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Systems Theory Grows Up

The concept of a ‘system’ is an old one: etymologically it derives from the Greek sustēma, from sun- ‘with’ and histanai ‘set up,’ meaning uniting, putting together. But the scientific use of the term is relatively recent; perhaps Carnot was the first to use the term scientifically, when describing the behaviour of steam in his pioneering study of thermodynamics in the 1820s.¹ In this chapter, in keeping with the growing poststructuralist flavour of the last, and as a bridge from the focus upon Bergson to the focus upon complex systems, I will present a somewhat Foucauldian genealogical interpretation of the concept of ‘system’, using material from as far back as the early 19th century, but concentrating mainly on the use of the term during the 20th century, and what it has bequeathed to us today. In the next chapter, I will consider Bergson’s ideas in conjunction with the contemporary science of ‘complex systems’, or ‘complexity’ as it is often referred to. The current chapter will seek to look at the development of ‘systems’ thinking prior, and up to, ‘complex systems.’

‘System’, as a concept in modern thought, as with any genealogical interpretation of something contemporary, turns out to have multiple and varied sources, each of which were themselves interpretations. Most importantly, Carnot aside, in this reading, the understanding of and concentration upon the notion of ‘ecosystem,’ in the early 20th century, seems to predate such a strong focus upon the notion of ‘system’ in general. Evolutionary science, and biology, in other words, were at the very least influential in the creation of our concept of ‘systems’.

I will first make some remarks on the nature of the genealogical approach.
On genealogy

Genealogical interpretation was most famously introduced to critical theory and philosophy by Michel Foucault, who derived it largely from Friedrich Nietzsche. A literal translation of the word would be an account (logos) of the genesis of a thing. Nietzsche uses the concept for his attack on Christian morality, finding particularly in the writer, Tertullian, evidence that the unalloyed ‘will to power’ of the noble warrior-Romans had been overcome by the Jewish, and then Christian reification of weakness. Christian morality, for Nietzsche, is made up of all the resentments and spite that weakness entails. This critical approach to understanding contemporary issues, through a form of conceptual historical analysis, Foucault turned into a method. A genealogy, for Foucault, be it of values, morals, or knowledge, does not concern itself with historical development on the model of the idea of progress, and must never confuse itself with a quest for ‘origins’. To pursue origins, is by contrast a pursuit of essence, and as Foucault reminds us, ‘he who listens to history finds that things have no pre-existing essence,’ no lofty, ‘before the Fall’ beginning, but rather a proliferation of errors, accidents, events, oppositions: in short, a dispersed and multiple set of contingencies upon which custom, practice and power build something that mainstream history comes to regard as a truth. There are, indeed, echoes here of Bergson’s critique of the notion of progress in the approach of finalism, just as there are of his critique of mechanism and rationalism and its own notion of the progress of science ever nearer to the ‘facts’ and to the ‘truth’. Echoes, too, there are of the divergence of the sheaf of evolution in Bergson’s ideas, where blind alleys, ‘deviations, arrests, and set-backs, are multiplied.’ It has even been suggested that what Bergson offered us was ultimately a ‘genealogy of consciousness.’

Similarly, the development of systems theory is not something that began with some ‘original’ idea – such as Carnot’s, since built upon by successive theorists towards today’s complex understanding – but rather it is a collection of intimations, influences, and turns: a series of differing interpretations, from diverse and previously unrelated sources. In choosing a title for this chapter then, *Systems Theory Grows Up* is meant, not to suggest that modern systems theory has grown like a tree from previous theories, but to convey something of the flavour of how, in general, today’s understanding of complex systems is simply more mature, and has shed some of the more ‘childish’ and simplistic