‘Future Forecast—Changeable and Probably Getting Worse’: The UK Government’s Early Response to Anthropogenic Climate Change,” *Twentieth Century British History* 26, no. 4 (December 1, 2015): 604–605.

¹² Rodgers, *Age of Fracture*, 11.

¹³ Michael Egan, ‘Survival Science: Crisis Disciplines and the Shock of the Environment in the 1970s’, *Centaurus* 59, no. 1–2 (2017): 26–39. and Michael Soule, ‘What Is Conservation Biology?’, *Bioscience* 35, no. 11 (1985): 727–34.

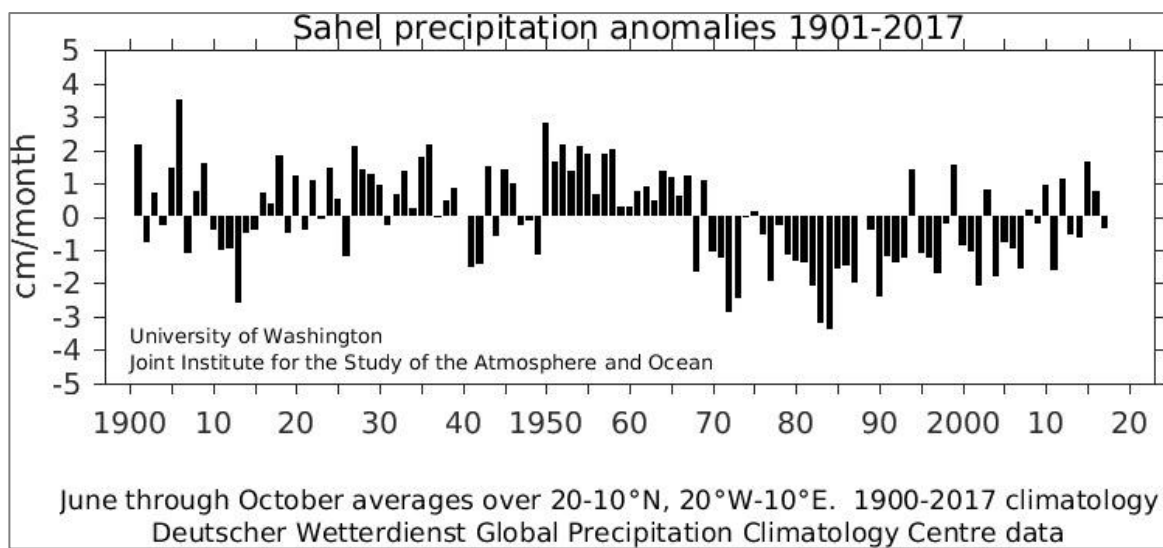


Fig. 1. Sahelian rainfall during the rainy season since 1900.¹⁴

The Sahel famine of the early 1970s was one of the challenges that helped form crisis disciplines, especially in the area of climatology. As one of the first major crises in newly postcolonial Africa, the famine brought widespread food insecurity and significant mortality for people and their animals. It appears that before mid-1973 the crisis was not strongly linked to long-term climatic changes within the public sphere. For example, a *Washington Post* article from January 1973 explicitly pointed out that “[w]eather experts at the US Department of Agriculture say that despite appearances there is no worldwide drought and that some areas in the southern hemisphere had heavy rains last year”.¹⁵ This sentiment was echoed by aid workers on the ground, who later claimed that they had been slow in responding to the crisis due to a prevailing belief that the drought was a “temporary climatic aberration” and that “each year would be the last”.¹⁶ In early reports, the crisis was mostly framed by aid responses, with little mention of climatological aspects. By mid-1973 however the crisis became linked with worldwide climatic shifts, an ever-evolving framing that continues to hold considerable sway. The discursive environment of the 1970s, with an academic trend towards futurism across a number of disciplines, meant that explanations such as climate attribution narratives thrived. These explanations drew on older colonial conceptualisations of the Sahelian landscape and its peoples. However, while the representation of the Sahel famine as caused by climatic changes has been influential since mid-1973, this narrative has long been challenged from a variety of disciplinary perspectives.¹⁷ Many meteorologists have highlighted that data for the region is incomplete, and insufficient to make such confident causal assertions regarding the mechanisms behind the drought.¹⁸ Today, it has been proposed that the decrease in rainfall was

¹⁴ Todd Mitchell, “Sahel Precipitation Index (DOI: 10.6069/H5MW2F2Q),” Dataset, The Joint Institute for the Study of the Atmosphere and Ocean (JISAO), February 2018, <http://jisao.washington.edu/data/sahel/>.

¹⁵ David B. Ottaway, “Drought Threatens Famine in Wide Areas of Africa,” *The Washington Post*, January 20, 1973.

¹⁶ Hal Sheets and Roger Morris, “Disaster in the Desert,” *Issue: A Journal of Opinion* 4, no. 1 (1974): 29.

¹⁷ These global scale climatic attribution theses were accompanied by discussion of localised climate-related mechanisms. Mike Hulme has shown how climatic perspectives of Sahelian desiccation have taken a number of guises since the crisis, with localised feedback loops between increasing surface albedo and decreasing rainfall becoming an important contributor to climate-based narratives in the mid-1970s, as well as more global-scale arguments: Mike Hulme, “Climatic Perspectives on Sahelian Desiccation: 1973-1998,” *Global Environmental Change*, 2001, 11.

¹⁸ David Dalby and R. J. Harrison Church, eds., *Drought in Africa: Report of the 1973 Symposium* (Symposium on Drought in Africa, London: University of London, School of Oriental and African Studies, Centre for African Studies, 1973), 14. The

caused by changes in ocean currents, but whether Sahelian regions can be expected to receive increased rainfall in the future and whether the recent rainfall levels represent an underlying pattern remains a matter of contention.¹⁹

From the time of Western colonial conquest in the late-nineteenth century, the Sahel has been perceived as not just challenging but inherently problematic and dangerous due to its aridity.²⁰ Colonial conceptions of the Sahel continue to inflect portrayals and perceptions of the region today, and were certainly visible in discussions of the famine in the 1970s. Davis and Burke identify the portrayal of the Sahel as degraded and environmentally unnatural as a form of “environmental orientalism”, the projection of ideas of exoticism and insufficiency onto environments perceived as other by Westerners.²¹ Related to these ideas about the landscape were racialised and gendered assumptions about its people, encapsulated in the concept of environmental determinism.²² The colonial powers justified their intervention in the region through these ideas.²³ These perceptions were reflected in early forms of climate science, which were concerned with the survival of Europeans in hostile environmental conditions in the colonies.²⁴ Colonial conceptions saw climate as fixed or static, and climate was identified as a causal factor in the Sahel’s perceived underdevelopment. Decolonisation coincided with an increasing recognition that climate was not static at all, but instead was subject to natural variation and possible anthropogenic influences, resulting in a shift in how climatological thinking was applied to the Sahel.²⁵ As the idea of climate as a fixed entity was replaced in the popular imaginary by the idea of climatic change, the Sahel was again framed as particularly vulnerable, and narratives of environmental determinism were again invoked,²⁶ even against opposition from scholars who strengthened the evidence for complex political, economic and social causes of the famine.²⁷ The *Drought in Africa* symposium represents one of the earliest academic reactions to the Sahel famine, and therefore is a useful example to illustrate the continuities of colonial thought as climate imaginaries transitioned from static to dynamic.

Western Sahel was formally colonised by France after the Berlin conference of 1884-1885, so there are substantial rainfall statistics for this region only since the beginning of the twentieth century (Fig. 1). It should also be noted that the Sahelian region sees significant variability in rainfall in different locations, so regional statistics obscure local experiences.

¹⁹ Michela Biasutti, “Rainfall Trends in the African Sahel: Characteristics, Processes, and Causes,” *WIREs Climate Change* 10, no. 4 (2019).

²⁰ Brittany Meché, “Bad Things Happen in the Desert: Mapping Security Regimes in the West African Sahel and the ‘Problem’ of Arid Spaces.” In *A Research Agenda for Military Geographies*, p.71. Edward Elgar Publishing, 2019

²¹ Davis, Diana K., and Edmund Burke. *Environmental Imaginaries of the Middle East and North Africa*. Athens, Ohio, United States: Ohio University Press, 2011. 16

²² As David Livingstone notes, environmental determinism is commonly understood as the idea that “human activities are controlled by the environment”, and yet this definition is far too simple to contain the full scope of the way the idea has been constructed and utilised across many centuries. Here it is important to note that in the Sahel, the idea that the people were morally degraded as a result of living in the arid environment was widespread. David N Livingstone, ‘Environmental Determinism’, in *The Sage Handbook of Geographical Knowledge* (SAGE publications, 2011), 368–80.

²³ Davis and Burke, *Environmental Imaginaries of the Middle East and North Africa*, 15.

²⁴ Meché, “Bad Things Happen in the Desert: Mapping Security Regimes in the West African Sahel and the ‘Problem’ of Arid Spaces.” 72

²⁵ Spencer R. Weart, “Rise of Interdisciplinary Research on Climate.,” *Proceedings of the National Academy of Sciences of the United States of America* 110 (2013): 3657–64.

²⁶ A recent example: UN Security Council, “UN Security Council 8435th Meeting (PM) SC/13637,” December 20, 2018.

²⁷ See for example Alexander de Waal, *Famine Crimes: Politics and the Disaster Relief Industry in Africa* (London: James Currey, 1997), Rolando V Garcia, in *Nature Pleads Not Guilty: The 1972 Case History*. 1st ed. Oxford: Pergamon Press, 1981, Glantz, Michael H., ed. *The Politics of Natural Disaster: The Case of the Sahel Drought*. Praeger Special Studies in International Economics and Development. New York: Praeger, 1976.

Drought in Africa Symposium

When the unfolding crisis in the Sahel hit the anglophone newspaper headlines in early 1973, it caught the attention of academics at London's School of Oriental and African Studies (SOAS). At the time of the symposium in 1973 colonial-era beliefs and methodologies, including environmental determinism and inherent prejudice against the inhabitants of the areas studied, coexisted in tension with newer ideas.²⁸ Organised at only seven weeks' notice, the *Drought in Africa* symposium of the 19th-20th of July 1973 brought together over 100 academics from a wide range of disciplines to discuss the crisis, stretching from physical science to law to anthropology to linguistics.²⁹ The conference led to the publication and circulation of a summary report before the end of 1973. This initial report was then followed in 1977 by an expansion of the original, *Drought in Africa 2*.³⁰ The symposium was convened by academics R. J. Harrison Church, a geographer from the London School of Economics, and a young David Dalby, a linguist, from SOAS. Both the resulting 1973 report and the original conference papers demonstrate the competing disciplinary explanations and proposed resolutions to the crisis.

On display at the symposium were a series of narratives that strongly reflect the colonial perception of the Sahel, with colonialist environmental imaginaries in evidence alongside competing counter narratives. In the earlier work of convenor Harrison Church, he outlined a policy vision for West Africa that strongly resonates with these colonialist narratives. His 1963 work *Environment and Policies in West Africa* aligned significantly with the paper he submitted to the *Drought in Africa* symposium.³¹ While Harrison Church did not appear to have supported a climatic attribution thesis, he was aligned with those who viewed the Sahelian environment as fundamentally degraded and insufficient. There were three key themes to Harrison Church's earlier work that are relevant to understanding the perspectives presented at the 1973 symposium. Firstly a belief in environmental determinism, as seen in Harrison Church's 1963 assertion that "in all tropical lands, nature is more compelling and man usually less efficient in dealing with his environment than in temperate lands" implying that the environment in which people live determines their character, in this case their productivity.³² Secondly, there are several mentions of "population pressure" as a cause of diminishing soil quality among other environmental issues, demonstrating the neo-Malthusian attribution of crisis and conflict to expanding populations.³³ Finally, in his 1963 work Harrison Church discussed the impact of colonial policies on agriculture in the region, particularly plantation ownership by non-Africans in French colonial regions, which was minimised in the *Drought*

²⁸ See page 19 of the Dalby and Harrison Church, *Drought in Africa* conference report - "It was suggested by one speaker that social anthropologists' data on African societies should be treated with caution, since their discipline has a strong methodological bias towards finding self-contained systems, defining anything which does not fit as 'intrusive'"

²⁹ Dalby and Harrison Church, *Drought in Africa*.

³⁰ David Dalby, R. J. Harrison Church, and Fatima Bezzaz, eds., *Drought in Africa 2 =: Sécheresse En Afrique*, Rev. and expanded ed, African Environment : Special Report 6 (London: International African Institute in association with the Environment Training Programme, 1977).

³¹ R. J. Harrison Church, *Environment and Policies in West Africa*, 1st ed. (Princeton, N.J: D. Van Nostrand Company, Inc., 1963), chap. 4.

³² Ibid, 101.

³³ Ibid, 102

in Africa report.³⁴ However, he also asserted that “West African countries often fared better because of colonial connections” in comparison to other African countries.³⁵

At the symposium, debates about environmental determinism, neo-Malthusianism, and the impact of colonialism led to significant conflict. Attendee John Connell stated in the geography journal *Area* that reports from organisations responding to the crisis led to “latent political differences becoming manifest and some discussion of neo-colonialism, dependence and over-dependence” during the symposium.³⁶ It seems that at the centre of these debates was discussion on what level of intervention should have been provided to address the famine and to what extent factors such as climatic change, population increases, and degradation of the environment, including desertification, were responsible for the famine. For example, in co-organiser Harrison Church’s paper he claimed that in the Sahel “ordinary subsistence will always be extremely hazardous” and thus he said the question must be asked whether “people should live in such areas with such terrible and inevitable risks?”³⁷ And yet he was also critical of “fatalistic” reports that the Sahara is advancing, and blamed man and livestock for the desertification of the region, which he believed could be undone should these pressures be relieved.³⁸ Harrison Church thus holds two seemingly contradictory beliefs: that the Sahel itself is inherently dangerous, and also that the people who live there are responsible for the environmental degradation he perceives to be threatening the environment. Both of these beliefs, however, exhorted western intervention and minimised Sahelian agency.

In direct contrast, Jeremy Swift, a development economist, emphasised the diversity of both the Sahel and its people, differentiating between different zones and the individual groups who live there. He discussed in detail numerous traditional responses to periods of drought and argued that the impact of colonialism had restrained the full range of options available to Sahelian people in response to challenges from the environment.³⁹ He also directly contradicted the assertions made by some of the climatologists present, discussing at length the variability of the climate in the region and directly stated “there are not enough [weather] stations to document the yearly variations from place to place”.⁴⁰ Here we can see some of the methods of development studies and postcolonial critique beginning to impact perceptions of the region and its people, foreshadowing much of the later work that sought to establish complex causality, and indigenous resilience in response to the famine.⁴¹ While at the symposium itself a wide variety of views were expressed, the report of the symposium prioritised those arguing for a more interventionist response to the crisis, including some calls for the evacuation of the

³⁴ Ibid, 104.

³⁵ Ibid, 111.

³⁶ John Connell, “Drought in Africa,” *Area* 5, no. 4 (1973): 270–71.

³⁷ Dalby and Harrison Church, *Drought in Africa*, 62.

³⁸ Ibid, 63.

³⁹ Ibid, 76–77. This argument was expanded and strengthened Rolando V Garcia, in *Nature Pleads Not Guilty: The 1972 Case History*. 1st ed. Oxford: Pergamon Press, 1981.

⁴⁰ Dalby and Harrison Church, *Drought in Africa*, 71.

⁴¹ By limiting the specificity of regional experiences of the famine, the potential for a specificity of causal factors was also reduced, prioritising those explanations which were deemed to have the potential for universality - population growth, climate, and environmental degradation. In devaluing indigenous expertise more complex and politicised explanations of the famine were decentred. Very few papers sought to investigate local people’s perceptions and responses to drought, and those that did generally used only the medium of literary analysis rather than direct dialogue: H T Norris, “Sahel Nomads’ Attitudes to Drought (I),” July 1973, SOAS. Centre of African Studies. Conference Files. Box 2 SOAS/CAS/1/5, SOAS Library Special Collections.

Sahelian region as exemplified by B. W. Hodder of SOAS's Department of Geography.⁴² This reinforced the narrative that the people of the Sahel required 'saving' from the famine, and that Western intervention of some kind was the only way to achieve this. This argument strongly echoes the justifications for intervention seen in the colonial era discussions of the Sahel. What was missing, however, was acknowledgement of the colonial and postcolonial Western interventions that played a role in creating the Sahel famine, such as the promotion of cash crops that were vulnerable to fluctuations in international markets that hallmarked the 1970s.⁴³ These interventionist arguments, partially relied on a pessimistic climatic prognosis for the region - intervention clearly would not be necessary if the drought was a temporary aberration and the environment shortly to be replenished by the return of rains. At the conference, this pessimistic prognosis was most strongly promoted by Hubert Lamb. Although at the symposium itself, the significance of the prognosis was questioned and its effect was lessened, the discursive environment of the early 1970s meant that subsequently, more significance was attached to the prognosis accentuating its impact.

The Construction of a Climate Prognosis

Hubert Lamb served a 36-year long career in the UK Meteorological Office, until he left in 1971 due to methodological differences with the mainstream UK meteorological establishment. Lamb's ways of knowing no longer fit with his institution. He held a prevailing belief that examining the historic climatological record was essential for understanding future climatic developments. In contrast, the Met Office was increasingly moving towards computational modelling for researching the climate.⁴⁴ Throughout the 1960s, Lamb had spent considerable effort reconstructing past climate records, using diverse sources like monastic chronicles, ship's logs, and seasonal accounts from English vineyards. Both in 1967 and 1972, Lamb tentatively indicated that he could detect patterns in the data, claiming to see repeating oscillations in temperature and other variables at intervals of just under 200-years, with peaks in the mid-1300s, and early 1500s, 1700s, and 1900s (Fig. 2).⁴⁵ In 1972, Lamb founded the University of East Anglia's Climatic Research Unit but struggled to gain funding, as seen in a begging letter in the journal *Nature* in early 1974 and the unsuccessful lobbying of the UK government for funds.⁴⁶

⁴² Dalby and Harrison Church, *Drought in Africa*, 21.

⁴³ Michael F. Lofchie, "Political and Economic Origins of African Hunger," *The Journal of Modern African Studies* 13, no. 4 (1975): 551–67; FAO, "TSEFA 1971," 109.

⁴⁴ Janet Martin-Nielsen, "Ways of Knowing Climate: Hubert H. Lamb and Climate Research in the UK," *WIREs Climate Change* 6, no. 5 (2015): 465–77.

⁴⁵ H. H. Lamb, "Britain's Changing Climate," *The Geographical Journal* 133, no. 4 (1967): 457; H. H. Lamb, *Climate: Present, Past and Future* (London: Methuen, 1972), 236.

⁴⁶ Allan Piper, "Lamb's Unit to the Slaughter?," *Nature* 248, no. 5448 (April 1, 1974): 466–67; *Climatic Research Unit*, vol. 868, HC Deb (Hansard, 1974).

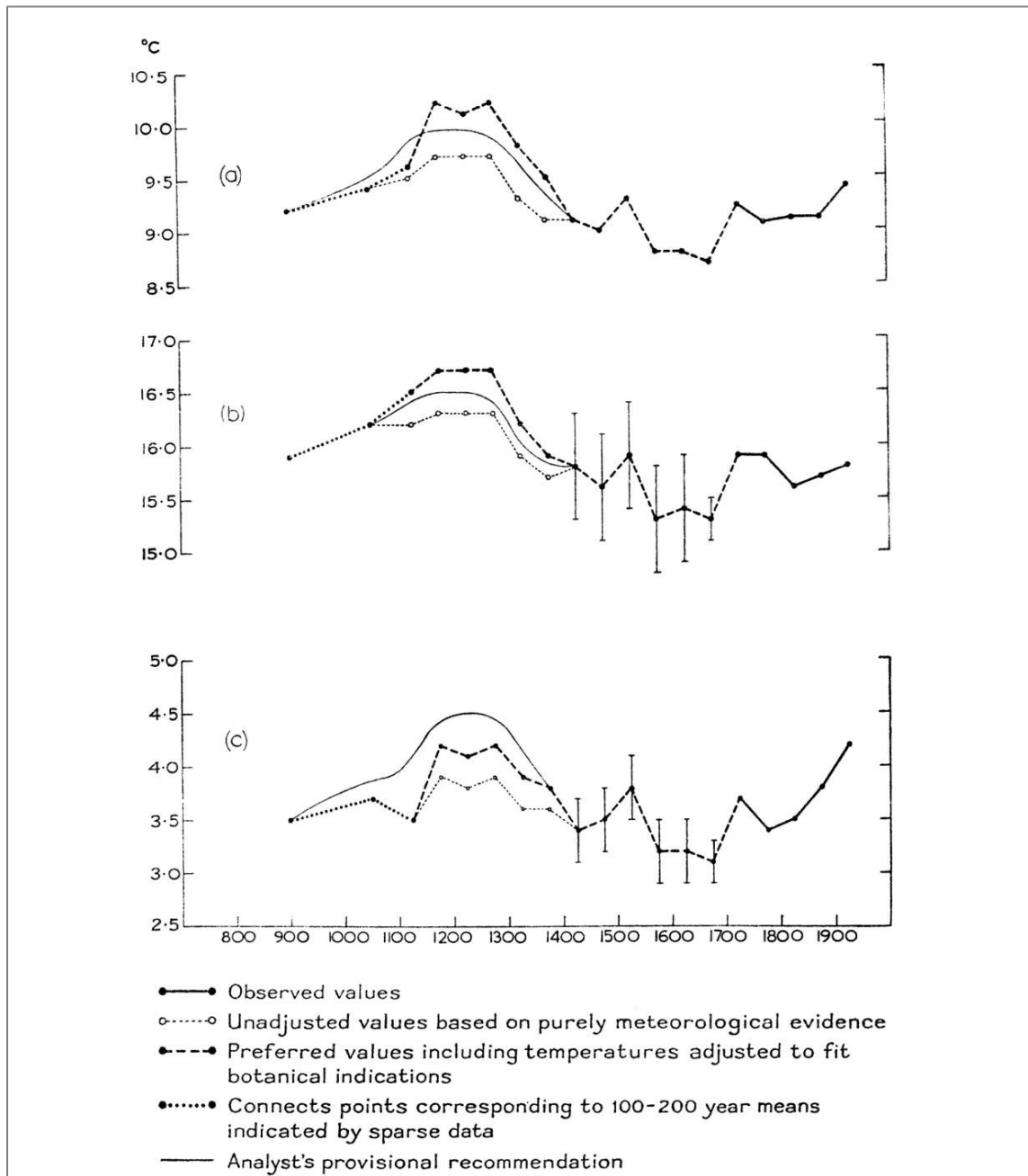


Fig. 2. Graphs of reconstructed historical temperature in the UK repeatedly used by Lamb to tentatively indicate 200-year cycles. (a) shows yearly averages, (b) summer averages, and (c) winter averages.⁴⁷

Lamb's paper on atmospheric pressure variation was given high priority in the symposium report, being the first paper reproduced, and its significance was reinforced by a supplementary note from one of Lamb's colleagues at the Climatic Research Unit emphasising the global implications of climatic change. This was despite the fact the paper was barely more than one page long and contained no formal references. Lamb ascribed the drought to belts of higher

⁴⁷ Lamb, "Britain's Changing Climate," 457; Lamb, *Climate*, 236.

pressure near the polar regions displacing climatic zones closer to the equator, and tentatively linked the Sahel disaster with the 200-year climatic cycle that he had detected in his UK data:

From this analysis it appears that the phenomenon which is giving rise to the droughts has already a long history, of over 20 years of continuous development, and that it is not likely to disappear in the near future as part of any cyclic phenomenon. The well known cycles of 2 years, 5.5 years, 9.5 years, 11 years and 20-22 years duration evidently have nothing to do with it. There are no other such prominent cycles in meteorological phenomena shorter than 80-90 years, and the association of this phenomenon with changes in the frequencies of different wind directions over the British Isles (where we have a long history of the winds) suggests that it is more likely associated with a 200-year process.⁴⁸

Whether it was his intention or not, the final sentence of Lamb's paper would come to be interpreted as a climate prediction. Lamb's perceived pattern to the climatic data was reinforced by the work of Derek Winstanley, who reported from eight weather stations on the northern fringe of the monsoon area, including six in the Sahel. However, this narrative did not resonate well with the other meteorologists in the room, such as those associated with the Met Office, who claimed that Lamb was oversimplifying a highly complex and heterogeneous atmospheric system.⁴⁹ The idea of a 200-year cycle was also complicated by the papers of D. J. Schove, who emphasised 30-year oscillations in climate, and A. T. Grove, who outlined a prior drought that had culminated in 1913 (Fig. 1).⁵⁰ Indeed, it seems that at the symposium itself these disagreements blunted the power of Lamb's hypothesis, with one observer saying "the symposium was left to consider the idea that meteorologists could not yet predict long-term changes."⁵¹ This was in contrast to the published report, where the "Climate and Water Resources" panel chairman's summary gave space and prominence to Lamb's ideas.⁵² Clearly, Dalby and Harrison Church saw the prognosis as a significant takeaway of the conference.

Lamb's thesis had an immediate impact amongst organisations responding to the famine. The Voluntary Committee on Overseas Aid and Development was an umbrella organisation that connected the Ministry of Overseas Development with NGOs in the UK. In a copy of the symposium report held in the Voluntary Committee's library, the 200-years figure was underlined when it was first mentioned in the chairman's summary. An organisational document created to summarise the symposium also gave rhetorical emphasis to the 200-year figure (see appendix). It is clear that any NGO employee consulting the report in the Voluntary Committee's library would have been presented with the opinion that the disaster was part of a long-term climatic change, and that the Voluntary Committee believed that the 200-year figure was worth emphasising. In addition, we see Lamb's one-page paper cited at meetings

⁴⁸ Dalby and Harrison Church, *Drought in Africa*, 27–28.

⁴⁹ Dalby and Harrison Church, *Drought in Africa*, 14.

⁵⁰ *Ibid.*, 29–30, 33–45.

⁵¹ Connell, "Drought in Africa."

⁵² Dalby and Harrison Church, *Drought in Africa*, 13–14.

orchestrated by the Rockefeller foundation⁵³ regarding the crisis,⁵⁴ as well as by social scientists trying to criticise and complicate the climatic attribution thesis for the famine.⁵⁵ Lamb's paper, one page and devoid of references, had a larger impact than its format would suggest, with its influence resulting mainly from resonant discourses that Lamb had (most likely inadvertently) tapped into.

At the symposium meeting, as previously mentioned, Lamb's prognosis found support in the form of independent scholar Derek Winstanley who had completed his DPhil in climatology four years before. Papers were distributed one week before the meeting, and Winstanley's symposium paper at the time of submission did not include any explicit mention of the 200-year figure.⁵⁶ However, the day before the conference began a version of Winstanley's symposium paper was received by the journal *Nature* and was published in September, now including the 200-year figure prominently.⁵⁷ According to Winstanley, the climate paper was fast tracked by *Nature* staff writer John Gribbin, who later released his own series of popular books on climate catastrophe.⁵⁸ In the article, Winstanley intervened in the debates discussed at the symposium about the habitability of the Sahel, explicitly saying "massive international aid could be injected into Sahel states but this would destroy the nomadic way of life [...] the natural solution would be for nomads to shift southwards with the rains but this would raise serious political problems".⁵⁹ Winstanley here made an implied prognosis about future rainfall in the region based on historical data. By engaging in policy debates, he made a deterministic, pessimistic, and neo-Malthusian analysis of the capacity of the Sahel to support its population. Here the societal implications of the 200-year hypothesis were made explicit by a climatologist, implications that the wider media would then pick up on.

Winstanley's *Nature* paper was widely reported upon in the popular press. Gribbin himself referenced the article extensively in a wide-ranging piece for *New Scientist* that examined the effects of planetary tides on solar output as a possible driving force behind the climatic changes.⁶⁰ The popular environmentalist journal *The Ecologist* emphasised Winstanley's pessimistic political interventions regarding the prospects for the Sahel (Fig. 3): "At the recent symposium on drought in Africa [...], Dr. D. Winstanley pointed out that the desert climate will probably continue to shift southwards for a century or more—a devastating conclusion." The editor also drew parallels between Winstanley's ideas and viewpoints being

⁵³ The family-run Rockefeller Foundation, along with other organisations such as the Ford Foundation, have been instrumental in pushing major development policies in the twentieth century such as the Green Revolution and Population Control programmes, often as a proxy for the US government, in order to reinforce 'world order' based on globalised markets and the free-flow of capital. The Rockefeller Foundation had been engaged in the Sahelian region since at least independence and had a clear interest in the Sahel crisis, shown in several meetings it helped organise regarding the famine, often in conjunction with US government agencies, see: National Academy of Sciences, "International Development Strategies for the Sahel: Conference Held at the Bellagio Study and Conference Center, Italy October 1974," May 1975; Rockefeller Foundation, "The President's Review and Annual Report" (Rockefeller Foundation, 1974); Rockefeller Foundation, "Annual Report" (Rockefeller Foundation, 1960).

⁵⁴ National Academy of Sciences, "International Development Strategies for the Sahel."

⁵⁵ Jeremy Swift, "Sahelian Pastoralists: Underdevelopment, Desertification, and Famine," *Annual Review of Anthropology* 6, no. 1 (1977): 457–78.

⁵⁶ Winstanley, "Drought in Sahel Zones: Severity, Causes and Prospects."

⁵⁷ Derek Winstanley, "Rainfall Patterns and General Atmospheric Circulation," *Nature* 245, no. 5422 (September 1973): 190–94.

⁵⁸ Derek Winstanley, Interview with Derek Winstanley, interview by Robert L Naylor, Zoom, April 28, 2021.

⁵⁹ Winstanley, "Rainfall Patterns and General Atmospheric Circulation," 194.

⁶⁰ John Gribbin, "Our Weather: A Link with the Planets?," *New Scientist*, December 27, 1973.

put forth by other climatological doomsayers such as Reid Bryson in the US.⁶¹ The language was highly pessimistic, even apocalyptic. In the general newspapers, an editorial in *The Times* described Winstanley's paper as "disturbing":

A scientific theory must be tested before it can form the basis of political action. But in this case the theory has direct relevance to the lives and deaths of millions of human beings, and every effort must be made to speed up the process of scientific enquiry so that governments and relief organisations can decide what form of action is most appropriate. More effort ought to be devoted to climate research both in Britain and elsewhere.⁶²

The editorial in *The Times* exhorted the scientific community to "speed up" its procedures due to the magnitude of the crisis and the need for intervention, demonstrating the conceptual space into which crisis disciplines were able to expand. This *Times* editorial elicited responses from readers, some of whom had direct experience of the crisis. Teresa Scott, who had recently returned from Mali, saw the 200-year figure as significant: "[i]f these droughts are not occasional, but the result of a cyclic variation of climate extending over a period of 200 years, then the situation is indeed serious".⁶³ As we can see, the 200-year figure found resonance amongst a wide range of audiences, tapping in as it did to concerns and ideas already circulating in this era.

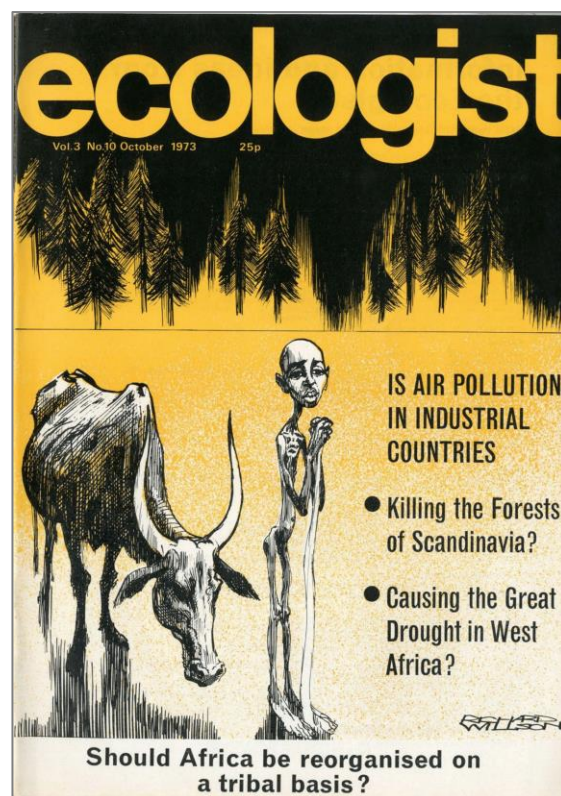


Fig. 3. Front cover of *The Ecologist* from October 1973.⁶⁴

⁶¹ Reid A. Bryson, "Drought in Sahelia: Who or What Is to Blame," *Ecologist*, October 1973.

⁶² "Nomads With Nowhere To Go?," *The Times*, September 28, 1973, The Times Digital Archive.

⁶³ Teresa Scott, "Drought in Africa," *The Times*, October 8, 1973, The Times Digital Archive.

⁶⁴ Resurgence & Ecologist, "Ecologist Magazine Archive 1970-1979," 2021, <https://www.resurgence.org/magazine/ecologist/issues1970-1979.html>.

Crisis disciplines in the 1970s produced a wide range of “missions” in response to the concerns of the period about environmental degradation, increasing population, and inadequate food supply. The response to the Sahel famine, with its emphasis on Western intervention to save the Sahelian people, was one such mission. The 200-year figure was utilised to justify and support this endeavour, irrespective of the intentions of Winstanley and Lamb. We can see how publications extracted the 200-year figure as the essence of Winstanley’s article - a numerical estimate that was simple to understand for non-specialists and carried significant implications. *The Times*, *The Ecologist* and the 1977 *Drought in Africa 2* report demonstrate the appeal of this easily-grasped narrative, with the latter claiming that “[t]here are few today who would deny that behind the apparently random course of events can be perceived the thread of an underlying logic”.⁶⁵ Of the candidates, climatic change, along with population explosions and environmental degradation by locals, represented the simplest and most attractive underlying logics for a complex crisis.

In spite of its appeal in popular narratives, the 200-year figure, which was now associated with Winstanley, apparently did not resonate as effectively within more conservative mainstream meteorological circles. This can be seen from a citation within a paper presented to the Rockefeller Foundation in October 1974, which consisted of a personal communication where Winstanley felt he had to make clear that he had been “quoted out of context” by the press.⁶⁶ Indeed, there were multiple levels of confusion, with some observers inferring that the drought would last for a century or more, which was not the same as a 200-year climate cycle that would include both the good times and the bad. Winstanley, who was in his 20s, struggled to cope with the sudden attention and the associated requests to be interviewed for TV.⁶⁷ However, he would later go on to have a successful career in science administration in the US, co-authoring a paper in the 80s that would somewhat reverse his position on climatic causation of worldwide societal events.⁶⁸

Beyond the 200-year cycle

Fascinating though the story of this 200-year figure is, it was not in itself decisive. Rather, it formed part of a larger movement in the 1970s towards what Naylor has referred to as “crisis climatology”, one of Egan and Soulé’s crisis disciplines.⁶⁹ Crisis climatology was wide-ranging in its theories and methodologies, and was plastic in response to various interlinked crises of the 1970s and the resultant injections of funds. The World Food Crisis, where global food prices (and the prices of several other commodities) skyrocketed in 1973 due to shifts in the worldwide economic system, represents one such an event.⁷⁰ This process can be seen most strikingly in a testimony given by Reid Bryson to a US Senate committee in October 1973, where Bryson was able to gain the confidence of former US vice president Hubert Humphrey, synthesising politically salient events such as Sahelian famine into his

⁶⁵ Dalby, Church, and Bezzaz, *Drought in Africa 2*, 17.

⁶⁶ National Academy of Sciences, “International Development Strategies for the Sahel,” 35.

⁶⁷ Most likely for: “The Weather Machine,” *The Radio Times*, November 14, 1974.

⁶⁸ Donald M. Borock and Derek Winstanley, “Environmental Variables in US Foreign Policy Making: The World Food Conference as a Policy Opportunity” (Meeting of the Western Political Science Association and the International Studies Association, Denver, Colorado, 1981); Winstanley, Interview with Derek Winstanley.

⁶⁹ Naylor, “Reid Bryson: The Crisis Climatologist.”

⁷⁰ Christian Gerlach, “Famine Responses in the World Food Crisis 1972–5 and the World Food Conference of 1974.” *European Review of History: Revue Européenne d’histoire* 22, no. 6 (November 2, 2015): 929–39; Garcia, *Nature Pleads Not Guilty: The 1972 Case History*. 1981.

narrative in the process.⁷¹ Bryson was not the only 1970s climatologist to enter the public-political sphere, with Walter Orr Roberts, Stephen Schneider, Herman Flohn, Hubert Lamb, and many others contributing to crisis climatology discourse, along with a host of journalists.⁷² Lamb and Bryson collaborated on producing work that gave climate-based explanations for world events, such as the fall of the Bronze Age Mycenae civilisation, and Lamb contributed to meetings that released highly inflammatory, even apocalyptic, statements about the impact of climate on the world food situation.⁷³ In addition, Lamb highlighted the magnitude of the Sahel famine in Climatic Research Unit reports, and undertook a highly interdisciplinary mode of research that hallmarked crisis disciplines.⁷⁴ Crisis climatology's bold, untested ideas were highly controversial within mainstream meteorology, and the National Center for Atmospheric Research entered the media sphere to dispute statements made by crisis climatologists.⁷⁵ However, some of the practitioners, through their audacious claims, were able to attract attention and funding to their institutions. Bryson himself was richly rewarded by his newfound influence, with the research budget of his institute rising to \$3m in 1974.⁷⁶

In 1974, Lamb's struggle to find funding for his new institution would bear fruit in the form of a \$120,000 grant from the Rockefeller Foundation, equivalent to around three quarters of a million in 2021.⁷⁷ According to his autobiography, this had directly resulted from the begging letter placed in the journal *Nature* in 1974. This may well have been Lamb's view, as his autobiography outlines a meeting with Rockefeller representatives that could only be described as convivial.⁷⁸ It is notable, however, that, according to their annual report, the Rockefeller Foundation only substantially funded climatologists in 1974 who had made bold prognoses regarding Sahelian famine such as Lamb and Bryson. Soon after receiving this funding, Lamb largely abandoned the 200-year figure. This can most clearly be seen by the revised version of his symposium paper in the second 1977 report, which in contrast to his 1973 paper, ends on a cautious note: "...the records used were not long enough to substantiate this cycle with confidence."⁷⁹

The emergence of the crisis climatology movement saw several international figures put forward much more decisive prognoses regarding climate and its impacts, including with regards to the Sahel famine. Practitioners, including Lamb and Bryson, were able to utilise the

⁷¹ Robert L Naylor, "The Bryson Synthesis: The Forging of Climatic Change as a Political Tool during the World Food Crisis (IN PRINT)," *Science in Context*, 2021.

⁷² Walter Orr Roberts and Henry Lansford, *The Climate Mandate*, 1st ed. (San Francisco, Cal: W. H. Freeman, 1979); Walter Orr Roberts, "Climate Change and Its Effect on World Food," *Science and Public Policy* 2, no. 6 (June 1975): 264–66; Stephen Schneider and Lynne E. Mesirov, *The Genesis Strategy: Climate and Global Survival* (Springer US, 1976): 106–107; H. H. Lamb, "Is the Earth's Climate Changing," *Ecologist* 4, no. 1 (1974): 10–15.

⁷³ R. A. Bryson, H. H. Lamb, and David L. Donley, "Drought and the Decline of Mycenae," *Antiquity* 48, no. 189 (March 1974): 46–50; Roberts, "Climate Change and Its Effect on World Food."

⁷⁴ H. H. Lamb, "The Current Trend of World Climate: A Report on the Early 1970's and a Perspective," CRU RP (Norwich: Climatic Research Unit, School of Environmental Sciences, University of East Anglia, 1974).

⁷⁵ Henry Lansford, "International Federation of Institutes for Advanced Study," Press Invitation, September 30, 1974, NCAR Archives; Roberts and Lansford, *Climate Mandate*, 106–7; Alan Anderson, "Forecast for Forecasting: Cloudy," *New York Times*, December 29, 1974, sec. SM.

⁷⁶ Reid A. Bryson, "Seven Years in Retrospect: The Institute for Environmental Studies, University of Wisconsin, Madison," in *Environmental Education in Action II: Case Studies of Environmental Studies Programs in Colleges and Universities Today* (Ohio: Educational Resources Information Center, 1978), 90.

⁷⁷ Rockefeller Foundation, "The President's Review and Annual Report," 64.

⁷⁸ H. H. Lamb, *Through All the Changing Scenes of Life: A Meteorologist's Tale* (Norfolk: Taverner Publications, 1997), 203–4.

⁷⁹ Dalby, Church, and Bezzaz, *Drought in Africa* 2, 36.

prominence of the Sahel disaster in order to promote their ideas and gain institutional recognition and funding. It is also clear that climate prognoses in and of themselves were powerful narratives that resonated with wider society in the period. Another example of the power of these climate narratives, can be seen in the establishment of an Environmental Review Unit at SOAS as a direct result of the symposium. Headed by co-organiser David Dalby, the unit aimed to incorporate a physical sciences perspective into the school's repertoire for the first time.⁸⁰ The Environment Review Unit was mission oriented and intended to encourage interdisciplinary cooperation to address crises such as the Sahel famine. While the *Drought in Africa 2* 1977 expanded report does include social science papers, the introduction refers heavily to "empirical" analysis and data, and "scientific" methods as the necessary tools of scholars of the crisis.⁸¹ By 1975 social scientists were publicly complaining that their subject had been relegated to exploring the impact of the crisis, not the causes.⁸²

NGOs in the region, such as Rockefeller and those under the Voluntary Committee on Overseas Aid & Development umbrella, seem to have resonated with explanations like population explosion, environmental degradation by locals, and lack of rainfall as the primary causes of the crisis. As outlined earlier, the 1970s was a time where the perception of widespread crisis meant that versatile sets of ideas such as Lamb's, while not accepted in his home discipline of meteorology, were taken on in different arenas, such as aid and development. Here the politically engaged discipline of crisis climatology contributed to the depoliticization of events such as the Sahel famine. This depoliticization of the causes of humanitarian crises came under significant criticism in the years following the famine. The *Humanitarianism Unbound* paper by African Rights, released in 1994, is a now well-known critique of the expansion of humanitarian action after the Cold War, stating "relief aid delivered by international agencies has become integrated into processes of violence and oppression".⁸³ David Keen's 1994 work on famine in Sudan in 1983-89 made a more specific and detailed case that aid agencies' failure to engage with the political dimension of famine resulted in donors actively allowing the government's intentional promotion of famine to continue unabated.⁸⁴ In the Sahel, and Africa as a whole, climatic change remains a tool of depoliticization by international agencies, demonstrated by the controversial attribution of the Darfur conflict to climatic change by the UN Secretary General Ban Ki-Moon in 2007.⁸⁵ While a static climate was viewed as an environmentally determinant indicator of degradation and insufficiency to justify intervention and control during colonial periods, now climatic change is used for the same purpose to justify the establishment and consolidation of aid and development in the region. As 'static' climatic determinism exemplified by Harrison Church in 1963 transitioned into the 'dynamic' climatic determinism promoted by the likes of

⁸⁰ David Dalby, "The Future Role of the International African Institute," *Africa: Journal of the International African Institute* 44, no. 4 (1974): 325–26. This unit appears to have faced significant challenges in crossing disciplinary boundaries: Paul Richards, "What Environmental Crisis Means in Africa," *Nature* 259, no. 5541 (January 1, 1976): 258–59.

⁸¹ Dalby, Church, and Bezzaz, *Drought in Africa 2*, 17.

⁸² Lofchie, "African Hunger"; Swift, "Sahelian Pastoralists."

⁸³ African Rights (Organization), *Humanitarianism Unbound?: Current Dilemmas Facing Multi-Mandate Relief Operations in Political Emergencies* (African Rights, 1994), 3.

⁸⁴ David Keen. *The Benefits of Famine: A Political Economy of Famine and Relief in Southwestern Sudan, 1983-1989*. James Currey Publishers, 2008.

⁸⁵ Mark Maslin, "Climate Change Is Not a Key Cause of Conflict, Finds New Study," *The Conversation*, April 24, 2018.

Winstanley in 1973, the future of the Sahel as a habitable, productive region was kept out of the hands of Sahelians and handed to technocratic elites.⁸⁶

Conclusion

The 200-year figure represents an intersection of diverse resonances and interests, allowing it to propagate irrespective of its causal mechanisms, scientific veracity, or acceptance by the meteorological community. The Sahel crisis was a complex and contested event about which there was insufficient data to evidence any kind of consensus view either within academic or public circles. In this situation of little concrete information, a numerical estimate for how long the drought may last, no matter how tentatively stated, propagated in the discursive landscape of the time. For Lamb, whether he was conscious of it or not, the tentative climate prognosis represented a tightrope walk towards greater financial security. It was provocative enough to gain attention from important funders, but was also expressed with plausible deniability, allowing him to step away from the prognosis if needed, as indeed he later did. For Winstanley, the 200-year figure was a hotshot ticket to the moon and back. It gave him exposure in the national media, but this was somewhat of a poisoned chalice, with Winstanley feeling that his work had been quoted out of context and was to an extent out of his control. Partly as a result of early climatic prognoses such as these and partly due to the resonant discourse and interests of the period, the Sahel crisis of the early 1970s became associated with physical causes and wider climatic change, limiting discussions of the socio-political causes of the famine right up to the present day.

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Appendix: In a Nutshell - The Problems of Drought in the Sahel

This two-page summary document was found within the pages of a copy of the 'Drought in Africa' symposium report that was formerly owned by the Voluntary Committee on Overseas Aid & Development, an umbrella organisation which connected the Ministry of Overseas Development in the UK with NGOs, including Oxfam, Christian Aid, and the Overseas Development Institute. Written in early 1974, it was most likely intended to assist committee members as they consulted the report in the committee's library at Parnell House. The charities that were instrumental in organising aid for the Sahel were members of this voluntary committee, and all attended this symposium, so this document demonstrates a

⁸⁶ This trend of prioritising external knowledge of the Sahel reflects that of the wider trend towards the creation of the 'development expert' in aid and development circles, which Uma Kothari argues supported the introduction of a neo-liberal development agenda, see Uma Kothari "Authority and Expertise: The Professionalisation of International Development and the Ordering of Dissent." *Antipode* 37, no. 3 (2005): 425–46.

collective awareness of the 200-year figure, as well as an acknowledgement of its perceived importance. As this document is not publicly available, we have decided to reproduce the text here:

IN A NUTSHELL - THE PROBLEMS OF DROUGHT IN THE SAHEL

The Situation. There is a catastrophic drought in Africa, south of the Sahara. Some hundreds of thousands of cattle and tens of thousands of people have died - no one knows how many, because no one has ever counted either the human or the animal population in this very remote and inhospitable part of the world. The remaining people and their livestock have been moving southwards, seeking pastures and new farmlands, pressing on a hostile rural population and surrounding towns with the low tented encampments of the destitute - which sometimes contain as many as ten thousand refugees. People in these camps have lost everything they possess. They have left their cattle and sometimes even their babies.

This situation is six or seven years old now, but Drought is a slowly accumulating condition and this year, 1974, promises to be still more fearful than former years.

The reason for all this. The rains in the Sahel (which is that broad strip right across Africa south of the Sahara and north of the Savannah belt) have been sparse for the last six years and in some places have failed entirely. They have been too little, too early, too erratic. The causes for this are not known but it is thought that pressure at the poles is changing and that this is 'pushing' the earth's pressure belts southwards a few degrees, and moving drier conditions further southwards towards the West African coast. The chances are that the present dry cycle may last for thirty or - some say - two hundred years.

The rains have failed before many times (there was a severe drought from 1913 - 21 for example) but what makes the present drought so calamitous is that Man has greatly aggravated the situation. Well-meaning governments and aid bodies have provided wells and health measures for humane and livestock, this has produced an 'animal explosion'. The nomads have been able to increase their herds far beyond the capacity of the pasture to support them, and the farmers have extended their cultivation too far. This has led to a savage destruction of pasture, soil erosion and 'desertification' of the land. The water table has been lowered, some fear irreparably.

The pastoral nomads are the people most affected by this and probably the Tuareg most of all. It seems likely that this may be the end of the life of almost all of the nomads. They have slaughtered or sold their animals and the farmers have eaten their seed corn.

Aid and possibly long-term strategies. The Sahelian Zone includes six of the poorest countries in the world. For years no one seemed to realise how serious the situation was growing. Since last year, however, the international bodies have been pouring in vast quantities of aid - most of it in the form of emergency feeding and medical supplies: very little of it in the form of viable long-term projects. The reason for this is that very little is known about how to rehabilitate such vast arid areas - anyway it is astronomically expensive. Certainly no government understands the people, particularly the nomads, in these areas.

The debate on long-term strategies, usually favours settlement or the restoration of pastoral nomadism, with the development of local industries and oil where possible. Settlement, of course, is a practice that the townsman understands while on the other side the restoration of nomadism is naturally criticised because this may merely lead to the building up once more of herds that are too large for the pasture.

The important Symposium on Drought held last summer at the School of Oriental and African Studies held the view that policies for development in the Sahel were doomed to failure unless they bore in mind the attitudes and practices of those who live in their area, and their relationship to their Sahelian environment.

"As long as they are thought of as backward peoples to be assimilated as fast as possible to models of development currently in vogue elsewhere, then no real progress can be made. Here is a large body of peoples with many of the skills and aptitudes needed to exploit huge areas of Western Africa, an environment so harsh that it is difficult to imagine anyone else wanting, let alone being able to use it. This land is essential to the development of West Africa."

And yet, in fact, it seems that no administrator has ever consulted the people who live there over their own problems in the Drought.