

*From the Editor*

There is a confluence of themes between some of the material in this issue of the Bulletin and the theme of the AAPP Annual Meeting in Toronto. If the confluence in its broadest sense has to do with the intersection of morality and naturalism, Jerry Kroll in his President's Column addresses one aspect of that in his review of the relation of current work in neuroscience to our moral behaviour. Then, in his thorough and accessible introduction to chaos theory, Doug Heinrichs hones in on a specific point of the morality/naturalism discussion—that of free will. As he writes: "By clearly distinguishing being predictable (which chaotic systems in principle are not) from being determined (which they are), an interesting perspective is shed on considerations of free will." In his commentary on Intelligent Design, Don Mender expresses agreement with Heinrichs: "It is possible to link the chaotic dynamics of our cerebral organs to notions of free will, psychiatric dysfunction, and psychotherapeutic intervention." In this both Heinrichs and Mender enter the discussion of 'combatibilism', as articulated by Daniel Dennett with a Darwinist bent in his recent *Freedom Evolves* (Penguin Books, 2003). I note also that our Annual Meeting Keynote Speaker, Ronald De Sousa, promises to address these issues head-on with his keynote address: "Will a Stroke of Neuroscience Abolish Good and Evil." Finally, the theme of the 9th International Conference on Philosophy, Psychiatry, and Psychology, scheduled for June 28-July 1 at the University of Leiden, is "Philosophy, Psychiatry and the Neurosciences." We can thus anticipate more of the same discussion at the international conference.

When the discussion is that of free will, we certainly face the challenge of reconciling seemingly incompatible or incommensurable languages (or 'language games'). I can analyze that conflict over the extra piece of apple pie in terms of a 'basin of attraction' (my thin self-image) and an external attractor (the pie), but in the absence of a real equation, as in other domains of chaos theory application, am I doing more than playing with a metaphor? Analogous problems will challenge us as we struggle with the exploding findings of

**President's Column**

This year's AAPP conference in Toronto on the Moral Emotions appears to come at a particularly timely moment, although one could say that consideration of moral issues and moral philosophy is never untimely. The relevance to the public of the moral character of candidates was highlighted in the 2004 U.S. presidential election. This concern with moral integrity continues to date in the public opinion polls that inquire not only about approval of the foreign and domestic policies of elected officials, but also about the viewers' perceptions of the trustworthiness and honesty of officials.

However, moral concerns have made the popular news lately in ways perhaps more relevant to the interests of AAPP members. The Science Times (Tuesdays) section of the New York Times has run several articles during the past year or so about moral issues, including work on mapping of human brain activities as subjects undergo various types of puzzling over moral quandaries. An article from January 24, 2006 discusses research on empathy (Singer, 2006) that showed that in male subjects (but not female subjects), the "reward center" in the left nucleus accumbens lit up (on functional MRI) when viewing a tape of cheaters being punished (delivery of a painful stimulus). This was interpreted (by the reporter, not by the scientific author) as a neural underpinning of Schadenfreude. In February 7, 2006, a longer article in the NY Times discussed studies (Osofsky, 2005) demonstrating that people are able to rationalize their moral codes (or disengage) when faced with morally compromising situations, such as executing a death penalty. Psychological mechanisms of doing this include emotional disengagement, seeing the target as less than human and employing religious attitudes sanctioning an eye for an eye. These findings, although not the focus of the above research, have obvious relevance to the treatment of prisoners in Guantanamo and Abu Gharib prisons.

The scientific literature has an increasing number of reports describing research studies of brain mapping and fMRI findings. One report, the collaboration of philosophers and neuroscientists (also discussed in the NY Times last year), entered into the controversy regarding the relative roles of reason and emotion in moral judgments (Greene, 2001). Ethical dilemmas involving personal emotional components showed increased activation in those areas of the brain involved in emotional processing as compared to those areas involved in cognitive processing of non-moral judgments. A series of papers by Jorge Moll and colleagues have shown that brain areas that are critical for emotional processing of social behavior and perception play central roles in moral appraisal. A paper by Takahasi and colleagues (2004), using fMRI, studied neural correlates of guilt and embarrassment as examples of self-conscious (moral) emotions. A paper by Heekeren and colleagues (2003) compared brain regions activated in simple moral decisions versus (non-moral) semantic decisions. Brain areas involved in emotional processing are activated even in moral problems devoid of obvious emotional content, as might be found in scenarios of violence and direct bodily harm.

These fascinating studies indicate that the capacity for moral activity that is built into

*(Continued on page 2)*

neuroscience. As we continue to develop the neuroscientific map of all mental activity, how will we reconcile these findings with our personal sense (and language) of agency? I very much look forward to Professor De Sousa's thoughts on this question.

Have we finally buried Kant's noumenal self of practical reason? Certainly one of the major challenges for contemporary naturalism and its rejection of dualism (Kant's and others') is to accommodate our lived sense of acting freely and quasi-dualistically. Let me conclude with a plug for the rich contribution of our colleague, Melvin Woody (*Freedom's Embrace*, Penn State, 1998), to this discussion of personal freedom within a naturalistic framework.

James Phillips

the central nervous system includes an integral emotional component, lending salience and force to what might otherwise be a routine matter of applying an algorithm to come to logical conclusions about a moral course of actions or attitudes. The coloration of human values to almost all events and behaviors, including the metaphorical or symbolic assignment of moral meaning to the natural world (animals, landscape, weather) appears to be a built-in human capacity of which some individuals have more and some have less. The implications of this recent collaboration of neuroscience and philosophy hold great promise for increasing our understanding and appreciation the beauty, limitations and perversions of moral thinking and behavior in complex mammalian life.

The following is an abbreviated reference list to some of the works cited:

Greene, Joshua et al. 2001. An fMRI investigation of emotional engagement in moral judgment. *Science* 293: 2105-2108.

Heekeren, H.R. et al: An fMRI study of simple ethical decision-making. 2003. *Neuroreport* 14: 1215-1219.

Moll, Jorge et al: Functional networks in emotional moral and nonmoral social judgments. 2002. *NeuroImage* 16: 696-701.

Moll, Jorge et al: The moral affiliations of disgust: A functional MRI study. 2005. *Cognitive & Behavioral Neurology* 18: 68-78.

Osofsky, Michael et al: The role of moral disengagement in the execution process. 2005. *Law and Human Behavior* 29: 371-393.

Singer, Tania et al: Empathic neural responses are modulated by the perceived fairness of others. 2006. *Nature* 439: 466-469.

Takahashi, H. et al: Brain activation associated with evaluative processes of guilt and embarrassment: An fMRI study. 2004. *Neuroimage* 23: 967-974.

Jerome Kroll, M.D.

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## Basic Principles of Chaos Theory And Applications To Psychiatry

Douglas W. Heinrichs, M.D.

One strand in the recent efforts to understand the workings of the nervous system and the biological basis of behavior involves characterizing the actions of large networks of neurons, complementing the traditional detailed study of individual nerve cells and their components. This requires the application of mathematical models of considerable complexity including nonlinear dynamics and its subset known as chaos theory. Chaos is a notion that breeds considerable misunderstanding among non-mathematicians, yet its fascinating implications and clear relevance to many psychological, biological and philosophical issues makes a grasp of the basic principles imperative. This paper will provide a basic discussion of chaos theory by and for the non-mathematician, followed by brief suggestions of some of its theoretical and clinical implications.

### Basic Concepts

Start with the more inclusive concept of nonlinear dynamics. Dynamics refers to the mathematical characterization of change in a system. This is often expressed as the relationship of change in the value of one variable to change in the value of another variable. Thus if you are driving at a fixed speed, change in the amount of time driving relates to changes in the distance traveled in an easily calculated relationship: distance=time x speed. If this relationship is graphed with time on the x-axis and distance on the y-axis, the result is a straight line sloping up and to the right. Hence this is an instance of linear dynamics. Relationships with linear dynamics generally are expressed in simple formulae and values are easily calculated. Many patterns of change, however, are not linear. Consider the relationship between changes in the length of the side of a square and its area. With each successive increase by a unit in the length of the side, the area grows by ever increasing amounts: area=square of side. Graphing this relationship with length of side on the x-axis and area of square on the y-axis, the result is a curve ascending ever more steeply up and to the right. Not being a straight line, this relationship is nonlinear. Nonetheless this curve is sufficiently smooth and simple that it can be expressed by a relatively

simple formula and values are easily calculated.

Many dynamic patterns in nature are vastly more irregular, and over many years mathematicians have elaborated techniques to try to calculate values in such dynamic systems, most notably the differential calculus. These techniques have allowed many natural dynamic systems to be calculated and their behaviors predicted. Hence they can be exploited in our ever expanding technologies. Most of the well understood phenomena of chemistry and physics fall in this category. In fact we are so aware of these that it is often overlooked that the dynamics of change in most natural systems cannot be captured in equations that we are able to solve at all. Thus future values of variables (the future position of the system if expressed graphically) cannot be predicted accurately. Some systems behave in ways that seem to have no pattern at all but rather seem random. But many others, including the interesting ones, are clearly following a pattern or patterns, just highly complex and idiosyncratic ones. If looked at graphically, they generate highly bizarre and strange shapes, where each point on the graph represents a possible location of the state of the system at some point in time. (In complex systems with many variables, such graphs occupy theoretical spaces in many dimensions – one for ever variable. Hence they are no longer intuitively easy to visualize. For simplicity this discussion will use images in three dimensions, but the principles remain the same.) The graph may move in a fairly straight line over some range of value, at others it may start to curve, at still others it may change directions dramatically with strange loops and twists. At certain critical values it may even bifurcate and generate multiple potential paths that the system may take.

What determines which path a system is going to take at such bifurcations? Consider that the dynamic functions represented by such graphs are meant to model actual changing systems in nature, not just mathematical abstractions. Hence the numerical values applied at each point are in fact measurements made on nature. All real measurements, however fine-grained, contain some margin of error. The elimination of some degree of approximation is theoretically impossible, not just a limitation of current technologies. It can be progressively reduced but never eliminated. In more simple dynamic patterns (such as those graphically represented by straight lines and smooth curves), small differences in measuring initial positions yield relatively small, or at least predictable and manageable differences in subsequent positions. However, those stranger dynamic patterns with irregular shapes and multiple bifurcations behave

quite differently. Slight differences in initial position for a short time make only small differences in subsequent positions. But at bifurcation points those slight differences determine which branches are followed, and possible positions of the system become rapidly more divergent. This theoretical unpredictability of the actual behavior of the system (often referred to as sensitivity to initial conditions) is one of the defining features of such systems, which are termed "chaotic." It is important to note that chaotic systems are not random, and in fact are fully determined, just unpredictable in principle.

Before elaborating several other key feature of chaotic dynamic systems, it is helpful to explain two terms used in discussing dynamic systems – "attractor" and "basin of attraction." Real life systems in nature can be impinged upon by many external forces, large and small, that can alter the positions of its components. Hence the graph representing its dynamics plots the trajectories along which the forces intrinsic to the system are pushing it. (Whether a force is internal or external is rather arbitrary and depends on how the system is being defined for current purposes). If the system is distorted by an external force to a place off the path, it will be "attracted" back to some position on that path by internal forces unless further external forces prohibit this. Hence any given branch of the path itself is called an "attractor." The full range of possible positions to which the system may be pushed and still tend to return to the attractor is called the "basin of attraction" for that attractor.

If the system is pushed too far, it is outside the basin and it will not be drawn back to that attractor. It is likely, however, to enter the basin of some other attractor (or another branch of the attractor) and be drawn to it, subsequently following the trajectory of that attractor and hence behaving very differently. Where the distances between competing basins are extremely small and the forces necessary to move the system between them are extremely minor, the inevitable errors of measuring the system mean that *in theory* it cannot be predicted into which basin the system will fall. These locations occur at the bifurcation points of chaotic systems and are responsible for their intrinsic unpredictability. Any complex system with its collection of attractors and basins of attractors can be represented physically as a complex landscape of interconnected hills and valleys (basins of attraction). At any moment the state of the system can be imagined as the position of a ball possessing some ongoing source of kinetic energy that is rolling on this surface. If it has enough energy it can ride over some of the hills, but will tend to occupy

valleys and ride along them, spending less time on high ground. Various forces applied to the ball can push it in specific directions, yet its trajectory will be altered and constrained by the topography of the landscape.

Before considering the implications of viewing the person (and his nervous system) as a chaotic system, it may be helpful to articulate some features of chaotic systems as they occur in nature by referencing another natural system that demonstrates chaos, i.e. the atmosphere and its weather. First, such systems are typically composed of a large number of elements and forces with too many degrees of freedom to allow a precise description of each element. (Each molecule of the atmosphere is influenced by its own kinetic energy and that of all the molecules around it.) Second, what distinguishes such a system from randomness is that under certain conditions macroscopic temporal and spatial patterns emerge that can be characterized by a much smaller set of dimensions, hence reducing the degrees of freedom. The pattern is a function of this smaller set of parameters that order the system (hence called "order parameters") and constrains the options of – but not completely defines- the behavior of the microscopic elements in the system. (Hence parameters such as temperature, pressure and humidity are order parameters for weather patterns, and while not predictive of the exact movement of a given molecule in the atmosphere, may well predict with high likelihood that if that molecule is over Ontario today it will be over New England tomorrow). Third, at least in some range of values for the order parameters, the functions describing the relationship between elements are nonlinear – that is, not a fixed rate of change in one variable corresponding to a fixed rate of change in another variable. (In the atmosphere, such discontinuities occur, for instance, around points of condensation and evaporation as temperature varies). Fourth, some of the discontinuities that occur when at least some of the order parameters vary beyond a certain value are so extreme as to constitute a global shift of the system from one attractor basin to another – a "phase shift" or "phase transition." Those order parameters that affect such a shift over the relevant range of values are called "control parameters" of the system. (The emergence of hurricanes or of tornadoes are particularly dramatic examples of phase shifts). Finally, for systems to sustain such complex patterns more than briefly, they must be kept far from thermodynamic equilibrium by an ongoing influx of energy from outside the system

## **AAPP Annual Meeting 2006 *Psychiatry and the Moral Emotions***

**May 20 & 21, 2006  
The Hilton Toronto Hotel  
Toronto, Ontario, Canada**  
*(in conjunction with the American  
Psychiatric Association  
Annual Meeting)*

### **Keynote Speaker**

Ronald De Sousa  
Department of Philosophy  
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The Annual Meeting of the Association for the Advancement of Philosophy and Psychiatry will take place in conjunction with the Annual Meeting of the American Psychiatric Association on May 20 & 21, 2006 in Toronto. This meeting will be devoted to the theme: Psychiatry and the Moral Emotions.

The "moral" emotions are those that arise in the context of events that are perceived to have a moral component or that serve to motivate a person toward moral action (or inaction). Typical moral emotions include the "reactive" attitudes of guilt, shame, regret, contrition, remorse, resentment and envy, as well as such positive emotions as awe, love, empathy, and gratitude.

Psychiatry has traditionally been interested in the pathological aspects of the moral emotions: guilt and shame in the phenomenology of depressive and anxiety disorders, as well as (if primarily as deficits) in personality disorders like antisocial, narcissistic, and borderline personality. More recently, interest has extended to the neurobiology subserving moral emotions. This meeting will address the multiple questions arising at the philosophical/psychiatric interface of moral emotions.

### **Program Organizer**

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to fuel the local perturbations that generate and sustain patterns of complexity. (The sun is the primary outside energy source for the atmosphere).

The use of weather patterns to illustrate chaos is especially appropriate since some of the earliest explorations of chaos occurred in meteorology. The chaotic nature of the atmosphere explains why accurate weather prediction beyond a quite short time frame is so imprecise – mathematical analysis suggest that 4 or 5 days is the theoretical limit no matter how accurate our measurements become. It should be noted that while precise prediction is limited, some changes can be judged as highly probable and others virtually impossible: thus the precise path of a tornado can't be predicted, but it can be stated with confidence that it will not stop and start rotating in the opposite direction. Chaotic patterns impose quite rigorous constraints on the options open to the system. Given these constraints and the possibility of good short term prediction, a meaningful science of chaotic systems is possible even in the face of their ultimate unpredictability.

The nervous system possesses all the necessary attributes to permit chaotic attractors to emerge. The neurons and the synaptic connections constitute a truly vast array of elements and forces – about 100 billion neurons and one million billion synapses. Patterns of distributed, synchronized activation on a macroscopic scale characterizes CNS activity, allowing the compression of degrees of freedom and the systemic constraints on the behavior of individual neurons characteristic of complex pattern formation. Nonlinearities abound in functional relationships between elements: e.g. the relationships between presynaptic neurotransmitter release and postsynaptic depolarization as well as that between depolarization and the generation of pulsatile action potentials at the base of the axon. The dramatic discontinuities corresponding to phase shifts are clearly demonstrated in EEG recordings. As part of a living organism, an ongoing supply of energy is extracted from the environment to maintain the system far from thermodynamic equilibrium. There are discrete mathematical properties whose presence strongly suggest that a system behaves chaotically. While their explication is beyond the scope of this paper, these features have been shown to be present in the nervous system.

### Implications For Psychiatry

What are the implications for the practice of, and philosophical reflections on, psychiatry of viewing the person and his nervous system as a chaotic system? A few

can be sketched here.

1. Chaos theory explicates the generation of complex macroscopic patterns from the aggregate behavior of simpler microscopic elements. It thus provides a basis for mechanisms of emergence of higher order properties, especially important in the philosophy of living systems.

2. Chaos and nonlinear dynamics are abstract models for describing complex systems regardless of the elements making up the system. Hence they offer a unifying framework that can integrate variables characterized in different domains – biological, psychological and social. Thus they may contribute to a truly substantive unified theory of the person (to replace the vacuous “biopsychosocial model”) that provides concrete guidance in integrating psychiatric treatments.

3. By clearly distinguishing being predictable (which chaotic systems in principle are not) from being determined (which they are), an interesting perspective is shed on considerations of free will. Among the variables intrinsic to the human system are those manifested by rational deliberative processes, however we conceive them neurophysiologically. If we conceptualize freedom as acting in accord with the results of rational deliberation, then the person is free to the extent that the forces generated by deliberative processes, as opposed to other forces, dictate the attractor into which the system next moves. The nurturing of such freedom can indeed be viewed as a goal of respectful psychiatric treatment. An outside observer can in principle never be certain of any prediction as to the precise behavior resulting from such deliberation. All predictions are probabilistic only.

4. Unlike the atmosphere, the plasticity of the nervous system means that the movements of the system actually alter the structure of the attractors and their basins; it is as if the movement of the ball is both influenced by the terrain and in turn is molding it as it rolls. The resultant sculpting of the landscape constitutes the person's history. Indeed the total configuration of the landscape constitutes the character of the individual. I would suggest that the behavior of chaotic systems fits quite well with many aspects of Aristotle's views of character and virtue.

5. While chaotic systems are ultimately unpredictable, short term prediction is quite feasible. Indeed, there has been considerable work done in characterizing the nature of short-term patterns and recurring motifs in such systems. In particular, certain attributes of systems can be identified (e.g. increased moment-

to-moment variability and increased sensitivity to perturbation) that herald an impending phase shift of the system to another attractor. Application of these notions could guide ongoing clinical work by identifying periods of heightened likelihood of major clinical changes such as relapse or treatment response.

6. The sensitivity to initial conditions characteristic of chaotic systems means that the impact of any external variable applied to the system is theoretically unpredictable. Hence the precise impact of any psychiatric treatment intervention – pharmacological or psychological – is unknown and can only be predicted probabilistically. Any given individual may react differently or even in an opposite way from that predicted. Hence the recent controversy over rare worsening of depression with antidepressants should not be a surprise. The careful monitoring of patients as to their own idiosyncratic response to any treatment intervention is mandatory.

### Suggested Reading

The following are some suggested books that this reader, a psychiatrist and not a mathematician, has found particularly helpful as starting points for understanding chaos theory and its implications for psychiatry. The literature is vast and multidisciplinary, and each of these volumes contain useful references for further reading.

1. Stewart, I. 2002. *Does God play dice? The new mathematics of chaos*. Second Edition. Malden, Mass: Blackwell. This is a witty and clear exposition of chaos theory for the non-mathematician who is willing to work a little at the mathematics. It is well worth the effort. It does not sacrifice conceptual rigor and sets chaos theory in a useful historical context starting with Newton.

2. Hall, N.(ed.) 1991. *Exploring chaos: A guide to the new science of disorder*. New York: W. W. Norton. This is a compilation of eighteen articles by a range of distinguished experts on various aspects of chaos theory previously published in *New Scientist*. It includes both explanations of basic principles of chaos as well as applications to a range of fields. Well written and well edited.

3. Freeman, W. J. 1999. *How brains makes up their minds*. London: Weidenfeld and Nicolson. This is an intriguing discussion of the application of nonlinear dynamics to neural networks based on the author's landmark studies of olfaction in rabbits. It gives a useful picture of how chaos theory can guide actual research in neurobiology and stimulate interesting speculations about brain and mind.

4. Thelen, E. and L. B. Smith. 1994. A

dynamic systems approach to the development of cognition and action. Cambridge, Mass: MIT. This book focuses on a theory of human development based upon nonlinear dynamics and chaos modeling. It is extremely comprehensive, presenting very specific data from multiple studies and then building a compelling overarching theory. It illustrates the way chaos theory can drive the sorts of questions asked, the development of appropriate methodologies, the techniques for integrating data across domains, and the formulation of a general theory. Clearly written and very rigorously reasoned, it is a wonderful instance of a change in perspective that comes from this approach. All of this is very applicable to issues in psychiatric research and theory.

5. Clark, A. 2001. *Mindware: An introduction to the philosophy of cognitive science*. New York: Oxford University Press. Although not primarily about chaos theory *per se*, this useful volume positions nonlinear dynamics and neural networks in a general consideration of cognitive science and philosophy of mind.

6. Edelman, G. M. and G. Tononi. *A universe of consciousness: How matter becomes imagination*. 2000. New York: Basic Books. This is a speculative discussion based upon the extensive work in neural networks of the lead author, who won the Nobel Prize in medicine. It is an attempt to apply nonlinear dynamic understanding of the nervous system to the perennial problem of consciousness.

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## Review

*Values and Psychiatric Diagnosis*, by John Sadler. Oxford: Oxford University Press, 2005

The following review of John Sadler's *Values and Psychiatric Diagnosis* was written as a student group project. It was submitted to fulfill part of the requirements for a final grade in an undergraduate course entitled *Disease and Values*, which I taught at Carleton College in the winter term, 2005. The book was used as the sole text for the course, and students spent the ten-week term reading the text and discussing the ideas presented therein. The eight students in this course ranged from freshman to senior. They worked together on producing this final review, and, as a result, the ideas reflect a consensus opinion as a class rather than any one individual's thoughts on the book. Consequently, particular frustrations, as well as enthusiasms, have been tempered.

As far as the focus and specific concerns that are addressed in the review, I will let the students speak for themselves without editorializing or adding explanations or caveats. However, one obvious point that bears emphasizing is that, due to the context within which this book review was written (and within which the book was read and the ideas were discussed), what appear as critiques of Sadler's book may well be better interpreted as critiques of my teaching.

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John Sadler's *Values and Psychiatric Diagnosis* is, as the title would suggest, an examination of what place five value commitments – aesthetic, epistemic, ethical, ontological, and pragmatic – hold in the various realms of psychiatry. This book was constructed to facilitate discussion on the presence of various types of values in psychiatry and propose changes in diagnosis and treatment based on the those value-terms. To support his beliefs, Sadler addresses psychiatric literature, researchers, clinicians, and the acts of diagnosis and treatment. In particular, throughout the book, the author maintains a consistent focus on the role of values in the *Diagnostic and Statistical Manual for Mental Disorders*; in fact, the pervasive role of the DSM could justify use of the subtitle "How embedded values shape the structure and use of the DSM." Non-academics can certainly gain knowledge from this book; however, it is most appropriate for medical students, psychiatrists, other physicians, and philosophers.

Sadler's purpose in the book is to bring to light the roles and types of values in mental disorder classification and diagnosis. He does this by drawing from numerous sources – 48 pages worth of sources, in fact – to trace the evolution of the DSM, and examine its underlying influences and scientific methodologies. In a logical and organized manner, Sadler illustrates how factors such as metaphysical beliefs, culture, technology, and politics have sculpted the DSM in both obvious and subtle ways. Through his discussions of many different aspects of the field of psychiatry and the DSM, he brings to the foreground certain important values he feels are currently being minimized or ignored.

Throughout the work, Sadler chooses to concentrate on the diagnosis and classification of mental disorders, even though at the end of the book he argues that this is not where true problem

## IXth International Conference on Philosophy, Psychiatry and Psychology

### Philosophy, Psychiatry and the Neurosciences

June 28-July 1, 2006  
University of Leiden  
Leiden, the Netherlands

New imaging techniques, epidemiological research, refined animal models, the expanding knowledge of the human genome, and new findings about neurotransmitters subtypes and their interactions have radically changed the face of psychiatry. It is now time to investigate the philosophical implications of these changes both for our profession and for our view on the human person.

Is the mind a mere epiphenomenon of brain functioning? What do new neurobiological insights imply with respect to the self and to human freedom and autonomy? Could the interdisciplinary field of philosophy and psychiatry contribute to a new view on the interplay of psychological and biological processes? Is there a future for the so-called biopsychosocial paradigm? Are there ethical boundaries to enhancement of brain functioning?

Such questions will frame the 9th International Conference on Philosophy, Psychiatry and Psychology, hosted by Leiden University on June 28-July 1, 2006.

#### Scientific Secretariat

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lies. Nonetheless, whether the problems lie within the actual text of the DSM or the way doctors use the DSM, Sadler is adamant that they need to be fixed, and uses many specific examples and writings of other professionals to support his belief.

A bit of time is spent discussing the internal conflicts of value a psychiatric practitioner may have, such as conflicts between their livelihood, their colleagues, and a public that is relatively uneducated in the field, but constantly attempting to integrate psychiatric language into everyday life before moving on to the heart of what Sadler really wants to discuss.

Sadler's main interests seem to be the relationship between doctors (in this case, psychiatric practitioners) and patients, the relationship between doctors and the tools of their trade, the relationship between doctors and "the outside world," and the relationship between doctors and diagnosis itself. Sadler's argument is that the dynamics of these relationships are such that concern for the patient is actually put behind the general drive for diagnosis.

Sadler argues that the conceptualization of mental disorders and diseases is a not simply scientific problem, especially when there is very little scientific information regarding the nature of mental illnesses. Rather, values are implicit in the way mental disorders are currently conceptualized, and it is these values that Sadler's book concentrates on. Sadler recognizes that there is a disconnect between the scientific and the clinical work in regards to psychiatry. His book focuses on the diagnosis and classification of mental disorders and the value issues that arise during these processes. From genetics to technology, from politics to gender, this book endeavors to bring values and psychiatric diagnosis to terms with one another. Sadler argues that values are often ignored or pushed to the side in the name of science and that values should instead be recognized, faced, and dealt with. In fact, he argues that certain values, namely the helping of the patient and the promotion of a quality life, should be emphasized. By bringing in economic and political values (cost-effectiveness, efficiency, conformity, etc.), Sadler feels the integrity of psychiatry and psychiatric research are compromised. Sadler thinks that it is goal-oriented practice that is the most harmful to patients. Instead of clinicians who value *improving the life* of their patients, you are left with clinicians whose sole aim is to *fix a problem*.

In his early chapters, Sadler defines vocabulary, outlines concepts, and introduces the bases of many of the issues discussed later. Even the simple naming of these types of values initiates discussion as

to what the nature of these types of values are and when and how they apply to everyday life. However, sometimes the overall thesis was lost by extensive extra explanation. The chapters on *technology* and *politics*, in particular, felt as if they had less of a connection with the central thesis of the rest of the book. In addition, Sadler tends to repeat himself and sometimes he seems to make certain claims that are not quite right. For example, in Chapter 7, Culture, he puts forth what he calls the "ten weird things about Western psychiatry." However, not one of the ten is all that strange; the statement that "the whole is the sum of the parts" is not a weird statement at all.

Sadler's discussion of the nature of defining and diagnosing mental disorders raises important questions as to how mentally ill patients are regarded and how they are treated. One of his main issues against the DSMs is that they promote a process in which the treating of the disorder is emphasized over the treating of the person. Obviously this is an important problem within the field of psychiatry that needs to be addressed. Sadler points out several times that the DSM authors make an effort to prevent the misuse of the DSM, but that it is still largely misused. He notes that while a definition of mental disorders might be worthwhile, such definitions have little to do with nosological decision-making. In contrast, it is the beliefs about the nature of mental disorders (i.e. a more profound set of attributes) that have to do with nosological decision-making. Thus, before nosological decisions can be made, the nature of mental disorders and how we perceive them must be examined. It is this issue that his discussion of values is centered on and it is here that he hopes to open up discussion on the values that lie at the core of psychiatry.

While Sadler for the most part does a reasonably good job of presenting his case in a clear and understandable – if sometimes repetitive – manner, he does fall short in a two main areas. It seems that not enough attention is paid to the times in which the inclusion of certain values (pragmatic, political, or otherwise) is actually the driving force behind *positive* movements in the field of psychiatry.

In addition, Sadler closes with a summation of the issue and the solution he has repeatedly suggested or stated throughout the book. The DSM's misuse as a cookbook or checklist is due mainly to ignorance and lack of proper clinical education and training. Its attempt to be user-friendly with the use of less technical language has also misled many to believe

that reading the catalogue is sufficient to understand disorders/illnesses.

However, his stance on parts of the issue he presented throughout the book seems to change. Although the book cries out for a strong, forceful, and definite conclusion, readers are left to piece together the message for themselves when Sadler begins supporting the DSM and proposes another solution to problems caused by values in psychiatry. It is unclear exactly what type of change Sadler is pushing for; at times he expounds upon suggestions for improving the DSM, at times changes to the psychiatric community, and at times shifts to the outside world. The purpose and placement of Sadler's suggestions at the end of the book remain unclear; no definite resolution on which area to change is presented, nor are we given any particular method through which to attempt to change any of these areas.

Despite the occasional user 'un-friendliness' of Sadler's book, it has made us aware of issues that were once unfamiliar. He addresses important issues including public fears of the DSM's role in diagnosis and its clinical misuse, fears of an over-representation of a minority view and values, and examines the advantages and disadvantages of some proposed alternatives to the current DSM and/or DSM process. The overall message of Sadler's book remains valuable: we need to be aware of the values in and potential misuses of the DSM. As Sadler reiterates, a handbook such as the DSM should be used only *as a guide* to supplement the real goal of psychiatry and medicine: *helping people*. By and large, this book is very insightful and definitely a must-read for anyone interested in the inner workings of psychiatry, medicine, and diagnosis in a social setting.

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## Review

*From Philosophy to Psychotherapy: A Phenomenological Model for Psychology, Psychiatry, and Psychoanalysis*, by Edwin L. Hersch. Toronto: University of Toronto Press, 2003.

Edwin Hersch's *From Philosophy to Psychotherapy* is an ambitious attempt to comprehensively demonstrate the ways in which philosophy and philosophical research are relevant to the psychological sciences. The central thesis is that the psychological sciences (psychiatry and psychotherapy included) are uncritically guided by an array of metaphysical and epistemological assumptions, and that, by articulating those assumptions and making their conse-

quences more explicit, the relevance between these two disciplines will become salient.

Hersch begins with a series of plausible assumptions in order to motivate the central thesis. The first is that our ability to work within the psychological sciences is conditioned by implicit beliefs, presuppositions, and background commitments. In an unfortunate terminological mishap, he dubs one's set of implicit beliefs and background commitments their 'philosophy' (it's a mishap for several reasons, but the most obvious one is that it leaves the argument's conclusion true by *mere fiat*, and circularly so at that (i.e., philosophical research is relevant to the psychological sciences because the psychological sciences are guided and constrained by our 'philosophies'). For the rest of this review, I'll instead just use 'philosophy' in its ordinary sense. A second assumption is that psychological practices necessarily depend on theory (a 'theory' being defined as that portion of one's 'philosophy' which pertains to academic topics; but again, the terminology is idiosyncratic and potentially counterproductive (e.g., 'psychological theories' = sets of implicit beliefs and background commitments about academic psychology), and a third is that theories need to be made explicit in order to be productive. The upshot, then, would seem to be a fairly benign chain of inference: psychotherapeutic practice is most useful when grounded in explicit psychological theory, which is in turn most useful when grounded in explicit philosophical theory.

Hersch's main tactic for making the relevance of philosophy to the psychological sciences more salient is to set up a hierarchical taxonomy of philosophical questions. His taxonomy is organized by distinct levels (A through G—note, however, that the viability of a method based on neatly partitioning such questions is assumed without argument) in a pyramidal fashion, such that the lowest taxa of questions and issues form the 'foundation' upon which all other taxa are based. As he rightly notes, in any such pyramidal scheme, one's commitments at higher levels are structured, in part, by the foundational levels prior to or below them. At the bottom of this pyramid are two levels of questions about what Hersch calls 'ontology'. What he really has in mind with the first level A is what philosophers regard as traditional *metaphysics*—i.e., questions such as, 'Is reality independent of us, of our minds?', 'How could there be any such thing as absolute truth?', 'what is the nature of Being?'—*not* the study of which properties and objects exist, as Hersch would have it; and the second level B, which concerns the (epistemological) relation between mind

and world, reality and human cognition, etc., is likewise misidentified as 'ontology'. Levels C and D concern traditional epistemological questions about truth, knowledge, justification, and belief (e.g., 'What access to truth do we have?', 'What is the locus of truth?', 'how is knowledge validated?', 'when are our beliefs verified?'). Levels E and F concern epistemological questions which as they are applied to particular disciplines and sub-disciplines (e.g., validation criteria). Finally, the top of the pyramid—level G—is constituted by questions pertaining to philosophical psychology, phenomenological psychiatry, abnormal psychology, philosophy of mind, philosophy of action, value theory, and so forth. It should now be clear that moving up these levels toward level G allows the relevance of philosophy to the psychological sciences to become less and less opaque.

Most of Hersch's writing favors a particular orientation to these questions. For instance, he endorses ontological realism at level A and rejects both anti-realism and ontological relativism (although, this is only because he mistakenly takes them to be committed to some sort of nihilism about truth, and so incidentally doesn't take either of them seriously.) Level A is foundational to all the rest, but Hersch's usage of 'foundational' (i.e., A is foundational to B iff A is a condition on the possibility of B) is what philosophers will probably understand by 'transcendental'; so one would have liked to have seen some attempt to relate or differentiate something's being 'foundational' versus something's being conditioned by a set of background commitments, given his idiosyncratic use of 'philosophical'. Although Level A is foundational, Hersch predictably (given his predilection for 20<sup>th</sup> century phenomenology) rejects foundationalism, despite failing to appreciate that his hierarchical taxonomy of levels ends up committing him to a non-Cartesian variety of foundationalism, such as Wittgenstein's (1969). At level B, he rejects another hangover from Cartesianism—namely, a qualitative gap that purportedly arises when subjects of experience and objects in the world are posited with different 'forms of Being', connected only by a generic epistemic relation. This view, which Hersch calls the *s-R-o* model, is rejected in favor of a replacement that allegedly does away with the metaphysical separateness of subjects and objects. Hersch calls this replacement the *sR→o* model, which is more or less an extrapolation of several concepts from the early Heidegger's *Being and Time*; in the *sR→o* model, sub-

jects of experience are inherently and holistically related to objects in world.

Hersch may or may not be right about the adequacy of Cartesianism, broadly construed. But regardless of that outcome, we should recognize that—like most philosophical issues—it's an extremely thorny one. So it was disappointing to see an oversimplified, *ad hominem* presentation of Cartesianism, which he takes to be neatly disposed of by a few suggestive questions, and for which he assumes Cartesians have no answer. (Ironically, he spends far too little time making his 'critique' of Cartesianism *explicit*, and too often writes as if raising rhetorical questions is a mere stylistic substitute for giving arguments.)

Also, in appealing to the 20<sup>th</sup> century phenomenological traditions of the schools of Brentano and Twardowski, I think Hersch has definitely identified a genuine, nontrivial alternative to Cartesianism—one which is oft-taken to have radical implications for certain psychiatric programs. This idea is by no means new, though, and Hersch's presentation of it does little more than recapitulate a series of obscure Heideggerian remarks about the concepts of Dasein, Being-in-the-world, etc. (and without a fuller characterization, the repetitive claims that phenomenological subjects are 'relational', 'contextual', 'holistic', and 'perspectival' only just advances some more or less empty jargon). More importantly, it is not at all clear that Hersch's replacement of the *s-R-o* with the *sR→o* model undermines Cartesianism in the way he thinks it does, for that latter formulation still contains subjects which stand in some hitherto undefined epistemic relation to non-subjects. For all of the difference between Descartes' and Heidegger's views, Hersch's replacement of one model with another merely transforms (from a relation '*R*' to a relation '*R→*') the dualistic split rather than evict it altogether. So, pending further argument to the contrary, metaphysical separateness seems to remain *prima facie*. But even if the *sR→o* model *did* undermine Cartesianism, Hersch's argument wouldn't establish that. He writes, "The intentionality of human experience is inherently relational ... [and] if the form of relatedness known as intentionality is indeed part of the primary and essential structure of consciousness, then the *s-R-o* model's assumptions of primary separateness ... must be incorrect" (pp. 48-9). This is just a *non-sequitur*—the conclusion neither follows from either of these two premises, or from their conjunction (after all, it's not as if the *s-R-o* model somehow fails to

interpret the subject as one of two relata, or as if Descartes was somehow in the dark aboutness).

Hersch opts for another metaphor—what he calls his ‘beams-of-light-through-time model’—to specify the  $sR \rightarrow o$  model in more detail. This beams-of-light-through-time model suggests that human experience and perception is analogous to a beam of light that is perspectively directed toward objects in the world. He writes, “To be experienced here always means to be seen in the light of our perspective and current situation with all its inherent biases and limitations” (p. 79). This latter model is meant to establish that humans have direct-but-limited access to facts, and that truths are constructed by cognizers in real-time interaction with the world. Hersch also posits a number of intersubjective and interactional influences which (literally, for him) color the epistemic advances that can be made the clinical situation. Even though he neglects standard objections to Russell’s concept of *acquaintance*, direct reference, etc., and worse, even though his treatment of the contemporary array of theories of truth (which he baldly confuses with theories of validity) is downright awful, I think that these particular conclusions are extremely appealing and well worth pursuing—perhaps some of the most important of the book, and nicely contiguous with some recent work in embodied cognition and cognitive semantics (e.g., Fauconnier & Turner 2002; Gibbs 1994; Langacker 2001). Hersch also devises some interesting psychiatric case studies and examples to help illuminate his discussion of what he calls ‘the philosophical anatomy of the psychotherapeutic situation’ (e.g., pp. 157–64, 279–95).

The last half of the book is dedicated to exploring and developing this ‘beams-of-light-through-time’ model, with particular focus on its phenomenological underpinnings and psychotherapeutic applications. This model is the focal point and crowning achievement of Hersch’s research. There is an interesting discussion of the concepts of EMOTION, MOTIVATION, DRIVE, and VOLITION in ch. 8, which is juxtaposed with a more rarified discussion in chs. 9–10 of several concepts (e.g., EMBODIMENT, TEMPORALITY, CARE and BEING-WITH-OTHERS, AUTHENTICITY) that have import for his model of patient/therapist interaction. These are mainly drawn from existentialism, humanism, and phenomenological psychology, so little attempt is made to discuss the actual psychological mechanisms which these concepts putatively pick out. It isn’t until ch. 11 that the real value of Hersch’s hierarchical taxonomy of philosophical questions—namely, that it confers a way of

comparing various theories and schools of thought—becomes transparent. In particular, the book nicely culminates in a comparison of classical Freudian psychoanalysis, Klein’s object relations theory, Kohut’s self-psychology, intersubjectivity theory, narrative constructionism, Skinnerian behaviorism, and contemporary biological psychiatry within the context of his taxonomy.

In summation, Hersch’s text stands among a swell of new interdisciplinary research at the intersection of philosophy and psychiatry; in that sense, it may prove to become a timely, trendsetting addition to what is now a burgeoning, specialized literature. Incidentally, in a previous column of this bulletin (vol. 10, pp. 9–10), I wrote that the need for this new subdiscipline had not yet been sufficiently motivated, since disciplinary miscegenation is not always and everywhere beneficial, and then suggested that researchers should uncover the relevant justifications and better clarify the nature of the intersection of philosophy and psychiatry in order to legitimate its charge. One of the reasons mentioned for being cautious about disciplinary miscegenation was that both philosophers and psychiatrists utilize technical vocabulary, which cannot simply be imported into each others’ work (at least not without creating the potential for conceptual confusion, misrepresentation, difficulties in translation, etc.). Also, disciplinary miscegenation can be distracting to the researchers involved, especially insofar as they incur dramatic learning curves, and it can also thin out a given discipline’s pool of expertise by overextending it—i.e., the increased communication that comes at such an intersection of research may come at the cost of decreasing intra-disciplinary communication. So, at the outset, I was enthralled to see that Hersch had already anticipated this (unpopular) comment, and that his book was intended to remedy this situation by clarifying the nature of this intersection and showing exactly how these disciplines are relevant to each other.

It should come as no surprise that the most enlightening parts consist in Hersch’s demonstrations—strewn throughout the text—of how to apply philosophical research to clinical situations. In such instances his expertise best comes through. But despite these enlightening interludes, *From Philosophy to Psychotherapy* turned out to be a somewhat disappointing read. I’m in no position to evaluate the assertions issuing from clinical psychotherapy. But—at least in its more philosophical moments—the execution of this book often misfires,

and so exemplifies precisely those problems in bringing together two disciplines with which I was earlier worried about. In the admirable attempt to be comprehensive, virtually no topic is spared; the result is a whirlwind tour through centuries upon centuries of philosophical traditions, disparate doctrines, and philosophers—many of which are given short shrift or are not carefully characterized (e.g., subjectivism, relativism, solipsism, anti-realism, etc. are frequently conflated). I suspect that, for various reasons, many philosophers and some theoretical psychologists will be frustrated by this book or turned off altogether. Yet, because they are not quite his intended audience (*pace* Hersch, most philosophers are not unaware of the philosophical roots of psychology as a discipline, and of the history of psychology as it emerged from philosophical traditions in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries), the real problem is that any misrepresentation of philosophical positions, misuse of technical vocabulary, or lapses in argumentation may not be picked up by a clinical audiences who have not the necessary philosophical training, and vice-versa. Consequently, those places where Hersch’s text muddies the philosophical water—and thus inhibits progress made at clarifying the intersection of philosophy and psychiatry—may not be noticed until it is too late. Dealing with an incredibly heterogeneous audience is, of course, a daunting challenge, and Hersch’s tome is a laudable effort to do so. Further, I take Hersch’s stated aim to be an extremely admirable one: to challenge theoretical and clinical psychologists, psychiatrists, psychotherapists, psychoanalysts, and numerous other practitioners to better appreciate the import of philosophical issues, which (unbeknownst to them) are guiding and constraining their respective academic work. Yet, this aim also ends up being something of an Achilles’ heel, for the failure to convincingly and clearly establish a salient intersection of philosophical and psychiatric research—especially during this critical period of interdisciplinary growth—only ends up lending credibility to the claim that there can be considerable costs involved in crossing disciplinary boundaries. And while the joint efforts of researchers in different domains may still require substantive integration and unification of their respective disciplines, and may still be worth the non-trivial costs of off-loading, or taking aboard, the problems of the other discipline, *From Philosophy to Psychotherapy* unfortunately does not go far enough toward demonstrating this.



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## Review

*Mad for God: Bartolome Sanchez, the Secret Messiah of Cardenete*, by Sara Tilghman Nalle. Charlottesville, VA: University Press of Virginia, 2001.

In *Mad for God*, Sara Tilghman Nalle presents a microhistory, the story of the lengthy trial and subsequent condemnation of Bartolome Sanchez. Sanchez was a woolcarder in 16<sup>th</sup> century Spain who developed bizarre behavior and heretical delusions. After multiple episodes of publicly blasphemous behavior, he was imprisoned by the Inquisition. Sanchez insisted vehemently that the Cross was not to be worshiped; the sacred Host was “just a bit of dough”. He had visions of the Virgin and other celestial sights and saw himself as a Messiah. With a remarkably modern indulgence, the inquisitor patiently explores his beliefs, attempts to convert Sanchez back to Catholicism, threatens and cajoles him. Sanchez at one point recants, is freed but only to again publicly espouse his beliefs. The inquisitor seems to realize Sanchez is mad, but testimony from witnesses, as well as Sanchez’s own well reasoned discourse suggest that he must be held accountable for his heretical beliefs. He is finally convicted as a heretic, loses his property and is banished. He ultimately returns and later, after a second trial, is condemned to an insane asylum.

Nalle’s work is a fine example of the subgenre of microhistory. In a microhistory, the past is illuminated by detailed accounts not of great men or great events,

but of ordinary events and things presented in a context that is deliberately culture bound. The idea is to understand the past in its own terms and language, and avoid the covert value judgments implicit in traditional history. The microhistory is a response to the challenge of postmodernism, which in Nalle’s words, “questions at every turn the textual, linguistic and esthetic foundations of historical writing.” In a good microhistory we come to know the past on its terms, not our own.

*Mad for God* certainly succeeds as microhistory. The bulk of the text is a translation, largely verbatim, of the spirited dialogue between the inquisitor and the surprisingly articulate woolcarder. Nalle provides the historical context, and we understand the complex regional economic and political context of Sanchez’s village. Being ignorant about this period in history I learned that the more famous excesses and cruelties of the Inquisition were largely reserved for non-Spaniards, most particularly for recently converted Jews who were still regarded as “conversos” or crypto-Jews. I came to understand the profound social and economic consequences of heresy. Sanchez’s property was confiscated; his family was reduced from mere poverty to utter penury. Once Sanchez was finally declared mad and sent to the asylum, his wife spent many years trying to have his public condemnation as a heretic withdrawn. Without that withdrawal, her daughter, as the daughter of a heretic, would never be able to marry. Finally, it is comforting to hear men of conscience four hundred years ago struggle with issues very similar to our own about how to treat the mentally ill and how to decide if someone who is mad is responsible for their words and actions. The puzzled indulgence of the inquisitor reads much like the helpless machinations of a modern judge or community mental health agency.

Nalle is less successful in addressing the bigger questions, like, “what is madness?” or “what is a genuine message from God?” The most successful biographies of the mad share certain features. In some the subject of the biography presents diagnostic puzzles or illuminates the psychopathology of mental illness. Freud’s case history of Dr. Schreber is an important example of this type of case report. In others, the genius of the madman creates puzzles and paradoxes. Biographies of men like Van Gogh or Nash have the natural drama of insanity juxtaposed with genius. We are struck with wonder, for instance, when Nash de-

scribes that his mathematical inspiration comes from the same source as his delusions. Finally there are stories of madman/saints like Joan of Arc or St. Anthony; religious zealots who appear mad in a certain cultural context, yet were sources of great religious inspiration and were finally seen as holy.

Sanchez is not a Schreber or a Van Gogh. His mental illness is unremarkable in its psychopathological features; we don’t wonder whether or not he is really ill. He is not a visionary or genius. His delusions are relatively stock post-Reformation heresies. Despite his Messianic view of himself he had no followers. Sanchez was a pathetic figure, not a tragic one.

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## Psychiatry at the Movies

How has mental illness fared recently at the movies? Have portrayals of people suffering mental disorders been sympathetic or stereotypical? Have there been any stand-out films that could have effects on the public understanding of emotional and cognitive disturbance and its treatment comparable to *One Flew Over the Cuckoo’s Nest*? It is difficult to avoid facile overgeneralizations in addressing such questions; it is far easier to comment on particular films than to assess the whole recent history of American cinema, let alone the broader international arena. So I restrict myself here to a few remarks.

There’s no doubt that Hollywood continues to find mental illness a powerful narrative. Probably *A Beautiful Mind* has gained the widest audience and done more than most in molding the public understanding of schizophrenia. It won four Academy Awards and garnered a great deal of attention concerning the illness and apparent recovery of John Nash. The film delivered a hopeful message while portraying schizophrenia as a serious medical disorder. The main controversy concerned the accuracy of the representation of Nash’s psychiatric treatment, and there was also some debate over whether Nash’s mathematical skills could have been linked to his unusual thought patterns. Martin Scorsese’s film *The Aviator*, which won 5 Academy Awards, prominently featured Howard Hughes’s struggle with OCD, although he was never shown receiving psychiatric treatment. Hughes is shown as a great innovator and enterprising businessman, and there is room for concluding from the film that his determination and obstinacy could even possibly have been linked to his disor-

der. Both films were humane in their representation of mental illness and at the same time were quite compatible with mainstream psychiatric approaches. Given that these two films with mental illness as a major theme are the ones that gained the most prominence in the last few years, this strongly indicates how the attitude of Hollywood to psychiatry has changed since the 1970s.

A rather different attitude toward mental illness has been shown in recent major films with female characters. Charlize Theron's performance as Aileen Wuornos in *Monster* won her an Academy Award, amid controversy about the accuracy of the film's portrayal of the serial killer. There was at least some reason to think that the film minimized the extent to which Wuornos had a major mental illness, and emphasized how her killing of men may have been in some ways a reaction to her abusive childhood. The film itself says little about mental illness and says nothing about psychiatry, despite clearly representing Wuornos as a disturbed woman. One might reasonably conclude that the film was not interested in psychiatric aspects of her story. *Girl, Interrupted* was a very different sort of film, for which Angelina Jolie won an Academy Award for Best Supporting Actress. Susanna Kaysen was diagnosed with Borderline Personality Disorder as a teenager, and she was hospitalized for about 18 months. The film strongly suggests that Kaysen was not very different from most other teens, and thus takes a critical stance toward psychiatric diagnosis and treatment. On a smaller scale, but in a similar vein, was *Sylvia*, with Hollywood star Gwyneth Paltrow playing Sylvia Plath. While the film made clear that Plath had made previous suicide attempts in her life, it implied links between her final depression and the infidelity of her husband Ted Hughes. All three of these films foreground their characters' troubles as reactions to their treatment by parents, partners or the rest of society, and supply little or no positive role for psychiatry.

Of course, Hollywood still capitalizes on the stereotype of the crazy mental patient who is also a psychopathic killer. There are many examples of this, but one of the most egregious is found in *Identity*, directed by James Mangold (who also directed *Girl, Interrupted*). Using a film noir style, set on a stormy night at a cheap motel with a neon sign flickering outside, we meet a mixed cast of characters, and one by one they are murdered. It transpires that all of this occurs in the mind of a mental patient with multiple personality disorder, one of whose characters is in fact a serial killer. While in some ways the story exhibits a certain

amount of psychological sophistication, it ultimately relies on a stereotype of madness just as clichéd as found in Hitchcock's *Psycho*.

There have been a number of recent small budget films that are notable for their portrayal of mental illness. While they have far less social impact than the big budget Hollywood productions, they tend to be more adventurous and thoughtful in their representation. Here I will mention just two. The inappropriately titled *Manic* is set in a juvenile ward of a psychiatric ward with Don Cheadle playing a therapist. The improvisational style of the acting works well, powerfully conveying the emotions of the young people confronting their unhappy pasts. Cheadle's character is calm and reassuring, showing the therapist's ability to transform the lives of his patients. He commands great respect for his ability to help others and to manage the stresses of his job. More experimental is *Julien Donkey-Boy*, directed by Harmony Korine, who explicitly relates his method to the influence of Lars von Trier. The performance by Ewen Bremner in the role of Julien, who has schizophrenia, is quite remarkable, and was clearly helped by his spending time with Korine's family member on whom the character was based. Julien's domineering father is played by the German film director Werner Herzog, in a striking and memorable performance. It is a bleak and upsetting story, but it does at least convey how different and eccentric people with schizophrenia can be. Certainly it is far more convincing than the acting of Russell Crowe playing John Nash.

So there are provocative and thoughtful portrayals of mental illness in recent American cinema, providing reasons for optimism about the future. Films continue to both inform the public about mental illness and raise questions about the status of psychiatry. Some smaller productions explore the limits of representing abnormal mental states, and so can be especially relevant to those interested in philosophical questions about the nature of psychiatry.

#### Films Mentioned

- A Beautiful Mind*. 2001. (Directed by Ron Howard).  
*Girl, Interrupted*. 1999. (Directed by James Mangold).  
*Identity*. 2003. (Directed by James Mangold).  
*Julien Donkey-Boy*. 1999. (Directed by Harmony Korine).  
*Manic*. 2003. (Directed by Jordan Melamed).

- Monster*. 2003. (Directed by Patty Jenkins)  
*One Flew Over the Cuckoo's Nest*. 1975. (Directed by Milos Forman).  
*Psycho*. 1960. (Directed by Alfred Hitchcock).  
*Sylvia*. 2003. (Directed by Christine Jeffs).  
*The Aviator* (2004) (Directed by Martin Scorsese).

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### The Neurohermeneutic Forum The Evangelical Meme Machine

Proponents of Intelligent Design, the notion that a creator rather than blind chance governs the evolution of life in the universe, have recently managed to spread their message throughout America. "Theorists" often affiliated with the religious right have circulated seductive though specious arguments against natural selection. Articles on Intelligent Design have appeared in such respected periodicals as *The New Yorker*. Efforts, though recently rebuffed by well-reasoned court decisions, remain under way to replace at least some Darwinian content with "alternative" design-oriented perspectives in the biology curricula of many public schools.

The proliferation of Intelligent Design has occurred in the face of its abject failure as a scientific thesis. A multi-pronged, "rigorous" attempt to root Intelligent Design in flawed mathematics has fallen flat on its face. Murkier but more sweeping claims that Darwinism cannot account for the "irreducible" complexity of life have disintegrated under the weight of dynamical non-linearity, a well-demonstrated builder of highly complex living systems.

Nonlinear equations clearly show that, without any Intelligent Designer's meddling, the self-reinforcing action of positive feedback loops fed by energy sources far from equilibrium can extract complex "dissipative" structures from apparent chaos. In a soup of carbon-based compounds, biological complexity will thus emerge from the funneling of free energy through organic chemical reactions catalyzed by their own products. Hence, primordial "ribozymes," i. e. proto-enzymatic RNA molecules serving in the remote past as catalysts for their own reproduction, through vast numbers of subsequent positive feedback loop iterations over geological time could well have transmuted the structured energy of visible solar light into the intricate covalently bonded biological architectures now populating our biosphere.

As Douglas Heinrichs points out in this

issue of the AAPP Bulletin and in PPP, some of the most complex emergent bioarchitectures that have evolved on the planet earth include human brains. It is possible to link the chaotic dynamics of our cerebral organs to notions of free will, psychiatric dysfunction, and psychotherapeutic intervention.

These constructs require no buttressing by Intelligent Design. Therefore, dissipative thermodynamics render Intelligent Design extraneous not only to the genesis and growth of life's complexity but even to our own neurocognitive function.

Yet opponents of mechanistic evolutionary theory have not conceded defeat; instead they have hedged their failed arguments with a vague and evasive concoction of rear guard statistical caveats and stylistic disclaimers. Though bereft of concrete biochemical, thermodynamic, or other empirical support, disseminators of Intelligent Design dogma are thus able to push on. In this sense, the Intelligent Design movement, even as it decries the mechanistic ideas of Darwin, is itself behaving in a quintessentially Darwinian manner. Intelligent Design is not evolving within the bounds of ethical science but rather is metastasizing as something much more primitive and hungrily mechanistic--a meme.

The concept of a meme originated in the writings of zoologist Richard Dawkins and has been popularized by Susan Blackmore

through her book, *The Meme Machine*. Simply put, memes are abstract generalizations of genes. Just as the Darwinian potency of a DNA-encoded gene is measured strictly in terms of the number of times it can get itself copied, the communicative success of any aggregate of information embedded in any kind of medium can be measured solely in terms of its ability to foster its own proliferation. Such a generalized and reproducible informational aggregate is called a meme. "Successful" memes may include catchy advertising slogans broadcast through the airways, popular myths passed on via word of mouth, explosive political messages transmitted by pamphleteers, or "good news" proclaimed at religious revival meetings.

Science is not simply a body of memes. The test of a scientific theory entails not only the stamp of approval by an intersubjective consensus of scientists but also vulnerability to empirical testing. If an idea gains strength through popularity despite objective difficulties, it must forfeit its status as science. Instead, it becomes a mere meme.

Viewed in this light, Intelligent Design lacks scientific gravitas but nevertheless is emerging as a powerful meme. If so, Intelligent Design might best be taught not in science classes but in marketing or media studies courses. More-

over, in the interest of transparency, purveyors of Intelligent Design might be advised to identify themselves not as scientists but as quasi-Darwinian memeticists. Organizations promoting Intelligent Design, whether explicitly evangelical, pseudoacademic, or right wing, might then be seen as they really are: soullessly fecund meme machines.

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