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Review of Holly Henry, Virginia Woolf and the Discourse of Science: The Aesthetics of Astronomy.

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Holly Henry, *Virginia Woolf and the Discourse of Science: The Aesthetics of Astronomy*. Cambridge: Cambridge University Press, 2003. 212 pp. ISBN 0521812976.

Reviewed by Peter Naccarato, Marymount Manhattan College

Holly Henry situates her study of Virginia Woolf within an interdisciplinary tradition that has explored in some detail the influence that science had on Woolf's writing. In focusing on this question, Woolf scholars have paid particular attention to Woolf's "interest in physics, Darwinian evolution, psychoanalysis, and the philosophy of science" (2). Following in this tradition, Henry adds astronomy to this list as her study "theorizes how Woolf's aesthetic perspective, as well as her pacifist politics, were shaped by advances in astronomy and by emerging visualization technologies, ranging from large astronomical telescopes to inexpensive hand-held cameras" (2). Suggesting that Woolf's writing provides important insight into the "interface between literature, popular culture, and the sciences" (2), Henry sets out to unravel further the cultural and intellectual context within which Woolf developed both her aesthetics and her politics. While Henry's book makes an important contribution to our understanding of Woolf, much of it follows a familiar pattern in Woolf scholarship that seeks to identify the roots of Woolf's literary experimentation in the intellectual and cultural milieu of the early twentieth century and, in doing so, to establish a causal relationship that "explains" the origins of modernist aesthetics. In doing so, she relies on familiar sources of evidence, including Woolf's letters, diaries, short stories and novels. As she combs through these texts for any reference that could link Woolf to the scientific and astronomical developments of the time, Henry ironically legitimizes a disciplinary and intellectual hierarchy that privileges science over literature as she locates the roots of Woolf's aesthetic experiments as well as her politics in the realm of science. The most provocative parts of Henry's argument come when she moves out of this framework to consider how Woolf uses both her fiction and her essays to resist the influence of science insofar as it is implicated in "the social and political rhetorics of nationalism and militarism" (153).

Henry's first goal is to define what she calls Woolf's "global aesthetic." One of her central arguments is that science, in general, and astronomy, in particular, had "a powerful shaping effect on Woolf's aesthetic imagination" (1). Paying particular attention to advances in astronomical telescopes at the beginning of the twentieth century that made it possible for the general public to be "awed by the immensity and seeming lifelessness of the universe" (3), Henry argues that one crucial implication of these technological developments was "a modernist human decentering and re-scaling" (3). It is as a result of this process, she argues, that Woolf began to develop literary strategies that responded to it. Thus, general developments in astronomy and specific advances in telescopic technologies produced an intellectual and cultural environment that provided Woolf with "possibilities for a radical rethinking of the social and political structures of her day" (3). While Henry does an impressive job establishing this framework for her analysis of Woolf, it does raise several

questions. First, Henry's approach threatens to reduce the relationship between science and literature to a causal one in which scientific advancements can be read as inspiring the artistic and literary experimentations that would become the hallmark of modernism. In Henry's formulation, the temporal connection between the "new vistas of space" that were discovered and made available to the general public and the emerging aesthetic experimentation of modernism takes on a causal relationship as her study "provides evidence of how significant these sciences were to the formulation of British modernism" (8). Henry mirrors the approaches of other Woolf scholars (to whom she alludes in her introduction) who seek to identify the roots of Woolf's literary style in her exposure to science, whether Darwinian evolution, Einsteinian physics, or Freudian psychoanalysis. Like those scholars, Henry puts herself in the difficult position of needing to "prove" this causal relationship by establishing Woolf's engagement with the specific scientific ideas that, she argues, had vital influence on her aesthetic and political vision. Thus, much of the first part of her study involves a familiar mode of scholarship for making such arguments, namely pouring over Woolf's public and private writings to establish the connection that serves as the foundation for Henry's overall thesis.

Henry begins her first chapter with Edwin Hubble's 1923 photograph of the spiral nebula Andromeda, which offered a conclusive answer to the question of whether or not the universe extended beyond the Milky Way. Not only would Hubble's work extend the boundaries of the universe, it would also lead to the conclusion that this already vast universe was expanding at an incredible rate. As Hubble's work reached the general public, it sparked a growing interest in astronomy and cosmology, evidenced by the growing popularity of the Mount Wilson Observatory as a "bustling tourist attraction" (13). This popular interest in astronomy, Henry suggests, invites a more specialized consideration of "the powerful shaping effect advances in astronomy in the early decades of the twentieth century had on Britain's literary artists and intellectuals" (14). By tracing the associations that would expose Woolf to the most significant scientific and astronomical ideas of the day and by identifying references to those developments in her writing, Henry's first chapter works to uncover "the interconnections between British literary artists and the scientists who were their colleagues and associates" (15). It is by "explor[ing] the social and literary networks through which Woolf found opportunity for exchange with renowned scientists and popular writers of her day" (15) that Henry can begin to establish the foundation for her central argument.

The first sites of exchange between Woolf and the popular scientific ideas of the day that Henry explores are the *Athenaeum* and the *Nation & Athenaeum*. The significance of these journals for Virginia Woolf is easily established; not only did they publish some of Woolf's early short fiction and essays, but Leonard Woolf served as literary editor of the *Nation & Athenaeum* from 1923 through 1931. Henry's review of these journals reveals not only that many prominent scientists were published in them, but also that Leonard Woolf reviewed a

number of texts by scientists and science writers. To establish her point that the *Athenaeum* "brought Virginia and Leonard, if only by virtue of their association with the publication, into conversation with several prominent popular science writers" (17), Henry highlights the fact that in many issues, articles by Virginia, Leonard and their colleagues would appear on pages "adjacent to non-technical essays on advances in the sciences" (17). Thus, Henry argues, the *Athenaeum* and the *Nation & Athenaeum* provided a space in which the literary and the scientific worlds commingled, thereby proving that Woolf was well versed in the scientific ideas of the day. However, as Henry offers such facts as "evidence" of Woolf's exposure to and familiarity with such ideas, she relies on a level of inference and presumption that weakens her argument.

Next, Henry turns to the "eclipse mania" that gripped England in June of 1927, when a total solar eclipse was to be visible in England. After citing advertisements and editorial cartoons to "demonstrate the extent to which this particular eclipse was celebrated" (19), Henry looks to Woolf's diaries, where she recorded her own experience of this eclipse. It is here that Henry makes her first specific connection between the astronomical events that Woolf experienced and her fiction, as she notes that "Woolf recorded details of the event in her diary . . . and later reworked that account for her essay 'The Sun and the Fish' and her novel *The Waves*" (23). Both her diary records of the eclipse and her later fictionalization of the event convince Henry that "the solar eclipse catalyzed for Woolf a vision of earth as a fragile oasis of life for all humankind" (24). This sense of fragility and uncertainty, Henry argues, can be traced to earlier astronomical events, including the return of Halley's comet in 1910. Fear of a planetary collision or ignition of the earth's atmosphere by a comet's tail caused "a pervasive public anxiety" (25) in England. One additional source of doubt and uncertainty, Henry argues, was the British Eclipse Expeditions of 1919, "which demonstrated the viability of significant tenets of Einstein's General Theory of Relativity" (24). While Einstein's work had been taken entirely seriously prior to these expeditions, Henry argues that "once the results of the Eclipse Expeditions reached the pages of *The Times* [London] and the *New York Times*, [Einstein] had attained celebrity status" (28). The overall impact of these astronomical and cosmological events, according to Henry, was to thrust these scientific fields into the popular imagination. With this in mind, Henry offers her own reading of Woolf's famous assertion that human character changed in 1910. Citing "Character in Fiction," Henry concludes that while Woolf was ostensibly exploring changing aesthetic practices, "it seems likely that Woolf also meant to suggest the ways in which the new vistas of space were shaping modernist literature" (29).

To prove that English society, in general, and Woolf, in particular, were well versed in the significant astronomical developments of the day, Henry explores the rise in scientific publications that were intended for general audiences. Specifically, she cites Cambridge University Press, which "realized the potential market for affordable non-technical expositions on astronomy and cosmology" (30), and began publishing texts by James Jeans

that met this demand. She cites Jeans's *The Universe Around Us*, published in 1929 and *The Mysterious Universe*, published in 1930, both of which became bestsellers. This growing popular interest in astronomy, Henry explains, was a transnational phenomenon. Citing the extensive collaboration between British and American astronomers and the "celebrity status" that both James Jeans and Edwin Hubble had achieved on both sides of the Atlantic, Henry offers yet more evidence to support her claim that Woolf's exposure to and interest in the prevailing astronomical and cosmological developments of the day were all but inevitable.

In the final pages of her first chapter, Henry considers the impact that these scientific ideas had on Woolf's developing aesthetic vision. Specifically, she argues that as "new astronomical vistas provoked a very different sense of spatial relationships, and pointed up humans' relative insignificance in the larger universe," they "further contributed to this public sense of a modernist human decentering" (37). Insofar as they were linked with "a public concern regarding the future of human existence" (41), these scientific developments contributed to what Henry labels a "re-scaling of humans" in the face of their diminished place in the universe and the anxiety that accompanied this realization. It is within this cultural milieu, Henry argues, that Woolf developed "her own responses to the new vistas of intergalactic space," including her "experiments in developing new prose forms" (47). While Leonard Woolf "quailed before the broad vistas of intergalactic space that the world's great telescopes revealed," Virginia "found Jeans's descriptions of the seemingly infinite reaches of intergalactic space productive in formulating her global aesthetics and her anti-war politics" as they "suggested to her a hopeful future for humankind" (47-8). Specifically, Henry argues, the photographs of intergalactic space that were printed in Jeans's popular science texts "afforded Woolf fresh perspectives that informed her experiments in narrative form, as well as her radical pacifist stance on human aggression" (48). This becomes the core of Henry's argument: namely, that while Woolf "understood the very real possibility of human extinction," her fascination with technology and the sciences provided her with a context for "explor[ing] in her fiction and essays alternatives for human survival" (49). In connecting Woolf's developing narrative techniques and pacifist politics to the astronomical developments popularized by James Jeans, Henry argues that Woolf "maintained a hopeful vision for the future of humanity," a vision that was made possible, in part, by the "'liberating & freshening' vistas of the stars" (50).

In her second chapter, Henry traces the impact that advances in astronomy, in general, and Hubble's work on the telescope, in particular, had on Woolf's "alternative aesthetic and political perspectives" (51). Specifically, she uses Woolf's short story, "The Searchlight," to explore how Woolf's "fascination with cosmology and with telescopes" helped to shape what Henry labels her "narrative scoping strategies" (51). Henry points to a number of elements in this short story--including the prominence of the telescope, itself, the collapsing of narrative time, and the movement from close-up to distant views of characters--to connect Woolf's emerging narrative interests and style to the astronomical and cosmological developments

that she discussed in her first chapter. This is the first of many points throughout the book where Henry turns to Woolf's diaries, letters and novels in search of "evidence" of her fascination with astronomy. Beginning with specific references to telescopes and then expanding to include any astronomical references, Henry is intent on "proving" the connection between Woolf's interest in astronomy, her developing literary techniques, and her pacifist politics. However, as she makes the assertion that in "The Searchlight," Woolf "found a means of linking the ephemerality of humans produced by a new generation of astronomical telescopes to the threat of human extinction international conflict could exact" (64), Henry exposes the reductionism inherent in her argument. By offering such a literal thesis that insists on a causal link between Woolf's interest in astronomy, her aesthetic method and her political concerns, Henry is forced to read everything Woolf wrote through the lens of the telescope.

Henry continues to employ this strategy in her third chapter, as she expands her focus to explore how Woolf's narrative style "emerged in the context of Cambridge debates on materialism and the nature of physical phenomena, as well as in relation to her thinking of the earth as a globe in space, and, oddly, the development of orthographic maps that depict the earth as a globe" (72). In working to establish these links between Woolf's "life-long fascination with the view of earth from space" and her "global aesthetic vision" (72), Henry depends increasingly on slippery assumptions about what Woolf "may have" read in her father's library and the impact that these texts might have had on a young Virginia. From there, Henry moves on to consider the impact that "the Cambridge debates regarding theories of knowledge of the material world" had on Woolf's emerging narrative technique. Specifically, she connects the work of Bertrand Russell and Alfred North Whitehead, both of whom were interested in "epistemological questions regarding perception and the material world," with a developing literary art "that celebrates a multiplicity of perspectives" (77). To support this connection, Henry establishes Woolf's familiarity with Russell's work and then considers the ways in which she "explored the implications of Russell's investigations" in her short stories "Solid Objects" and "The Mark on the Wall." In the next section of this chapter, Henry considers the impact that advances in cartography and mapping had on this process of "human re-scaling," arguing that maps "were integral to Woolf's formulation of a global aesthetic" (85). In the final sections of this chapter, Henry combines her own reading of Woolf with those of other literary scholars to support her argument that for Woolf, "the globe would become an infinitely suggestive metaphor," thereby adding another layer to her overall thesis that the "new vistas of space contributed to [Woolf's] experiments with narrative" (90).

In Chapter Four, Henry offers an intriguing reading of *The Waves* through the lens of James Jeans's popular astronomy texts. While Henry again attempts to establish a literal link between Woolf and Jeans, speculating as to what Woolf "may have" read or heard about Jeans and his work during the years that she was writing and revising *The Waves*, Henry

more interestingly comes to put their respective works into dialogue. As she discusses the parallels that Jeans draws in his work between the scientist and the artist, it becomes clear that Henry is establishing a sophisticated connection between Jeans and Woolf--and, more broadly, between science and literature--that moves beyond the causal argument that has dominated her book thus far. By contrasting Jeans's understanding of the scientist-as-artist with Woolf's exploration of the relationship between writer and text, Henry makes a nuanced distinction between the methodologies of science and literature as demonstrated by Jeans and Woolf, ultimately challenging the presumptive authority and influence of the former over the latter. While both Jeans and Woolf critique "the complicity between writers and the narratives they produce," Woolf's "skepticism regarding notions of the artist remaining outside his or her canvas" stands in opposition to "the creator-mathematician Jeans evoked, who remains outside of the canvas of the universe" (98). Henry connects these contrasting views with "a modernist desire for aesthetic objectivity" that conflicts with Woolf's "decentered aesthetic practice that invariably inserts the artist, writer or scientist within the frame of their own narratives" (98).

Henry develops this argument by discussing Roger Fry's emphasis on "aesthetic objectivity" as the preferred means of achieving "a unified artistic vision" and Woolf's skepticism about such an approach, demonstrated by her use of narrative strategies that "refused a unified vision or a privileging of a particular point of view" (100). Turning to *The Waves*, Henry focuses specifically on the ways in which Woolf uses the persona of Bernard to question "the artist or scientist's ability to maintain an objective ground exterior to the picture or narrative she or he creates" (101). Rather than achieving the kind of objective aesthetic vision that Fry and Jeans proposed, Bernard's struggle with his "thousands of stories" challenges such an idea as it reveals the artificiality of narrative structure.

Next, Henry turns to a rather brief discussion of the cinema to contrast Fry, Jeans, and Russell's use of the cinematograph as a "favored metaphor" for "the possibility of objective scientific or aesthetic descriptions and phenomena" (103) with Woolf's deployment of this same technology in her own narratives to question such assumptions. In doing so, she connects Woolf with Heidegger, who contended that "[T]he fundamental event of the modern age is the conquest of the world as picture" ("The Age of the World Picture" 134). If, as Heidegger asserts, photographic technologies allow humans to aggressively impose themselves as objective observers of the outside world, then in *The Waves* Woolf "decentered" or "dispersed" such aggression as she employed narrative strategies that moved away from "a literary unity either in structure or point of view" (105).

In concluding this chapter, Henry argues that Woolf's decentered aesthetic vision "traversed the discourses of both the sciences and the arts" (106) as she responded to theories of both Fry and Jeans. In exploring the positive possibilities for Woolf's decentered aesthetic vision, Henry moves beyond identifying the source of Woolf's literary method in the scientific

advancements that had clearly influenced her. In this chapter, Henry moves from acknowledging that Woolf was influenced by such discourses to arguing for Woolf's opposition to them.

In her final two chapters, Henry moves from exploring the impact of astronomy and cosmology on Woolf's aesthetic vision to their role in shaping her pacifist politics. In Chapter Five, Henry considers how both Woolf and William Olaf Stapledon "forged literary images of earth in space as a means of launching a critique of human aggression and war" (109). Returning to the concept of a human "re-scaling" promulgated by advances in astronomy that necessitated a re-thinking of the human position in the universe, Henry applies this concept to Woolf and Stapledon's "concerns regarding the future of humanity" (109). While acknowledging that Stapledon "remained at the periphery of Bloomsbury," Henry employs familiar techniques to establish his interest in the "the same scientists and writers who were close to Woolf" (111). After asserting their shared interest in astronomy and cosmology, Henry turns to *The Years* to demonstrate Woolf's knowledge of the work of A.A. Michelson regarding the "unimaginable mass and size of red giant stars" (113). As such astronomical discoveries revealed "the unimaginable scale of cosmic phenomena" (113), humans were forced to re-think their own position in the universe. At the other end of the spectrum were "discoveries related to the new physics" that posited the atom as "a miniature solar system" (115-6). As this human re-scaling required people to "consider themselves as being somewhere in between these unimaginable extremes" (116), they became increasingly fascinated not only by the vastness of the stars, but also by the minuteness of the atom. This, Henry asserts, explains why both Woolf and Stapledon deploy in their novels a "movement from the microscopic to the 'cosmic immensities'" (116).

In the next section of Chapter Five, Henry revisits the topic of a human "re-scaling" by considering both the popular fascination with insects that pervaded the period and the incorporation of this topic into the literary productions of Bloomsbury. In the cases of Woolf and Stapledon, Henry argues, this interest in insects functions as a caution against military aggression, which "represented a kind of human devolution into something closer to an insect existence" (126). Henry first reviews Woolf's personal interest in lepidoptera and then links it to her use of insects as a literary motif, arguing that both Woolf and Stapledon deploy such motifs in "commentaries on humanity's ephemeral existence in the universe" (127). Henry then connects her discussion of insects to the broader focus of this chapter, namely the "mutual vision" that Woolf and Stapledon had for "literature as a vehicle for social and political change" (134). Influenced by new findings in astronomy and concerned about the future of humanity, Woolf and Stapledon "endeavored in their fiction and polemical writing to offer radical alternatives to those narratives for human civilization that Darwinian evolution and military history had told time and again--aggression, annihilation, and extinction" (135). In doing so, they looked to advances in astronomy and cosmology as they

"insisted on the necessity of imagining and writing alternative narratives for our human future" (137).

In her final chapter, Henry brings together the various strands of her argument to offer a compelling reading of *Three Guineas*, arguing that in this text, Woolf "calls into question the seemingly objective uses of war photography, and more broadly examines the networks by which the sciences have become imbricated with nationalism and militarism" (141-2). In responding to ongoing debates about the objectivity of the camera lens, including the argument espoused by James Jeans in *The Universe Around Us*, that "the camera served as a perfected retina for the astronomer or cosmologist" and that "the camera cannot lie," Woolf emphasizes the fact that "photographs are not neutral objects, but are understood by their cultural and rhetorical framing" (142). For Henry, *Three Guineas* is where Woolf joins in the debate about the authenticity and objectivity of the camera as she "exposes those strategies by which photographs of the war in Spain could be used to support specific political agendas" and "respond[s] to a wireless talk by James Jeans in which he alluded to the new photographic vistas of space in support of a national eugenics program" (142). By reading *Three Guineas* through the lens of war photography, Henry juxtaposes the use of photographs in the popular media, which "reinforced notions of camaraderie and bravery in war" (144), with Woolf's narrative descriptions of "the ravages of human aggression" (145). Henry speculates that by refusing to include in her own text the graphic photographs to which her narrator alludes, Woolf was "subverting the photographic essay, which had emerged in newsprint as an objective framer of events" (146) and, in doing so, advanced not only her critique of militarism, but also developed "a direct repudiation of professions in the sciences that have been implicated in acts of aggression against women and others" (147).

Pushing further to uncover the "extent to which discourses in the sciences are central to the argument of *Three Guineas*" (147), Henry considers the impact of a "sensational and highly controversial wireless talk" (147) given by James Jeans in 1930. In this talk, Jeans spoke about eugenics, arguing that the "great vistas of intergalactic space . . . had taught the importance of Britain's national eugenics movement" (147). At the outset of this discussion, Henry once again faces the critical problem that she cannot "prove" that Woolf actually listened to this broadcast. As at other moments throughout her book, Henry provides circumstantial evidence to support her claim that it is "probable" that Woolf "either heard about this talk or read the published lecture in the BBC's magazine, the *Listener*" (147). Such assertions, however, prove unnecessary since Henry offers a convincing reading of the *Society of Outsiders* as Woolf's effort to position herself "in direct opposition to the nationalist underpinnings of Britain's eugenics movement" (148). As she reads Jeans's lecture and the sensational responses that it received against Woolf's "experiment in feminist pacifism" (148), Henry more than supports the claim that she makes not only in this chapter, but throughout her book, that both Woolf's aesthetics and her politics were deeply influenced by the discourses of science, in general, and astronomy and cosmology, in particular, that so

dominated the cultural and intellectual landscape of her time. It is in the final pages of her book that Henry most assertively reads Woolf as standing in opposition to discourses of science, insofar as they "rallied in support of aggression" (155). In doing so, Henry finds an appropriate balance between the kinds of causal arguments that dominate the first part of her book with more subtle readings of Woolf's politics and her fundamental belief in "the use of art . . . in resisting human aggression" (156). Perhaps one of the most provocative facets of Henry's book is its movement from privileging science as the source of Woolf's aesthetic vision to reading Woolf's opposition to the scientific discourses that dominated the modernist landscape. Ironically, the trajectory of Henry's argument seems to reflect Woolf's own increasingly ambivalent attitude toward science while highlighting the ongoing challenge of resisting the intellectual and cultural authority of science in the very act of critiquing it.

Works Cited

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