The Confusion of Kuhn's Paradigm Theory

Thomas Kuhn intended for his paradigm theory, introduced in *The Structure of Scientific Revolutions*, to explain the nature and cause of scientific revolutions. His concept of progress through paradigm shifts received massive attention for several reasons: it could be applied to many academic fields in addition to science, it was controversial and questioned the foundation of scientific progress, but also, it was severely misinterpreted by some. Kuhn defined a paradigm as a universally accepted view of a concept among a specific group of scientists. Kuhn's theory follows that revolutions occur when scientists observe anomalies that defy the existing paradigm, thrusting the scientific community into a crisis, eventually resulting in the upending of one paradigm and creation of another to account for new information. Many of Kuhn's ideas, however, were misinterpreted, and he was dismayed by the reception of his book. "All the wrong people seemed attracted to his book for all the wrong reasons" (Hull 112). Why was Kuhn's seemingly straightforward theory so confusing? One explanation is rooted in the books' multitude of ambiguities.

On the most basic level, Kuhn's definition of a paradigm throughout his book shifted, not unlike the shifting of the paradigms themselves. He later responded to criticism by citing two main definitions that he should have clarified in his text: a "disciplinary matrix," which refers to general concepts and methods and "exemplars," which refers to specific problem sets (Hull l11). "Each time Kuhn refers to paradigms, one must ask which sense he intends, and it is not always possible to tell" (Hull 251). His

ambiguity led to misinterpretations. Philosophers, for example, faulted Kuhn for "ignoring his most important innovation—conceptual exemplars" (Hull 112), which would not be difficult since these exemplars had not been clearly defined. Two other "groups" that misinterpreted Kuhn's work include social scientists and physicists. "Social scientists in particular read him as advocating a relativist view of scientific knowledge, as if truth were nothing more than what the scientists in power say it is," (Hull 112) although Kuhn flat out denies a relativist intention. On another note, Hull points out that Kuhn's definition of scientific communities is, at times, equally ineffective as his definition of paradigms. Kuhn continually refers to groups among scientific communities and cites physicists as an example, although according to Hull, physicists are in no way a "community" in the social sense to which Kuhn refers (Hull 112). Although Kuhn's vagueness allows him to simplify, break down, and categorize the immense, chaotic world of scientific theory, it also obfuscates much of his audience to the point of misinterpretation.

As earlier mentioned, a key unclear aspect of Kuhn's work is whether or not he is a relativist. Although in response to the probing questions of social scientists, he insists they misunderstood his intentions, his denial is not completely convincing. "Although the 'real' Kuhn may have actually held a position only slightly at variance with the one he was criticizing, the Kuhn who has influenced our understanding of science is a cultural relativist when it comes to matters of truth (Reingold qtd in Hull 290). In defense of the widely believed misunderstanding that Kuhn is an epistemological relativist, he alludes to

the example in which is compares scientific progress to biological evolution. He creates an image of an evolutionary tree with "a line drawn…from the base of the trunk to the tip of some limb…Any two theories found along this line are related to each other by descent." Kuhn describes how an observer can always tell which was older because "scientific theory is, like biological evolution, unidirectional and irreversible" (Kuhn qtd in Hull 464). This theory presents confusion on multiple levels. For one, this image of a line connecting a root to a branch seems to contradict his previous statement that "science has progressed from primitive beginnings but not toward any particular goal" (Hull 12). Wouldn't the goal be the branch? Similarly, the image conflicts with that of sporadic upheavals, which is the image he uses to represent scientific revolutions. Another problem with this metaphor, according to Hull, is that while Kuhn might be right about scientific development, he is wrong about biological evolution (Hull 464), which consists of irregular trends including reverse evolution.

After the publication of his book, Kuhn had much to clarify. "In later publications, Kuhn apologized for the considerable confusion that his poetic style had caused commentators. If he were to write his famous book over again, he would have expanded on…the evolutionary allusion" (Hull 12). Kuhn also remarked that if he were to rewrite his book he would "begin with a discussion of community structure of science, because a one-to-one isomorphism exists between paradigms and scientific communities (Hull 112). To his defense, many theories could be torn apart if thoroughly analyzed by numerous groups of people with separate goals. Perhaps the biggest fault in Kuhn's

work, therefore, is evident through the fact that even a general audience struggled to comprehend his work. "Sometimes Kuhn seemed to be saying one thing; sometimes another" (Hull 111). Regardless of the negative attention *The Strucutre of Scientific Revolutions* received, Kuhn undeniably succeeded in providing "the spark that ignited the imaginations of historians, philosophers, and scientists alike" (Hull 111), which in some ways is all a scientist can hope for.

Secondary Source: *Science as a Progress* *by David L. Hull*