

Reviews

A different universe: reinventing physics from the bottom down by R B Laughlin; Basic Books, New York, 254 pages, \$16.00 paper (£9.99) ISBN 978 0465 038299

In this book, Professor Robert Laughlin makes a strong case that all physical laws are emergent by drawing on numerous experimental facts in physics at the level of subatomic scale. He also coins the term “the emergent age” to indicate the crossroad at which the current scientific paradigm shift stands. The main hypothesis of *A Different Universe* is the idea of the end of reductionism that gives rise to positivism and replaces it with emergentism that characterizes the coming age of scientific revolution. If Professor Laughlin’s prophecy is correct, then the physical laws, including relativity theories, that physicists deem true are subject to severe intellectual challenges and are potentially refutable.

In contrast to reductionism methodology, which breaks systems into smaller parts and attempts to construct a theory of everything by understanding how these parts work, emergentism theory argues that nature can only be understood through principles of organization. That is, more is different. This connotes the meaning of complexity, but whereas complexity theory tries to emulate how natural phenomena work, emergentism looks for the underlying mechanisms under which these phenomena come about. The difference is subtle, but important.

The study of planning is mainly concerned with phenomena at the level of human scale, but *A Different Universe* may provide a fresh insight into how we can build on current planning and urban theories. On the face of it, we may need to reevaluate and rethink how cities work and how we should make plans accordingly. Cities are no doubt emergent phenomena, and scales matter. Spatial events come and go, and living in a megacity is different in quality than living in a small village. Under the emergentist paradigm, one of the greatest challenges in science, thus planning, is to discover laws of emergence across all levels, not just how things work at a certain level. Both cities and planning may be emergent phenomena, and discovering the laws governing these two sets of phenomena might prompt a paradigm shift in planning theory itself, perhaps by replacing urban modeling and planning techniques based on the positivist point of view to those based on the coherentist point of view (Donaghy and Hopkins, 2006).

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Reference

Donaghy K P, Hopkins L D, 2006, “Coherentist theories of planning are possible and useful”
Planning Theory 5 173–202

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