

# An introduction to “The meanings of ‘emergence’ and its modes”

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## Abstract

## Introduction

The principle that “there cannot be more in the effect than there is in the cause” has a long history. Such preformationism can be traced as far back as Parmenides, who adhered to the principle that nothing comes from nothing, a principle that the ancient world believed applied to the universe as a whole. For classical thinkers, creation *ex nihilo* was a nonsensical proposition. This preconception, along with its corollary, that chains of efficient causes cannot go back infinitely in time but must have a beginning, raised a significant barrier to any discussion of the possibility of emergence. We see these presuppositions at work in many of the arguments in favor of Intelligent Design and Creationism.

Both Plato (see *Laws*, Book 10) and Aristotle (see *Metaphysics*) formulated arguments for a First Cause or Prime Mover. However, when combined with two other uncritically held assumptions of classical times, (1) that the motion we see around us—contingent motion—is imparted, not self generated, and (2) that nothing can move itself, the role of Plato and Aristotle’s Prime Mover or First Cause is not that of a creator but of an Organizer of a *cosmos*, and the source of its motion.

These metaphysical assumptions were retained during medieval times. Among the central premises of Aquinas’s cosmology is the statement that there must be as much perfection in the cause as in the effect. And despite the scientific revolution of the seventeenth century, the mechanistic acceptance of the concept of substance assumed that there nothing substantive could be present in the consequent if absent in the antecedent. These principles turned scientific explanation into the equivalent of mathematical analysis, a trend noted by Hobbes. Philosophy, he snickered, had become “nothing but addition and subtraction.”

The nineteenth century’s discovery of the science of thermodynamics, especially its central claim that the universe is marching inexorably towards heat death, closed the door on any discussion concerning the possibility of a universe that could ratchet upwards. Until, that is, the appearance of Darwin, whose principle of natural selection seemed to provide the missing mechanism that could explain the appearance of seemingly novel characteristics, and even of new species.

It is in this context that the 1920s saw the rise of the so-called British Emergentists: C.D. Broad, C. Lloyd Morgan, George H. Lewes, and Samuel Alexander. On the continent, the renewed interest in emergence was primarily represented by Henri Bergson, whose well known arguments in favor of emergence, however, honored the preconceptions mentioned above in the breach by attributing the appearance of novel characteristics to the agency of a non-physical *élan vital*.

In the United States, the renewed interest in emergence appeared in the works of Alfred North Whitehead, who had come to Harvard from Britain, and Arthur O. Lovejoy.

In the essay printed here, Lovejoy (1873-1962) returns to the mechanistic understanding of causality in his indictment of the understanding of emergence current in his time. Causal relationships, he argues, are thought of as providing rational explanations by being assimilated into logical deductive relations. Insofar as “there cannot be more in the effect than there is in the cause,” this preformationist assumption precludes any possibility of qualitative change and creativity. Science thus becomes the equivalent of deduction and analysis. In those cases in which complex things have properties that cannot be describable as multiples of properties of simple things, the preferred solution has always remained an unfortunate appeal to psychophysical dualism, a worldview with which Lovejoy clearly disagrees.

Lovejoy offers a classification of the various uses of the term “emergence.” General claims of emergence, he says, refer to “any augmentative or transmutative event” that fails to conform to the preformationist maxim. In his view, the claim that anything seemingly new must be pre-contained in a universal set of causes is unconvincing. He sees no reason why the higher cannot come from the lower—in fact, it is positively unedifying to suppose that the entire “travail of creation” is but a barren “shuffling about of the same pieces.” Any evidence of a “specific” occasion of emergence, he notes, would put the lie to those who declare general emergence to be impossible. Lovejoy divides doctrines of specific emergence into two types, determinist and indeterminist, proposing five features that must be present for true “emergent evolution” to have taken place. Such

emergence—of which Lovejoy offers chemical synthesis as an example—would imply that science, understood as a fully realized reductionism, would not be completely unified. But there is no reason to suppose that the emergence of new “types” of entities and new “types” of events or process have not appeared in evolution; the latent generative potencies of matter are in fact evidenced in the discontinuities that appear in the evolutionary process.

## Notes

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