A Volume in
Exploring Complexity

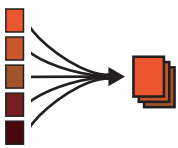
Volume Two
Classic Complexity:
From the Abstract to the Concrete

Exploring Complexity: Volume Two

Classic Complexity: From the Abstract to the Concrete

Edited by

Kurt A. Richardson
Jeffrey A. Goldstein



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CONTENTS

On the importance of Classic Papers ..... *vii*
Kurt A. Richardson & Jeffrey A. Goldstein

Section 1
Complexity and Philosophy

1. Emergence 3
Stephen C. Pepper
(with an introduction by Jeffrey A. Goldstein)

2. Novelty, Indeterminism, and Emergence 21
W. T. Stace
(with an introduction by Jeffrey A. Goldstein)

3. The Philosophic Functions of Emergence 43
Charles A. Bayliss
(with an introduction by Jeffrey A. Goldstein)

4. A Form of Logic Suited for Biology 63
Walter M. Elsasser
(with an introduction by Jeffrey A. Goldstein)

Section 2
Complexity and General Systems Theory

5. Principles of the Self-Organizing System 111
W. Ross Ashby
(with an introduction by Jeffrey A. Goldstein)

6. General Systems Theory: The Skeleton of Science 137
Kenneth E. Boulding
(with an introduction by Kurt A. Richardson)

7. Science and Complexity 151
Warren Weaver
(with an introduction by Ross Wirth)

Section 3
Complexity and Organization

8. The Architecture of Complexity 165
Herbert Simon
(with an introduction by Paul Cilliers)

9. Futurology and the Future of Systems Analysis 177
Ida R. Hoos
(with an introduction by Graham Mathieson)

10. Beyond Open System Models of Organization 193
Louis R. Pondy
(with an introduction by David Boje)

11. The Functions of the Executive - Chapter 2:
The Individual and Organization 227
Chester I. Barnard
(with an introduction by Jeffrey A. Goldstein & James K. Hazy)

Volume Editorial: On the importance of Classic Papers

Kurt A. Richardson
Jeffrey A. Goldstein

With a field so broad in both breadth and depth as that making up the contemporary study of complex systems, it is well nigh impossible to cover all the bases underlying the development of well argued, robust and relevant understanding of these systems. That is one of the reasons *Emergence: Complexity and Organization* (E:CO) has offered a Classical Paper in each issue. Now, in this current volume we have made available in one publication venue the diverse Classical Papers we have published so far. These papers are offered not only to enrich our current understandings by exhibiting the historical background to many of today's leading complexity-based ideas, perspectives, and methods. They are also gathered here to help address some of the difficulties confronting not only complexity thinkers, but for that matter any thinker sincerely trying to grasp the novel situations and novel difficulties we face in modern times. These difficulties include:

Chinese Whispers: As past writings move ever further into the past the author's ideas tend to be retranslated into the language of the time in which they are read. Not only has the intellectual landscape evolved considerably, but so have the social and political landscapes, all of which can act to hinder a 'true' reading of the author's original text. Given the vastness of the material available it is no surprise that many of us only know the works of previous authors through short quotations used by modern writers to support a particular point of view. The Chinese Whisper problem arises because quotes are always taken out of context in order to support the current author's position. Indeed, the American philosopher, sociologist, and proto-complexity thinker George Herbert Mead developed his own prescient ideas on the key complexity notion of emergence through a radical re-assessment of temporality, whereby the past itself undergoes transformation from the point of view of the emerging "Philosophy of the Present." (Mead, 1932). One could put Mead's insight into the quip: "the past is not what it used to be!"

If another author has only had access to the original author through quotations made by more recent authors, it is no surprise that over time the meaning originally intended by the original author slowly shifts - sometimes to the point of not even being reconcilable with the original text. In politics this is often done maliciously, but in science it is an unfortunate by-product of trying to assimilate the overwhelming accumulation of past thoughts and writings (though this also possesses a positive creative dimension). If you really want to know what a long gone author said on a particular subject then you really need to explore their original texts. Even then your modern cultural biases will prevent you from obtaining exactly the original senses (researching the history surrounding the author often allows for a more genuine interpretation - though who has the time to perform such deep research into every author they take an interest in?) - you will at least remove the layers of reinterpretation and reframing imposed by many intermediate interpreters.

Reinventing the Wheel: With all that has gone before it is no surprise whatsoever that the wheel gets reinvented time and time again. Moving in and out of favor is part of the normal evolution of any idea, though each reinvention often changes the previous incarnation in some subtle, and not so subtle, ways. Many of us involved in the *E:CO* project are profoundly interested in philosophical issues along with scientific concerns. It seems the more we read the writings of past philosophers the more modern ideas can be uncovered there. Indeed, it wouldn't surprise us at all if one could put together a modern text on complexity thinking using only Ancient Greek texts! Yet, even with the best intentions in the world, and a never-ending budget, we can never take everything that has gone before into account. Since, very few new ideas are completely original, exploring past texts can reduce the effort expended in searching for novel solutions - but it can also drive the wheel of reinvention as well. Claims of originality in the modern world where there is no basis for such claims seems to be an integral part of the Market-driven economy. However, originality in and of itself may not be as important as one might think - which is rather fortunate given its rareness. An old idea brought to a new audience can itself spark further original ideas. In absolute terms an old idea reframed for modern consumption really is a new idea and so the notion of reinventing the wheel may not be so bad after all.

Empire Building: The development of any school of thought is often associated with a rush to differentiate itself from other schools of thought. This often means highlighting differences and subduing

similarities. Empire building in science often leads to 'isms', i.e., a collection of coherent thoughts and theories that seem self-contained, and quite distinguishable from other 'isms'. Many complexity writers begin their treatises by expounding the shortcomings of so-called 'Newtonian thinking' and develop a new way, 'Complexity thinking', built upon corrections to those prior limitations. The education theorist John Dewey noted exactly the same process in the development of progressive educational methods from traditional methods. Progressivism emerged in response to the perceived shortcomings of 'traditionalism', rather than the perceived needs of Education itself. Dewey says:

"*For in spite of itself any movement that thinks and acts in terms of an 'ism becomes so involved in reaction against other 'isms that it is unwittingly controlled by them. For it then forms its principles by reaction against them instead of by a comprehensive, constructive survey of actual needs, problems, and possibilities.*" (Dewey, 1938: 6).

We've actually lost count of the number of times we've read that "linear thinking is dead -long live nonlinear thinking" -a rather pertinent illustration of reactionary-based theory development, which severely limits the possibility of realizing the full implications and extent of complexity.

An example of a literature that seems to have been arbitrarily (not necessarily intentionally) sidelined by the complexity community is that of *soft systems thinking* which evolved from the mathematically-based general systems theory. Offspring literatures include *critical systems heuristics*, *critical systems thinking*, and *boundary critique* to name but a few. Through these different fields GST moved from the abstract world of mathematics (and some might say, un-appliable) to the concrete, though vague, world of useful application. Complexity thinking has only just taken the first steps in the direction towards application. However, in the effort to distinguish complexity thinking from general systems theory and its many outgrowths, complexity thinkers are severely limiting their subject's potential.

Of course *Empire Building*, like all seemingly negative concepts, has its more positive flip-side: it helps a community keep some degree of focus. This is essential if (partial) solutions to emerging problems/issues are to be found. The trick is to not reify one's Empire's boundaries in a politically motivated effort to differentiate and marginalize.

Historicity: Not all papers are created equal. Even though the obscurest of papers will have had some direct influence on the evolution of thought (although complexity places profound limitations on our ability to judge such influence objectively), some papers really do deserve the honor of being called *seminal*. Sometimes entire fields of endeavor can be traced back to a single paper (although many less known papers probably inspired the seminal one) - Einstein's 'special relativity' for example. Understanding the historical arising and development of one's field of interest undoubtedly leads to a richer understanding of that particular field, which can then open up avenues of exploration that might not have previously seemed legitimate.

To be sure, in future volumes of *E:CO* we aim to reprint further classical papers. Each paper will be chosen to exemplify at least one if not all of the issues briefly discussed above and will be introduced by whomever recommended the paper, or who otherwise has some expertise in the area covered by the paper. We also aim to present the papers in their original formatting, rather than re-typesetting them. As such, the printing quality will not be up to our usual standards, but we think it is important to see the papers in precisely the form they first appeared (even if we cannot reproduce to culture backdrop).

Dewey, J. (1938). *Experience & Education*, New York, NY: Touchstone, ISBN 0684838281.

Mead, G. H. (1932). *The Philosophy of the Present: Supplementary Essays*, A. E. Murphy (ed.), La Salle, Illinois: Open Court.