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**Historic Objections to the Copenhagen Interpretation of Quantum Mechanics—How They Veered Close to Chaos Theory** WM. C. MCHARRIS, Michigan State University — Ever since the Einstein-Bohr debates there have been sporatic challenges to the Copenhagen interpretation of quantum mechanics, but these have rarely gained widespread credence. Quantum mechanics has always been regarded as the very epitome of a linear science, but in other presentations I have raised the possibility of nonlinear or chaotic elements in quantum theory [abstract for This Meeting; J. Opt. B: Quantum and Semiclass. Opt. **5** S442 (2003)]. Neither the founders of quantum mechanics nor its primary critics—e.g., Einstein, de Broglie, Bohm—had access to modern chaos theory. Even those who have attempted more recently [e.g., Weinberg, Gisin, Mielnik] to incorporate nonlinear elements into quantum theory have done so in the context of perturbations to a basically linear system—where chaos cannot develop. Many of these workers have toyed with ideas that fall tantalizingly close to chaotic behavior, so one wonders what would have been the result had they known full-fledged chaos theory. Even strong adherents of the Copenhagen interpretation such as Feynman bring up ideas akin to sensitive dependence on initial conditions leading to classical uncertainty. I summarize and comment on some of these prior investigations.

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