

Transilience at a glance

A very simplistic graphical overview of a book
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www.gly.uga.edu/railsback/Transilience/Transilience.html

The phenomena studied by traditional physics have involved a limited number of entities acted upon by just four forces that act at very different scales, so that isolation of cause and effect has been relatively straightforward. By contrast, biology and the larger-scale natural sciences deal with phenomena with many different kinds of entities, with multiple causes, and with feedbacks between cause and effect.

Traditional physics emphasizes the experimental method, but most natural science (geology, oceanography, atmospheric science, etc.) deals with systems too large or too complicated for experiments to be comprehensive. Therefore, in addition, systematic rigorous observation must be used and has allowed significant insights into natural systems. Systematic rigorous observation has likewise been a hallmark of biological investigation.

The social sciences have commonly attempted to emulate the rigorous experimental method adapted from the model of physics. However, the results have commonly been disappointing, because the complexity of human behavior and of social systems makes it unlikely and/or difficult that researchers can isolate single variables that have substantial individual contributions to outcomes.

Humans are biological entities who, through evolution over millions of years, have forms and biochemistries that are genetically determined, and thus have drives for reproduction, nutrition, comfort, and status . . .

AND

Humans are symbol-using entities and thus able to communicate through space and time, to imagine new things, to develop ethical systems, to fictionalize events and concepts, and to amplify the significance of things beyond their solely physical importance.

Symbol systems are material things with material consequences, capable of causing effects (donations, depredations, explorations, organizations, etc.) that are distant in both space and time.

Communication leads to social structures and behavioral ensembles that evolve through a feedback-modulated system (the MOTIVATE model in *Transilience*).

If we view humans as complex entities responding to both biological drives and symbolically mediated fears and aspirations, and thus if we study them via methods appropriate to entities responding to multiple causes, we have a better chance of understanding human behavior from the individual to the societal scale, and thus a better chance of getting ourselves to act in ways that allow a better future.

The way we study a thing should be suitable to the thing studied.

Humans: the symbol-using animal

How to Understand Everything (even human beings)