

flected with imagined French excesses (including the threatening excesses of Haiti), becomes troubling for early advocates when “free” black bodies begin in earnest to circulate north, as so many escaping slaves discovered.

It is exciting to see how Grossman closes with an impressive discussion of the significance of slavery for the work of both Emerson and Whitman, a significance not always obvious in thematic terms, yet everywhere present in the discourses chosen by each man. Such shadow presences are not unfamiliar to those reviewing the Constitutional debates, where the same crisis of representation concerning slavery obtained. Here, as throughout the book, Grossman is most innovative concerning Whitman, since his reading of Emerson tends to freeze him in an “autocratic” mode (151). Whitman’s temperance novel is brilliantly measured against his exposure to the slavery market in New Orleans; Grossman shows the way that Whitman’s writing draws from that later experience the oddly “coincident sites of racial embodiment and a culturally pervasive attention to intemperance” (193). In the same chapter there is a growing sensitivity to Emerson’s dilemma in his essay “Experience.” The reading with which Grossman closes makes two suggestive comparisons: Emerson’s discussion of the death of young Waldo is likened to the death of Margaret Garner’s child, as figured in Toni Morrison’s *Beloved*; and Emerson’s deferral of “practical power” is likened to Matthiessen’s own struggle with political representation in his writing. Even the anachronistic tease of this broken syllogism shows how Grossman always gravitates toward stirring new lines of inquiry.

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Fiction Refracts Science: Modernist Writers from Proust to Borges. Allen Thiher. Columbia: University of Missouri Press, 2005. Pp. ix+297.

Fiction Refracts Science is an attempt to show that modernist fiction and modern science offer different but analogous challenges to the traditional scientific ideal of a complete and universal knowledge. As Allen Thiher notes (xi), this new study of the relation between modernist fiction and modern science is a sequel to his earlier work on the place of science in nineteenth-century French fiction, *Fiction Rivals Science: The French Novel from Balzac to Proust* (Columbia: University of Missouri Press, 2001). While the earlier text is primarily historical, the new book adds an epistemological dimension. Everything

depends, as Thiher admits at the outset, on the idea that the literature and science of a given period share a “cultural matrix,” that is, a common set of axioms, presuppositions, and constraints that allow us to organize and make sense of the world (1–3). He believes that new trends in both science and literature tend to question what is taken for granted by this cultural matrix. There is thus a tension throughout the work between direct evidence of the influence of science on authors and indirect evidence of shared assumptions based on conceptual analogies.

In his introduction, Thiher provides a brief history of the “two cultures” debate, especially as it played out between C. P. Snow and F. R. Leavis (4–10). This is meant to expose the roots of the distrust of science on the part of many literary scholars. He then turns to the views of a famous scientist, Werner Heisenberg, to demonstrate the possibility of a pluralist worldview in which literature, art, and science are different—but equally necessary—kinds of idealizations of reality (15–16).

The first chapter, “What the Modernists Knew about the History of Science,” sets up the deep background for the later chapters addressing individual authors. Blaise Pascal emerges as a key figure, especially given his distinction between the axiomatic mind, with its *esprit de géométrie*, and the intuitive mind, with its *esprit de finesse* (22–23). The former is needed, of course, but only the latter can handle the indefinite multitude of principles presented by the real world. Pascal opens the space for modernist fiction with his claim that the infinite nature of the universe undermines any attempt at a complete understanding of it (30). Thiher also argues that developments in modern science (e.g., non-Euclidean geometries) led to an emphasis on the free creation of new epistemic models, an approach later taken up by modernist writers (38).

The second chapter, which centers on the work of Robert Musil, is in some ways the most successful, if only because the link between Musil and turn-of-the-century philosophy of science is indisputable. Musil was trained as an engineer but ended up writing his doctoral thesis on the work of the positivist epistemologist Ernst Mach (60). Thiher draws some convincing parallels between Musil’s attacks on Mach’s epistemology and the themes of his early novel *Young Törless* (1906). In the last section of the chapter, it is argued that *The Man without Qualities* (1930) has as its goal a unifying epistemology (79), with the union of Ulrich and his sister representing a faith in a mystical real beyond the myriad phenomena of experience (96–97).

In chapter 3, “Proust, Poincaré, and Contingency,” the texts of Marcel Proust are seen as demonstrating that the artistic mind has a privileged

access to those domains of subjective human experience that elude the gaze of science (132). Although Henri Poincaré's doctrines were well known in early twentieth-century France, Proust makes only a single reference to Poincaré in his work (109). Thiher's reading of *A la recherche du temps perdu* (1914–27) as engaging in a sustained dialogue with Poincaré's doctrines is thus questionable. While it may be true that the two occupied a similar "cultural matrix" (108), it is highly unlikely that Proust had a clear enough understanding of the three-body problem to allude to it in the three-steeple passage of "Combray" (130).

The arguments of the chapter on Franz Kafka are even more tenuous. At the outset, Thiher purports to show that Kafka was exposed to modern science in chemistry lectures he attended in Prague. He does this by quoting Louis Kahlenberg, a supposedly representative German-American chemist, on the nature of scientific law (139). Without addressing the tension between judicial and scientific law, Thiher declares that the central question of Kafka's work is whether literature can offer "access to an invariant regularity that can be called a law" (143). This allows a reading of Kafka in which his narrative approach is seen as a literary version of either W. V. O. Quine's underdetermination thesis (145–46) or Kurt Gödel's incompleteness theorem (165–67). Even in the case of those Kafka stories that explicitly address science, Thiher's readings are inadequate. For instance, in his analysis of "Investigations of a Dog" (159–62), he does not discuss the narrator's distinction between moral laws (*Gesetze*), which express a prohibition (*Verbot*), and "the rules [*Regeln*] of science" (Franz Kafka, *The Complete Stories*, ed. Nahum Glatzer [New York: Schocken, 1971], 288).

Chapter 5, "James Joyce and the Laws of Everything," is one of the most interesting in the book, especially given the wealth of material on science and medicine that Thiher discovers in *Ulysses* (1918–20). That Joyce took a serious interest in modern science is evident from his notebooks, as shown by Jean-Michel Rabaté (*Joyce Upon the Void: The Genesis of Doubt* [New York: St. Martin's, 1991], 1–10). Thiher develops an effective reading of *Ulysses* in which the hyperbolic musings of the characters parody a science that is seen as "impressive, but futile" (183). Unfortunately, the section on *Finnegans Wake* (1939), like the chapter on Kafka, depends on a rather loose analogy between a narrative strategy and a modern scientific theory. Einstein's theory of relativity, pace Thiher, is not simply a theory of temporal perspectivalism (194–95), and it is hard to see a connection between Einstein's emphasis on invariant laws and the "chaosmos" of *Finnegans Wake* (196). To his credit, Thiher admits that his argument is "a heuristic device for reading" rather than "a program for interpretation" (207), but it is

unclear how viewing Shem and Shaun as “the wave-particle duality of literature” (206) can really help us to read Joyce.

In the sixth chapter, Thiher explores the work of Virginia Woolf, William Faulkner, and Jorge Luis Borges, arguing that their texts are thought experiments that apply a narrative model to challenge our assumptions about reality and then to explore the consequences of this challenge (214–15). Thiher demonstrates that Woolf experimented with the literary presentation of a madness that could not be captured by science (224), a claim only slightly undermined by an unhelpful analogy between Woolf’s wave metaphor and James Maxwell’s field theory (225–26). In the case of Faulkner, Thiher argues that, as in *Finnegans Wake*, a comparison between relativity theory and shifting temporal perspectives can shed light on the texts. The fiction of Borges is tailor-made for the “thought experiment” approach, and Thiher shows quite convincingly how Borges’s stories consistently challenge our common epistemological assumptions.

The conclusion, entitled “Science and Postmodernity,” investigates the relationship between postmodern Latin American and Austrian literature and contemporary science. Thiher argues that Latin American fiction, for example, that of Gabriel García Márquez and Julio Cortázar, is less suspicious of science than is its Austrian counterpart. Thiher sees postmodern Austrian fiction as still caught up in a polemic against Machian positivism; this position is perhaps best represented by Gerhard Roth’s *The autobiography of albert einstein* (266–70).

With regard to the application of any theoretical model, either philosophical or scientific, to a work of literature, the all-important question is whether it illuminates the text while remaining faithful to it. Thiher has traced some interesting connections between modernist literature and modern science, showing that many authors have expressed a kind of Pascalian angst over the limits of the knowledge promised by science. The book is strongest where it develops close readings of the texts in question, exploring the epistemological questions they raise; it is weakest where it argues for unenlightening analogies between narrative techniques and scientific theories without presenting even indirect historical evidence of a connection. Literary critics can, of course, only benefit in becoming sensitive to broader intellectual trends, and in this sense Thiher’s book definitely represents a step in the right direction.

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