

Losing Touch with Nature: Literature and the New Science in Sixteenth-Century England. Mary Thomas Crane.

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The sense of a rupture in the seventeenth century between established Aristotelian natural philosophy and natural history and the rising atomistic, mechanistic, empirically, and inductively understood sciences has long informed cultural investigations in the Renaissance and early modern period. It is a development often credited by literary critics to Francis Bacon, the villain of the piece who summarily disenchanting an earlier worldview freighted with analogies, symbols, signatures, and other symptoms of the real — the working tools of so many of the greatest writers, from Spenser, Shakespeare, and Donne to Vaughan and Traherne. This development — if it existed at all — is far too neat for comfort: new ways of thinking rarely exhibit themselves in tidy paradigm shifts; worldviews are always messy affairs with fuzzy boundaries and inconsistently held beliefs.

Mary Thomas Crane helpfully resituates our sense of what the sixteenth century thought about Aristotle and atomism to demonstrate that generative messiness in the slow and uneven deterioration of the Aristotelian worldview. Her cognitive history of this deterioration attempts to understand how this loss “*felt* to the English writers in the second half of the sixteenth century” (3). Their feeling of loss is rightly located, in her reading, in the commonsense apprehension of nature and the laws of physics that was, counterintuitively, being challenged by the rise of corpuscularian physics and chemistry and by advances in abstract mathematics. Thus the phrase “losing touch” embodies the difficult transition from sensory data to theoretical or inductive abstractions that could not be verified by the senses. An intuitive relation with the phenomenal world is something we have never relinquished — the obviousness of Newtonian physics is only

so in a nonrelativistic, supraquantum sensorium, and it is not easy to imagine a scholar 200 years from now tracing the gradual fading of those intuitive Newtonian thought patterns and the rise of the quantum-mechanical imagination.

More than half of the book examines popular scientific writings of the sixteenth century, works that might have been or were certainly known to writers like Spenser, Marlowe, and Shakespeare, even if only by reputation and hearsay. Crane examines the cultural authority of Aristotle's natural-historical works, as well as the Galenic corpus, mindful of the important distinction to be made between the questioning of this material and the more elite dismantling of the philosophy of forms and causes. Intuitive natural knowledge, Crane argues, is supported by Aristotle's natural history, and it is this intuition that breaks down gradually under pressure from Copernican, Galilean, and Paracelsan theories, all of which are founded in mathematical formulations or in occult processes, as well as from events such as the 1572 supernova in Cassiopeia and the earthquake of 1580. The consequences of this transition display themselves in the sometimes equivocal understanding of the latest scientific developments even by popular scientific writers like Leonard and Thomas Digges and John Dee, and pretenders like Gabriel Harvey, who seems to have walked and talked neoscientifically but may have been less than fully conversant with the new knowledge. Crane's discussion is an exceptionally intelligent guide to the history of early modern science for nonscientists, as well as a useful corrective to some of the unexamined *donnée*s of current writing about early modern science and literature. Perhaps because she is not a scientist or a historian of science, her care in explicating the state of scientific knowledge, its sources and traditions, together with the competing, mingling systems that offered such fecund ground for imaginative writers, is precise, clear, and suggestive.

Through the didactic, popular science of the late sixteenth century, Crane assesses the state of understanding of the New Science in the educated, literate population and applies it, in the second half of the book, to *The Faerie Queene*; Shakespeare's sonnets, *Antony and Cleopatra*, and *King Lear*; and to Marlowe's *Tamburlaine*. The splendid readings of books 2 and 5 of *The Faerie Queene* and especially of the physics of *King Lear* stand on their own even without the foregoing substructure of the first, contextual chapters. However, it is impossible, as Crane herself recognizes, to insist on any direct relation between these works and early modern New Science. Atomism and the recognition of voids and vacuums is of course in the air Shakespeare and his contemporaries breathed; but, for example, other than "now thou art an O without a figure," the discussion of weight, gravity, and divisibility in *Lear* is thoroughly grounded in intuitive understanding of nature and in mercantile accounting practices rather than in any obvious understanding of Lucretius or his inheritors. Although she claims that "*Lear* . . . explicitly engages with new ideas like an atomic theory of matter riddled with void space" (155), elsewhere she admits that "we can only intuit the shaping presence of these models" (147). The applied scientific readings of major literary works is, to use Bruno Latour's phrase, a kind of retrofit in which post-Enlightenment natural knowledge is teleologically imposed upon works that are essentially innocent of them.

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