



## The ecosystem—movements, connections, tensions and translations



Laura Cameron\*, Sinead Earley

Department of Geography, Queen's University, Kingston, Canada

### ARTICLE INFO

#### Article history:

Received 16 April 2014

Received in revised form 13 March 2015

Accepted 21 March 2015

Available online 5 May 2015

#### Keywords:

Ecosystem  
A.G. Tansley  
Anthropogenic  
Forestry  
Canada  
Politics

### ABSTRACT

'Ecosystem', a term brought into scientific usage by English ecologist Arthur George Tansley in 1935, became a key concept for the development of ecology and nature management. In the twenty-first century, its uses continue to proliferate. For Tansley, the ecosystem was an interacting and interdependent system of organic and inorganic components. Within it, human activity was to be regarded as the most powerful biotic factor 'which increasingly upsets the equilibrium of preexisting ecosystems and eventually destroys them, at the same time forming new ones of a very different nature ...'. The influences on Tansley's thinking have been detailed in terms of physics, psychoanalysis, politics, and philosophy. This paper summarizes select debates regarding the emergence of the idea and its use and abuse vis-a-vis the politics of society and nature. It briefly traces the geography of the concept as it was taken up by Americans, becoming the basis of 'systems ecology,' and having varied applications in, for instance, forestry, fisheries, avian conservation, and environmental history. We end by looking at recent shifts in the British Columbian forest sector, resulting from the unprecedented range and impact of wood-boring beetle populations, where the ecosystem circulates as a highly politicized and contested term. Although we find that humans have figured differently over time and place in relation to the concept's complex imaginary, it is important to recognize that with the term ecosystem Tansley also was addressing his own question, 'Is man part of 'nature' or not?' We conclude by highlighting potential connections to the other constructs addressed by other authors in this special issue, and suggest ways that key insights from Tansley's work might contribute to just ecosystem futures.

© 2015 Elsevier Ltd. All rights reserved.

*This is a story about the rise of the machines*

*And our belief in the balance of nature*

*How the idea of the ecosystem was invented*

*How it inspired us*

*And how it wasn't even true*

Adam Curtis, *The Use and Abuse of Vegetational Concepts, Part II, All Watched Over By Machines of Loving Grace*. BBC Television, 2011.

*Here we are back again at the question of the meaning of words.*

A.G. Tansley, *The Use and Abuse of Vegetational Concepts and Terms, Ecology*, 1935, p. 290.

### Introduction

We preface our discussion with a nod to an episode of Adam Curtis's 2011 series for the BBC, *All Watched Over By Machines*

of *Loving Grace*. In it, the leading British documentary filmmaker explores the way machine logic has infused powerful ideologies of the modern world shaping concepts like the 'ecosystem' and convincing the masses of the existence of such self-regulating entities—sealed from the destabilizing effects of politics—in which humans (and everything else) are simply 'cogs' in a static system. In naming this episode, Curtis, just as the editors did in naming this special issue, drew upon Arthur George Tansley's classic 1935 essay 'The use and abuse of vegetational concepts and terms' in which Tansley, an English ecologist and plant geographer (see Fig. 1), first introduced the term 'ecosystem'. It was published in a special volume of the journal *Ecology: All Forms of Life In Relation to the Environment* 'affectionately dedicated' to Tansley's American colleague, Henry Chandler Cowles (Tansley, 1935).

Our intention here is not to focus on Curtis's imagination which fired many others across the political spectrum (including asserters of anthropogenic climate change as well as its deniers), although we necessarily qualify a few of his claims. We draw on him as an example of how the 'ecosystem', voted one of the key words of the 20th century by the British Ecological Society in 1988 (Ayres, 2012, p. 138) remains key and contested in the 21st, from the globally reaching United Nations (2005)

\* Corresponding author.

E-mail addresses: [cameron@queensu.ca](mailto:cameron@queensu.ca) (L. Cameron), [sinead.earley@queensu.ca](mailto:sinead.earley@queensu.ca) (S. Earley).



**Fig. 1.** Arthur George Tansley. Portrait by J. Palmer Clarke. n.d. Reproduced by kind permission of the Cambridgeshire Collection, Cambridge Central Library.

*Millennium Ecosystem Assessment* to studies of the individual human body, from the RSA Arts & Ecology Centre<sup>1</sup> to analyses of celebrity culture (*The Globe and Mail*, 2014, Style 10), being fundamental to climate science, the crisis in the oceans and, the 'war in the woods' (Hayter, 2003; Leiren-Young and Berman, 2011).

Geographers and environmental historians have criticized their own tendency to borrow terminology uncritically from ecological science. At the same time one can point to a rich tradition of critical history and geography with contributors such as Worster (1990), Bocking (1994, 2013a), and biogeographer Trudgill (2007, 2012), who have worked hard to contextualize and historicize scientific concepts. And concurrently, ecologists continue to question their own terms: a dozen years ago Robert O'Neill cheekily titled his 2001 paper in *Ecology* 'Is it time to bury the ecosystem concept? (with full military honors, of course)'. Even if burial was possible, we still would argue 'no'; indeed, since 2001, the term has become ever more active in our world. Invoked by neighborhood groups to save ash trees from insects and by *Geoforum* contributors, such as Baldwin (2013), as a key scale for conceptualizing and controlling life, 'ecosystem' needs not burial but critical digging, an excavation of early intentions and contextualization of current usages in political life and language.

We proceed by first looking to Tansley for his definitions and expressions of the term 'ecosystem', with recognition of the contextual and ontological thinking that went into them. As a key term we cannot track the variety of its uses and abuses from its earliest inception, and here we explore a few iterations only. Yet, in each case we pay close attention to cornerstone arguments of this paper in highlighting the constructed nature of concepts, the politics embedded in language, and the questions of governance and justice that arise from perplexing encounters with environmental change. We conclude by turning back to Tansley, towards the complexity and novelty of his conceptualizations and their potential value for our continuing use of the term.

Our collaboration as co-authors on this paper began with a conversation about words. As a forestry labourer and scholar

interested in etymology, Sinead was curious about the evolution of the term 'ecosystem' that was used to describe her workplace, and how she was to function in it; she came to ask how her actions and the tools she used (which tree species to plant, how, where and why) might support or question those terms. An historical geographer of 'nature' and tracer of the lives of early ecologists, Laura wondered if and how their terms mattered in contemporary debates and struggles. In the process of talking and writing, common ground was found in acknowledging the active politics of language as well as the urgent need to heed past conversations in navigating our more-than-human worlds. As it often turns out, older and allegedly out-of-date ideas may be more useful and nuanced than we expect.

### Scientific words and political language

The term 'ecosystem' often is used to express how 'everything is connected': thus it may seem surprising that it first appeared in a discussion of vegetation. One reason for Tansley's uncommonly broad scope is that he and his students, beginning before the Great War, were absorbed in studies of biotic effects on vegetation, such as grazing animals introduced by humans. Already attuned to the inter-relations of climate and soil, their attempts to understand interactions of animals and plants led to the consideration of further relationships and the entertainment of increased physical and philosophical complexity. What do we consider in the field of observation? Only what is 'natural'? (a term Tansley enclosed in scare quotes). Does the effect of a bison on the North American prairie belong more 'naturally' than the effect of a cow introduced by a farmer? In contextualizing Tansley's introduction of 'ecosystem', one of a number of related words he introduced including 'anthropogenic' meaning nature produced by man (Tansley, 1923; Cameron, 1999, 2013), we would stress the complex terrain of his thought. As his contemporaries pointed out, Tansley was a curious blend of mechanist and organicist, materialist and idealist. He was also a Freudian, publishing in 1920 a best-seller on the New Psychology which thoughtfully summarized the latest approaches to humankind's fundamental irrationality. He also could be described as a constructivist, writing that same year, 'We must never conceal from ourselves that our concepts are the creation of the human mind that we impose on the facts of nature' (Tansley, 1920, p. 190). In 1923 he resigned from the Cambridge Botany School to work with Freud in Vienna whose domain he envisioned less as 'a defensively stocked camp and more like an open city'<sup>2</sup>. Tansley proposed the word 'ecosystem' to describe the plant community in place of South African ecologist John Phillips's term 'complex organism', 'a thoroughly bad term' (Tansley, 1935, p. 291) in Tansley's estimation for several reasons, including the way in which the term was being used to invoke rather too mystically the 'whole' as operative cause 'towards the creation of wholes in the universe' (p. 298).

Perhaps Tansley's own response to Curtis's charge that the ecosystem is not 'true' would be akin to his comments about Phillips, whose exposition of General Jan Christiaan Smuts's 'holistic faith' he targeted as a 'closed system of religious or philosophical dogma' in his 1935 paper (p. 285).<sup>3</sup>

<sup>2</sup> A.G. Tansley 'On Criticisms of Freudian Theory', n.d. Tansley Archive, Cambridge University Library.

<sup>3</sup> Phillips's exposition was comprised of three papers published in the *Journal of Ecology*, edited by Tansley, beginning with Phillips JFV. 1934. Succession, development, the climax, and the complex organism: an analysis of concepts. Part I. *Journal of Ecology*. 22, 554–571. The 'holistic faith' of JC Smuts was detailed in his 1926 book, *Holism and Evolution*. For a fuller discussion of this episode, see Peter Ayres, *Shaping Ecology: The Life of Arthur Tansley*, Chichester, Sussex: Wiley-Blackwell, 2012, pp. 134–138.

<sup>1</sup> The RSA (Royal Society for the encouragement of Arts, Manufactures and Commerce) ran the Arts & Ecology Centre from 2005 to 2010. See <http://www.thersa.org/action-research-centre/current-projects/arts-and-ecology>.

Download English Version:

<https://daneshyari.com/en/article/5073840>

Download Persian Version:

<https://daneshyari.com/article/5073840>

[Daneshyari.com](https://daneshyari.com)