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RESEARCH ARTICLE

Atmospheres of influence: the role of journal editors in shaping early climate change narratives

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Abstract

The role of editorial staff in shaping early climate change narratives has been underexplored and deserves more attention. During the 1970s, the epistemological underpinnings of the production of knowledge on climate change were contested between scientists who favoured computer-based atmospheric simulations and those who were more interested in investigating the long-term history of climatic changes. Although the former group later became predominant in the Intergovernmental Panel on Climate Change during the 1980s, the latter had a sizable influence over climate discourse during the 1970s. Of these, one of the key popularizers of climate discourse during the 1970s was the British climatologist Hubert Lamb (1913–97). The correspondence between Lamb and journal editors who gatekept and curated different audiences helped craft resonant messages about climate change and its potential effects, and we explore Lamb's interactions with editors of *Nature*, the *UNESCO Courier*, *The Ecologist* and *Development Forum* in the 1973–4 period. Through understanding how climate change discussion was influenced by editors, we gain an insight into how such narratives had to be adjusted to fit into pre-existing discourses before their importance was more widely established, and how these adjustments helped shape conceptualizations of climate change as a global, human-caused phenomenon and a source of universal threat.

During the decade of the 1970s, there was a significant uplift in the status of climate change in public discourse. Only one amongst a plethora of environmental problems at the beginning of the decade, by 1979 the research area was able to gain public funds and attention in its own right, culminating in the first United Nations World Climate Conference that same year. The reasons for this increase in status are complex and subject to continued historical debate. The 1970s had little in the way of scientific breakthroughs in climatology that fundamentally changed the scientific terms of reference of public climate discussions. For example, pioneering climatologists Syukuro Manabe and Richard T. Wetherald, writing in their famous 1975 paper that helped Manabe win the 2021 Nobel Prize in Physics, claimed that the quantitative estimate for global warming from

their model should not be taken too seriously.[1] There was little scientific consensus on climate change during the 1970s, and ideas of warming, cooling and climate change mechanisms that were neither warming nor cooling coexisted.[2] The raised profile of climate change discourse during the 1970s was not science-led, since much of the science behind climate change mechanisms such as global warming was in place well before the decade in question. Instead, historians interested in understanding the increased importance of climate change discourses have focused on wider societal changes that helped these discourses register with the public.[3] These societal changes included the increasing influence of the environmentalist movement, the political debate on supersonic travel in the US Congress, a series of agricultural failures and food price increases across the globe that required explanation from authorities, and the usefulness of climate change arguments for the nuclear-power lobby.[4]

However, many histories of climate studies focus on a way of understanding climate change that reflects the later conceptualization of the issue within the Intergovernmental Panel on Climate Change (IPCC).[5] This regards climate change as a subject that is principally investigated by the use of computer-based hydrodynamical (i.e. fluid) simulation models such as those pioneered by Manabe and Kirk Bryan under the guidance of Joseph Smagorinsky. In this method of study, henceforth known as simulation-based climatology, Earth's atmosphere is reconstructed as a mesh of small interacting 'slices', for each of which calculations are performed in order to simulate the atmosphere under different parameters (e.g. different percentages of carbon dioxide). Such a method generally requires the use of supercomputers, and works to construct various climate scenarios to inform policy makers of a wide range of possible future climate changes.

However, the reality, as recognized by scholars such as Janet Martin-Nielsen, is that such simulation models were only one 'way of knowing' climate during the 1970s.[6] Another way of studying climate change, promoted by high-profile climatologists such as Hubert Lamb (1913–97) and Reid Bryson (1920–2008) and henceforth known as record-based climatology, was through the cultivation and examination of long-term climate records.[7] These were reconstructed through climate 'proxies' such as tree rings, pollen samples, ocean sediment cores and agricultural documents, which are able to provide a

[1] Syukuro Manabe and Richard T. Wetherald, 'The effects of doubling the CO2 concentration on the climate of a general circulation model', *Journal of the Atmospheric Sciences* (1975) 32(1), pp. 3–15, 13.

[2] Thomas C. Peterson, William M. Connolley and John Fleck, 'The myth of the 1970s global cooling scientific consensus', *Bulletin of the American Meteorological Society* (2008) 89(9), pp. 1325–38.

[3] It should be noted to the non-specialist that global warming is not the same as climate change. Global warming is one of many climate change mechanisms.

[4] Joshua P. Howe, 'Scientists, environmentalists, and the global atmosphere', in Howe, *Behind the Curve: Science and the Politics of Global Warming*, Seattle: University of Washington Press, 2014, pp. 44–66; Spencer R. Weart, *The Discovery of Global Warming*, revised and expanded edn, Cambridge, MA: Harvard University Press, 2008; Robert Luke Naylor, 'The Bryson synthesis: the forging of climatic change narratives during the World Food Crisis', *Science in Context* (2021) 34(3), pp. 375–91; Paul N. Edwards, *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming*, Cambridge, MA: MIT Press, 2010.

[5] E.g. Bert Bolin, *A History of the Science and Politics of Climate Change: The Role of the Intergovernmental Panel on Climate Change*, Cambridge: Cambridge University Press, 2009.

[6] Janet Martin-Nielsen, 'Ways of knowing climate: Hubert H. Lamb and climate research in the UK', *WIREs Climate Change* (2015) 6(5), pp. 465–77; Martin-Nielsen, 'A new climate: Hubert H. Lamb and boundary work at the UK Meteorological Office', in Matthias Heymann, Gabriele Gramelsberger and Martin Mahony (eds.), *Cultures of Prediction in Atmospheric and Climate Science*, Abingdon-on-Thames: Routledge, 2017, pp. 85–99.

[7] Other influential practitioners included John Imbrie and James D. Hays. A proposed third way of knowing climate, spearheaded by Mikhail Budyko, relied upon heat balance. An early formulation of these ways of knowing, or climatological schools, can be found in an August 1974 report of the Office of Research and Development of the Central Intelligence Agency: Central Intelligence Agency Office of Research and Development, 'A study of climatological research as it pertains to intelligence problems', Central Intelligence Agency, 1974, Document

picture of past climatic changes beyond the limited timescale of formal climatological records that only came into being with the invention and refinement of meteorological instruments. The 1970s was a time of great demand for future forecasting, and much like in simulation-based climatology, practitioners of record-based climatology also worked to provide policy makers and industrialists with climatic prognoses through long-range forecasting.[8] This was done by either linking past climatic changes to various potential causes or coincidences that could be measured in the current day (e.g. changes to volcanic activity or sunspot activity), or by attempting to identify patterns or cycles in past climatic changes (e.g. ice ages, El Niño) and extrapolating such patterns forwards. This reliance on past climatic changes for developing future prognoses made forecasting unprecedented climatic change, such as human-caused climate change due to carbon dioxide emissions, more difficult.

The distinction between simulation-based and record-based climatology became blurred over time, with the climatological record being increasingly used to verify simulations. Nevertheless the two distinct camps can be clearly identified in the 1970s with several record-based climatologists, including Lamb and Bryson, expressing mistrust and even disdain of the reliance on computer simulations exhibited by other scholars.[9] The historical investigation of record-based climatology is important for two reasons. First, two of its proponents in the 1970s were highly influential bestselling authors who had a public profile that exceeded that of those who led the charge in simulation-based climatology. They were also able to acquire funding for institutions (Lamb founded the University of East Anglia's Climatic Research Unit in 1972, Bryson the University of Wisconsin's Centre for Climatic Research in 1963) that held significant influence in national policy making at various points in time. Second, both Lamb and Bryson were from geography backgrounds, and were very willing to engage in societal discussions and reach across disciplinary divides. Bryson was especially willing and able to make forceful arguments in the policy sphere.[10] Record-based climatology was not a peripheral formulation of climate change research during the 1970s, but was the formulation through which many politicians and other laypersons first encountered climate change as an independent issue. To fully understand how and why climate change came onto the public radar in the 1970s, the way record-based climatologists presented their ideas to the public needs closer examination.

Analysis of public discourses around climate change has been a fruitful field of study in recent years, as part of a wider increase in attention to the shaping of environmental issues in the public arena.[11] Mike Hulme has succinctly identified that, as the burgeoning field of environmental communication and many others have recognized, 'People's understandings of climate change are shaped more by the media and their cacophony of voices than they are by the systematic enquiries and endeavours of climate scientists.'[12] Work by Robert Cox and by Susi Moser and Lisa Dilling built on earlier work on the construction of environmental issues as social concerns to establish the profound influence of a variety of

Expediting (DOCEX) Project, Exchange and Gifts Division, Library of Congress. It should be noted that this report was not universally praised.

[8] Jenny Andersson, 'The great future debate and the struggle for the world', *American Historical Review* (2012) 117(5), pp. 1411–30.

[9] Reid Bryson, 'The theoretician', *Environmental Conservation* (1980) 7(4), p. 258; Martin-Nielsen, opera cit. (6).

[10] Robert Luke Naylor, 'Reid Bryson: the crisis climatologist', *WIREs Climate Change* (2022) 13(1), e744; Naylor, op. cit. (4).

[11] Guofeng Wang and Changpeng Huan, 'Negotiating climate change in public discourse: insights from critical discourse studies', *Critical Discourse Studies* (2023) 21(2), pp. 133–45.

[12] Mike Hulme on the back cover of Maxwell T. Boykoff, *Who Speaks for the Climate? Making Sense of Media Reporting on Climate Change*, Cambridge: Cambridge University Press, 2011.

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actors not only on how climate change is understood by the public, but also on possible solutions and visions of potential futures.[13] This work has primarily focused on how the media, as well as other organizations such as think tanks and UN agencies, have presented climate change science and ideas. Less attention has been paid to the ways in which climate scientists themselves have sought to present their work to various audiences, and how the actors involved in publishing may have shaped the presentation of scientists' work through their production processes. The role of editorial staff in curating messages on climate change deserves special attention. A collaboration led by Hulme examined the role of *Nature* and *Science* editorials in framing climate change issues, numerically tracing how framings changed over time and differed between the two publications.[14] This paper builds on such work by exploring the impact of editors beyond approving pieces for publication and the writing of editorials by examining their personal communications with a prospective author.

This work is part of an increasing move in the past decade to view journals not as mere mirrors or mouthpieces, but as complex organizations within their own right with the potential not only to publish but to shape to a significant degree the research that passes through their hands. Work by Alex Csiszar, Melinda Baldwin and a team led by Aileen Fyfe has prompted a wider reassessment of the role of journals in shaping disciplines and constructing a shared understanding of what constitutes legitimate scientific activity and knowledge.[15] Crucial to this enterprise has been the assessment of the referee process and editorial processes. By examining the interventions made in texts by editors and reviewers, we gain insights into the role journals play in sculpting what constitutes scientific knowledge. Melinda Baldwin has convincingly argued that peer review as it is now known did not take shape until the latter half of the 1970s and 1980s, with major publications such as *Nature* not introducing a formal peer review process for all published pieces until 1973, and others such as *The Lancet* even later.[16] During this period, some editors, such as John Maddox at *Nature*, took a highly interventionist approach to editorship, in Maddox's case going so far as to personally visit a laboratory whose results the journal had published and publicly condemning the findings of the work.[17] Lamb's interactions with editors reveal the extent to which editors as individuals held power over the published representation of climate change at this time.

As such, this paper provides an important new perspective on how climate developed into an independent policy issue and subject of media attention, a perspective that is difficult to acquire due to the lack of publicly accessible archives attached to academic and non-academic journals. It does this by using the papers in the H.H. Lamb Archive of the University of East Anglia to examine Lamb's correspondence with editors at *Nature*, the *UNESCO Courier*, *The Ecologist* and *Development Forum* during the 1973–4 period in order

[13] J. Robert Cox, *Environmental Communication and the Public Sphere*, 3rd edn, Los Angeles: SAGE Publications, 2012; Susanne C. Moser and Lisa Dilling, *Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change*, Cambridge: Cambridge University Press, 2007; A. Clay Schoenfeld, Robert F. Meier and Robert J. Griffin, 'Constructing a social problem: the press and the environment', *Social Problems* (1979) 27(1), pp. 38–61.

[14] Mike Hulme, Noam Obermeister, Samuel Randalls and Maud Borie, 'Framing the challenge of climate change in *Nature* and *Science* editorials', *Nature Climate Change* (2018) 8(6), pp. 515–21.

[15] Alex Csiszar, *The Scientific Journal: Authorship and the Politics of Knowledge in the Nineteenth Century*, Chicago: University of Chicago Press, 2020; Melinda Baldwin, *Making 'Nature': The History of a Scientific Journal*, Chicago: University of Chicago Press, 2015; Aileen Fyfe, Noah Moxham, Julie McDougall-Waters and Camilla Mørk Røstvik, *A History of Scientific Journals: Publishing at the Royal Society, 1665–2015*, London: UCL Press, 2022.

[16] Melinda Baldwin, 'Scientific autonomy, public accountability, and the rise of "peer review" in the Cold War United States', *Isis* (2018) 109(3), pp. 538–58.

[17] Baldwin, op. cit. (15), pp. 204–11.

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to form a picture of how editors exercised control over messaging, as well as their motivations for doing so.[18]

Hubert Lamb: the climate castaway

It was not always clear that Hubert Lamb would become a climatologist. In 1935, after studying geography at the University of Cambridge against his mathematically oriented father's wishes, and during a spell of drifting and travel, Lamb applied (one of many applications in his time of unemployment) to join the Meteorological Office for training as a technical officer.[19] Possibly helped by the fact that the chair of the interview board had been a student of his grandfather's, Lamb was appointed to this position in late 1936.[20] He would remain with the Meteorological Office until 1971. As has been detailed by Martin-Nielsen, it was during Lamb's years at the Meteorological Office that he developed an interest in old climatological records, finding expression for his passion for history.[21] In 1956, Lamb was posted to the climatology section of the Meteorological Office at its Harrow office in Wealdstone. This was the location of the recently reassembled climatological archive of the Met Office, which Lamb later wrote 'may well have been at that date the richest resource anywhere in the world of past meteorological observations'.[22] Lamb began to use such historical documents to reconstruct past barometric pressure maps, aiming to create a set of monthly maps covering as much of the world as possible since 1750. It seems Lamb did this with approval from the Met Office, at various points being given assistants to support the work.

According to Lamb's autobiography, such work with historical records met the approval of the director general of the Meteorological Office, Graham Sutton (1903–77). In 1965, the leadership of the Met Office transferred to John Mason (1923–2015), whose support for Lamb's activity was less warm. Mason very much focused on pushing simulation-based forecasting, a position that Lamb publicly criticized as overly reductionist.[23] As a result, Lamb became interested in university positions, eventually deciding to establish a new institute at the University of East Anglia in Norwich, England. The Climatic Research Unit was officially established on 1 January 1972. Lamb's time leading the new unit was dominated by a crippling anxiety about funding, as he later described in his memoirs. This feeling of insecurity was compounded by Lamb's perception that his

[18] This article mainly uses underutilized material from the second deposit to the H.H. Lamb archive, which was transferred from the Climatic Research Unit library in 2015. It should be noted that as of February 2023 this material remains in the boxes created by Lamb. The labels on the boxes do not necessarily reflect their content.

[19] Hubert Lamb came from a short but impressive line of academics. His grandfather, who was of humble origins, was the noted applied mathematician Horace Lamb (1849–1934), and his father, Ernest Horace Lamb (1878–1946), was a professor of engineering. Augustus Edward Hough Love and Richard Tetley Glazebrook, 'Sir Horace Lamb, 1849–1934', *Obituary Notices of Fellows of the Royal Society* (1935) 1(4), pp. 374–92; E. Giffen, 'Prof. E.H. Lamb', *Nature* (1946) 158(4024), p. 865. As such, Hubert faced a certain level of familial pressure to excel, as he wrote in the opening of his 1997 autobiography: 'it became clear how far my parents' and grandparents', and some of the aunts' and uncles' hopes, had become centred on me as the one heir to the name who seemed headed for any sort of scientific or public career'. Hubert H. Lamb, *Through All the Changing Scenes of Life: A Meteorologist's Tale*, East Harling: Taverner Publications, 1997, p. 1.

[20] Lamb, op. cit. (19), Chapter 5. Although it appears that he never actively exploited it, Lamb's story is a potent example of family connections smoothing the axles of British academic and public life. Lamb recounted in a 1985 interview how his aunt was at one point married to his boss in the Air Ministry: Hubert H. Lamb, interview by Robert A.S. Ratcliffe, 25 April 1985, 2, Meteorological Office Library. Needless to say, the leniency extended to Lamb over his status as a conscientious objector during the Second World War was not universal.

[21] Martin-Nielsen, opera cit. (6).

[22] Lamb, op. cit. (19), p. 179.

[23] Martin-Nielsen, 'A new climate', op. cit. (6).

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quest for funds was being sabotaged by his former colleagues at the Meteorological Office, especially Mason himself.[24]

Editorial influence on Lamb's messages

By the time the Climatic Research Unit was founded in January 1972, Lamb had already built up a strong publishing and research record that had ramped up in the second half of the 1960s as Lamb felt his position at the Meteorological Office become less secure. In 1966 he published *The Changing Climate*, a series of collected papers that emphasized what Lamb saw as a shift from climate being conceptualized as a static phenomenon on a meaningful human scale in the interwar period to being seen as a more dynamic entity during the 1940s and 1950s, his main point being that governments and industry should pay more attention to the issue.[25] In 1969, Lamb published a *Nature* article setting out his programme for climatology, an overall rather upbeat piece that emphasized a new demand for long-range forecasting in response to climate being newly perceived as variable, and how climatology was in the process of changing to meet this challenge. Human-caused climate change, both intentional and unintentional, was mentioned but not focused upon.[26] Forecasting future climates became one of Lamb's major preoccupations at the beginning of the 1970s, with him being the lead author of the 1972 World Meteorological Organization report *Climate Fluctuations and the Problem of Foresight*.[27] Lamb very much felt that his work had to be useful, including to industry, in order to be worthwhile, a position that assisted in his quest for funds. In 1972, he also published *Climate: Present, Past and Future*, a foundational textbook that cemented Lamb's reputation as an important science communicator.[28] It is against this background that we see Lamb's publishing ramp up again shortly after the unit's foundation, now engaging with a wider range of audiences beyond the bounds of geophysics or even science.

Nature *(August 1973)*

As the first year of the Climatic Research Unit was drawing to a close, Lamb felt that the finances of the centre were in dire straits. Around the turn of 1972–3, Lamb wrote to John Maddox, the editor of *Nature*, explaining his situation and asking whether the journal

[24] Hubert Lamb to unknown recipient, notes on telephone conversation, 21 January 1977, Rockefeller Archive Center (subsequently RAC), Rockefeller Foundation records, RG 1.3 (Projects), Series 155 (International Relations), Box 109, Folder 1113.

[25] Hubert H. Lamb, *The Changing Climate*, London: Methuen, 1966; Matthias Heymann, 'The evolution of climate ideas and knowledge', *WIREs Climate Change* (2010) 1(4), pp. 581–97. For more on Lamb's earlier work, and his position as a bridge figure between statistical climatological traditions and popular audiences, see Alexander Hall, 'Geographers, stats-men and sages: approaches to climatology in Britain post-1945', *History of Meteorology* (2015) 7, pp. 71–82.

[26] Hubert H. Lamb, 'The new look of climatology', *Nature* (1969) 223(5212), pp. 1209–15. *Nature*, the British weekly scientific journal, founded in 1869, is today one of the most prestigious peer-reviewed publications in the world. Melinda Baldwin has convincingly argued that since the early days of the journal, it has been a site where 'scientific practitioners proposed, argued over, and ultimately established many of the scientific norms that we take for granted today'. Baldwin, op. cit. (15), p. 3. Crucially this was not merely restricted to the conduct of scientific experiments or publishing rights, but debates over what kinds of knowledge were legitimately scientific, 'in short, the right way to be a scientist'. Baldwin, op. cit. (15), p. 226.

[27] Hubert H. Lamb *et al.*, *Climatic Fluctuation and the Problems of Foresight*, World Meteorological Organization, 1972, climate forecasting and WMO, Working Group report 1972, H.H. Lamb Archive, University of East Anglia (subsequently HHL), LAMB/2, World Climate Conference Declaration and [?] report, 1979 (brown box file). For reasons that are not immediately clear, this report was never published.

[28] H.H. Lamb, *Climate: Present, Past and Future*, London: Methuen, 1972.

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could publish a situation report.[29] Lamb perhaps felt that the readership of *Nature* may have included figures who might be sympathetic to his cause and able to help, or maybe he wagered that such a report would embarrass the UK government into providing support over the head of the Meteorological Office. Maddox replied on 3 January that *Nature* did not usually carry such reports, but made an alternative suggestion:

> Another possibility is that you might write a general article for NATURE dealing with the simple question of whether there has been such a serious turnabout in climate since the 1940s that we must now look forward with some apprehension to the next glaciation ... And in the course of such an article you would of course be able to deal in passing with the work of your own unit or even say that it needs more money. I would be glad to hear what you think.[30]

Lamb replied only two days later, acquiescing to Maddox's suggestions. The reply betrays the anxiety that Lamb felt in attempting to please Maddox and publish the article in order to acquire funding:

> I welcome your helpful suggestion and will do my best to provide a suitable article for Nature, as you kindly invite, at an early date. You will, of course, feel free to say whether in my anxiety to secure the financial backing this Unit needs for its survival, I sail too close to the wind or, alternatively, if I could afford to put the points more strongly.[31]

Lamb then sent a draft on 6 March, along with a letter that emphasized how little of the article specifically concerned the unit's financial situation.[32] Lamb had clearly inferred from Maddox's responses that begging for funds should not be the focus of the article, and he took up Maddox's suggestion of making global cooling since the 1940s the main focus.[33] As Thomas Peterson, William Connolley and John Fleck have shown, while it is inaccurate to say that there was a scientific consensus around global cooling, following the work of John Murray Mitchell Jr in the 1960s and 1970s, 'the notion of a global cooling

[29] Lamb's original letter cannot be located, and its contents are inferred from Maddox's reply. During Lamb's active years of publication, *Nature* had two pioneering editors at the helm. After the 'respectable but somewhat dull' years of 1939–65 under the editorship of agronomist A.J.V. Gale and botanist L.J.F. Brimble, in 1966 the journal hired Sir John Maddox, who immediately set about transforming the publication. Baldwin, op. cit. (15), p. 17. As an experienced science journalist, Maddox took a far more interventionist approach to the editorship than his predecessors. In highly publicized incidents, Maddox, a physicist, both printed and editorially condemned research on cold fusion (Baldwin, op. cit. (15), pp. 211–20); took it upon himself to personally visit the laboratories of Benveniste, an immunologist whose somewhat unbelievable findings *Nature* had published (Baldwin, op. cit. (15), pp. 205–11); and would on occasion 'encourage an author to withdraw an exciting paper from another journal and submit it to *Nature* instead' (Baldwin, op. cit. (15), p. 174). Maddox's seemingly boundless faith in his own authority to print articles that pushed at the conventions of scientific practice was reflected in his continuance of printing papers based solely on his own judgement, without reference to a system of peer review. When Maddox was forced out of the editorship in 1973 by *Nature*'s publishers, who deemed his approach too unmanageable, his replacement, David Davies, a geophysicist, immediately set about implementing a rigorous and systematic external peer review process.

[30] John Maddox to Hubert H. Lamb, letter, 3 January 1973, HHL, LAMB/2, Publications and Some Unpublished Work before 1973–74 (brown box file). With regard to a situation report, Maddox did say that an exception could be made in Lamb's case. However, based on his reply, Lamb clearly felt that this was not Maddox's first choice of action.

[31] Hubert H. Lamb to John Maddox, letter, 5 January 1973, HHL, LAMB/2, Publications and Some Unpublished Work before 1973–74 (brown box file).

[32] Hubert H. Lamb to John Maddox, letter, 6 March 1973, HHL, LAMB/2, Publications and Some Unpublished Work before 1973–74 (brown box file).

[33] Hubert H. Lamb, 'Whither climate now?', *Nature* (1973) 244(5416), pp. 395–7.

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trend was widely accepted, albeit poorly understood'.[34] Lamb largely repeated the messages of his 1969 *Nature* paper emphasizing the need for long-range forecasts, but changed the order of the messages around. He immediately launched into discussion of recent climatic trends, beginning the paper by referencing a graph that clearly showed a cooling trend in the post-war period (Figure 1).

Although the substance of his article was similar to that of 1969, the shift in order subtly changed the story that Lamb was telling. In 1969, the main challenge that Lamb was highlighting was a fresh demand for long-range forecasting from agriculture, government and industry. In 1973, the challenge was the change in climate itself. In addition, seemingly in direct response to Maddox's request, Lamb reported on a conference that claimed in its verdict that the end of the present interglacial was near (i.e. a new ice age was close).[35] By lending credence to such arguments, albeit with caveats, Lamb entertained the possibility of climate change being an existential threat. Partly through leveraging Lamb's desperation for funds (intentionally or not), Maddox had influenced Lamb to portray climate change as a challenge that had the potential to become an existential threat.[36]

UNESCO Courier *(August 1973)*

On 27 April 1973 a telegram arrived at the Climatic Research Unit addressed to Lamb:

> ... UNESCO COURIER MAGAZINE PUBLISHED FOURTEEN LANGUAGES PREPARING SPECIAL ISSUE WITH WORLD METEOROLOGICAL ORGANIZATION OF PLANETARY METEOROLOGY STOP YOUR NAME PROPOSED BY DR LANGLO AS BEST WORLD AUTHORITY AND POPULARIZER TO PREPARE ARTICLE QUOTE IS EARTHS CLIMATE CHANGING UNQUOTE GIVING NATURAL AND HUMAN CAUSES STOP ... KOFFLER CHIEF EDITOR UNESCO COURIER[37]

The *UNESCO Courier* was established in 1948 with the stated intention to inform the public of the activities of the United Nations Educational, Scientific and Cultural Organization (UNESCO). The special issue which was published in August 1973, however, celebrated the centenary of the World Meteorological Organization (WMO). The scholar who nominated Lamb to write the article was the Norwegian meteorologist Kaare Langlo (1913–85), who was at that time the deputy secretary general of the WMO, and the author of the introduction to the special issue. The editor-in-chief was Sandy Koffler (1916–2002), an American journalist. In his article, Lamb characteristically emphasized how climate had traditionally been conceptualized as a static phenomenon, but that this view should be challenged in the face of a warming atmosphere between the 1880s and the 1940s followed by a post-war cooling that he believed could cause significant disruption (Figure 1).[38] He discussed possible human causes to changes to climate, including carbon dioxide emissions and the prospective

[34] Peterson, Connolley and Fleck, op. cit. (2), p. 1327; J.M. Mitchell, 'On the world-wide pattern of secular temperature change', in *Changes of Climate: Proceedings of the Rome Symposium Organized by UNESCO and the World Meteorological Organization, UNESCO* (1963), pp. 161–81; 'The natural breakdown of the present interglacial and its possible intervention by human activities', *Quaternary Research* (1972) 2(3), pp. 436–45.

[35] G.J. Kukla and R.K. Matthews, 'When will the present interglacial end?', *Science* (1972) 178(4057), pp. 190–1.

[36] This is especially interesting as Maddox wrote a book criticizing what he saw as overly pessimistic attitudes with regard to environmental issues. John Maddox, *The Doomsday Syndrome*, New York: McGraw-Hill Book Co., 1972.

[37] Sandy Koffler to Hubert H. Lamb, telegram, 27 April 1973, HHL, LAMB/2, Publications and Some Unpublished Work before 1973 (brown box file).

[38] Hubert H. Lamb, 'Is the Earth's climate changing? For the past 30 years the temperature of our planet has been steadily dropping', *Unesco Courier* (1973) 26(8–9), pp. 17–20.

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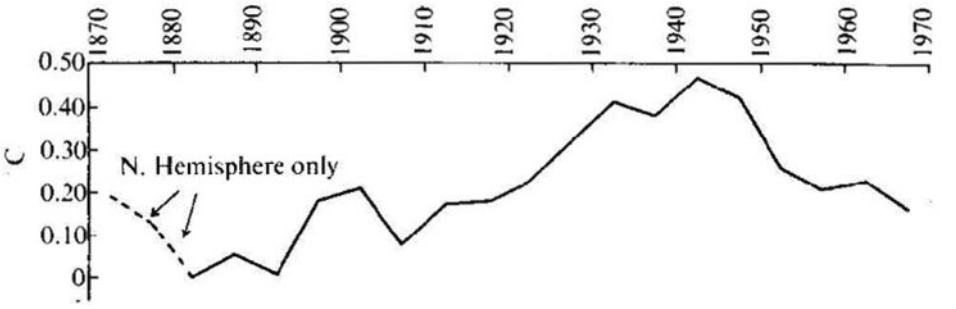

Figure 1. Graph on the front page of Lamb's 1973 *Nature* article, making clear a cooling trend from the 1940s.

diversion of rivers in Siberia that would start a process to reduce Arctic sea ice. However, much of his discussion concerned natural changes to climate, including volcanic eruptions and the strength of the solar beam. One of the striking features of the text is that it primarily focused on a less-than-global scale, discussing changes that were specific to hemispheres or even countries. This contrasts with predominant twenty-first-century conceptions of climate change, which often focus on global warming/heating/boiling.[39]

On 7 May, Lamb promptly sent the manuscript.[40] Koffler was extremely pleased with the work and passed it to the editorial board for approval, assuring Lamb that he had 'no doubt that the text would be found completely satisfactory'.[41] The original submission included six graphs that were cut from the final publication, and instead the article was illustrated with photographs. Upon hearing that photographs were to be used, Lamb made some suggestions as to images that would be suitable, including emaciated cattle from recent droughts in Africa, drying-out reservoirs in the UK and other countries, or conversely drowned trees where lakes in equatorial Africa had risen. None of these suggestions were taken up for Lamb's article, although images of the African famine were used elsewhere in the special issue.[42] Instead, the article was illustrated with pictures of weather research, including weather balloons, kites and aircraft being used to attempt weather modification (e.g. Figure 2). Lamb provided references throughout his article, which were also removed for publication. Lamb had wanted the focus of the article to be the societal consequences of climatic shifts, but the editors of the *UNESCO Courier* made changes that emphasized scientists as the main actors in the story, while also removing from the text much of the scientific context (graphs and references) that would have prompted a closer investigation of Lamb's arguments. This reflected one of the purposes of the special issue: to celebrate the scientific prowess of the WMO and meteorologists more broadly, presenting them as uniquely capable of *Unlocking the Secrets of Tomorrow's Weather*, the title of the special issue.

[39] The terminology of 'global boiling' has most notably been promoted by UN Secretary General Antonio Guterres in July 2023: UN News, 'Hottest July ever signals "era of global boiling has arrived" says UN chief', 27 July 2023, at https://news.un.org/en/story/2023/07/1139162 (accessed 12 September 2024). Lamb was never a great advocate of narratives of anthropogenic global warming, which has led to attempts by climate change denialists to claim him. However, his attitudes were complex and cannot be neatly divided in today's advocate/denialist binary. Martin-Nielsen, 'Ways of knowing climate', op. cit. (6).

[40] Hubert H. Lamb to Sandy Koffler, letter, 7 May 1973, HHL, LAMB/2, Publications and Some Unpublished Work before 1973 (brown box file).

[41] Sandy Koffler to Hubert H. Lamb, letter, 11 May 1973, HHL, LAMB/2, Publications and Some Unpublished Work before 1973 (brown box file).

[42] Specifically to illustrate a different article by a French geographer in which climate shifts were less of a central focus: Jean Dresch, 'Drought over Africa', *Unesco Courier* (1973) 26(8–9), pp. 44–7.

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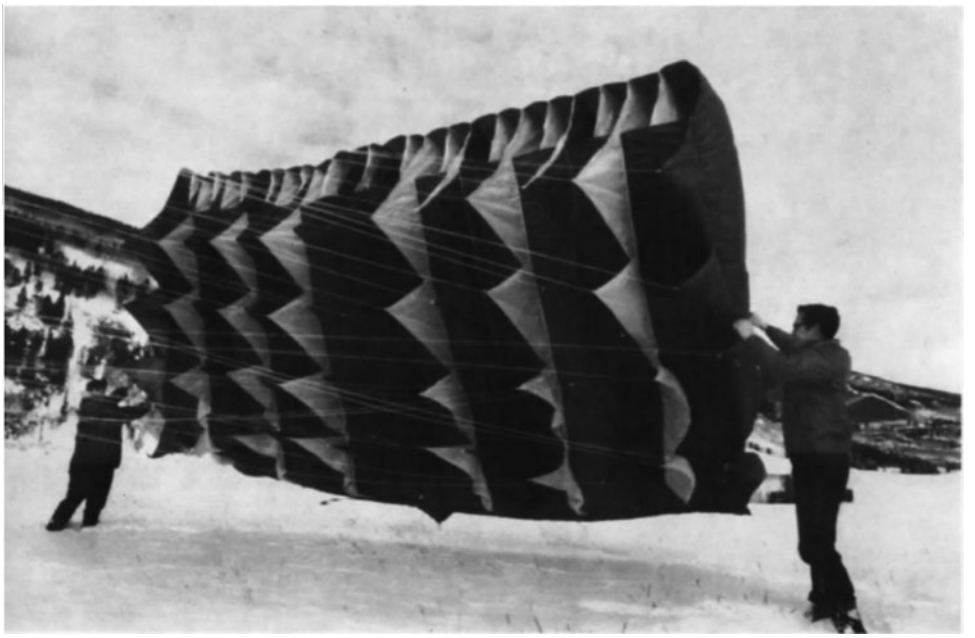

Figure 2. Scientists releasing a kite with instruments aboard to monitor the effects of weather modification. This image was used to illustrate Lamb's article in the *UNESCO Courier*, despite an only tangential relation to the contents.

Despite Koffler's assurances of plain sailing, Lamb's paper came under criticism from the team of 'editors abroad', the editors-in-chief of the other language versions of the *Courier*, as Koffler detailed to Lamb in a letter sent on 12 June:

> I am pleased to inform you that the Editorial Board has examined your article "Is the Earth's Climate Changing?" and, of course, has accepted it for publication in our special issue on meteorology. In fact, the Board has asked me to convey to you its sincerest congratulations for a splendidly written piece of popularization.
>
> As is our custom, immediately upon approval by our Editorial Board the text was dispatched for translation and sent to the Editors of all the language editions of the Unesco Courier. Our magazine, as you know, is published in 15 languages and copies of the text were sent to our Editors in Tokyo, Madras, New Delhi, Teheran, Cairo, Rome, Jerusalem, Berne, Rio de Janeiro, Moscow, Antwerp and Istanbul.
>
> A number of comments have already come in from our Editors abroad who have expressed regret that your article gives so much emphasis to Europe, Soviet Asia, and North America, and indeed the Northern Hemisphere to the almost total detriment of the Southern Hemisphere.

Koffler then suggested a few alterations in order to rectify this deficiency, for example:

> On page 5 of your text there is a lengthy description of the changing climate in Soviet Asia. Could some other parts of Asia be included in this description, and if not do you think one or two sentences could be added to your present text just to bring them into the picture?

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He then concluded,

> I think you understand the point I am making. We would like the readers of the Unesco Courier in Africa, in Latin America, in South-East Asia, in the Philippines, in Australia to feel as much at home in your text as I am sure all the readers in Europe, the USSR, and North America will do.
>
> May I ask you for the favour of a very early reply so that we can make the appropriate amendments in time to meet our deadline. Thank you in advance.[43]

Lamb quickly replied three days later saying that due to constraints on his time he would require a manuscript with suggested edits for approval.[44] However, it appears that the deadline was too tight for this, and Lamb's piece was published in the English-language version of the publication without the proposed additions.[45] The other language versions followed with their own adjustments to the piece, including different titles and small adjustments to the text.[46] There is no evidence in the archive that Lamb approved these adjustments.

Throughout this interaction, we see the chief editor and the 'editors abroad' of the *UNESCO Courier* attempting to influence the content and message of the article in three main ways. First, a precondition of Lamb's contribution was that he addressed both natural and human causes of climate change. Throughout the article, the reader gets the impression that Lamb would have preferred to focus on natural causes of climate change – indeed, he stated that carbon dioxide was clearly 'not the whole story' due to what he perceived as recent cooling.[47] While Lamb's desire to gain funds and support from industry and government relied upon promising climate forecasts, unprecedented human-caused changes would be more difficult to forecast through record-based climatology. Second, on two occasions Lamb's wishes were overridden on how the article should be illustrated. When it came to the photography, Lamb wanted a less 'aloof' theme than that which was selected. The photographs he suggested would have made the social impact of climate events clear to a non-scientific audience. Third, in order to resonate with an international, or at least internationalist, audience, the 'editors abroad' were insistent upon Lamb including a more global outlook, specifically asking that Lamb's focus on specific areas, such as Soviet Asia, be expanded to include much wider areas, such as 'other parts of Asia'. Today, this conceptualization of global, rather than local, climate change remains predominant, perhaps even hegemonic, in public discourse, a position that has come under criticism from both the scientific and environmental humanities communities.[48] Lamb's experience with the *UNESCO Courier* suggests how this predominant conceptualization may have partially been shaped by editorial

[43] Sandy Koffler to Hubert H. Lamb, letter, 12 June 1973, HHL, LAMB/2, Publications and Some Unpublished Work before 1973 (brown box file).

[44] Hubert H. Lamb to Sandy Koffler, letter, 15 June 1973, HHL, LAMB/2, Publications and Some Unpublished Work before 1973 (brown box file).

[45] Lamb, op. cit. (40).

[46] For example, see the French version of the article, published as Hubert H. Lamb, 'La terre se refroidit depuis 30 ans', *Le Courrier* (1973) 26(8–9), pp. 17–20.

[47] Lamb, op. cit. (40), p. 18.

[48] Martin Mahony, 'The (re)emergence of regional climate: mobile models, regional visions and the government of climate change', in Matthias Heymann, Gabriele Gramelsberger and Martin Mahony (eds.) *Cultures of Prediction in Atmospheric and Climate Science*, Abingdon-on-Thames: Routledge, 2017; Vladimir Janković, 'The end of weather: outdoor garment industry and the quest for absolute comfort', in Vladimir Janković and Christina H. Barboza (eds.), *Weather, Local Knowledge and Everyday Life*, Rio de Janeiro: Museu de Astronomia e Ciências Afins, 2009, pp. 172–80; Steve Rayner, 'Weather and climate in everyday life: social science perspectives', in Janković and Barboza, op. cit., pp. 19–36.

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requirements to be accountable to an international audience, especially within UN agencies where global coverage continues to be prioritized in public messaging.

The Ecologist *(January 1974)*

The story of Lamb's *UNESCO Courier* article did not end with initial publication. On the morning of 15 October 1973, Lamb had a phone call with Edward Goldsmith, an Anglo-French environmentalist who founded the influential environmentalist journal *The Ecologist* in 1969.[49] *The Ecologist* reflected Goldsmith's views on environmentalism, particularly the idea that industrialization was at the root of most of the world's problems and that non-industrialized societies should be admired and emulated. Goldsmith's publication became remarkably influential, publishing the special issue *A Blueprint for Survival* as a book in 1972 that went on to sell 750,000 copies.[50] Discussion over the phone included the potential for Lamb to acquire funds from the Ecological Foundation for the Climatic Research Unit, with Goldsmith giving Lamb the foundation's address and the name of the director.[51] Also discussed was the possibility of Lamb reprinting a version of his *UNESCO Courier* article in *The Ecologist*. Goldsmith sent Lamb a follow-up letter on the same day outlining his requirements for such a piece:

> We would very much like to reproduce your article and it would be even better if you could modify it slightly to suit our requirements i.e. accentuate the possibility of man-made changes and the fact that we are moving in a direction in which we must expect them on an increasing scale. If you could say a little about the implications in as dramatic terms as possible so much the better.[52]

Goldsmith wanted Lamb to accentuate the possibility of man-made climatic changes and asked him to discuss the implications in as dramatic terms as possible. In making these requests, Goldsmith not only reflected his anti-industrialist views, but was very much being influenced by Reid Bryson. Partly influenced by his wartime experience, Bryson believed that he was saving lives by making his climatic prognoses as loudly as possible.[53] As Goldsmith was writing to Lamb, the October edition of *The Ecologist* was rolling off the press, where a dramatic report from Reid Bryson's Institute for Environmental Studies about Sahelian drought had been reprinted almost verbatim and featured heavily on the front page. Bryson's article was subtitled 'Who or what is to blame?' by Goldsmith, and industry became one of the perpetrators (p. 371): 'Will mankind give up burning fossil fuels to aid the people of the monsoon lands? No way!'[54] Goldsmith's environmentalism was highly moralistic, and strived to lay the blame for the world's ills at the feet of industry.

[49] Edward Goldsmith to Hubert H. Lamb, 15 October 1973, HHL, LAMB/2, Publications and Some Unpublished Work before 1973 (brown box file). It is unknown who initiated this call, but both parties had potential justification for doing so. On the balance of probabilities, Goldsmith's quick follow-up letter and Lamb's lukewarm reception to the suggestion of funds from the Ecological Foundation suggest that it was Goldsmith who initiated the call. Lamb was always aiming for government funds, and usually kept his funding sources thoroughly acceptable to the UK political establishment. It is unclear whether the Ecological Foundation would have satisfied this requirement.

[50] 'About the ecologist', 12 June 2009, at https://theecologist.org/2009/jun/12/about-ecologist (accessed 12 September 2024).

[51] The director was a Brian Johnson. Little appears to have been written about the Ecological Foundation.

[52] Goldsmith, op. cit. (49).

[53] Naylor, op. cit. (10).

[54] Reid A. Bryson, 'Drought in Sahelia: who or what is to blame', *Ecologist* (1973) 3(10), pp. 366–71; Reid A. Bryson, *Climatic Modification by Air Pollution II: The Sahelian Effect*, Institute for Environmental Studies report, Madison: Madison Institute for Environmental Studies, University of Wisconsin, August 1973. Perhaps at this

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Lamb quickly got to work editing his *UNESCO Courier* manuscript, sending it back on 31 October.[55] Lamb did indeed change the wording of his article, and some changes can be interpreted as making the piece more dramatic.[56] For example, when describing the greenhouse effect, Lamb changed the sentence 'The effect is therefore something like that of a blanket or a glass-house, holding in heat which the Earth has received' to 'The effect is therefore something like that of a glass-house, a radiation trap, holding in heat which the Earth has received'. Lamb was most likely aware of how striking the term 'radiation trap' would have been to a 1970s environmentalist discourse community that was substantially preoccupied with questions around nuclear power and CND. However, the most substantial change that Lamb made to the piece was the addition of around two hundred words at the end of the article:

> A better knowledge of the range and incidence of natural fluctuations of climate is even needed before we can be sure how much of the observed deviations of climate being experienced now or in the future must be attributed to Man's activity. For too long climatology has been a neglected science, considered as a 'non-science' in which there was nothing to explain. Now, it is urgent to assemble the facts and survey the longest possible observation record, analysing it in ways that reveal the processes of climatic change, so that mankind can adapt to them and avoid practices that may aggravate the situation. The subject and the processes are not identical with meteorology or those that meteorology is mostly concerned with, although the fields overlap and there is an obvious need for continual contacts between the theoreticians of dynamical meteorology and the geophysical climatologist.
>
> The cost of making up for lost time in climatology will be trivial by comparison with that of the great mathematical laboratories that have been set up to advance numerical methods of daily weather forecasting and our understanding of the short-range atmospheric processes. But the need is pressing if mankind is to solve the problems of the future of energy, food and water for the rising population.

In this additional text, we see Lamb attempt to enlist concerns over human-caused climatic changes in order to support his record-based climatology programme. When he discusses 'cost', the reader can sense that Lamb was making a sales pitch. For reasons already discussed – Lamb's interest in record-based climate forecasting – Lamb was careful not to ascribe climatic changes to human causation exclusively. To do so would lessen the usefulness of his work. At the same time, we can see some attempts to satisfy Goldsmith's requests to highlight human causation as a possible factor. The final sentence taps into neo-Malthusian narratives that became a mainstay of the 1970s environmentalist movement.[57] Overall, Goldsmith may well have not been satisfied with the relatively modest edits that Lamb made to his manuscript. Lamb had only made a few changes to heighten drama, and stopped short of embracing human causation as the main concern. However, the format of articles in *The Ecologist* licensed a heavy editorial influence over messaging, allowing Goldsmith to bend Lamb's article towards his stated desires. This was done through the use of an editorial introduction and boxed excerpts.

time Goldsmith had learned that sales of the October edition were good. For more on catastrophist environmentalist discourse see Jacob Darwin Hamblin, *Arming Mother Nature: The Birth of Catastrophic Environmentalism*, Oxford; New York: Oxford University Press, 2013.

[55] Hubert H. Lamb to Edward Goldsmith, 31 October 1973, HHL, LAMB/2, Publications and Some Unpublished Work before 1973 (brown box file). The manuscript with Lamb's handwritten edits still exists in the same box.

[56] Hubert H. Lamb, 'Is the Earth's climate changing', *Ecologist* (1974) 4(1), pp. 10–15.

[57] Thomas Robertson, *The Malthusian Moment: Global Population Growth and the Birth of American Environmentalism Studies*, New Brunswick, NJ: Rutgers University Press, 2012.

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The editorial introduction, presumably written by Goldsmith, went as follows:

> We take the weather for granted, and assume it will change but little from year to year, decade to decade, century to century. So deep-rooted is this confidence in the stability of world climate that until now little has been done to forecast any possible variations. Yet variations there are, and of a far more radical nature than most people would expect. If we are concerned with our survival it is essential we study long-term climatic trends.
> In this article Professor Hubert Lamb, who has probably done more work in this field than anyone else in Britain, examines the factors which must be taken into account if we are to predict our climatic future.

This made the language of the article more emotive, resonating with Goldsmith's brand of environmentalism. Whereas Lamb emphasized the use of climate information for solving 'problems' like energy, food and water, Goldsmith portrayed climate change as a 'radical' existential threat that could endanger human survival.

In addition to the introduction, Goldsmith introduced six boxed excerpts, written in a font that was larger and bolder than the main text, which took up around a sixth of the total page space for the article. The excerpts contained text from a recently published article summarizing the results of the Study of Man's Impact on Climate, which took place over three weeks in July 1971.[58] For example:

> One of the most clearly evident influences of man on the climate is the pollution of the atmosphere through urbanisation and industrialisation activities. Even in the most remote places in the world it is possible to detect traces of man-made contaminants. Urban climates are modified by the injection of particles, gases, and heat into the atmosphere, and by changes in the albedo and roughness of the earth's surface.

Taken together, it is clear that these excerpts were designed to increase the blame on industry for adverse climatic changes above and beyond the actual text of Lamb's article. In this way, Goldsmith was bending the message away from Lamb's view of the purpose of climatology. Lamb very much believed that climatology should be used to help industry, whereas Goldsmith saw it as a tool to condemn industry's predominance. This demonstrates the sway that some editors had over climate change messaging: they were capable of massaging an article in order to send a message that the author may have strongly disagreed with.

Development Forum *(March 1973, April, November 1974)*

Lamb's article in *The Ecologist* caught the attention of Peter Stone, the inaugural editor-in-chief of *Development Forum*, a periodical of the United Nations in the field of economic and social development that was published eight times per year for the Joint United Nations Information Committee starting in February 1973. *Development Forum*'s stated aim was to 'promote knowledge of and interest in the international development process by a many-sided presentation of news and reportage, facts and debate'. However, the introduction to the first issue given by the UN secretary general, Kurt Waldheim, suggests that the publication was designed to serve the interests of various

[58] William H. Matthews, 'Climatic effects of man's activities', *International Journal of Environmental Studies* (1973) 4(1–4), pp. 283–9.

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UN missions to combat what he saw as key challenges, such as a rising population and environmental degradation.[59]

Lamb had written anonymously for *Development Forum* a year before, giving a brief overview of 1972's weather in order to complement an article about weather and agriculture that did not discuss climate change.[60] On that occasion it appears to have been Lamb that approached Stone, but now their positions were reversed.[61] In a letter sent on 1 February 1974, Stone commented about Lamb's article in *The Ecologist*, 'I was most interested to read your article in the Ecologist. I was also annoyed, because we had intended to ask you to write the very same article for Development Forum!'[62] This statement suggests that both Stone and Goldsmith had identified a trend that they were keen to tap into. By February 1974, climate change had indeed become a bigger feature of public discussion, distinguishing itself as an independent issue rather than just being one of many problems discussed at environmental conferences. In the United States, Bryson had been sounding the alarm throughout the latter half of 1973 about climate-caused agricultural collapse, especially with reference to the Sahel. As a proven reader of *The Ecologist*, Stone had probably also seen Bryson's previously mentioned rhetoric in the October 1973 edition.

In the same letter, Stone requested that Lamb write an article reviewing 1973's weather, adding,

> In particular, I would be most grateful if you were prepared to express what I hear are your innermost convictions that the present weather is a firm indicator of long-term climatic trends with possible severe consequences for the Sahel and the steppes.

Whereas a year before Stone had commissioned an article from Lamb with no mention of climatic changes, now he was insisting on it being a feature. The specific mention of the Sahel reflects the status of Sahelian famine as one of the first postcolonial crises in sub-Saharan Africa, which was formative for United Nations responses and interventions. If we take the UN secretary general's statement of *Development Forum*'s purpose at face value, it makes sense that Stone would request that the Sahel be mentioned. The response to the Sahel famine was a demonstration of the UN taking direct action in response to a crisis, and its promotion was ostensibly part of *Development Forum*'s mission. Lamb promptly put together a draft and sent it off on 6 February. When discussing Sahelian famine as requested, Lamb made sure to include Stone's 'severe consequences': 'Over 50,000 people were reported to have died in Ethiopia as a result of the drought in 1973'.[63] In general, Lamb's 1974 article emphasized adverse impacts more than his 1973 publication.

Alongside this draft, Lamb sent a letter that explained that he was planning on publishing work on a Sahelian prognosis in another publication, the broad strokes of which he outlined.[64] Stone insisted on this being included in his *Development Forum* article, replying on 15 February,

[59] Kurt Waldheim, 'From the secretary-general of the United Nations', *Development Forum* (1973) 1(1), p. 1.

[60] 'Famine weather?', *Development Forum* (1973) 1(2), p. 12; 'Was it really so bad?', *Development Forum* (1973) 1(2), p. 12.

[61] The fact that Lamb made the approach in 1973 is inferred from the following statement in Stone's 1 February 1974 letter (below): 'However, this letter concerns your offer last year, when you produced for us an article reviewing the previous year's weather, to do the same for us this year'.

[62] Peter B. Stone to Hubert H. Lamb, letter, 1 February 1974, HHL, Publications and Some Unpublished Work c1975–1976 (brown box file).

[63] Hubert H. Lamb, 'Drifting towards drought', *Development Forum* (1974) 2(3), p. 12.

[64] Hubert H. Lamb to Peter B. Stone, letter, 6 February 1974, HHL, Publications and Some Unpublished Work c1975–1976 (brown box file).

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> Would it be possible for you to give us one more paragraph of summary saying some of the things that you say in your letter – that the year's weather confirms your view that a long-term global climatic trend is occurring producing extremes of weather in such areas as the Sahel, etc. The article is fine as it stands; it was simply that it gives no indication of how conclusive or inconclusive it was supposed to be.[65]

It is clear that Stone very much wanted Lamb to state a climate prognosis regarding the Sahelian famine in the pages of *Development Forum*. Lamb was quick to acquiesce to Stone's request, jotting a paragraph in pencil before sending a typed version on 22 February:

> Current research on anomalies of the global rainfall distribution since 1960, and especially since 1970, together with analysis of the trends of rainfall and of the configuration of the world's wind circulation, suggests that the long-term prospect, over the next 30 years or so, is towards increasing drought in the Sahel zone of Africa. Any such long-term trend is, however, likely to be over-laid by shorter-term fluctuations, as a result of which runs of 4 or 5 years which bring more rainfall may be expected at any time. It would be very injudicious to take these easier years as anything more than short-term interruptions of the drift towards increasing drought in the regions nearest the Sahara.[66]

Lamb's article, entitled 'Drifting towards drought', was published in April 1974.[67] Stone illustrated the article with a picture of a partially covered dead body in Ethiopia, captioning it with Lamb's description of the number of deaths.
Lamb seemed much more comfortable being asked to forecast climate change than to suggest reasons behind the process, but the readers of *Development Forum* were dissatisfied. An example of such dissatisfaction can be found in a letter to the editor in the September–October edition by a Th. W. Hoffman of Colombo, Sri Lanka:

> Dear sir – I refer to Professor H.L. [*sic*] Lamb's article on last year's weather in your April 1974 issue. The Professor describes the global weather patterns in 1973 and refers repeatedly to abnormal behaviour. He does, however, not even indicate the probable reasons for these abnormalities. Is it that these are not known or even not guessed at? If the reasons are known, it would be most interesting to be told of them.[68]

According to the editor's reply, this was one of many similar letters. In response, Lamb wrote a second article for the November edition of *Development Forum*.[69] In it, he mentioned human causation but reserved it as a future concern: 'Someday – perhaps no more than a few decades distant – man's output of artificially generated heat may, itself, begin to be important on a global scale.' Instead Lamb ascribed the Sahelian famine to a cyclical phenomenon: 'The suggestion is, therefore, that the phenomenon is basically a solar fluctuation of period length about 200 years.'[70] Based on the available archival

[65] Peter B. Stone to Hubert H. Lamb, letter, 15 February 1974, HHL, Publications and Some Unpublished Work c1975–1976 (brown box file).

[66] Hubert H. Lamb to Peter B. Stone, letter, 22 February 1974, HHL, Publications and Some Unpublished Work c1975–1976 (brown box file). The pencil version can be found on Lamb's copy of his own 6 February letter in the Hubert Lamb archive.

[67] Lamb, op. cit. (63).

[68] Th.W. Hoffman, 'Drifting towards drought', *Development Forum* (1974) 2(7), p. 15.

[69] Hubert H. Lamb, 'What's wrong with the weather', *Development Forum* (1974) 2(8), p. 7.

[70] Lamb, op. cit. (69), p. 7. This was a controversial position to take in the climatological community. Robert Luke Naylor and Eleanor Shaw, 'The 200-year cycle: an early climate-based reaction to the crisis in the Sahel and its uptake in 1973', *History of Meteorology* (2022) 11(1), pp. 1–17.

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material, Lamb had never expressed an interest in writing anything more than weather summaries for *Development Forum*. However, Stone and the readership had ensured that he became more engaged, encouraging him to make explicit statements about what caused the adverse atmospheric conditions of 1973 and providing a prognosis. In doing so, they contributed to the perception that the Sahelian famine was primarily a climate-caused catastrophe, a perception that came to be challenged.[71]

Sunlit uplands?

The preceding examples are just a small sample of the outreach to different communities that Lamb undertook during this decade of uncertainty. He also, for example, authored or co-authored work for a special publication of the International Commission for the North-West Atlantic Fisheries (1972), *North Sea Science* (1973), the symposium *Drought in Africa* (1973), *Antiquity* (1974), *Endeavour* (1974), *Outlook on Agriculture* (1974), the Institution of Heating and Ventilating Engineers (1974), *Bird Study* (1975) and the Insurance Institution of London (1976), amongst many others.[72] Lamb not only published in interdisciplinary publications, but had the Climatic Research Unit produce publications with specific disciplinary outreach in mind, for example climate monitoring for insurance companies.[73]

Despite Lamb's fears of prematurely closing the Climatic Research Unit due to lack of financial support, in the end funds were always forthcoming for him. These feelings of insecurity may well have been a reflection of Lamb's personal and professional background. From a personal perspective, Lamb had spent time in unemployment, and had been written out of his father's will, a combination that must have made Lamb sensitive to financial insecurity.[74] From a professional perspective, Lamb had lost the support of the Meteorological Office during the 1960s for the type of work he was undertaking, an experience that must have made him anxious about institutional backing going into the 1970s. The editorial requests discussed above were often interlinked, albeit not explicitly, with Lamb's hectic quest for funding. Lamb asked John Maddox to publicize his adverse funding situation just before Maddox made his editorial requests, and Edward Goldsmith gave Lamb details of a potential funder before asking to reprint an edited version of Lamb's work. In a scarce funding environment, the influence of editors was magnified. As most clearly shown by his interactions with John Maddox in this paper, these anxieties made him pliable to editorial pressure; in none of the reported examples did Lamb explicitly refuse any suggestions made to him, despite some of the requests not resonating with his outlook. We also gain an insight into how climate narratives had to be adjusted to fit into pre-existing discourses before their importance in their own right

[71] Michael F. Lofchie, 'Political and economic origins of African hunger', *Journal of Modern African Studies* (1975) 13(4), pp. 551–67; Rolando V. Garcia, *Nature Pleads Not Guilty: The 1972 Case History*, Oxford: Pergamon Press, 1981. Lamb rarely mentions non-climatic contributors to famine in the articles examined in this paper, and when he does so the analysis is cursory. In the *Nature* article, Lamb makes the Malthusian observation that 'in several connexions vulnerability is increased by man's systematic exploitation of the natural resources (particularly water) of the area concerned to the limit'. Lamb, op. cit. (33), p. 396.

[72] Hubert Lamb, 'Some comments on atmospheric pressure variations in the northern hemisphere', Drought in Africa Symposium, School of Oriental and African Studies, 1973; Naylor and Shaw, op. cit. (70). The relationship between Lamb and energy producers is starting to get more attention: Elliot Honeybun-Arnolda and Martin Mahoney, 'The temperature of the archives: the Climatic Research Unit, UEA, 1971–1986', conference paper, Temperatures and Temporalities, Cambridge, 2022. The interest of energy system engineers in climate and weather information is multifaceted and complex. Robert Naylor, 'Working atmospheres: atmosphere-supply systems in post-war UK', PhD thesis, University of Manchester, 2022.

[73] This publication, *CRUMB*, was sponsored by insurance companies themselves. Such outreach could form the basis for future work on Lamb.

[74] Lamb, op. cit. (19), p. 5.

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was more widely established, as is most clearly shown by Lamb's pieces in the *UNESCO Courier* and *The Ecologist*. The core of both of these articles was identical, but the former was adjusted to fit a narrative of scientific prowess, and the latter was adjusted to fit a highly moralistic critique of industrial modes of development.

Lamb's personal commitment to providing work that was useful to industries such as energy, alongside the increasing demand for future climate forecasts from agriculture, industry and government, sometimes conflicted with the limitations of his records-based climatology approach, which made forecasting previously unknown climate changes difficult due to its reliance on historical precedents. Lamb was acutely aware of the need for outreach to communities beyond the scientific, both for reasons of acquiring funding for his work and research centre, and because the world beyond science was, at this time, where the importance of climatology for answering societal questions about climate change was being affirmed.

The epistemological divisions in the climatology community meant that for researchers the ability to argue their case in publications, scientific and beyond, was of significant importance, as is underlined by some of Lamb's interactions with editors in the latter part of the 1970s. Lamb was often willing to accommodate editorial requests for alterations to his work, and was equally committed to defending his work and his methods in key publications, such as *Nature*, because he understood the importance of the publications featuring his work for affirming the ability of climatology to answer the call for climate forecasts at that time. While quick to defend his own methods, writing of his published review of a critical paper by D.J. Painting for the *World Meteorological Organization Bulletin* in 1977, Lamb told editor Martin Stubbs that he had been '[t]o considerable trouble to produce a review here that is both objective and gently worded so that controversy may be stilled and Painting and his colleagues may see more clearly where we all are agreed about the climatic situation'.[75] For Lamb, the controversy raised by his colleagues about his work defeated what he perceived to be their group purpose of making climatology useful to the world beyond science.

However, Lamb was also willing to put his views more forcefully, especially when he felt betrayed by some within his own research institute. In 1978 Lamb wrote to Roger Woodham at *Nature*'s editorial office, asking for a short comment to be published in the 'Matters arising' section 'as soon as possible' to correct an article by scholars in the Climatic Research Unit, critically evaluating Lamb's methods with regard to record-based climatology (broadly analogous to the term 'historical climatology' in the article). Lamb believed the article to be 'needlessly damaging to the subject of historical climatology and [that it] gave a misleading impression of my work'.[76] Lamb cared intimately about how his work was represented, and hoped to present a united front that could reassure wider networks of climatology's usefulness.

In 1978, Lamb retired from being the head of the Climatic Research Unit. By this point, the unit enjoyed much greater financial security: partly due to the UK drought of 1976, Lamb had succeeded in acquiring government support.[77] As this paper has helped

[75] Hubert Lamb to Martin Stubbs, letter, 17 August 1977, HHL, LAMB/2, Published and Some Unpublished Work (brown box file). The review can be found at Hubert H. Lamb and Tom Wigley, 'A study of some aspects of the climate of the northern hemisphere in recent years. Meteorological Office scientific paper No. 35. By D.J. Painting. London (Her Majesty's Stationery Office) 1977. 25 Pages; 29 Figures. Price: £0.80', *WMO Bulletin* (1978) 27(1), pp. 76–7.

[76] Hubert H. Lamb to Dr R. Woodham, letter, 18 December 1978, HHL, LAMB/2, Published and Some Unpublished Work (brown box file). The paper in question was M.J. Ingram, D.J. Underhill and Tom Wigley, 'Historical climatology', *Nature* (1978) 276(5686), pp. 329–34.

[77] Lamb, op. cit. (24). The unit gained contracts from both the UK Department of Environment and the European Economic Community (The Reconstruction of European Climate on Decadal and Shorter Time Scales).

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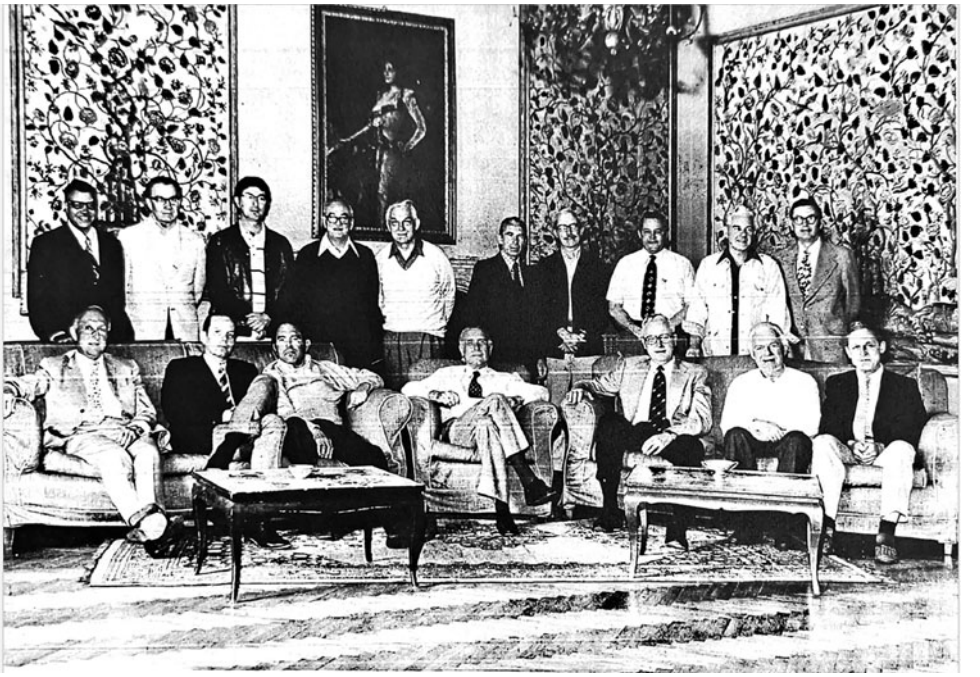

Figure 3. Lamb (far left) at the Bellagio conference Climate Change, Food Production, and Interstate Conflict in June 1975. Also in this photograph are senior Rockefeller Foundation administrators Reid Bryson and Mostafa Kamal Tolba, the latter of which was later influential in the formation of the IPCC (courtesy of the Rockefeller Archive Center). RAC, RF RG 1.7, project files Box 662, Folder 4360.

demonstrate, the increasing resonance of the unit's work was due not only to Lamb's efforts (and contacts – see Figure 3) but also to wider changes in attitudes towards climatic changes, reflected by a shift in the sort of the editorial requests and engagement that he received. This can be most clearly seen in the change in reception Lamb received in early 1974 compared to early 1973 from Peter Stone, the editor of *Development Forum*. In early 1973, Lamb apparently made the approach, and was only accommodated to the extent that he was allowed to write an anonymous accompaniment to another article. In early 1974, the positions were reversed, with Stone taking a great interest in Lamb and the messages he put forth, an interest shared by Edward Goldsmith of *The Ecologist*. The two movements represented by these publications – environmentalism and United Nations-style internationalism – were to make a potent combination with regard to climate issues in the 1980s.

Conclusion: editorial shaping of climate messages

By exploring editorial responses to Lamb's work, it is clear that editors contributed to the growing conceptualization of global climate change as a potentially dangerous outcome of human activity during this period. Editors at this time were able to exert a degree of personal intervention that sometimes was at odds with the de-personalized formality supposed to be ensured by the peer review process that was beginning to be implemented. Depending on the individual editors involved, the nature of the audiences they served and curated, and the missions of the respective publications, various elements of Lamb's work were changed, emphasized or presented differently. Climate narratives

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had to be adjusted to fit into pre-existing discourses, such as environmentalist concerns, before their importance in their own right was more widely established. Lamb allowed these adjustments because he believed that widespread publication assisted, directly or indirectly, in climatology's mission to be useful to agriculture, industry and government.

Today, within both climate science and the atmospheric humanities, some of the assumptions behind widespread popular conceptualizations of climate change are being challenged, most notably the idea that climate change is a phenomenon with homogeneous universal impacts across the globe that can be distilled to a single numerical figure for temperature change. The current discussion around keeping global warming to two degrees, carbon offset and debates around the terminology of global warming/heating/boiling reflect this reductionist viewpoint. This work reflects on some social contributors to overly reductionist narratives, providing further bases for new conceptualizations of climate change to come to the fore that acknowledge the complex heterogeneity of climate change's often devastating effects, from both geophysical and social standpoints.

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