

1096-G1-149

James R Henderson* (henderso@pitt.edu), 504 E. Main Street, Titusville, PA 16354. *The Mathematics of Quantum Mechanics: Making the Math Fit the Philosophy.*

Nowhere in the history of science is it clearer than in the case of the development of a mathematical formalism for quantum mechanics that mathematics is the language of the scientist, if not science. In the mid-1920s, Schrodinger and Heisenberg had different visions of quantum mechanical systems and chose different mathematical tools to describe them. As far as making predictions are concerned, the two formulations are of course equivalent, but it is interesting that each man adopted a mathematical model that matched his own vision of microscopic systems. Schrodinger believed his continuous, deterministic, time-dependent wave function gave a realistic picture of the evolution of quantum mechanical systems (his view would change considerably over time). Heisenberg had adopted what would in the 1950s come to be called the Copenhagen interpretation and denied systems evolved between measurements (indeed, to say even that much may be a category error); his matrix mechanics makes for a tight fit for this view. Though the stories of Schrodinger's evolving viewpoint and Heisenberg's defining the dominant interpretation are interesting in their own right, I will discuss how mathematics and philosophy developed organically in the exciting period at the outset of the quantum revolution. (Received August 09, 2013)