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Memories of Crisis: Bohr, Kuhn, and the Quantum Mechanical "Revolution"

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"The history of science, to my knowledge," wrote Thomas Kuhn, describing the years just prior to the development of matrix and wave mechanics, "offers no equally clear, detailed, and cogent example of the creative functions of normal science and crisis." By 1924, most quantum theorists shared a sense that there was much wrong with all extant atomic models. Yet not all shared equally in the sense that the failure was either terribly surprising or particularly demoralizing. Not all agreed, that is, that a crisis for Bohr-like models was a crisis for quantum theory. This paper attempts to answer four questions: two about history, two about memory. First, which sub-groups of the quantum theoretical community saw themselves and their field in a state of crisis in the early 1920s? Second, why did they do so, and how was a sense of crisis related to their theoretical practices in physics? Third, do we regard the years before 1925 as a crisis because they were followed by the quantum mechanical revolution? And fourth, to reverse the last question, were we to call into the question the existence of a crisis (for some at least) does that make a subsequent revolution less revolutionary?