

James Landis

The Nature of the Escape from Normal Science

Science and Human Values

Squiers

11-2-95

Science and Human Values for me has been a definite lesson in conceptualizing the abstract. It has also been a tremendous experience in 'extraordinary science,' to use some of the language I learned in the course. This means that I encountered anomalies that conflicted with my paradigm and caused me reevaluate my beliefs to include the new information. All of my other classes operated within the boundaries of 'normal science.' By this I mean that all of the learning that took place in each of my other classes did not change my way of thinking, my paradigm, it simply increased my factual and conceptual knowledge.

Science and Human Values, which proceeded without any set syllabus for the term (a syllabus is simply a tool used in the 'normal science' of learning, anyway), was basically formed around the idea that we would bring many voices to a table of conversation and we would essentially analyze what each voice was saying and try to understand each of the arguments in terms of the others. The two main voices in the conversation turned out to be Thomas Kuhn, whom we analyzed in terms of his book The Structures of Scientific Revolutions, and William Placher, whom we analyzed in terms of his Unapologetic Theology. These authors, whose ideas and arguments were intensely abstract in the first place, never actually came to our table in the literal sense, so the already difficult task of understanding their arguments was made nearly impossible because the entire conversation had to be abstracted as well.

At the end of the summer, my skill at abstraction was poorly developed, if developed at all. I could barely conceive of the idea that science has steadily progressed since the ancient Sumerians utilized the motions of the stars to keep time, but by the time the course has almost ended, not only do I no longer believe in the linear progression of science, but my ability to abstract has increased to the point that I have conceptualized the arguments of Kuhn and Placher

and even described each argument in terms of the other.

Similarly, before this course, I would never have thought of school as a pursuit of 'normal science.' I would have been unable to see an English class as 'science' at all. But this course has given me, in addition to changing my paradigm, a new vocabulary with an extensive range of applications in discussions of my universe. 'Normal science' is a Kuhnian term which describes the way a scientific community performs experiments and asks questions in terms of the specific paradigm in which that community operates. Essentially, their scientific endeavors never lead them outside of the conceptual box in which their universe is contained.

This explanation does not nearly explain the concept of normal science to the degree that I have come to understand it after nine whole chapters on the subject of scientific paradigms, their components, and their inevitable alteration when they are found to be inadequate to explain the universe. However, it presents the basic idea behind 'normal science' as I am applying it to the operation of the rest of my classes. Basically, my entire set of ideologies and beliefs has gone unchallenged in every course except for Science and Human Values. Everything that I have learned in other classes has fit within my conceptual box, with only the simple alteration necessary to add the new information to my paradigm. There has not been an idea or a concept which has caused me to make such a drastic alteration in my ideology as the discrepancy in the planetary motions observed by Copernicus that eventually caused the alteration of the geocentric model of the universe to a heliocentric one.

Our study of Timothy Ferris's [Coming of Age in the Milky Way](#) was one of the few books we read that contained concrete details instead of abstract theories. At the beginning of the course, I was thankful to be reading Ferris because I could not easily handle the abstraction. During that time, I was learning about the different cosmologies that existed from the time of the ancient Sumerians and Egyptians to the time of Newton, and since Ferris was writing a history, I was learning about the who, what, where, why, when, and how. I was used to this kind of learning. But as the course progressed, I found myself much more interested in the abstraction and I understood it much better. And we gradually stopped reading Ferris.

Because there was no set syllabus for the course, it was flexible enough that the course could proceed in the most natural way. The fact that we could just stop reading Ferris and proceed to more fascinating and abstract conversation easily contributes to the sense of the course as 'extraordinary science.' It was not proceeding in the normal fashion of the rest of my 'normal science' courses. It had no set paradigm under which we performed experiments and asked questions that we knew we could answer. The experiments and questions led us to change our discussion, to bring new voices to the table, and these new voices led us to questions that could not be answered by our paradigm.

Helena Norberg-Hodge was one voice we brought to the table that was not part of our original conversation. This new voice forced us to consider the decidedly non-Western culture of Ladakh, in northern India. When described in terms of the Western Enlightenment paradigm, the Ladakhians are poor, dirty, and backward. However, their society exists in harmony with nature with no drive for what Westerners call 'progress.' And even more confronting is the perpetual happiness of the Ladakhians. Could there really be another way to organize a culture? How could the Ladakhians be happy when they are so dirt-poor? These questions came up as a result of the changing voices at our table of discussion and forced me to reconsider the superiority of Western ideology. This 'extraordinary science' would be impossible in a course in which the paradigm is already established because the teacher is simply passing along the paradigm. Nothing would be taught in the course that challenges the paradigm because it would undermine the empirical truth of the teacher. Only the truth must be taught...

I learned many volumes of material over the course of the term in Science and Human Values. Even if I could write about every single thing I learned that interested me in the course and actually caused me to think during my day of 'normal science,' I still would not have described everything that made the course great. Everyone gets something different out of the course and contributes something different to it. This could never happen in a 'normal science' course because everyone is supposed to learn the same thing.