

Law as expressed in *GM*" (p. 217). Part 1 closes with an excursion into Haeckel's anthropology.

Part 2 ("Unity") is devoted to Haeckel in the post-Gegenbaur era. In this period, Haeckel tried to create an interdisciplinary synthesis based on his monistic methodology. This approach also determined the character of Haeckel's influence. In contrast to Carl Gegenbaur, who created a scientific school based on a certain *method*, Haeckel constructed a *system*, which his students and colleagues could either accept or reject. Thus his former students often opposed his views; Anton Dohrn is an example. Di Gregorio also discusses the work of figures important for the development of Haeckel's *Weltanschauung*—for example, David Friedrich Strauss and Bartholomäus von Carneri.

The third part ("Eternity") "covers the period that sees the completion of Haeckel's three final works synthesising his monistic thought with *The Riddle of the Universe*, and other similar works, the Great War and the aptly-entitled pamphlet *Ewigkeit*" (p. 24). Here Di Gregorio describes Haeckel's expeditions, where he gathered empirical data in support of his new system of nature. Haeckel's ultimate aim was "to show the dependence of culture on its biological origins, which meant that the system of the universe was a reflection of the system of living things" (p. 449).

Along these lines, Di Gregorio arrives at his conclusions, which are difficult to summarize in a few sentences. Perhaps the most important statement here is that Haeckel viewed science as a means rather than an end but that at the same time "Haeckel's ideology seemed to favour human responsibility towards the universe" (p. 571).

From Here to Eternity is a worthy contribution to English-language Haeckeliana. It makes available significant and generously translated parts of Haeckel's correspondence and other historical documents. Yet the book also has several shortcomings. The three major parts have no concluding chapters, which makes it difficult to follow the general theme of the book. There are also too many factual mistakes and typographical errors. For example, in the bibliography Haeckel's *Generelle Morphologie* is said to have been printed in 1865 (wrong), but in the chronology the date is given as 1866 (correct). Another example is the reference to a paper by Uwe Hößfeld and Lennart Olsson: it is quoted several times, but the authors' names are never given correctly (appearing, e.g., as "Hößfeld and Larsen" or as "Hößfeld and Ollson"). However, this

might reflect the quality of the editorial work rather than that of the author.

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Matthias Dörries (Editor). *Michael Frayn's Copenhagen in Debate: Historical Essays and Documents on the 1941 Meeting between Niels Bohr and Werner Heisenberg*. (Berkeley Papers in History of Science, 20.) viii + 195 pp., illus., bibl., index. Berkeley: Office for History of Science and Technology, University of California, Berkeley, 2005. \$12 (paper).

During the rehearsals for the New York production of *Copenhagen*, the veteran Broadway and film actor Philip Bosco was uncharacteristically nervous. Not only was he afraid that he would stumble over some of the technical terms in his lines; he and the whole cast and crew feared that the play would not draw much of an audience. Sure, the play was a success in London, and Michael Frayn had so far been a popular playwright—but then *Noises Off* was a comedy and not a serious mediation about science, history, the limits of knowledge, and the moral ambiguities of wartime. The expectation was that once the physicists—some of whom were involved in production-related events—had seen the show, nobody else would come.

As it turned out, Bosco was wrong. The play became something of a sensation. Its critical acclaim was followed by audience demand and a public debate about its topic. The combination of the bomb and a meeting shrouded in mystery turned out to be a winner. The question of what happened during the fateful meeting between Werner Heisenberg and Niels Bohr in Copenhagen brought a whole suite of related issues into focus. The only public record of the meeting to that point was Heisenberg's version of these events in his autobiography and a similar account in Robert Jungk's book on the atomic bomb, *Brighter Than a Thousand Suns*, first published in 1956 in German. On the basis of these sources, it seemed that Heisenberg's purpose in arranging the meeting with his longtime mentor and collaborator was to bring about an agreement among physicists—who, before the rise of the Nazis, had been a tightly knit community—to hold off building an atomic bomb. The meeting was a failure. Heisenberg came to Copenhagen as an official representative of an occupying power, a situation that was only made worse by the fact that Bohr, who was half Jewish, was under constant surveillance and suspicion. The meeting did not go well. But what exactly happened?

As it turned out, the Germans did not build an atomic bomb. Why? And, more generally, what was the status of nuclear research in Nazi Germany? This subject had been the focus of two books on Heisenberg published in the 1990s, Thomas Powers's *Heisenberg's War* (Knopf, 1993) and Paul Lawrence Rose's *Heisenberg and the Nazi Atomic Bomb* (California, 1998). In addition, the Farm Hall transcripts—documenting the secretly taped conversations of captured German physicists—were declassified in the early 1990s. But, ironically, even as more information became available, the situation only became murkier.

Understanding Heisenberg is clearly a formidable challenge. Ambitious, competitive, brilliant, a German patriot who chose to stay in Nazi Germany, a self-identified product of the German culture of *Dichter* and *Denker*, he clearly had a Mephistophelian side. Bohr, on the other hand, was a respected mentor, community builder, and moral authority. But the latter eventually became part of the project that built the atomic bomb, while the former did not. Was this because Heisenberg was too blinded by his arrogance to see that he had made some basic mistakes, or was it because he did not want to build a bomb and chose not to lobby for the vast resources such a project would require? And, again, what was the purpose of the failed meeting in Copenhagen in the fall of 1941?

The moral ambiguity of these events is clearly the stuff of drama. Frayn's dramatic "trick" is to cast his exploration of the events after the deaths of all the participants, who try to relive those fateful hours. Even after two attempts to figure out what happened, we don't know the "truth." We see possibilities, and—not unlike in the science itself—the more we try to figure out one side of the story, the murkier the other becomes. Uncertainty, indeed.

After several successful productions of Frayn's play, the drama continued offstage. The Bohr estate agreed to an early release of several documents—multiple drafts of a letter to Heisenberg addressing his version of the meeting as it was presented in Jungk's book. None of these letters was ever sent to Heisenberg. These drafts further highlight the difficulties of historical memory and its interpretation. And there is yet another layer of complexity. Matthias Dörries's volume first appeared in German (in conjunction with a production sponsored by the Max Planck Institute for the History of Science and the Hochschule für Schauspielkunst "Ernst Busch") before the release of the Bohr letters. The English edition now contains the new documents,

as well as postscripts to all the previous essays. We can thus see how new evidence is incorporated into historical interpretations. Needless to say, it did not result in a dramatic convergence of opinion. But this is exactly the point. And Dörries and his contributors should be applauded for showing us these fundamental problems of historical interpretation. However, we should not forget that all these debates were triggered by a work of art and the imagination.

Finally, I want to offer one further observation. In 2003 a small Berlin theater also staged a production of *Copenhagen*. Two veteran actors of the famed Berliner Ensemble—the late Ekkehard Schall, Brecht's son-in-law, and Christine Gloger—played Niels and Margrethe Bohr. The setting was intimate, a small stage in a cultural center in an East Berlin housing project, close to many of the former centers of Nazi power. Seeing the play in German, through the eyes of actors trained in Brecht's "scientific approach" to theater and embedded within all the layers of postwar German history, added dimensions of meaning that cannot be captured in even the best of historical accounts. Therefore, what all the essays in Dörries's collection ultimately show is that for some questions, at least, the artist is closer to the truth than the historian.

MANFRED D. LAUBICHLER

Denis Forest. *Histoire des aphasies: Une anatomie de l'expression*. ix + 355 pp., figs., bibl., index. Paris: Presses Universitaires de France, 2005. €23 (paper).

Denis Forest's *History of the Aphasias* takes us on a whirlwind tour of the psychological, neurological, and philosophical literature on aphasia across Europe and America in the last two centuries. It is part historical study and part philosophical analysis, with chapters arranged thematically, each with its own chronology. Rather than paint a picture of the study of aphasia at a particular historical moment, Forest layers older views with current developments, resulting in a pastiche of nineteenth-century anatomo-clinical studies, twentieth-century research in linguistics and the structure of language, and current models in the fields of psycho- and neurolinguistics. His philosophical interest in the ways in which language both speaks for a subject and also gives voice to the body is perhaps one of the most interesting themes to emerge here.

In his first chapter, Forest tells the familiar story of Paul Broca's 1861 localization of the capacity for language articulation to the third convolution of the left frontal lobe. Forest marks