

Science plays on stage

Carl Djerassi's review of the book *Science on Stage: From "Doctor Faustus" to "Copenhagen"* by Kirsten Shepherd-Barr (PHYSICS TODAY, February 2007, page 63) is so undeservedly nasty that I was surprised to find it in PHYSICS TODAY. Since Djerassi had already reviewed the book for *American Theatre*,¹ one wonders why he bothered to do it all over again. His wording suggests more of a vendetta than a review. That he has lately taken to writing science plays himself suggests a very biased point of view and an opportunity to advertise his own work. His attack on Shepherd-Barr's *Copenhagen* chapter was particularly disturbing since that chapter is one of the most well-written and illuminating accounts of the 1941 Niels Bohr–Werner Heisenberg visit that I have seen.

Although the metaphors based on the uncertainty principle and complementarity may be tiresome to physicists, they nevertheless seem to appeal to the nonscientific public that was Michael Frayn's main intended audience for *Copenhagen*. Shepherd-Barr's description of Bohr's dozen or so uncompleted attempts to write to Heisenberg about their meeting seems accurate and provides great insight. One has to have read the actual documents, especially those released in 2002 by the Bohr family,² to appreciate her account adequately. A reading of those documents makes it clear that Bohr was deeply disturbed by boasts that the Nazis were winning the war and that Heisenberg was working on the development of a nuclear weapon for Germany. Incidentally, the later versions of the unsent draft letter² left me with the suspicion that the main purpose of the 1941 visit by Heisenberg and Carl von Weizsäcker was to enlist Bohr's help. No wonder Bohr left the meeting in icy silence! His previously unpublished drafts give the lie to Heisenberg as quoted in Robert Jungk's book:

Under a dictatorship active resistance can only be practiced by those who pretend to collaborate with the regime. Anyone speaking out openly against the system thereby indubitably deprives himself of any chance of active resistance.³

I thought the most interesting aspect of Shepherd-Barr's treatment of science in the theater involved the portrayal of the interactions between scientists and other people. She describes very well

and in depth the history and technology of dramatic efforts to bridge the gap between the two "cultures." Djerassi seems to have a narrow, unbending view, no doubt derived from his own writing, of the nature of a science play. But I think his notion that science can be taught in any depth through theatrical production is misguided. For example, how can one expect to present anything but an extremely superficial discussion of the uncertainty principle without the mathematical background needed to understand quantum mechanics? Ironically, Jungk quotes the oft-mentioned notion, which Wolfgang Pauli denied, that Pauli "was watching a revue in Copenhagen when the exclusion principle came to him."⁴

Djerassi derides Shepherd-Barr for seeing only a "small percentage of the 122-odd plays" with which he seems familiar. But she clearly states on page 5 that her aim is "not to provide exhaustive and comprehensive coverage of science plays; rather, it is to provide a sense of . . . core science plays." She also states, on page 219, that her annotated list—a joint venture with Brian Schwartz and Harry Lustig—is an ongoing compilation. Incidentally, the list includes several plays by Djerassi, and the annotations alone are worth the price of the book. Many of the plays Shepherd-Barr addresses have not yet been staged, so judging them theatrically would have been premature. But the fact that Djerassi's plays have been produced doesn't make them great triumphs.

References

1. C. Djerassi, *American Theatre*, January 2007, p. 96.
2. Niels Bohr, unsent letters, documents 11a, 11b, and 11c, Niels Bohr Archive, <http://www.nba.nbi.dk/papers/docs/cover.html>.
3. R. Jungk, *Brighter Than a Thousand Suns: A Personal History of the Atomic Scientists*, J. Cleugh, trans., Harcourt Brace, New York (1958); see footnote on p. 91.
4. Ref. 3, p. 158.

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Djerassi replies: William Bennett's ill-tempered missive starts with an astounding premise: Expertise in a subject is automatically tainted with bias. He implies that only persons uncontaminated with experience or knowledge of a field should serve as reviewers. He calls my review "undeservedly nasty," despite my having called Shepherd-Barr's book "a well-written and super-detailed account . . . [with] excellent analyses of some contemporary science plays such as *Copenhagen*." The fact that

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