**Modernist *Bildungsroman* and Biology**

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**Newman, Daniel Aureliano. *Modernist Life Histories: Biological Theory and the Experimental Bildungsroman.* Edinburgh: Edinburgh UP, 2019. 234 pages. ISBN 9781474439619. Hb. £80.**

The nature of the connection between new developments in science and modernist literature has inspired many a scholarly discussion to date. Early modernist coteries were eclectic, featuring scientists alongside literati, fine-artists, and philosophers. Influential avant-garde magazines published non-technical scientific articles alongside literary essays or short stories; scientific experiments were debated in the modernist salons almost as frequently as the newest novels or art exhibitions. The modernists' unquenchable fascination with the world around them demanded as many perspectives as possible, and a significant body of scholarship has already acknowledged and examined this phenomenon. Daniel Newman's new book, however, shows that not all the avenues have been explored to an equal degree: he claims that there is a vital connection between the modernist modes of narration appearing in experimental *Bildungsromane* and various biological theories of development.

Newman's unique education—he is both a literary scholar and a biologist—renders him more than suitable to comprehensively examine the topic and support his conclusions. Instead of accepting the customary view of modernism as offering "a bleak picture of wasted potential, stunted growth, perpetual adolescence, or premature senescence" (1), he proposes that modernism advanced different aspects of development, hostile to the conventional understanding based on the linearity of time and biogenetic law (otherwise referred to as the theory of recapitulation). The recapitulative theory understands the development of every

individual (ontogeny) as copying the stages of the development of its whole kind (phylogeny), and its implications reach beyond the realm of biology. Since the theory maintains that progress is linear and every new development is an upgrade on the previous stage, it lies at the heart of many -isms such as colonialism, imperialism, sexism or racism. As Newmans points out, "[b]ecause recapitulation assumes perfectibility, groups deemed imperfect were thus primitive, immature or degenerate, and the standard of perfection was unsurprisingly white, male, heterosexual and upper class" (11). Biogenetic law, standing at the core of Victorian narratives, was contested by many biologists who proposed their own theories of development and, as Newman argues, rather than simply breaking the Victorian tradition, "modernism's apparently unnatural ways of narrating development might be to some extent mimetic—not in a naïve or literal sense, but in the sense that they resemble or even borrow from the natural world revealed by modernist biology" (4). Newman uses an umbrella term for all these different approaches, that of "reversion," which he describes as "any developmental and narrative deviation from the expected sequence" (19). This includes atavism and interrupted development (exemplified in Chapters 2 and 6), Mendelism (Chapter 3), heterochrony—change in the timing of developmental events (Chapter 4), and neoteny—juvenilization (Chapter 5).

The first chapter, "*Bildung,* Biology and the Narrative Structure of Development," exposes "the biological substrate of the *Bildung* plot, the narrative structure of recapitulation theory" (24) and discusses in detail the alternative theories of modernist biology. In the following chapters, Newman proceeds to detailed analyses of particular modernist *Bildungsromane* and their theoretical inspirations. The novels under scrutiny are James Joyce's *A Portrait of the Artist as a Young Man* (1916), E. M. Forster's *Howards End* (1910), Virginia Woolf's *Orlando* (1928), and Aldous Huxley's *Eyeless in Gaza* (1936). The last chapter before the conclusion, "Beginning Again: Darwin's Caterpillar from George Eliot to

Beckett," links the famous "embarrassed caterpillar" anecdote from *The Origin of Species* with "increasingly innovative reassessments of *Bildung* as a series of repeated beginnings" (25), discussing the works of George Eliot, Samuel Butler, Lewis Carroll, and Samuel Beckett. The conclusion demonstrates that taking inspiration from contemporary biological theories of development was not a modernist prerogative, but that it finds its way into the twenty-first century. Newman argues that "literature continues to play a crucial role as an interpreter of biological knowledge, even as the biological sciences continue to challenge, surprise, endanger, but also inspire us today" (25).

This book is full of groundbreaking ideas and readings; it would be impossible to do them all justice in a review this size, but it seems fair to offer at least one example out of many: a taste of Newman's interpretation of one of the most baffling character developments in the history of *Bildungsromane*, that of Woolf's Orlando. Instead of reading Woolf's "let biologists and psychologists determine" what happened when Orlando suddenly turned into a woman as a dismissal of science, he understands it as her invitation to "take her at her word" (108). Newman acknowledges that because "they are so strange, Orlando's lifespan and sex change tend to lead interpretation away from science towards allegory and symbolism" (110), but he claims that they are, paradoxically, the main reason why he proposes to read *Orlando* from a biological perspective. Despite the fact that *Orlando* is the least explicitly engaged with biology from the novels discussed in this monograph, Newman not only maintains that biology is crucial for its understanding, but he also believes it to be essential for its feminism. Drawing on the contemporary research in genetics and sexual physiology that proved sexual fluidity and variability in insects and frogs, Woolf, according to Newman, freed the female *Bildungsroman* from its restrictions: "[u]ncoupling, by means of the sex change, the parallel between sexual and socio-artistic development, [Woolf] thereby simultaneously dismantles the parallel between the female body, conceived as more primitive and immature than the

male, and women's limited capacity for aesthetic and social formation" (112). She thus offers "a reversionary disruption of the recapitulatory progressivism which equated maleness with maturity" (111).

Newman's book is both highly original and, at times, strangely familiar; some of his arguments and analogies seem self-evident but not before he actually points them out. Although there are moments when the discussion of biological theories gets slightly complicated, in general, the author keeps his promise to make it as simple and non-specialist as possible. This volume is well worth reading even if high school biology was the main reason why you decided on a career in the humanities. In addition to offering fresh insights into the study of modernism, it touches upon a number of contemporary issues; it provides scholarly/scientific explanations of the concerns of our world; it also hints at the possibility of endless linear progress being a harmful and unsustainable illusion.

Due to its scope and interdisciplinary character, this work can appeal to a much broader audience than a monograph on modernism usually would; I recommend it to all scholars and researchers who want to deepen their understanding of how we narrate development and understand growth, and to those who want to uncover a whole new world even in well-thumbed volumes.

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