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Postmodernism

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Modern Science in a Postmodern World

The primary concern of postmodern philosophy is the centered, totalizing structure present in every facet of human life. This structure is at once both present and absent: present in that it delineates the acceptable, or true, in every instance (whether political, scientific, esthetic, etc.), absent in that it masks itself as the true, the unquestionable, the infallible, thus rendering the structure seemingly invisible or unimportant. However, with the advent of postmodern thought, the unquestionable has begun to be questioned; the mask of the structure begins to rupture, revealing its fallibility and inconsistency. It is only when the structure itself and its center are examined that one begins to see the dictatorship under which all human action and thought has been held, a dominance perhaps properly designated as a centered, totalizing metaphysical structure.

This governing metaphysical structure is not without practical consequences. It is both dependent upon and the cause of a number of smaller, field-specific totalizing structures. Education, politics, science; all of these and all others depend upon a unique structure which defines and legitimates a certain content. This structure defines the truth of a content contingent upon its operation within the bounds of the structure itself. In this way it totalizes a content, it at once limits the possibilities within a field of human activity or thought, and ensures the exclusion of

anything that may threaten the structure itself, at the same time enjoying the guise of universal truth. Such is the case with modern science, the subject which this paper will strive to address from a postmodern standpoint; in the hope that the guise of infallibility will begin to fade once presented with a questioning of its operating structure.

Science “is predicated on the assumption that the scientific community knows what the world is like,”¹ and this implies several presupposing criteria which in turn form the scientific methodology. Science assumes first that the entire world is ordered, and second that it may be viewed objectively. These two presuppositions lead to a third: the idea that all truth claims must also be reproducible. These presuppositions are the center of the governing structure of modern science and, in the form of the scientific method, ensure that anything which does not conform to them will be ignored. This self-legitimizing viewpoint has been used by other “knowledge creating” institutions throughout history, most notably the Catholic Church. The only difference between the church and modern science (in terms of knowledge) is a difference in “received beliefs,”² or presupposing criteria which lie at the center of the structure. While both supposedly “produce” knowledge, one does so with God/religion as its primary referent, and science does so with the above-mentioned presuppositions; something is knowledge only insofar as it conforms to this center. In revealing the shortcomings of the scientific structure, postmodern thought hopes to critique the idea of a centered structure itself, rather than simply create a “new” center such as so frequently is the case.

An obvious example of science’s active repression of other forms of knowledge lies in the controversy surrounding psychotherapy. I here take psychotherapy in its most general sense as “the treatment of mental and emotional disorders through the use of psychological

techniques...with the goal being relief of symptoms...”³ It is obvious that this definition presupposes that psychotherapists have some sort of “knowledge” about mental disorders, their causes, and means for their relief. It is this “knowledge” that modern science contests and excludes on the grounds that it was achieved through a method different than that of science. And this is not a passive exclusion, but rather an active one. In the specific case of schizophrenia a report by the scientific community has, in fact, issued a recommendation that “...psychotherapies adhering to a psychodynamic model *should not* be used in the treatment of persons with schizophrenia. (Italics in original).”⁴ This recommendation simply ignores the many reported successes of psychotherapists in treating not only schizophrenia, but a variety of mental disorders.

It is not my goal here to advocate psychotherapy instead of the more common pharmacological treatment. I use the example only to show the dominance that modern science exercises in order to ensure its perpetuation, and its dismissal of anything which does not conform to its methodology. It is obvious that psychotherapy does not adhere to scientific methodology. It instead focuses on the more singular aspects of human experience, aspects which are not reproducible in other subjects or openly available to all, and deal with conscious and unconscious conflicts within a patient. No two cases, in psychotherapeutical terms, are identical; this makes the verification requirement of the scientific method impossible. Modern science, using its methodology, instead treats the same schizophrenics in terms of neurotransmitters, elements which are the same in each individual, and thus both reproducible and verifiable. However their success in such treatments is limited, possibly no more beneficent or less so than psychotherapy. What often results is a condition “ultimately described simply as

‘tranquilizing.’”⁵ Whether these patients are “cured” *per se* is in question. What is apparent is that they are much more manageable and thus less of a concern; science has fixed its problem, it has solved its inability to adequately address a subject by simply pushing it into the background.⁶

Why, in such instances, would alternatives with at least some history of success, i.e.

psychotherapy, be dismissed or excluded? The answer is simple: the structure of modern science is set up to guarantee its continuous perpetuation and strengthening, thus possibly subversive elements not in accordance with its center (the scientific method) must be suppressed.

Yet the structure of modern science is beginning to rupture; the faults of its structure are being revealed not only in philosophical critiques, but within the field itself. Traditionally able to engulf any discrepancies, extending its totalization to include previously excluded content, the scientific method again seems to have discovered something that is inexplicable via its current structure: quantum mechanics. It is first necessary to understand the discrepancies which have arisen from quantum theory; afterwards it is possible to analyze and critique the role of the methodology of modern science that at once brings these problems to light while simultaneously restricting or possibly denying their further explanation.

Quantum mechanics exists in the realm of the physical sciences, a subset of the larger system of modern science. Physical sciences began in an attempt to explain the material world around us, i.e., why does matter of any form act as it does, and can its actions be predicted according to any base principles, or laws. As the field progressed through time its research dealt with matter of increasingly smaller size, attempting to reach some base building block of all matter, and in the process becoming increasingly complex and depending more and more on sophisticated machinery and tools. This led to the discovery of the atom and subatomic particles such as

protons, electrons and quarks. Yet at this subatomic level, the typical system of scientific investigation broke down. I will here use the example of electrons. Due to the method by which scientists view these particles, electrons, (“...you must shine a wavelength of light on it that is smaller than the electron’s wavelength”⁷) it is impossible to know “both the momentum and position of an electron in an atom.”⁸ It is altogether possible that this paper, in material form, could randomly leave my hand and end up across the room due to a chaotic jump of electrons. The truth is that scientists *fail to know* what occurs, and by extension, what will occur. Modern science’s only answer to the above problems is probability: the current model of the atom is based on electron probability clouds, areas in which the electron is believed to be likely to go. The idea of an ordered system by which all physical activity may be determined is now in jeopardy, left instead to a system of possibilities.

The above failings demonstrate a need to examine science from a critical standpoint in an effort to weaken the general perception that science *can* explain everything, or even a majority of things. Such an examination, in reference to quantum mechanics and in conjunction with Kuhn’s thoughts in The Structure of Scientific Revolutions, helps to delineate science’s boundaries in terms of the knowable and reveal a number of instances in which it is inadequate as a tool for investigation.

As Kuhn points out, science and its research involves “a strenuous and devoted attempt to force nature into the conceptual boxes”⁹ which it has created. These “boxes,” however, depend upon the presuppositions present in scientific methodology, i.e., that a subject is regular or patterned, reproducible, observable, etc. As seen above, the subjects of quantum mechanics do not conform to these presuppositions; therefore it is nearly impossible to force them into such conceptual

boxes. Rather, science must sidestep the issue and create something which *is* conformable, i.e., probability clouds.

The significance of quantum mechanics is not that it has discovered some new phenomena; for “new and unsuspected phenomena are repeatedly uncovered by scientific research.”¹⁰ Rather the significance lies in the fact that scientific methodology has discovered phenomena which cannot be further explained or investigated in their actual state using this methodology. This is not a mere “paradigm war” in the words of Kuhn, it is instead the revealing of the inability of any paradigm to be developed using the scientific method in order to accurately explain the subject matter of quantum mechanics.

Unfortunately it is likely that the scientific structure will soon find a way to totalize quantum mechanics using “numerous articulations and *ad hoc* modifications of their theory,”¹¹ “a sign not of less reason [in this case the reason prescribed by the scientific methodology] but of a greater rigor within reason.”¹² Once again, science will sidestep the true problem (the problem of methodology and presupposition) and modify the contents of quantum mechanics so that they conform to the presuppositions necessary for their placement in “conceptual boxes” i.e., classifying the movements as probabilities. Thus it is likely that it will take something more to reveal the true fallibility of the modern scientific system. However there are a number of practical activities implied by postmodern thought that could be used to help raise the consciousness of the impotency of the structure employed by modern science.

Such activity would first deny the dictatorship of modern science, subsequently moving the quest for knowledge or truth outside of what is currently considered the scientific field. Depending on personal or group interests, the realm of knowledge would also move away from the currently

defined “objective,” and into the social realm. The implications of such a movement would entail a plurality of competing systems by which truth or knowledge may be reached, recognizing their systems qua systems, rather than hiding behind a guise of “absolute” truth or infallibility. These systems could, by implication, be used for the attainment of any number of ends, whether political, esthetic, environmental, etc. As Lyotard points out, “...the reason of reason [i.e. a governing structure] cannot be given without producing the circle, but the capacity to formulate new rules (axiomatics) appears whenever the ‘need’ is felt.”¹³ This ability to freely formulate systems of knowledge according to individual or group desires, or needs, would eliminate the possibility of any one structure gaining a totalizing dictatorship in the realm of knowledge. The above being said, there currently seem to be such movements taking place at their earliest stages. The use of psychotherapy remains present, and is a perfect example of a competing system of knowledge arising in response to empirical problems, i.e. mental disorders. Feminism has also increasingly aimed at an overthrow of the totalization of knowledge as defined by modern science, simultaneously using their critique to push political objectives. The most important facet of each of these movements is their recognition and rejection of a limiting system in terms of the attainment of knowledge. To reject and act outside of the current totalizing system is at the base of all practical implications (in terms of modern science) which may be garnered from postmodern thought.

There is one more point that may be in need of clarification and/or definition: the non-modern status of postmodern activity, i.e. its non-project nature. It is typical, especially within the field of philosophy, for individuals to become unhappy with the reigning system, whether it be the system of thought, politics, ethics, etc. Their goal, then, in developing their philosophical

writings is the overthrow of a current system and its replacement by theirs. It is precisely this which postmodernism strives *not* to do. They do not desire a new system; rather a critique of systems themselves and the recognition of the detrimental element of *any* system that attempts to achieve totalization within a given field. Postmodern thought gives no more weight to the feminist system of knowledge than it does the current scientific system. The important point is the recognition of the impossibility of a totalization of knowledge by *any* system. This fact is of the utmost importance if postmodern thought is to avoid being called hypocritical. Their “project,” for lack of a better word, is to open up the field of knowledge (and other systems as well) to an infinite number of possible systems. It would be, as Lyotard says, “empiricocritical or pragmatic,”¹⁴ denying a status of totalization to all while likewise accepting any system which may arise as self-legitimizing in the face of any number of pragmatic concerns.

Modern science has, undeniably, produced a number of technologies and advancements that are now indispensable to society as a whole. However these achievements have also led to the ascension of modern science to a pedestal from which it maintains what could be called a position of undeserved dominance. Modern science does not hold all the answers; it holds the answers only to that which conforms to its presuppositions, and as is increasingly apparent, there are a number of subjects within the world that simply *will not* conform. Its active repression of other systems which may better deal with such non-conforming subjects is not only problematic from a postmodern philosophical standpoint, but also acts as a hindrance in the search for what may rightly be called knowledge.

¹ Kuhn, Thomas. The Structure of Scientific Revolutions. Chicago, IL: University of Chicago

Press, 1996. 5.

[2](#) Kuhn, Thomas. The Structure of Scientific Revolutions. Chicago, IL: University of Chicago Press, 1996. 4.

[3](#) "psychotherapy." The American Heritage Dictionary of the English Language. 4th ed. 2000.

[4](#) *The Schizophrenia Patient Outcomes Research Team (PORT) Treatment Recommendations*.

1998. Agency for Healthcare Quality and Research, Rockville, MD.

<http://www.ahrq.gov/clinic/schzrec.htm>

[5](#) Silver, Ann-Louise. "Psychoanalysis and Psychosis: Trends and Developments." Journal of Contemporary Psychotherapy 31 (2001): 21-30.

[6](#) It is possible that another reason for this pushing into the background, or making such patients more manageable, is the drive towards increased production inherent in the current social system. See Lyotard's The Postmodern Condition.

[7](#) Freudenrich, Craig. How Atoms Work. 27 Nov. 2004. HowStuffWorks. 28 Nov. 2004.

<<http://science.howstuffworks.com/atom8.htm>>.

[8](#) Ibid.

[9](#) Kuhn, Thomas. The Structure of Scientific Revolutions. Chicago, IL: University of Chicago Press, 1996. 5.

[10](#) Kuhn, Thomas. The Structure of Scientific Revolutions. Chicago, IL: University of Chicago Press, 1996. 52.

[11](#) Pajares, Frank. Kuhn's Structure of Scientific Revolutions. 12 Aug. 2004. Emory University. 28 Nov. 2004. <<http://www.emory.edu/EDUCATION/mfp/Kuhn.html>>.

[12](#) Lyotard, Jean-Francois. The Postmodern Explained. Minneapolis, MN: University of Minnesota Press, 1997. 62.

[13](#) Ibid.

[14](#) Lyotard, Jean-Francois. The Postmodern Explained. Minneapolis, MN: University of Minnesota Press, 1997. 63.