
March 31, 2009 · Book Review

Abstract
Revelations

Ludwig von Bertalanffy is of course well known as the founder of the systems approach known as “General Systems Theory” (GST), and for his many publications in this area as well as in inaugurating and leading several of the large systems sciences associations. GST certainly ranks as one of the important precursors to modern complexity theory by setting the conceptual stage for many important developments in the latter. This excellent biography of Bertalanffy written by David Pouvreau (translated from the French by Elisabeth Schober) was prompted by two precipitating events. The first was the advent of several recent scholarly German language biographies of Bertalanffy written as doctoral theses. This research uncovered aspects of Bertalanffy’s early career and work during WWII in Vienna. The second was the accidental discovery in 2004, in a second-hand bookstore in Buffalo, New York, of a large portfolio containing many letters sent by and received by Bertalanffy plus numerous books, preprints and related materials. These two events enabled Pouvreau to avoid a hagiography on the one side and a
But before getting into some of the details Pouvreau’s biography I feel the need to admit that I came to this review with two dispositions regarding Ludwig von Bertalanffy and his work that have affected my reading of the biography. The first is that I have always found general systems theory (GST) to be a bit too, well, general for my tastes. Accordingly, GST has often left me rather cold with its, what I take to be, overly abstract formulations of its basic principles about the dynamics of systems, to such an extent I’ve often felt a particular dissatisfaction whenever reading anything of Bertalanffy. In that regard, Pouvreau’s biography has been very helpful in fleshing-out some of these abstract GST principles by discussing their origin and development during Bertalanffy’s long career. One case in point is that, whereas previously I had believed one of the limitations of GST lay in its not only not containing anything like the idea of emergence, I couldn’t even see where there was could be any conceptual room in GST for emergent phenomena at all, I was pleasantly surprised to learn from reading Pouvreau’s book that Bertalanffy and GST did in fact possess a cognate idea of emergence which he called “supra-individual entities” or “integrations of higher order” about which I’ll say more about below. There were other similar, pleasant surprises about his work as well which I will also remark upon below.

The second confession is that I knew very little about Bertalanffy’s life before reading this biography, only the very broad outlines of it in relation to his general systems theory, which, again, never sparked me to want to read more about him. Consequently, much of this biography came as a complete revelation to me, particularly Bertalanffy’s undeniably close association with Nazism, an association that appears to have been of one cloth with his overall manipulative, petulant, opportunistic, and entitled personality dynamics, at least as Pouvreau has depicted the latter through his access to the many letters recently discovered. To be sure, Bertalanffy was not a rabid Antisemetic Brownshirter denouncing Jews at every opportunity. But he certainly didn’t hesitate to emphasize the pure Aryan heritage of his Hungarian nobility forebears (the “von” of his name), and to manipulate his varied affiliations with Nazism in ambitiously furthering his career in Vienna, and equally manipulative to quickly deny the extent of his flirtation with National Socialism during the denazification period after the War. This shouldn’t be taken as implying that Pouvreau set out to do a hatchet job on either Bertalanffy’s character or his work. Far from it, I have found Pouvreau’s account level-headed and fair, only inferring troublesome elements of Bertalanffy’s relation to National Socialism when there was sufficient evidence from letters, records, and the like. For, after all, the Nazis were phenomenal at bureaucracy and thereby great record keepers so that the horror of their genocidal policies is enshrined forever in all the ledger books they assiduously kept, including Bertalanffy’s letters of application to the Nazi party and similar incriminating records.

“Integrations of Higher Order” and Emergence

As I mentioned above, I was surprised to learn that Bertalanffy had in fact included a conceptualization of emergence in his GST, indeed, from the very early stage of his career in his doctoral dissertation written in the mid-nineteen twenties. That dating places Bertalanffy’s interest in emergence-like phenomena at roughly the same time as that first stage of emergentist thinking in England and the US, a movement known as Emergent Evolutionism which I have termed “proto-emergentism” (see Goldstein, 1999). Chief among the proponents of this proto-emergentism were the English and American philosophers and scientists, G. H. Lewes (who coined the term “emergent” in its technical sense), Roy Wood Sellars, Samuel Alexander, C. L. Morgan, and, most prominently, Alfred North Whitehead.

In the context of Bertalanffy’s conceptualization of his own version of emergence, Whitehead’s work was particularly relevant since his emergentist metaphysics had a huge influence on the anti-reductionist oriented “Theoretical Biology Club” at Cambridge University which, included among its member the soon to become pre-eminent biologists and philosophers of biology, C. H. Waddington, Joseph Needham, and J. H. Woodger (see Depew & Weber, 1996). I mention this here since Pouvreau indicates how Woodger and Bertalanffy were to become life-long friends, Woodger often in the position of offering a helping hand to Bertalanffy and his family when they were struggling through the all too many difficult times they were having due to both large scale catastrophic events such as WWII and its aftermath, as well as Bertalanffy’s frequent and nasty skirmishes with the many educational institutions of which he was on staff. Moreover, there seems to have been much intellectual interaction between Bertalanffy and Waddington, particularly evident in the famous Alpbach conference entitled “Beyond Reductionism” in 1969 which emphasized their mutual, strongly held anti-reductionist stances (Khalil & Boulding, 1996). Pouvreau points out that Woodger and Waddington introduced Bertalanffy to the writings of the British emergentists Morgan and Whitehead.

Bertalanffy’s term for what the British and Americans were calling emergence was “integrations of higher order,” a phrase included in the title of his doctoral dissertation: “Fechner and the Problem of Integration of Higher Order — An Attempt at an Inductive Metaphysics” (which is the English translation of Pouvreau’s French translation of the original German,Fechner und das Problem der Integrationen hoherer Ordnung — Ein Versuch zur induktiven Metaphysi). According to Pouvreau, this dissertation cut across the fields of the metaphysics (particularly in regard to the theory of knowledge and the philosophy of culture) and biology, dealing explicitly with the issue of to what extent it was justified to consider “supra-individual entities” composed of living organisms as “integrations of higher order” since the former have their own individuality and laws. More generally, Bertalanffy’s thesis addressed the issue of whether the world should be understood as a hierarchy of levels of organization, a theme that has been invoked in emergentist circles since the idea was first broached over a century ago.
Fechner, of course, was well known for helping to originate the field of psychophysics in the mid-nineteenth century, and was much admired for his all around visionary genius.

Jean Piaget, the celebrated Swiss developmental psychologist, much admired this aspect of Bertalanffy’s work believing it provided an authentic way station between mechanism and vitalism and thereby achieved what Emergent Evolutionism had only been able to promise but ultimately couldn’t deliver because of the latter movement’s overly “phenomenological and irrational” perspective (Piaget, 1971).

By the way, Pouvreau also points out that Bertalanffy published an article around the same time based on his dissertation which was entitled Die Einheit des Bildungstriebes which Pouvreau translates, I think misleadingly, as “The Unity of the Drive of Education.” Bildungstrieb though was a major idea in early German Romanticist influenced biology, coined in the latter half of the eighteenth century by the German biologist Christian Blumenbach to capture the dynamics of a formative drive (Bildungs for “formative” and trieb for “drive”) in living organisms, an idea that was very influential on Kant’s thinking about the philosophical issues prompted by the distinction between the living and non-living (see Lenoir, 1982; Richards, 1987; Rousseau, 1992). Moreover, Pouvreau points out that Bertalanffy devised the idea of “anamorphosis” for the tendency towards an increase in order and complexity, surely a modern day equivalent of Blumenbach’s Bildungstrieb. At another point in the biography Pouvreau translates the German of Bertalanffy’s second book title, published in 1930, Lebenswissenschaft und Bildung as “Life Science and Education” even though it is clear from the description that Pouvreau gives of this book that a more appropriate term might again be “formation” as in the result of a Bildungstrieb or “formative drive”. Although “Bildung” is sometimes used for “education,” it is more likely that it was Blumenbach’s formative drive that Bertalanffy had in mind since his thesis on Fechner was obviously steeped in earlier biological theories. Although Pouvreau is evidently a careful researcher, infrequently his biography of Bertalanffy betrays some deficits in his knowledge of early biological thought as well as systems theory in general. Yet this in no way detracts from the otherwise solid approach he has taken in explicating Bertalanffy’s work in relation to his life.

A Long Career with Contacts with Many of the Great Thinkers of the Twentieth Century

It seems impossible to come to any kind of terms with Bertalanffy’s long and fruitful career without listing all the prominent thinkers with whom he was in contact with, a veritable “Who’s Who” of scientific and philosophical life not only in Austria and Germany but later on in England and the United States (where many of these same thinkers had taken refuge as they fled from Nazism. To do justice to these many thinkers that Pouvreau mentions, I am going to list them in order to give a sense of just how connected Bertalanffy was to great thinkers of his age:
• The zoologist Han Przibram who founded the Zoological Institute in Vienna where Bertalanffy had his typical push/pull relationship, and who later was killed at the “model” death camp Theresienstadt;

• The prominent composer Hanns Jelinek;

• The controversial and tragic biologist Paul Kammerer (for a fascinating account of the controversy and tragedy of Kammerer, see Koestler, 1973);

• The biologist, philosopher and systems thinker Paul Weiss (who incidentally claimed that Bertalanffy stole many of his ideas from his own work);

• The philosophers Moritz Schlick, Otto Neurath, Rudolf Carnap, and Carl Hempel, among the founders of the famous Vienna Circle (others who sometimes showed up were Kurt Gödel and Ludwig Wittgenstein);

• The celebrated morphologist Jan Versluys;

• The famous botanist Richard Wettstein;

• The renowned economist Friedrich von Hayek (two of whose publications were classic papers in *E:CO*, 9(1-2));

• The Gestalt psychologist Wolfgang Köhler who, Pouvreau points out, intended to extend the principles of Gestaltism to systems in general, what he called “systemology”;

• Kurt Lewin, another Gestaltist and founder of modern “group dynamics”;

• The very influential organicistic psychiatrist Kurt Goldstein;

• The philosopher of “as-if” Hans Vaihinger;

• The pre-eminent philosopher of science Hans Reichenbach, leader of the Berlin Circle;

• The neo-Kantian and vastly influential philosopher Ernst Cassirer (Bertalanffy himself wrote quite a bit about a “symbolic” approach to language, culture, and philosopher which I surmise had much to do with the influence of Cassirer’s famous book *The Philosophy of Symbolic Forms*);

• The eminent quantum physicist Pascual Jordan, who indeed did become a virulent Brownshirter who, it’s been speculated, didn’t win the Nobel Prize because of his Nazi past;

• The aforementioned J. H. Woodger as well as his colleague the famous embryologist and geneticist C. H. Waddington, another of the most important precursor thinkers to contemporary complexity theory;

• The English writer and psychedelic explorer Aldous Huxley (Bertalanffy even did a stint as a researcher into psychedelic drugs although this biography doesn’t say one way or the other if that included his own personal experiences with hallucinogens);

• Nicholas Rashevsky at the University of Chicago, founder of mathematical biology and mentor of Anatol Rapoport, the key author of the article in this issue’s Classic Paper’s section—Pouvreau indicates that Rashevsky has used Bertalanffy’s idea of “open systems” in the development of his own views on cell division, although there was strain between them (by this time one is no longer surprised at the number of colleagues Bertalanffy had strained relations with);

• The celebrated mathematician Herman Weyl at the Institute for Advanced Studies;

• Ilya Prigogine, the Nobel Prize winning physical chemist whose work in dissipative structures was thought by Bertalanffy to lend credence to his own emphasis on open systems and steady states;

• The American psychologist Abraham Maslow well known for his work in Third Force or Humanistic Psychology;

• The Psychiatrist Karl Menninger of the famous Menninger Clinic in Kansas;

• The philosopher and historian Hans Jonas, a Jewish student of Martin Heidegger who himself had to come to terms with the Nazism of his mentor, the moral midget of the Black Forest (my apologies for political incorrectness);