and contingency is a central concern of the project, one might ask 'why Arden 2, specifically?' why not Arden 1 (itself a series with an interesting historical location), or, say, the Globe edition.

[10] See Gary Taylor, *Reinventing Shakespeare: A Cultural History from the Restoration to the Present* (New York: Weidenfeld & Nicolson, 1989; reissued Oxford: Oxford University Press, 1991), p. 315.

[11] One final note of irritation on the issue of cost. In breech of conventional scholarly reviewing protocol, Nelson have insisted that the review copy of the Arden CD supplied to *Computers & the Humanities* should be returned once the review has been written. This indicates an odd level of tight-fistedness on the part of a publishing company whose expectations are that university libraries around the world should be willing cheerfully to hand over a large chunk of their resources in order to buy one of their products. When Nelson took over the Arden from Routledge, some questions were raised regarding Nelson's ability fully to understand both the nature of the product and the nature of its market. The print volumes that have appeared in the past year or so (together with the future plans mapped out by the general editors) have gone a long way towards reassuring scholars that the traditional high standards of the series are to be maintained. It seems, however, that the marketing division of the electronic wing of Nelson could do with learning a bit more about the conventions of the scholarly world.

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Andrew Leonard, *Bots: The Origin of New Species*. San Francisco: Hardwired, 1997. 218 pages. Price $21.95 (hardcover).

This volume is one of the handful of texts recently produced by Hardwired books, a subsidiary of *Wired* magazine. While the parent magazine often comes across as too cyber-utopian for academic purposes, Andrew Leonard has done an admirable job of situating his study within a historical context, and drawing interesting connections between humanities-based studies and the pseudo-science that surrounds the creation of bots. Academic readers will find Leonard's prose style has remained solidly within the sometimes overly-trendy phraseology of *Wired* journalism, and it is difficult at times to remember that this is a book, and not a lengthy magazine article. However, this does not invalidate the subject of Leonard's study, nor the skillful way in which he maps the recurrent trope of small, autonomous agents helping and occasionally plaguing humanity.

What is of interest in this study to academics in the humanities is not necessarily the subject of bots, which are the small semi-autonomous software agents that comprise the subject matter of Leonard's study, but rather the insight his study offers on how the creation of 'bots, and by extension other components of computer operating systems,' are indebted to the metaphors of humanities-based fields. "Socrates had a bot," he begins chapter two, describing the metaphoric agent which Socrates used for structuring his metaphysics. He then goes on to explain the connection between this historic metaphor and the demon which Clerk Maxwell envisioned would subvert Newton's second law of thermodynamics, which in turn influenced

the way in which Fernando Corbato, a founding member of the MIT computer science lab, designed the first software deamon. Today, bots and daemons are one of the central components of any computer operating system: mail daemons cache our e-mail for reading, viruses infect our hardrives, and bots scour the net in search of information. The cultural and social separation between computing and the humanities has erased, largely, the importance of literary metaphors as structuring agents for technical design; Leonard's study skillfully demonstrates this interdependence.

The book itself is organized loosely around the different categories of bots. By far the most interesting bot category for academics in the humanities is his chapter on chatterbots, or programs which imitate in some ways, human conversation. This chapter also serves as a useful and accessible introduction to the concept of artificial intelligence and natural language processing, and might be appropriate for the introduction of such subjects to undergraduates or others with little or no training in the work of Alan Turing, Chomskian grammar, neural networking, or other subsets of AI studies. Additionally, his chapter entitled "The Barney Problem," which describes effectively the creation of Point MOOt, one of the first text-based virtual worlds, and some of the bots which inhabit it, would work effectively in an instructional setting when paired with Sherry Turkle's influential and somewhat more in-depth study *Life On-Screen*, which describes (among other things) the fragmentation of character one experiences when encountering simulated environments or entities on-line.

One useful aspect of this text is a concise glossary of cyber-terms, which come in handy not only when reading Leonard's book, but also when dealing with the host of acronyms often flung about on IRC (Internet Relay Chat) or on Wired's on-line chat center Talk.Com. Also included is a somewhat eclectic bibliography which, while not really focussed enough to provide significant help in doing research, comments interestingly on the multiple discourse communities which inform the text's production.

While fascinating in its exploration of the recurrent trope of small autonomous agents in the humanities and computing, Leonard's text seems bound to its publisher's penchant for the continual declaration of technological revolutions. While Leonard is accurate in describing the frequency with which bots occur on the technological landscape, he over-emphasizes their visibility to the point that his descriptions take on a fictional aspect, which weaves a narrative quality into the text itself. While this may appeal to literary academics, it also results in a less than accurate presentation of the subject matter. Even the title "Origin of New Species" elevates the subject matter beyond what appears to be the appropriate scope, and suggests the sci-fi notion of hoards of bots waiting on the cyber-horizon poised to take over life on-line. If, however, one can ignore this overly-dramatic quality, Leonard's text is at once an enjoyable and informative read.

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