

Factoring Unity: E.O. Wilson's Consilience and the Science Fiction of Robert J. Sawyer and A.E. Van Vogt.

Introduction

Robert Sawyer's description of science fiction as the literature of intriguing juxtapositions is one that can be read in multiple manners. When interpreted in terms of literary genre definitions, it is best understood by the fact that science fiction is a genre that draws upon multiple frameworks of knowledge to place within a narrative whole. In doing so, it is able to continually grow and diversify as a literary medium. Whereas some genres, such as the Western, are so limited in their literary environment to a particular location and moment that they wind up in stasis as the result of reproductive isolation, science fiction is a genre continually evolving through both adaptation and hybridization, not just with other literary genres, but with changing currents in science and society.

Akin to Sawyer's notion of “intriguing juxtapositions” forming the crux of science fiction is E. O. Wilson's notion of *Consilience*, promulgated in his 1998 book of the same title. Like so many other intriguing ideas in science, it has a remarkable antecedent in science fiction. The following will demonstrate how A.E. Van Vogt's classic novel *Voyage of the Space Beagle* not only anticipated E. O. Wilson's ideas, but how these ideas can be seen as present in some of the key novels of Robert Sawyer.

Van Vogt and *The Voyage of the Space Beagle*

Today, *The Voyage of the Space Beagle* is best known for allegedly being the work of prose science fiction that inspired the popular science fiction film *Alien*, although how much of this is true is debatable. Parallel evolution is recurrent in science fiction and many fans have also noted similarities to the underrated 1950s sleeper *It! The Terror Beyond Space* (again, the process of hybridization produces fruitful results). However, *Voyage of the Space Beagle* (hereafter abbreviated *VotSB*) also happens to be

one of the major works by Alfred Elton Van Vogt, who was not only the first Canadian science fiction writer to rise to international prominence in the Golden Age of the pulps, but in the heyday of Campbell's *Astounding*, was ranked with Robert Heinlein as one of the finest and most popular writers produced by that magazine. Clute (1995) aptly described Van Vogt's stories as such:

(van Vogt) specialized in a kind of dream SF-stories whose logic was hard to pin down; heroes who were both godlike and juvenile; venues as difficult to understand as an Escher drawing...Realities conflict, doppelgangers attack one another, time abysses yawn wide (and) arcane philosophizing fills in the cracks. These stories sound too silly for words-until one reads them, when the astonishing dreamlike intensity of the early van Vogt's style captures one and pulls one through harum-scarum events at a pace that leaves no time for questioning (127).

The iconoclastic, often difficult nature of van Vogt's stories goes a long way to explain why his overall fame has diminished, and there are other reasons as well: an abrupt twenty-year writing hiatus beginning in 1950, involvement with Dianetics and Scientology, and a blistering criticism of his work by Damon Knight (1956) all helped to damage his reputation. All the same, Clute's description also illustrates why van Vogt was so popular in his day and remains beloved by a loyal coterie of fans. Like Kurt Vonnegut's fictional science fiction writer Kilgore Trout, the sheer power of van Vogt's ideas often outweighs any other flaws in his fiction, not just for their originality, but his use of them to provide narrative force and velocity. In *VotSB*, the concept of Nexialism is the engine propelling the story, and the nature of this fictional science and its role in the book's storyline shall be more closely examined.

VotSB is a fix-up novel that van Vogt assembled from four short stories he had, for the most part, originally written for *Astounding Science Fiction* in the 1930s and 40s: the oft-anthologized "Black Destroyer," "War of Nerves," "Discord in Scarlet" and "M33 in Andromeda," all of which form a larger grand narrative chronicling the adventures of an exploratory space vessel as it travels through the universe and encounters a variety of dangerous lifeforms that imperil the life of its crew. As with many other fix-up novels of its type, it has a rather disjointed feel to it, and one feels the occasional

narrative strain in trying to fuse four separate stories, into a single coherent whole. What makes the novel work, as is usual with van Vogt, is the sheer power of his ideas. The main idea here is dubbed Nexialism, and the relative plausibility of this fictional science as well as the straightforward storyline helps to make it one of van Vogt's more accessible books.

Curiously enough, neither the science of Nexialism nor the character of Grosvenor, the crew scientist specializing in the field who becomes the novel's protagonist, appears in either “Black Destroyer” or “Discord in Scarlet,” the most famous of the two original short stories. Grosvenor only appears in “M33 in Andromeda,” as does Nexialism itself. The initial definition of Nexialism provided is that of “a method of training designed to bridge the gap between facts that are related but separated” that can be conceivably used to describe phenomena that encompass entire galaxies. It is also foreshadowed in “Black Destroyer” where the defeat of the alien menace Coeurl hinges upon the pooling of specialists different branches of knowledge, all under the guidance of Commander Morton. In a passage curiously dropped from the novel, the crew's archaeologist, Korita, opines that it was the crew's knowledge of history that ultimately allowed them to prevail, something that anticipates the theme of the unity of practical and theoretical knowledge and how it is key to survival.

The character of Grosvenor is far more well developed in *VotSB*, to the point where he supersedes Morton as the main character of the novel; he is introduced at the very beginning of the novel and plays a major role in each sequence. The premise of Nexialism is better defined and developed, and is ingeniously provided with a double meaning by van Vogt; it is not only described as the convergence between different and competing fields of science and knowledge, but serves as both plot device and narrative tool to unite stories and establish relationships between characters. It also unites the separate themes of the individual narratives to form a single grand theme that underpins the entire novel: the need for respect and cooperation between distinct but no less crucial fields of inquiry

to ensure civilizational survival. Although Nexialism is first mentioned in Chapter 3 of *VotSB* and plays a major role in the first act (involving the crew's battle with the alien Coeurl), it is at the top of Chapter 7 that van Vogt provides a formal definition:

Nexialism is the science of joining in an orderly fashion the knowledge of one field of learning with that of other fields. It provides techniques for speeding up the process of absorbing knowledge and of using effectively what has been learned (53).

In essence, the fictional science described by van Vogt anticipates the new outline for the notion of consilience developed by Wilson, with the main difference being that van Vogt's fictional science extrapolates itself from behavioral psychology rather than the synthesis of the cognitive and sociobiological perspectives used by Wilson. Van Vogt's Nexialism is similarly a fusion of both theoretical and practical knowledge, but focused towards goal-oriented activities. In this novel, it is focused specifically on the defeat of alien menaces, although it is made overtly clear that it has other uses as well.

It is my contention in both invoking Darwin and his chronicle of his discoveries in *The Voyage of the Beagle* that Van Vogt not only wanted to make a comparison to an earlier journey of exploration that had a tremendous and revolutionary impact on science and society, but to craft a fictional journey that would similarly lead to the development of a new science. Each alien encounter in the story represents another stage upwards on the evolutionary ladder, in terms of biological complexity and civilizational advance. The primitive, cat-like Coeurl is a feral beast that is not part of the ancient civilization within whose ruins it is found; it was brought there by those beings who it eventually destroyed through application of its power. The bird-like Riim live in a society specially adapted for avian creatures, their main advance over humankind being their advanced mental abilities. Xitl is the last survivor of a race so advanced that it succeeded in achieving bodily control over every last atom of

its being and “M33 in Andromeda” features a living nebula that transforms planetary surfaces. The principles of analogy and induction, or to be more precise, analogical deduction and the consilience of inductions, have been identified by Ruse (1999) as the main logical tools used by Darwin to formulate the Theory of Evolution, and are also very much a present in Van Vogt's narrative. Once each story establishes the existence of an extraterrestrial being, an analogy is made between it and terrestrial life and human civilization. Each then proceeds inductively from this assumption to make assumptions about both their biological and psychological natures and the evolutionary and historical paths they took. Finally, it is from the assembled data from this process that the ship's crew is able to defeat their adversaries according to their weaknesses.

In assembling the individual stories into a single novel, van Vogt made use of the same Consilience of Inductions that Darwin used to unite evidence to formulate his Theory of Evolution to unite the disparate story threads under a thematic unity. The finished novel builds up through each new encounter to provide new evidence that leads to a final conclusion, following the inductive path of reasoning through higher levels of classification and generalization. The novelization concludes with an open ending, with the implication that the the Space Beagle will only continue to voyage through space infinite and time eternal, like other endeavors of exploration and discovery throughout history.

Sawyer and *Factoring Humanity*

Consilience is also a theme of many of the works of Canada's major living science fiction writer, Robert J. Sawyer, which is not too surprising considering that he has taken his definition of science fiction as “the literature of intriguing juxtapositions” very seriously. Fields as diverse and disparate as particle physics, consciousness studies, paleontology, astronomy and cultural anthropology are threaded into the Unity of Knowledge in such works as the Neanderthal Parallax trilogy, the WWW trilogy,

Calculating God (2000), *Factoring Humanity* (1998) and *Mindscan* (2005). Sawyer is certainly not the only science fiction writer who finds inspiration in multiple scientific disciplines, but what makes his stories unique is that he finds particular inspiration in the Unity of Knowledge itself. Not only do the diverse fields of scientific endeavor converge towards a narrative conclusion or resolution, but their underlying unity serves as a metaphor for relationships between characters and the broader message of the need for humanistic understanding in a technological era that is a running theme in Sawyer's work.

Factoring Humanity is an excellent representative of Sawyer's work, in its handling of science, its humanistic themes, and its characterizations. Published the same year (1998) that Wilson published *Consilience*, it serves as a fictional mirror of the ideas Wilson was trying to convey. When the novel opens, humanity is not factored, but fractured, on social, individual and interpersonal levels. The protagonists, Heather Davis and Kyle Graves, are both scientists-Heather is a SETI researcher and Kyle a computer scientist- and are married, but have been separated for a good time due to tragedy surrounding their children, their eldest having committed suicide and their youngest having accused Kyle of sexual molestation. What ultimately re-unifies them as a couple is a convergence of their research, a consequence of Heather's decoding a message sent by an extraterrestrial intelligence from Alpha Centauri that results in a technology that allows for the access of other person's memories, and Kyle's work on developing an Artificial Intelligence system (named "Cheetah") that, after several semi-comical false starts, is able to engage in proper human conversation involving empathy and cognitive interaction. Cheetah's "suicide"-the third major such one in the novel, and the only one that is not clouded in a profound *misunderstanding*- in the form of a self-imposed shutdown of its functional apparatus, ironically symbolizes the point where not only Kyle and Heather's relationship is fully re-instituted. The Centaurian device had not only helped absolve Kyle of his guilt regarding his daughter's false memories but unite the rest of humanity as well, and it is implied that the Device will provide the

means of moving towards mutual empathy.

Both Kyle and Heather not only learn to *reconcile* when they undergo a consilience of their own research specialties but when they make use of other fields, and rely on the support of other specialists, further conveying the novel's theme of both Unity of Knowledge and Unity of Humanity. Heather may work at a SETI project with astronomers but she is a psychologist by training and relies on work in linguistics and mathematics to figure out the riddle of Centauri message. Kyle's work as an AI researcher, in turn, draws upon research in quantum physics and consciousness studies. Their work, and their relationship, converges with the development of Centauri Device, and just as the alien machine interweaves the consciousness of global humanity, both protagonists develop a greater understanding for other people that they previously did not share. Heather becomes aware of the true motivations behind the second suicide of the novel, an acquaintance of hers who had first learned the reasons behind the Alpha Centauri message, and Kyle, for the first time, gains sympathy for his daughter's attorney, whom he had previously viewed with misogynistic resentment for launching a perceived vendetta against him. As Wilson hopes for in *Consilience*, the achievement of the Unity of Knowledge also achieves the Enlightenment goal of the Unity of the Humanity, as both rational and emotional actors.

Although alien intervention is part of this scenario, it takes human action to put it into motion. As in *VotSB*, the characters must learn to remove the barriers that separate themselves both personally and professionally to pool their their own individual knowledge and intellectual resources so that humanity may be rescued, psychologically as well as physically. Whereas this takes place on a cosmic background in Van Vogt's novel, Sawyer's novel, like most of his other major works, is Earthbound and reflects an interest with interpersonal concerns and the threats posed not by aggressively malevolent menaces, but what Eli Wiesel (1999) has described as the opposite of good: not evil but indifference.

Although Wilson is most widely known to the general public for coining the term *sociobiology*, he does not get nearly as much credit for coining an even more important word, *biodiversity*. Preserving ecological balance and the wide variety of life that the human animal cohabits with on this planet has long been a public goal of Wilson, and in the concluding chapter of *Consilience*, he carefully enunciates what his ultimate goal is: raised awareness of our place on this planet and empathy for other species, as well as for each other. It is a perspective not unlike that put forth in *The Better Angels of Our Nature* by Steven Pinker (2011), which claims that Enlightenment thinking has led us towards greater levels of morality instead of decline. Sawyer's novels-not just *Factoring Humanity* but *Calculating God* and the WWW trilogy, in particular, very much extoll the viewpoint of Wilson and Pinker, and also suggest that it is not merely shifts in attitudes or gains in knowledge, but rather the convergences in knowledge that will lead to improvements in our moral attitudes and our approaches. In *Consilience*, Wilson reflects in the third-to-last paragraph:

In the course of it all, we are learning the fundamental principle that ethics is everything. Human social existence, unlike animal sociality, is based on the genetic propensity to form long-term contracts that evolve by culture into moral precepts and law...We are not errant children who occasionally sin by disobeying instructions from outside our species. We are adults who have discovered which covenants are necessary for survival and have accepted the necessity of securing them through sacred oath (325-326).

A similar sentiment is expressed in the concluding chapter of *Factoring Humanity*, summed up succinctly in its final line:

Heather was sure that her species, which at last now deserved its name of humanity, was going to have no trouble seeing the other person's point of view (348).

Achieving Unity

Having established these thematic similarities between van Vogt and Sawyer, we must now ask, where do they come from? The initial answer seems easy: it must derive, somehow, from their both

being Canadian, but it is not that simple. While being Canadian may be one factor, it is far from the only one, and what exactly constitutes this identity is not at all clear cut either. Despite Canada's idealized image of being a progressive hub to the rest of the world, its diversity lies not just in its cultural and ethnic make-up but in its political and ideological pluralism as well. Urban Ontario native Sawyer may belong to the liberal-progressive tradition that many like to consider most representative of Canada but van Vogt, a native of rural Manitoba, belongs to a conservative political tradition that is no less a part of the nation's fabric and no less a valid viewpoint worthy of serious consideration.

Just as the crew of the Space Beagle looked deep into the history of their alien adversaries to learn how to defeat them, a look back at the historical and cultural origins of Canada gives us clues to how its science fiction traditions developed. Contrary to his recent speech at Cambridge University, I would argue with Sawyer that the Canadian mindset, if we assume one exists, is just as rooted in the pursuit of social stability as it is for social change. Canada's official multicultural policy was borne of an effort to stabilize a country created by the merger of English and French Canada, ensuring a harmonious relationship that would evade the fractious divides not just between but within nations which frequently erupted into outright wars in Europe and elsewhere. Significantly, it also constituted a merger between two very different Enlightenment perspectives, the classical liberal perspective of the British Enlightenment represented by Locke, Burke and Adam Smith, and the more radical Revolutionary perspective of the French Enlightenment, personified by Rousseau, Diderot and Voltaire.

It is not surprising then that a country borne out of such a peaceful merger should have this reflected in the writings of its two most important native-born science fiction writers. Canada is also the same environment that produced such thinkers as Samuel Hayakawa, the famous proponent of General Semantics; Northrop Frye, the literary critic whose rationalist and inductive approach to his field cited as an antecedent by Wilson in *Consilience*; and Marshall McLuhan, who in addition to his great fame as

a media theorist was one of the first to integrate cultural and communication studies with cognitive approaches and introduced them to the notion of technological determinism. Van Vogt himself was highly influenced by the work of Hayakawa (also a graduate of the University of Manitoba) and it is quite possible that the character of Korita, the Space Beagle's resident anthropologist, was based on him as well. Sawyer himself is the child of academics, and came of age in Toronto when Frye and McLuhan had achieved intellectual prominence at the University of Toronto, where his father was a professor of economics. His own work naturally reflects an avid interest in the institutional as well as social dimensions of science and technology, specifically on the interpersonal relationships within academic and research institutions and how they are affected by technological change. In the proud tradition of Canadian pluralism, his brand of science fiction successfully reconciles multiple cultures of knowledge into a narrative mosaic, similar to how McLuhan and Frye tried to integrate seemingly disparate fields of scholarship into new approaches to the study of culture; to how van Vogt used his fictional science of Nexialism to forge connections between his multinational crew; and lastly, how E.O. Wilson, the sole American in this otherwise Canadian list, has tried to establish a Unity of Knowledge between the sciences and humanities based on the Consilience of Inductions.

Conclusion

In the fifteen years since Wilson's book was published, it is not as well remembered or respected as it should be; it may very well be the case that Ceccarelli (2001) was correct in her assessment of its limits as a persuasive text. All the same, I encourage science fiction writers and scholars alike to look towards it as a blueprint for studying the literature of the intriguing juxtapositions between branches of knowledge. At the very end of *The Voyage of the Space Beagle*, the hero Grosvenor continues to lecture on Nexialism to the ship's crew while the space vessel itself travels through the void, "carrying its little

bit of human civilization ...at an ever increasing velocity through a night that had no end.....And no beginning” (215). With this beautifully evocative ending, van Vogt not only sums up the continuing endeavor to unify human knowledge but the science fiction genre itself, a branch of literature that will continue to adapt, evolve and diversify, as surely as the body of human knowledge itself grows.

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