Review Article
'What are people for?'
Ecologists and the Articulation of the Built Environment
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'Lost hordes of mini-citizens erupting, like bewildered human lemmings, from more and more mega-cities'; the prominent British architect-planner Sir William Holford employed this alarmist quote from the influential environmentalist Max Nicholson as the closing statement to his 1964 lecture entitled 'The Built Environment, its Creation, Motivations, and Control'.[1] The lecture was an important moment when Holford offered his articulation of the built environment – a term that was first published and employed, in the English language, in a statement from the Royal Institute of British Architects (RIBA) earlier that year.[2] Holford focused his lecture on the threat of overpopulation and the supposed resulting neuroses. He argued that more attention should be paid to the forecasting and control of human relations, as well as a better incorporation of 'the realm of social ecology' in architectural and planning debates.[3] Holford also evoked cybernetics, operation research, and communication theory as techniques for better alignment between policies and development plans.[4]

The discussions found in his articulation of the built environment seem to be a departure from Holford's professional outlook at the time. As an establishment figure in British architecture and planning, Holford was not regarded as someone with pioneering environmental visions.[5] His reconceptualisation of architecture and planning as 'the continually changing end-result of all the smaller designs and their co-ordination – or lack of it', Holford explained, was shaped by the thought of Nicholson and Julian Huxley.[6] In the existing studies

of architectural history and theory, Huxley has been seen as an important figure bridging ecological thinking with debates in planning and preservation.[7] What is lesser known is that Nicholson, whose career triangulated civil service, policy planning, and conservation, also had been involved in the theory and practice of landscape, planning, and architecture in Britain since the 1940s. For example, he helped set out the agenda of the Festival of Britain (1951), an event that was instrumental in the promotion of modernist art, architecture and design in post-war Britain, through his role as the secretary to the director of the festival.[8] Holford's lecture thus offers a starting point to retrieve these previously overlooked exchanges between ecology and architecture, and to demarcate the infusion of cybernetic thinking in architecture and planning with technocracy, evolutionary humanism, and conservation politics.

It is worth clarifying that most of the discussions examined in this essay do not evoke cybernetics at length. Instead, they are eco-systematic ideas that were influenced by and share characteristics with cybernetics. To borrow the words of the historian of science Simone Schleper, both can be broadly summarised as the studies of 'the messages and feedback loops used by machines as well as organisms to adapt to their environment'.[9] Introduced by Arthur Tansley in the late 1930s, the concept of the ecosystem put forth a paradigm shift in the field of ecology, the focus turned from describing the specifics of natural succession to the physiochemical processes between organism and their

environment.[10] In other words, the ecosystem converted ecology into a study of relationships. Another key influence on Huxley and Nicholson's thinking was the conceptualisation of the ecosystem as closed cycles of energy flow – starting from plants' synthesis of solar energy into nutrients and ending with the organism returning to soil as nitrogen and proteins.[11] Based on the laws of thermodynamics, the energy is always conserved, and the cycles are closed.[12] This closed-cycle assumption underscores the work on conservation advocacy by Huxley and Nicholson, in which both emphasise the importance of attaining an equilibrium within the system.[13]

Nicholson's eco-energetic thinking was influenced, in particular, by the American ecologists Eugene and Howard Odum, who considered ecosystems as cybernetic systems.[14] Nicholson adapted the Odum brothers' complex circuit diagrams in his critique of both British politics and the environment. For example, in 1967, he produced a diagram in his book *The System* portraying the body politic of the United Kingdom as a closed energy-entropy system.[15] [Fig.1] The diagram articulates a political vision that merges eco-systematic thinking with biopolitics by outlining a technocratic ambition of governing both the milieu and the inhabitants.[16] Two years later, using a similar method, Nicholson produced another diagram illustrating a co-evolutionary relationship between 'biosphere' and 'technosphere'.[17] [Fig. 2] While the biosphere denotes naturally occurring biological processes and natural resources, the technosphere includes human-centric activities such as processing, consumption, and marketing. How resources are produced, extracted, and consumed is indicated as flows that demonstrate the interlinks and interdependencies between the biosphere and technosphere. Noteworthy is that at the bottlenecks of the diagram, the unwanted by-products such as the various forms of pollution and contamination appear, which give rise to the 'human-modified environment' and interrupt the circuit of energy flow. Reviewing these two eco-systematic diagrams

alongside each other, Nicholson's complex view on the relationship between human, society, and the environment becomes apparent. Firstly, he articulated a co-evolutionary relationship between human activities, environment, and the nation's socio-political system. Secondly, he believed that the control of human activities is crucial to the maintenance of the equilibrium of systems – political and ecological alike.[18]

The humanist frame
In 1961, Huxley edited a volume entitled *The Humanist Frame,* which both Nicholson and Holford contributed to.[19] The publication offered an opportunity to synthesise Nicholson's diagnosis of human activities with Huxley's evolutionary humanism and both with debates in architecture and planning. In his introduction, Huxley states:

> The spectacle of explosive population-increase is prompting us to ask the simple but basic question, *what are people for?* And we see that answer has to do with their quality of human beings, and the quality of their lives and achievements.[20]
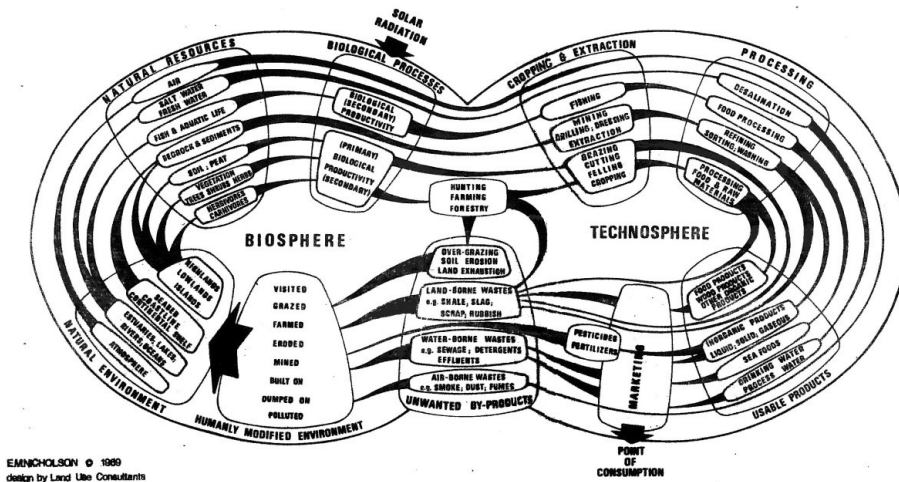
The question 'what are people for' and the underlying eugenic approach to population control percolated throughout the book. Moreover, it conditioned Nicholson and Holford's articulation of the relationship between the environment and humanism. The discussion in *The Humanist Frame* is anthropocentric. However, unlike the environmental discourses that burgeoned in the latter part of the 1960s, the main goal of the authors was not only to protect and improve the environment for human survival. Instead, *The Humanist Frame* questioned the purpose of humans and their activities, thus to explore what would be the next stage of evolution for the humankind.

Another influence on Huxley's evolutionary humanism was the introduction of psychosocial changes into evolutionary ecology. Huxley claimed that there had been two critical points in evolution:
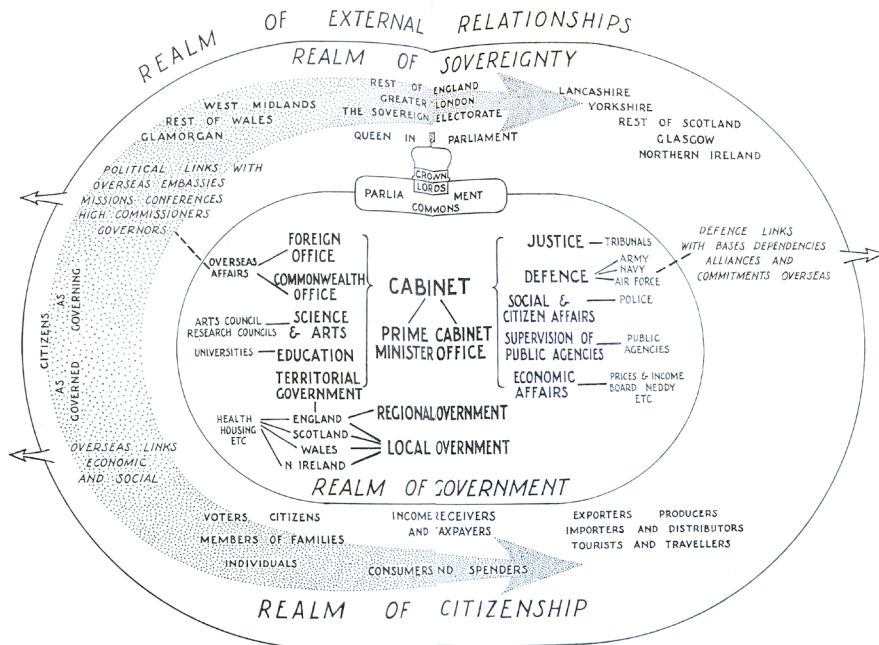
Fig. 1

Fig. 2

Fig. 1: 'The United Kingdom Body Politic: A Schematic Outline of the Proposals' by Max Nicholson, published in *The System: The Misgovernment of Modern Britain* (1967).

Fig. 2: Diagram of biosphere and technosphere by Land Use Consultant for Max Nicholson published in *Handbook to the Conservation Section of the International Biological Programme* (1969).

the first was the passage from the inorganic phase to the biological, and the second was from the biological phase to the psychosocial. He believed that human society, at the time, was at the third passage, where 'the ebullition of humanist ideas in the cauldron of present-day thought marks the onset of the passage from psychosocial to the consciously purposive phase of evolution'.[21] In light of Huxley's formulation, one can envision the addition of a psychosocial sphere to the biosphere and the technosphere, which would include changes in artistic, cultural, and religious activities. This proposition was also incorporated in Nicholson's subsequent conservation work. For example, in his Albright Lecture at the University of California Berkeley in 1964, Nicholson argued that the Renaissance was engendered through a radical awakening of humanity's relationship with nature.[22] What followed was the rejection of old idea-systems, all kinds of discoveries, and an enriched culture. Building on this supposed transformative relationship between humans and their environment, Nicholson argues that the value of conservation is to locate 'the true design of man's place in nature' and to bring forth a new Renaissance.[23]

The Renaissance lecture, however, was a rare instance when Nicholson formulated a positive reciprocal relationship between environmental changes and human society. Most of his writings from the 1960s paint a more pessimistic world view. Overpopulation, for Nicholson, should be understood as an environmental problem in a multitude of ways. Firstly, the increase in population amplified the on-going human exploitation of the ecosystem. Like Huxley, Nicholson argued that uncontrolled population increase was a social illness, reflecting the appalling attitude of humans towards their surroundings. The deprivation of both utilitarian and psychosocial resources, he anticipated, would in turn induce poor behaviour, giving rise to the condition found in the above quote.[24] To conserve, Nicholson argued, was to take and invest the right amount of utilitarian and psychosocial resources in order to avoid violating the law of evolution.

In *The Humanist Frame,* the discussions on balancing and reconciling the utilitarian and psychosocial resources are characterised as a planned human ecology. Different from the coinage by the influential American urban sociologist Robert E. Park in the 1920s, the human ecology discussed here does not differentiate groups and activities in society. Instead, it reconceptualises humans and their environment in a supposed energy-entropy equilibrium.[25] This formulation of a planned human ecology forms an important premise in Holford's contribution to *The Humanist Frame.* Holford starts his article by offering a re-articulation of architecture, stating that 'building today is organisation'.[26] Significant architecture, he claims, does not 'automatically come from working out of formulae, or from modular co-ordination, or from a theory of structures', but comes from the 'organisation of raw materials of existence, whether physical or psychological, into effective patterns in which a variety of parts are combined and interrelated in a unitary whole'.[27] Notable architecture from the past, he further argues, could be used to retrieve knowledge from a well-planned human ecology.[28] By establishing these reciprocal dynamics between human society, architecture, and the existing environment, Holford puts forth a theorisation of the built environment as the 'shells of society'. He states that 'it is too simple to view a society and its buildings as cause and effect; old shells are sometimes adapted to the new ways of inhabitants'.[29] In other words, Holford responded to Nicholson and Huxley's discussions by reconceptualising the built environment as the organisation of relationships, both between human and what environed them, as well between the past, present and future. The shell metaphor further suggests a recognition of the built environment as a relational and reciprocal material milieu of the society which it supports.

Holford's formulation can be considered as a rejection of the social determinism that underscored Modernist architecture. However, what Holford envisioned was hardly a departure from the totalitarian

tendency embedded in architectural culture. In both his contribution to *The Humanist Frame* and his lecture on the built environment, Holford reinstated the importance of 'one controlling mind' and 'a single intelligence'.[30] For him, the creation, motivations and control of the built environment should still be determined by experienced and gifted individuals who could achieve 'a total effect of unity and correspondence'.[31] The seemingly contradictory view that at once challenges and strengthens the historical role of architect-planners as the creators of the environment also points towards the forces that drove Holford's desire to borrow from ecology and evolutionary humanism. Holford's environmental turn could be seen as an effort to locate new means of legitimisation when the tenets of modernist architecture could no longer function as the yardsticks for town planning, design and construction. Meanwhile, ecologists' ability to extend conservation debates so as to include regional planning, land use and economic development strategies also provided a model for architecture to reclaim its role in national economic and developmental planning.[32]

Holford's articulation of the built environment was also motivated by a broader adherence to science and technology found in British society at the time. As early as 1958, RIBA already championed the importance of research in architecture and planning in order to better integrate with other scientific disciplines.[33] In 1963, in response to the publication of the *Enquiry into the Organisation of Civil Science (Trend Report)*, RIBA also argued that architecture ought to be better able to respond to studies in the natural, physical and social sciences.[34] The term built environment was therefore employed as a means to broaden the scope of the theory, research, practice, and pedagogy in architecture and planning, allowing them to catch up with advances made in scientific and technological research. Holford's frequent evocation of ecology should be contextualised within this scientisation of architecture and planning. Huxley's formulation of a planned human ecology offered an

effective framework to direct attention to research into the psychosocial aspects of the built environment, which Holford deemed as lagging behind their counterpart in building tectonics and services.[35]

It is noteworthy that, as in the field of architecture, the need to reinforce its societal relevance also drove ecological conservation to make an environmental turn. In 1970, Nicholson reframed his conservationist mission under the title *The Environmental Revolution*.[36] Like in architecture and planning, the term environment was used by Nicholson to address the gaps found among the disciplines, what he called the 'no man's land between ecology, geography and landscape'.[37] In the book, he advocated for the use of the term environment to replace what was previously 'conveniently lumped together as "the countryside"' in Britain, thus to lessen the idiosyncratic outlook of conservation.[38] The coalescence of multi-disciplinary knowledge under the broad title of the environment, Nicholson envisioned, would establish conservation as a matter of intrinsic importance. In sum, the reconceptualisation of both ecology and architecture as environment was driven by a desire to break down disciplinary divides. Moreover, this shift can also been seen an attempt to reinforce the scientific outlook of both disciplines, as a response to 'White Heat' – Labour Party leader Herold Wilson's vision to accelerate British economic growth through science and technology articulated in 1963.[39]

Through this realignment, more reciprocal exchanges were found between architecture, ecology, and the emerging digital realm. As the head of the conservation section of the International Biological Programme, Nicholson championed the use of computers in managing the vast data of ecological analysis. In establishing this 'parametric method', Nicholson introduced a digital architecture that 'relies strictly upon the *structure* (such as the height and spacing of plants) and the *function* (such as adaptations to or defence against conditions like fire, drought or salinity)'. In this modelling of the ecosystem, the traditional descriptions of climate and geology, as well as definitions like grassland and

woodland are discarded.[40] This method employs a similar framework for the analyses of built structures and naturally occurring organisms, and further emphasises the relational aspects instead of the physio-chemical properties. The notion of structure and function – which are fundamental in architectural culture – are turned in a bridge between the digital realm and the ecology.

Conclusion

Despite their excitement about incorporating computation in the study of the environment, Nicholson, Huxley and Holford's interpretation was different from other contemporaneous techno-optimistic environmental discourses similarly informed by cybernetics. They did not envision that technology could reconstitute and thus solve human-environment problems.[41] Instead, their investigation focused on how to incorporate humans and their activities within the closed eco-system. Nicholson's biosphere and technosphere diagram suggested a co-evolutionary model through which human existence is a part of but also reconstitutes the eco-system. Huxley, meanwhile, sought to locate the equilibrium within an energy-entropy articulation of human activities. Working under such a framework, Holford considered architecture and planning a means of organisation for attaining the equilibrium. His writings also reflected his view that architecture and planning are mechanisms for controlling human activities, in order to avoid introducing further disturbances to the eco-systemic ideal. These exchanges also contributed to a shift of focus from the eco-system to debates on the environment, and thus helped to clarify and amplify overlooked aspects in both naturally occurring and human activities.

However, just as Nicholson and Holford's environmental turns were being completed, they were met with strong contrary forces. As the environmental movement garnered more energy in the late 1960s and early 1970s, ecologists were also being side-lined in the debates. In the socio-political climate of the time, Nicholson and Huxley's environmental formulation was further problematised by their technocratic, unitarian, and eugenic undertones. In architecture, a different group of scholars, writers and architects had been more effective in mobilising the term built environment, gearing it towards the study of human psychobiological reaction to immediate physical surroundings.[42] The term built environment was, at the time, widely employed in studies of architectural culture through building sciences.[43] Meanwhile, ecology and architecture were both seduced by studies in semantics and language analysis, which engendered new theories and shifted attention away from the eco-systemic discussions.[44] In short, despite Holford and Nicholson being able to disseminate their thought through the high positions they held in various organisations, their articulation of the environment did not leave an immediate and significant imprint in twentieth-century environmental discourse.[45]

Regardless of their contradictions and flaws, the discussions examined in this article involve critical issues in 1960s society such as population growth, resource exploitation, pollution, as well as the volatile socio-cultural conditions that underscored the coinage of the term 'built environment'.[46] They also point to an almost concurrent environmental turn found in ecology, due to a similar desire to reinforce the scientific value and hence the societal relevance of the discipline. The discussions reviewed here demonstrate that the exchanges between ecology and architecture could move beyond the appropriation of visual and rhetorical devices. These exchanges provide alternative means to posit the question of what architecture can do in the transformative and reciprocal relationship between humans and their environment. Finally, these discussions, articulated in a previous era of environmental emergency and awakening, also serve as a reminder of the interlinked nature of biological, environmental, and economic crises. They signpost the possibility of incorporating architecture and planning into these debates through a reconceptualisation of the built environment.

Notes

1. William Holford, *The Built Environment: Its Creation, Motivations and Control*, Tavistock Pamphlet 11 (London: Tavistock Institute, 1965), 17.
2. 'Research into Problems of Planning and Construction: RIBA Statement', *RIBA Journal* (March 1964): 112.
3. Holford, *The Built Environment*, 6.
4. Ibid.
5. Holford was the President of RIBA from 1960–62, and the Chair of Planning of the Bartlett at the same time. He was knighted in 1953 and he would be made a Lord in 1965, the first town planner to receive such an honour. For an evaluation of the later part of Holford's career, see Gordon Cherry, *Holford: A Study in Architecture, Planning and Civic Design* (London: Mansell, 1986), 250–54.
6. Holford, *The Built Environment*, 1. Holford had known Huxley since 1936, and joined the PEP group in 1943. John Pinder, ed., *Fifty Years of Political & Economic Planning* (London: Heinemann, 1981), 210.
7. Peder Anker, 'The Bauhaus of Nature', *Modernism/Modernity* 12, no. 2 (2005): 229–51. Lucia Allais, '"The Largest Stone in the World", and Other Landmarks of Postwar Evolutionism', paper presented at the Society of Architectural Historians Conference, 30 April 2020.
8. For example, architectural historian Adrian Forty in his study of the festival suggests that Nicholson, 'an enthusiast for technocracy', had carried over his thinking on scientific development to the festival and turned it into 'in part an early experiment in technocracy'. Adrian Forty, 'Festival Politics', in *A Tonic to the Nation: The Festival of Britain 1951*, ed. Mary Banham and Bevis Hiller (London: Thames and Hudson, 1976), 37.
9. Simone Schleper, *Planning for the Planet: Environmental Expertise and the International Union for Conservation of Nature and Natural Resources, 1960–1980* (New York: Berghahn Books, 2019), 9.
10. Schleper, *Planning for the Planet,* 21.
11. Nicholson, *The Environmental Revolution*, 69.
12. In the current scholarship of cybernetics, the closed-system ideas, including eco-system articulations, are named 'first-order cybernetics' after Heinz von Foerster.
13. Schleper, *Planning for the Planet,* 31; Jeff Pruchnic, *Rhetoric and Ethics in the Cybernetic Age: The Transhuman Condition* (London and New York: Routledge, 2013), 11.
14. Robert P. McIntosh, *The Background of Ecology: Concept and Theory* (Cambridge: Cambridge University Press, 1985), 210.
15. Max Nicholson, *The System: The Misgovernment of Modern Britain* (London: Hodder and Stoughton, 1967).
16. Michel Foucault, *Security, Territory, Population: Lectures at the College de France*, ed. Arnold Davidson, trans. Graham Burchell (Picador: New York, 2007), 21–22.
17. Schleper, *Planning for the Planet,* 71. Diagram of the biosphere and the technosphere, Royal Society Symposium,1969. Reproduced from LSA EMN/IBP: Box 4, Folder 'World Bank etc.', Land Use Consultant, London.
18. Simone Schleper, 'Perspectives and Politics: A Co-Evolutionary Reflection', 23 April 2016, https://www.anthropocene-curriculum.org/contribution/perspectives-and-politics.
19. Julian Huxley, ed., *The Humanist Frame* (New York: Harper & Brothers, 1961).
20. Julian Huxley, 'The Humanist Frame', in *The Humanist Frame*, 24.
21. Ibid., 7.
22. Max Nicholson, *Conservation and the Next Renaissance* (Berkeley: University of California, 1964).
23. Ibid., 15.
24. Ibid., 14.
25. Robert E. Park, Ernest W. Burgess, and Roderick D. McKenzie, *The City* (Chicago: University of Chicago Press, 1967). Huxley, 'The Humanist Frame', 47, 53.
26. William Holford, 'The Shells of Society', in *The Humanist Frame*, 199.
27. Ibid., 200.
28. Ibid.
29. Ibid., 199.
30. Ibid., 200.
31. Ibid.

32. Critique of how post-war planning was unable to deliver a sufficiently modernised version of Britain burgeoned in the 1960s. The publication of Peter Hall's *London 2000,* for example, can be seen as an attempt by a younger generation of planners to better align physical planning with the demographic, industrial, and economic changes. An example that inspired Holford, Nicholson and Huxley was the Tennessee Valley Authority, which combined infrastructure and regional planning with development, conservation, and resource management. Holford, *The Built Environment*, 11; Nicholson, *The Environmental Revolution*, 205–10; Julian Huxley, *TVA, Adventure in Planning* (London: The Architectural Press, 1943).

33. Dean Hawkes, *The Environmental Tradition: Studies in the Architecture of Environment* (London: E & FN Spon, 1996), 6.

34. 'Research into Problems of Planning and Construction: RIBA Statement', *Committee of Enquiry into the Organisation of Civil Science* (H.M.S.O. London. Cmnd. 2171, Oct. 1963).

35. William Holford, 'Shape and Environment', lecture (London: Goldsmiths College, 1963), Special Collections and Archives, Universty of Liverpool, D147/LA7.

36. Nicholson, *The Environmental Revolution*, 36.

37. Ibid., 75.

38. Ibid., 36.

39. Harold Wilson delivered the speech at the 1963 Labour Party Conference; it was seen as a watershed moment in declaring a nation-wide adherence to scientific and technological-driven development, although scholars suggested that the strong support in scientific and technological research had already been in place earlier in the decade by the Conservative government. Adam Sharr and Stephen Thornton, *Demolishing Whitehall: Leslie Martin, Harold Wilson and the Architecture of White Heat* (London: Ashgate, 2013), 9.

40. Nicholson, *The Environmental Revolution*, 70–71.

41. Schleper has also discusses the how Buckminster Fuller's expansionist environmental propositions differ from the eco-systematic views. Schleper, *Planning for the Planet,* 41.

42. A contemporary use of the term 'built environment' in promoting better integration of scientific research in architecture and planning was put forward by Richard Llewelyn-Davies, the then Chair of Architecture at the Bartlett. Richard Llewelyn-Davies, *The Future of Environmental Studies* (Edinburgh: The University of Edinburgh, 1967), 1.

43. Examples include Reyner Banham's influential *The Architecture of the Well-Tempered Environment* (1969).

44. In ecology: McIntosh, *The Background of Ecology*, 149; in architecture: Reinhold Martin, 'Environment, c. 1973', *Grey Room* 14, no. 2 (2004): 78–101.

45. For example, Holford repeated his articulation of the built environment in a high-profile conference on the environmental crisis held at the University of Texas in 1965, under a simplified title 'The Built Environment'.

46. Journalist Christopher Booker, for example, observed the sudden and unsettling socio-cultural changes found in Britain in the late 1950s and 1960s. The notable improvement in living standards and a burgeoning identification with 'affluent society' and 'leisure society' was juxtaposed with increasing crime rate and racial tensions. Christopher Booker, *The Neophiliacs: Revolution in English Life in the Fifties and Sixties* (London: Collins, 1969)*.*

Biography

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