

General Theory of Religion

(Leading to the integration of science and religion and the solution to Chalmers' hard problem.)

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Abstract: *A system dynamics analysis of consciousness during a ten-hour religious experience of purgation, which just preceded an estimated four-to-seven second experience of mystical union, gives purgation a scientific structure. Using that structure, my research in comparative religion shows that at the essence or core of each religion resides this same sacred structure and essence. As a result, the analysis forms a general theory of religion: e pluribus unum. The work then goes further, establishing the long-sought-for integration of science and religion by rooting this core of religion in biology. As a byproduct, the analysis solves the central problem in the emerging field of consciousness studies, Chalmers' hard problem. The presentation contains much personal material on my religious life and experiences. This is necessary as preliminary for the formalized analyses of such material. The fullest presentation of these ideas - with over 400 links - is at: <http://world.std.com/~awolpert>*

I. Introduction.

Most religions were generated by a single individual who had one or more peak experiences. Those religions gradually were conditioned and tamed by social forces, were compromised, and then degenerated into their present form - a form that poorly represents the greatness of their originators (James 1902). The general theory of religion focuses on the core of religion or the generative aspect of religion by examining a specific peak experience.

You may ask: How are we to examine the peak experiences of either Moses, the sages of the Upanishads, Parmenides, Buddha, Jesus, Mohammed, Ramakrishna, or other revered avatars and saints? My position is that many people have had a peak experience. Only a few of these people have been known and have had followers: After the peak experience some have become arhats or avatars; others - those who have attained steady wisdom (Plato, Symposium) - have become bodhisattvas [Buddhist], sthitaprajnas (The Bhagavadgita II:54-72), saints [Christian], etc; others have anonymously devoted themselves to family and community and, if they are recognized, are sometimes called a mensch [yiddish], a standup guy [US slang], etc. Still, others are problematic and difficult to categorize. It would be best to have an avatar or a saint or a mensch make a scientific analysis of his or her peak experience so we could base the general theory of religion on that analysis. Lacking that, the theory will be based on an analysis of my own experience. I give the following credentials for such an undertaking:

1. I have experienced mystical union.
2. I have been immersed in religious thinking since 1962.
3. I have never joined any religion.

I am not looking for followers, nor do I want any. Rather, I want to share with others the present state of my ongoing search for the truth about religion. I also seek critique and confirmation.

a) Introduction to the general theory of religion.

"...if there is ever to be a universal religion, it must be one which will have no location in place or time; which will be infinite like the God it will preach, and whose sun will shine upon the followers of Krishna and of Christ, on saints and sinners alike; which will not be Brahminic or Buddhistic, Christian or Mohammedan, but the sum total of all these, and still have infinite space for development ..." (Vivekananda 1893)

Theory and method:

At the heart of the "universal religion" or what I am calling a general theory of religion is a formalized conceptual system built upon the following set of ideas:

1. The essence of religion, called variously God, Allah, Brahman, The One, No Thing, Ground of one's Being, etc., is experienced during the peak or unitive experience, known in the West, for example, as mystical union. Each culture has a name for this holy experience: born again, virgin birth, enlightenment, satori, wu-wei, nirvakalpa samadhi, fana, devekut, ecstasy, etc. (Huxley 1944). During the peak experience one becomes a knower of the essence of religion.
2. The essence of science is its use of a testable formalized conceptual system to analyze and comprehend phenomena. At least since 1800 these testable formalized conceptual systems have usually been constructed using differential equations (Suppe 1977).
3. The key tool of the analysis is the new phenomenological method presented at Section V, Feedback Phenomenology, which incorporates Forrester-style system dynamics. Feedback Phenomenology is used to structure, analyze, and simulate subjective consciousness during an acute experience. The structure is in the form of a multiloop nonlinear feedback system.
4. For my specific aim at generating a general theory of religion, I use Feedback Phenomenology to disaggregate and then closely analyze the various aspects of my core consciousness (Damasio 1999) and its associated cognitive mechanism during the 10-hour purgative period immediately preceding the roughly 4 to 7 second experience of mystical union. Purgation also has various names in the mystical literature of various cultures: Dark night of the soul, refiner's fire, katharsis, overcoming either knots in the heart, samskaras, nafs, samsara or original sin, etc.
5. The key result of the Feedback Phenomenology analysis is the flow diagram for purgation shown in Figure 2 in Appendix I. It is a representation of the structure of my core consciousness and its associated cognitive mechanism during purgation. The flow diagram, together with its mathematical model shown at Appendix II, can be used to accurately simulate, moment by moment, the resulting disaggregated aspects of my core consciousness during the purgative period. At present the model contains 38 variables. These are all operating simultaneously. Eleven of these 38 variables represent the cognitive mechanism and are nonconscious. However, of the remaining 27 variables 23 represent aspects of core consciousness during purgation.
6. Once Feedback Phenomenology has been used to accurately simulate the 38 variables during purgation, deep scientific insights and conjectures are obtained about the dynamics and biology of purgation and mystical union by working along the following lines of attack:
 - + Find the neuroscientific and physiological correlates for the 38 variable purgation flow diagram shown in Figure 2. Such correlates follow from the fact that the dynamic operation of the body and its nervous system is structured in the very same way as the variables in Figure 2: as a multiloop nonlinear feedback system.
 - + Determine the dynamics of the 23 aspects of core consciousness during purgation, as those aspects simultaneously approach the transition from purgation into mystical union.
 - + Establish the nonlinear dynamics phase portrait (Strogatz 1994) for the set of seven differential equations of the model of purgation. These seven equations contain purgation's 38 variables.

Consciousness during mystical union cannot be modeled or simulated, because it is timeless. It transcends the phenomenal: the change in inner sense ceases in that state and hence the sense of inner time ceases also (Kant 1929,B50; Spinoza Pr21). This timeless characteristic is why mystical union is called an experience of the Eternal.

7. The approach to the general theory of religion is by induction. First, the Feedback Phenomenological analysis of purgation produces the 23 simulations to describe the various aspects of my core consciousness, moment by moment, over their 10-hour duration [see Figures 1 and 3]. In this way the changing horizon of core consciousness during the experience of purgation leading to mystical union is laid out as a function of time in greater detail than has ever been done before. Then analysis of the model structure - together with the study of numerous quotes from the mystical literature of the major world religions as they apply at key points in the 10-hour simulations - tends to indicate that the experience is the same profound

experience that underlies all major world religions. As the work proceeded, the above clarification of consciousness during purgation led to a theory of consciousness, a mathematical modeling and simulation of a somatosensory-driven mental imagery (Damasio 1999) which is the intentional object (Follesdal 1998) of subjective consciousness during purgation, a solution to Chalmers' hard problem (Chalmers 1995a,b; Crick 1995) and from there to a link with neurobiology (Damasio 1999; LeDoux 1996; Hall 1999)) and cardiovascular physiology (Sherrington 1906). Here was the beginning of a solid link between biology and religion. Then, it occurred to me that Feedback Phenomenology was performing a phenomenological reduction but was doing it in a simpler and a more formalized way than the methods of the German Phenomenological Movement. In addition Feedback Phenomenology appears to be able to bridge or synthesize the split that had opened up in that movement between the transcendental school or Husserl thesis (Follesdal 1998) and the realist or empirical or physical or existential antithesis. As the study has developed in this way, there has emerged a growing conceptual coherence and confidence, what is now called consilience (Wilson 1998a,b), in the Feedback Phenomenological Method and its resulting general theory of religion and integration of science and religion. In addition, sections VI.c and VI.i present an example of how such a theory will eventually be tested.

Results:

1. The existential and transcendental reductions emerging from the phenomenological analysis of my religious experience are as follows:
 - + The existential or physical reduction: This is the solution to Chalmers' hard problem, which gives the neural and biological correlates of core consciousness for Figure 2 during purgation. This results in an integration of science and religion. See Section VI.c,d, and e for the present results of this existential or physical reduction.
 - + The transcendental or eidetic reduction: These insights were obtained after long meditations on the four period religious experience, particularly meditations on the following two modes of consciousness: core consciousness during purgation, as the various aspects of my consciousness approach the moment of transition from purgation into mystical union; and my timeless consciousness during the state of mystical union. The present results of this eidetic reduction are shown at Section VII.
2. The theory has the potential for guiding the development of the following projects:
 - + A vast overarching research program, integrating consciousness studies, neuroscience, physiology, philosophy of mind, anthropology, psychology, and comparative religion around a system dynamics based solution to Chalmers' hard problem.
 - + A God-centered university.

Overview:

The theory and its results are isolating and clarifying the blessed heart of religion and providing the framework for future scientific investigations; it provides the scientific and philosophical underpinnings for faith-identity patterns throughout the world (Fowler 1981).

I believe the theory will gradually lead to the tearing down of the firewall that now artificially separates the scientific culture and the religious culture. This firewall was a useful compromise when it was first constructed by Francis Bacon four centuries ago (Lindberg 1986), but now it mainly creates a divisive, dulling, and corrosive effect on the intellectual and spiritual life of people in modern scientific cultures, not only for adults but particularly for those in the age group from about 15 to 25.

b) Introduction to my particular religious journey.

The four periods of my religious journey (Campbell 1972) are shown below. I consider Periods #2 and #3 to be the sacred core of religion. Table I, shown a few pages below, disaggregates Periods #1 through #3 into 14 stages.

Period #1: The 5-year crisis period (Wolpert 1996, 2001) during which my life slowly became desperate enough that I was willing to open myself to God:

- + This period was a desperate search for trueness, freedom, integrity, groundedness, meaning, and purpose: a desperate search to save my soul (Matthew 10:39).

Period #2: This is the 10-hour purgative period when my heart was purified and fully opened. This period is dealt with in more detail in Sections II, III, and VI, below.

- + In the West this period is called either purgation (Malachi 3:3) or refiner's fire (Malachi 3:2) or dark night of the soul (John of the Cross 1959) or overcoming original sin (Greene 1957); In the Middle East or Asia it is called overcoming either knots (Scholem 1961) or nafs [Muslim Sufies] or samsara (Suzuki 1970) or samskaras [Hindus], etc.
- + Purgation is an encounter with death: the mystic-to-be has a dance with death. During that divine dance he or she encounters dread, terror, fear and trembling, remembered sin, lingering hatreds, guilt, conscience, an archetype, authentic prayer in the face of impending death, blessed forgiveness, and the profound giving of thanks. As the heart opens in association with prayer, forgiveness and thankfulness, the pilgrim also experiences the movement toward integrity, trueness, bliss, freedom, and love.
- + During the first nine hours of purgation core consciousness was emerging in the midst of what Damasio (1999) calls extended consciousness. During the final hour of purgation only core consciousness was operating. [See the excerpt from An Engineer's Story at Section II after the moment when I laid down on my bed to the moment just before mystical union. This excerpt will give the reader a sense of what core consciousness is like when it is working alone.]

Period #3: Attainment of the knowledge of God or Allah or Brahman or The One or the Ground of one's Being or No Thing, etc. during the peak experience. This period is discussed in more detail in Sections II and IV.

- + My peak experience immediately followed purgation. It lasted for a period of around 4 to 7 seconds. It is an experience of an unsurpassable greatness, pervaded by That which is timeless and unconditioned.
- + The experience has been called various names: born again [Protestants of the US bible belt], virgin birth [Roman Catholics], unio mystica [Latin/Western Christian], enlightenment [Western Buddhists], satori or sunyata [Japanese Buddhists], wu-wei [Chinese culture], nirvakalpa samadhi or moksha [Hindus], fana [Muslim Sufies], devekut [Judaism], ecstasy [Orthodox Christians], etc.
- + During the estimated 4 to 7 second duration of the peak experience the fundamental note of one's existence is sounded: Core consciousness ceases during that period and only a timeless consciousness was operating.
- + The hidden greatness that lies within the very essence of one's heart and soul - supreme freedom, trueness, integrity, and pure love - is fully revealed during those moments.
- + The result is that I had a change of heart.
- + This supreme state was slowly converted over the years into love of God, steadfastness, and one's ego-ideal (Nunberg 1955; Kant 1929, A568)). Together these became the uncompromisable theme or intentionality (Follesdal 1998; Searle 1983) of my Return.
- + Mystical union marked the beginning of the Return period of my religious life. It was not its finish line.

Period #4: The Return: Toward the sanctity of the inner life or the religious life and the preservation and deliverance of the soul. Here is my present understanding of the Return, based on my experiences since 1962:

- + The Return is the period that has the potential for the unfolding of a God-centered life. The center or heart of this potential unfoldment is the experience of purgation and, more importantly, the unsurpassable experience of That which is timeless and unconditioned during mystical union. The direction of the Return's unfoldment is toward That which characterizes the state of mystical union: freedom, trueness, integrity, love of God, and steadfastness. During the Return the mystic prayerfully tends to the unfoldment task.
- + One of the key tendencies of the unfoldment [for me] has been the development of a certain degree of detachment and deconditioning from the dance of the world. I believe that if this deconditioning begins to pervade the mystic's life, it has the potential for

leading the mystic toward both sound and loving relationships and unbiased and far-reaching judgments.

- + The aim is to find an uncompromisable balance between one's inner or religious life and one's life in the world. This is what it means to walk the razor's edge (Katha Upanishads III:14; Matthew 7:13-14).
- + It appears that in the unfolding of the inner or religious life one learns most from humiliating failures.
- + The unfoldment probably continues until the moment of death. I believe it is possible that the results of this unfoldment may prepare the mystic to negotiate with equanimity the trials of the last years and days and hours and moments of his or her life.
- + The unfoldment appears to be characterized by both structure and praxis (Wolpert 2001).
- + The Buddha called the various approaches mystics take in making the Return, "working out one's salvation with diligence."

c) Further details about the journey.

The religious journey is a great adventure (Campbell 1972). As I look back on the journey now, roughly one-third or one-half way through the Return, the feature that stands out is my experience of purgation and mystical union in early April 1962. This experience occurred at the end of a one-week vacation taken after completing an intense, high-tech, engineering project. It should be noted that the religious journey thus far, including the crisis, its culmination in purgation and mystical union, and the ensuing Return up to this moment, has unfolded naturally: no psychedelic drugs or herbs or antipsychotic agents were involved, except cigarettes and coffee.

Table I below gives the sequence of stages of the crisis from Periods #1 through #3, including some indications of the universality of the journey. It disaggregates Periods #1, #2, and #3 above into fourteen stages, showing the name given by mystics in various cultures for each of the stages. Stages 1 to 10 are a disaggregation of Period #1; Stage 11 represents Period #2; Stages 12 to 14 are a disaggregation of Period #3 and its immediate aftermath. The early stages of Period #4 are discussed in some detail at my web site (Wolpert 2001).

d) Introduction to how I am using system dynamics.

The analytical tool I am using is Forrester-style system dynamics (Forrester 1961; Richardson 1981; Sterman 2000). It has sharpened and deepened my discriminating faculty during the Return.

Feedback Phenomenology, presented in Section V, deeply incorporates system dynamics in its method for performing a phenomenological reduction. This is illustrated in the analysis of purgation at Section VI.

At present my analysis of the religious journey has two stages, a roughing-out stage and a refining stage. The roughing-out stage was performed between December 1984 and the Spring of 2000 during which I roughed-out the main elements of the journey and their implications and roughed out the system dynamics analysis for Period #2 or Purgation. This first stage of the analysis goes quite deep in its attempt at exploring the profundity and greatness of the religious journey. During the second stage, which began during the Spring of 2000, I am attempting to go still deeper and approach greater subtlety, breadth, and rigor by:

1. Refining the system dynamics model for Period #2 [See Section VI.j].
2. Developing a system dynamics model for Period #1.
3. Developing a series of models for intrapsychic dynamics during Periods #1 through #4.
4. Developing a system dynamics analysis for the entire journey - also covering Periods #1 through #4.

Stage	Time Period	West/English/ Judeo-Christian	Ancient Greek/ Neo-Platonic	Orthodox Christian	Judaic/ ** Hebraic	Muslim Sufi	Sanskrit Hindu	Buddhist/ Zen	Chinese
1	12/57	Tragedy							
2	1/58 to 8/61	Disintegration of moral character					Tanha/ Dukka		
3	began 2/61	Crisis/Abyss							
4	8/61	Desperation							
5	8/61	Renunciation		Epis-trophe	Teshuvah	Tawbat	Pratya-hara		
6	8/61 to 7/62	Spiritual Fire	Pyr		Shekinah		Tejas		
7	8/61 to 11/61	Concentration			Avodah		Dharana	Ekagrata	
8	11/61 (4days)	Holy Ghost			Shekinah		Diksha		
9	11/61 to 4/62	Absorption or flow			Hitka-lelut	Mur-aqabat	Dhyana		
10	4/62 (9 days)	Holy Ghost			Shekinah		Shakti Diksha		
11	4/8 and 4/9 1962 (10 hours: noon PST to 1am EST)	Dark night of the soul/ Purgation/ Refiner's Fire/ (Overcoming Original Sin)/ Judgment Day	Katharsis/Passing through the gates between Night and Day, guarded by justice. (Proem of Parmenides)		(Overcoming) seals or knots/ Hatarat Hake-sharim	(Overcoming) Nafs	(Overcoming) samskara	(Overcoming) samsara	
12	4/9/62 (~1am: duration of 4 to 7 secs)	Mystical Union/ Born Again/ Virgin Birth	Unio mystica/ Ekstasis/Beauty	Ecstasy	Devekut/ Hitachdut	Fana al-fana/al-tawhid	Samadhi/ Turiya/ Moksha	Satori/ Sunyata/ Enlightenment	Wu-wei
13	4/9/62 (1am to 6am)	Deep Sleep/ (nonconscious)					Sushupti		
14	6am: 4/9/62 to around 7/4/62	Divine State/ Heaven			Bittel Hayesh	Baqa	Bhava	Mushin/ No mind /Nirvana	

** Except for Shekinah, overcoming seals or knots, and devekut, the terms in the Judaic column are from personal communication with Prof. Elliot Wolfson of New York University. The term devekut is from Idel (1988).

II. Excerpt from An Engineer's Story:

{An Engineer's Story (Wolpert 1996, 2001) is a narrative covering the period from the middle of stage 2 to the beginning of stage 14 of Table I. Because this paper focuses on purgation and mystical union, I have selected the excerpt below covering only the 10-hour purgation period [stage 11 or Period #2] and how it led to mystical union and the knowledge of God [stage 12 or Period #3].}

The Heart Begins to Open

The purification resulting from renunciation came about by a supreme effort of the will and by Grace, but the second stage of the purification that followed proceeded passively. A force began to manifest itself in me and I could do nothing but pray. My will was powerless to affect this Force. It began in the following way:

I returned to Southern California at the end of March 1962 for another one week vacation after successfully completing the [engineering] project. I was still running true. I was charged and in a state of openness. On this visit I went to another monastery run by the same Order of monks. Again I found myself in a holy atmosphere. I had a deeply restful, enchanting, profoundly moving week, many times bubbling over with mirth and on one occasion, hearing a beautiful piece of religious music, I was unable to contain a weeping which became a prolonged sobbing from the bottom of my heart.

Around noon on Sunday I left the monastery to return to Boston for work the next day. I was to take a cab to the Los Angeles airport and then a non-stop flight to Boston. I had plenty of time.

The cab stand was about a half-mile away. I was walking down a hill with a small suitcase in my hand.

As I walked reflectively and in peace down that hill in the warm and brilliant Southern California sun, my heart slowly began to feel full. My mind was drawn inward. In this mood I arrived at the cab stand. I told the driver my destination. He was a rather cool and playful young man in his early twenties. I noticed that I was very friendly and mirthful - quite unusual for me since I usually never spoke to cab drivers. During the ride I was joking and at times giggling and had a great time for the half hour drive to the airport. At one point the driver asked me if I had had a "joint" before getting into the cab.

At the airport, however, the warmth or power in my heart began to deepen. I was sitting in the waiting area for the flight but found I could not stay seated. I got up and began to pace the floor of the waiting room. I was well dressed and groomed in a fine conservative suit. Perhaps it was a rather strange sight. The thought occurred to me I was on the verge of a heart attack, but I was only thirty and in good health so dismissed the idea.

The plane was quite full. I took my assigned seat by the window. After the plane circled LA and turned East, the Force in my heart began to get intense. My heart was opening!! There was a struggle going on in my heart. The Force was opening my heart and, because of my fear, my will was waging a losing battle to close it. The opening of my heart brought about a fear - indeed - a terror. At the same time I felt a degree of love for all, forgiveness, brotherhood and sisterhood for all.

I called for the stewardess. I told her something was wrong with my heart. She got me out to the first aid area and gave me oxygen, but it had no effect. She took me to the first class area where there were fewer passengers and I could be alone. The Force continued to try to open my heart and I was in a state of terror for fear I would die shortly. I kept getting up and walking to the drinking fountain to quench the fire in my breast. I must have drunk at least two gallons of water during the five and one-half hour flight.

A few times the stewardess came by to see how I was. Once she sat down next to me. She seemed quite curious about me. She was about 24 or 26. Under the ceiling spotlight I could see her features were delicate but her beauty had now passed its peak. There were the first signs of tension wrinkles around her eyes and mouth. Close up I could sense something about her that had gone cold and there was a sadness underneath her makeup. She was neglecting what I could see was a precious soul. In the course of our quiet conversation I told her, in a somewhat oracular way, "Please leave this terrible job." She asked me why I thought it was so terrible. I said, in effect, she was being paid to be pleasant and gay to the passengers even though her heart and soul didn't feel it any more. She needed an honest job. With my heart so open, I knew my intuition was sure and I could see these things clearly, quite in the same way that the lay of the land can be seen and understood better when standing at an elevated place. Under ordinary circumstances such a conversation would have set the stewardess' teeth on edge, but with my heart so open she seemed to sense my good will and took what I said to heart.

Nevertheless, when I arrived in Boston about 10:30pm, I was met by a rather serious airport state police officer. He was about 35 or 40 years old. He escorted me from the plane ahead of the others and led me to the airport shelter. Normally I was rather aloof from police officers, indeed I didn't like authority of any kind, but when the officer met me my heart was so open I felt all men were my brothers. As I walked aside of him to the shelter, I found myself putting my arm around his broad shoulders. I became aware of the gun at his holster. In the state of mind I was in, I felt toward him like toward an elder, beloved brother meeting me at the plane. I chatted with him and thanked him for his trouble and great courtesy and assistance. I told him I had just left a monastery and was overwhelmed by being in a crowd of people and that I would be alright once I got home. Besides being an optimistic prognosis to calm myself it also seemed to be an appropriate way of explaining my openness and feelings of brotherhood and also of avoiding being detained. Ordinarily this tough, no-nonsense police officer would have given me a difficult time but instead, like the stewardess, he seemed to sense the integrity of my feelings.

The Dark Night of the Soul: The Heart is Purified and Prepared for the Culminating Experience

I took a cab and arrived about 11pm at my South End lodgings. They consisted of two rooms on the second floor of an almost-deserted rooming house overlooking the extensive, predominantly black, federal housing project near the Cathedral. The dull red brick buildings and barren clothes-lines at the edge of the project could be seen from my front window by the light of the street lamps. The window faced a large tree-lined, but neglected, park called Blackstone Square. Next door was a Syrian Church with a domed roof overhung by a huge tree now bare of leaves. A light quietly emanating from the ornate glass window in the dome soothed my soul as I paced the rooms.

Finally I was alone. I lay down on my bed. I knew little about the writings of the mystics at the time. I did not know that I was now entering the Refiner's Fire or the Dark Night of the Soul (John of the Cross 1959) that would purify my heart and make me fit for Union with God.

"But who may abide the day of His coming,
And who shall stand when He appeareth?
For He is like a Refiner's Fire."
(Malachi 3.2)

The events in the cab and on the plane were the beginning but the Dark Night of the Soul began in earnest when I laid down on my bed. As I have said, the fire in the heart led to the opening of the heart. The heart continued to open slowly and inexorably, step by step, like a flower. As it did, it produced forgiveness - forgiveness of those I felt had wronged me, who had teased and mocked me. These vexations departed from my heart one by one as they came to my mind - like water drops from a lotus leaf. At the same time there came to my mind, one by one, things I had done which lay buried in my consciousness undermining my life. I prayed for the Lord to forgive me and He did so, one by one.

Simultaneous with this forgiveness was terror and joy. I was in terror of losing my life. The Fire or Force was opening my heart and I was naturally terrified since my heart had never been open that wide. Fear keeps the heart closed so if the heart is opened beyond its normal position it produces terror. To alleviate this terror I had to forgive. It allowed the heart to tolerate being opened at that degree of opening. As this proceeded, hatred slowly left my heart and it slowly became more purified.

Then the heart opened more. More terror. More sin and error came to my mind, one by one, and I asked the Lord to forgive me and He did so, one by one (Matthew 6:14). The terror lessened. The heart opened wider. More joy. More terror. More prayers. And as the heart opened ever wider my joy increased to ecstasy or rapture.

At the same time I was dealing with another aspect of the terror of losing my life: the dread or remorse that I would lose my worldly ties. I would die in this lonely place never to see my dear ones again. My worldly hopes and dreams would end here never to be fulfilled. Clinging to life, I begged the Lord, Oh save me. Let me live.

This Prayer of Salvation during such an emotional crisis deepened my attachment to God with Form. To confirm and permanently establish this attachment I made a Covenant with God with Form. Once this firm attachment was made I could remove myself from worldly attachments and all its associated complexities and my fears could more easily be borne. Only the most simple and fundamental structures of the mind-heart system were now being employed. This stabilized my mind and enabled my heart to continue the process of opening. It opened amidst joy, ecstasy, terror and anxiety while at the same time there was a fierce attention of my mind and being on that which was within.

The Great Silence

Gradually, then, over a period of about an hour this Refiner's Fire succeeded in bringing about an opening and purifying of my heart and bringing along with it peace to my conscience. As a result, my thinking process was able to rest. As this occurred, all of my mind - all of my being - was freed to focus on the present moment within where there existed the blessed open heart. In this

undistracted, dramatic state my mind became one pointed. That was its natural, purified state. Then, suddenly, all action within me ceased. The pumping of my blood, the beating of my heart, the quivering or hum of my nerves (or perhaps the latter was my body shaking) ceased quite abruptly and I was left in a state of profound silence. I had crossed over to the Great Silence (Matthew 5:8; Scholem 1961).

In that state I no longer felt the previous terror, joy, or anxiety. Instead I felt I had come into my True Home, where I was Free (Mundaka Upanishad). I had left the World and was in a state of Pure Being. In that state my mind could not think; it could only observe inwardly and record (Spinoza V.Pr 21). I had no power to recall or analyze. All of my mind and being continued to focus on the present moment within during the transition into the Silence and at the Silence. In that state of mind and being, my system was satisfied that it had penetrated to the core (John 10:30). Its energy then ran out. It let go and I fell into a swoon, a deep and abiding sleep.

It was the silent night, the holy night.

Presently I awoke. It was daybreak. All was peace, bliss. Within me lapped the Living Waters: a serene, wave-like energy of such a subtle frequency that it was capable of flowing evenly throughout my head and body as if they were both made of one substance. I was in such a state of peace and bliss, pervaded by a feeling of inner goodness, that the experience has led me to believe this is what is known as Heaven (Luke 17:21). My sincere and earnest search for the Truth during the previous five years had finally been satisfied (Plotinus IV: 8.1). I no longer felt that I must seek the ground of my life, the base upon which to build a sound life. I felt I had found the Ground of My Being: the philosopher's stone, the Formless, the Timeless, the Unconditioned, Existence, Knowledge, Bliss (Deuteronomy 6:4; Matthew 5:8; Luke 17:21; John 3:3).

This I now feel is God: no more, no less. Reflection on those blessed hours since April 1962 has led me to that conclusion (Kena Upanishad).

III. The Dark Night or Purgation. A more detailed account:

1. The various kinds of consciousness during, and just after, Purgation:

When my heart began to open in the "warm and brilliant Southern California sun," core consciousness began to emerge and during the next nine hours slowly began to dominate and overshadowed extended consciousness. When I returned to my apartment in the South End and "lay down on my bed," extended consciousness ceased altogether and only core consciousness was operating during the final hour of purgation. Note that my Feedback Phenomenological analysis of purgation in Section VI is only analyzing core consciousness, even though extended consciousness was also present for nine of the ten hours. When I went into mystical union, core consciousness ceased: A different kind of consciousness existed during the 4 to 7 seconds of mystical union, but there is no scientific name for it yet. Let us call it Allah consciousness or Brahman consciousness or God consciousness, etc. For the remaining 6 hours of the simulation in Figure 1, I was in deep sleep and not conscious.

2. The iterative structure of Purgation:

The opening or unfoldment of my heart during what is known variously as the Dark Night (John of the Cross 1959), Purgation (Malachi 3:3), Refiner's Fire (Malachi 3:2), or overcoming samsara (Suzuki 1959) prepared me for mystical union. The various aspects of my core consciousness associated with the opening and purification of my heart during stage 11 of Table I had a cyclical characteristic. This is described by means of the following iterative structure:

- + An unfoldment force within the deepest part of my heart led to an opening of my heart.
- + This initial opening produced rapture but gradually it also brought a psychic stress and fear of death as the opening heart began to encounter a resistance, perceived as a knot in the heart. (Scholem 1961; Mundaka Upanishad)
- + The terror or psychic stress caused my mind to either conjure up or discover the following interpretation or explanation for the presence of the knot: Each knot in my heart had a one-to-one representation in my mind of a particular guilt, sin, error, or hatred.

- + As the fear of death and stress mounted due to the opening heart working against that particular knot, my mind's analytical faculties quickly found and became aware of a particular attachment or impurity in the mind associated with that particular knot in the heart, be it a remembered sin, guilt, error, or a hatred.
- + Because of the extreme stress I began to pray to a God whom I called the Lord.
- + As the stress began to mount even further almost to the point of death (Jonah 2:1-10) in this Dark Night of the Soul, either of the following occurred:
 - + For the case in which a knot represented a sin, I presented the sin to the 'Lord' like a drowning man crying for help. Because of the fervor or integrity of prayer at this desperate moment of stress, the Lord, out of the void within, accepts this plea for mercy -- if the Lord so wills (Augustine 2000). The Lord forgives: the impurity or sin associated with that particular knot in the heart is dissolved and the knot is untied. Then the stress lessened and the mind felt infinitely relieved.
 - + For the case in which a knot represented hatred of a rival, my first move was reluctantly to prepare my mind to forgive. Instantly this lingering was not tolerated because the stress quickly mounted. At the ominous approach of a rising stress that threatened to burst my heart, hatred for my rival at last began to seem superficial. Indeed, the rival was felt to be a friend now; without the so-called rival there in my mind to forgive I felt I could not escape death; the rival existed as a blessed oasis in this wilderness. Hatred for him turned to love. Indeed, I slowly began to discover that in the depths of my heart I had loved my rival all the time (Freud 1915). The knot was untied, the stress lessened, and I felt infinitely relieved (Matthew 6:14).
- 7. This success of prayer, in which a hate turned to love and in which I felt the presence of a forgiving God, encouraged dialogue to develop with this concept of God with Form: The Lord [see Section VI.d.2]. This assisted my mind in letting go of the whole neurotic complex in my brain that connected to or centered around that particular knot in my heart. I attached myself instead to this concept of God, my Blessed Friend, the source of comfort. (Deuteronomy 4:29; Jeremiah 29:13; Matthew 22:37)
- 8. Thus, my heart felt less stress and terror with that knot now untied and my mind became less complex. The mind was therefore a further step more stable and ran more true. I could rest in grateful companionship with The Lord. Moreover, with the knot now removed joy deepened a further step toward ecstasy or bliss and the focus of my mind on the present moment within became more pervading.

It took about nine hours to go through steps 1 through 8 above for the first knot to be removed. Thereafter the eight step iteration or recursion looped relentlessly during a period of about an hour (see the one-hour unstable region of the simulation of purgation in Figure 1) until my heart was fully open; until it was purified or purged; until the twelve knots in the heart (I am using an initial value of twelve knots in the heart, but there could have been anywhere between seven to fifteen knots in the heart) had one by one been untied in this meditative way, and either the sin, guilt, hatred, and error in the mind associated with each knot had become uprooted; until a Covenant had been made (Jonah 2:1-10); until only the most simple and fundamental structures within my mind-heart system were being employed; and there was a fierce and deepened attention of my mind and being on the God-infused present moment within.

The algorithm above describes a phenomenon that is like labor before birth. That is, purgation or the Refiner's Fire is the labor before the birth of God realization (John 3:3). The purpose of this labor is to produce an opening. The opening force comes from deep within.

IV. Mystical Union: A more detailed account of stage 12 or Period #3:

Toward the end of the Dark Night or purgation, during the one or two minute period extending from the removal of the last knot from my heart to the experience of mystical union, core consciousness rapidly became completely absorbed with the God-infused present moment within and my heart continued to open. Psychic stress, fear of death, and prayer due to fear were rapidly disappearing and their intense energies were becoming transformed into a force powering a

supreme inner attention and absorption. Then, quite abruptly, core consciousness ceased. This was accompanied by a cessation of all inner sense or movement for a period, estimated to be between four to seven seconds, during which I was in the state of mystical union.

In mystical union the following occur:

- + It seems that my body had ceased to function: The pumping of my blood, the beating of my heart, the quivering or hum of my nerves (or perhaps the latter was my body shaking) ceased quite abruptly and I was left in a state of profound silence.
- + The train of inner sense stopped. That is, the increase and decrease in intensity of inner sense such as psychic stress, fear of death, and prayer due to fear ceased abruptly.
- + With this cessation of inner sense the train of my sense of time also ceased. {This indicates that one's sense of time and the experience of change of one's inner sense are intimately linked.}(Kant 1929, B46-52)
- + At the same moment that the train of inner sense and the train of time stopped, thought stopped.
- + The mind was so intensely absorbed with the God-infused present moment within that it was unable to leave that spot to generate thought or imagination or to recall from memory. (Spinoza V:Pr 21)
- + Therefore, with the above cessation the cognition of time had ceased; time did not exist for me. However, I was now aware of what is known in the West as Eternity. (Plato, Timaeus 37E-38A; Aristotle, Physics 219B; Plotinus III.7; Augustine 1999, XI: XI)
- + In Eternity there was an exaltation now on the spiritual level: I had arrived at the supreme goal I had been seeking, unconsciously. I was in a state where I felt I was experiencing the fundamental note of my existence (Augustine 2000).
- + In Eternity I was in union with the God-infused formless and timeless ground. In addition I was aware of a supreme integrity and a true freedom while in union with this formless ground (Luke 17:21; John 10:30; Jaspers 1954; Tagore 1914; Plotinus 1991). The two had become One (Deuteronomy 6:4).
- + I was satisfied that this state was the end of the search:
 - + for the Ground,
 - + for Truth. (Here is my idea of Truth: my system was finally running true, like when a rickety, complex machine has been carefully adjusted and begins to hum.)
 - + for God.
- + As I reflect on it now, I estimate that this timeless state lasted around 4 to 7 seconds, although this estimate could be way off. {However, such a brief experience of this state could be dismissed as an unimportant anomaly in the vast expanse of physical time and time's many uses in practical life, except that this experience of the Eternal remains as a deep and abiding memory, like the mother's memory of childbirth. The effect is that it brings about a conversion and a salvation and becomes the philosopher's stone (Jaspers 1954,16; Gilson 1937; Gasset 1960; Plato, Symposium 214E-222B) the central ground of one's life from that moment forward. With that seed, that pearl, I had what I needed to begin to tread the mystic path leading to the salvation of my soul. I believe many unknown people have also experienced mystical union. }
- + With the gaining of this pearl I had come to the end of my long desperate search. I then let go and fell into a deep and abiding sleep (Mundaka Upanishad).

V. Feedback Phenomenology.

a) Introduction:

The Feedback Phenomenology method is essentially a Forrester-style system dynamics analysis applied specifically to the analysis of subjective consciousness during an acute experience. It is a formalized recursive or iterative 9-step method for performing a phenomenological reduction, leading to both the eidetic reduction and the existential or physical reduction. It does this by using feedback and other system dynamics techniques to scientifically and mathematically examine the system structure and dynamics of consciousness. It structures consciousness as a multiloop

nonlinear feedback system. Its application appears to be limited to the examination of consciousness during a past, acute, emotional, subjective experience (Schacter 1995; Hall 1999).

It should be noted here that Feedback Phenomenology can never do full justice to the almost infinite subtlety of consciousness. Think, for example, of a poetic idea or a religious experience. Nevertheless, it deals with this bounded rationality (Simon 1982) by being a bootstrapping operation in steps 1 to 6 of the 9-step recursive cycle given below. This prepares the highly subtle and intuitive human mind of the analyst to deal all by itself with the remaining steps 7 to 9 of the recursion. This dual combination, steps 1 to 6 and steps 7 to 9, spirals recursively, deeper and deeper, toward both the eidetic reduction and the existential or physical reduction.

Let me give a little more detail here:

- + Feedback Phenomenology's strategy as a bootstrapping operation is to disaggregate consciousness into as many aspects as possible while at the same time structuring those aspects as a multiloop nonlinear feedback system. This structure, called a flow diagram, is a map of consciousness for the experience, because Forrester's (1961) system dynamics methods geometrize the resulting differential equations underlying such a structure. The flow diagram is of great value because, firstly, it is capable of "compressing and storing" vast amounts of information in the analyst's mind. Secondly, it can structure that information as a feedback system. Thirdly, it places this vast amount of structured information into one image.
- + It should be noted that the structure of consciousness and its mathematical model obtained from the bootstrapping operation, though not perfect, must still be able to at least accurately simulate a finite number of aspects of consciousness minute by minute during the experience, but preferably it should be able to simulate those aspects of consciousness second by second, at least during key periods of the experience.
- + With the disaggregated structure and the simulations in place the Feedback Phenomenology methodology then asks the user's highly subtle human mind to focus on each element or aspect of the map or structure, while at the same time always being aware of the entire map or total structure. Thus, the analyst's mind can proceed to a more and more subtle and deep level of understanding. From this the analyst advances by means of the recursive cycle toward both the eidetic reduction and the existential or physical reduction the analyst is searching for.

This is not a trivial accomplishment: Analysis of consciousness is the beginning of philosophy, as not only Husserl (Follesdal 1998) has held, but Descartes (1954), Kant (1929), and various sages and schools of thought from Asia and other corners of the world. This powerful method of Feedback Phenomenology, presented in detail here for the first time, provides a telescope or microscope for recalling, observing, and mathematically analyzing the changing horizon of one's own consciousness. In addition this new science enables the scientific world to measure subjective mental processes for the first time. Then, once the scientific world gets wind of the power of Feedback Phenomenology, cognitive neuroscientists, cardiovascular physiologists, and neurobiologists will gather and move in to convert the resulting map of core consciousness generated from a first-person phenomenological perspective into its biological correlates seen from a third-person perspective. This technical breakthrough will give deep insights into how the mind works and will give a thorough solution to Chalmers' hard problem. It will be a new science.

b) Choosing the experience to analyze:

Before beginning the recursive or iterative Feedback Phenomenology procedure shown below the analyst must choose an experience to analyze that is acute or crucial and has the following characteristics:

1. It is your own experience.
2. It is experienced subjectively or inwardly without interaction with the environment (Simon 1993).
3. It is the deepest experience you have had, most preferably an experience of core consciousness. The deeper one's experience, the simpler is one's consciousness during the experience and, hence, the easier it is to perform the Feedback Phenomenological analysis.
4. It is of great meaning to you, because the procedure must be sustained for a number of years.
5. It resides permanently in memory (Schacter 1995; Hall 1999).

c) The existential reduction and the eidetic reduction:

If the experience chosen is of great meaning to the analyst, there is always going on during the analysis - whether consciously or unconsciously - an effort to lay down the existential or physical correlates of consciousness and, particularly, an effort to intuit the essence of the experience. The latter is the underlying aim of the recursion and its driving force. That is: the eidetic reduction is going on constantly in the mind of the analyst throughout the recursion. The results are called "intuition of essences" or the "transcendent elements" of the experience. When the analyst is satisfied with the results, the force driving the recursion or iteration ceases. For an example of transcendental elements for the case of purgation, see Section VII below.

d) The Feedback Phenomenology procedure: The nine steps of the recursion or iteration:

The 9-step recursion that follows loops relentlessly over a period of years. For example, my application of Feedback Phenomenology to analyze purgation has been going on since 1984 and is still not finished. Steps 1 to 8 are the phenomenological analysis steps; step 9 is the eidetic and physical reductions. To thoroughly illustrate this recursive method of Feedback Phenomenology for the case of purgation, see the links at the Feedback Phenomenology Section of my web site (Wolpert 2001).

1. Recall from episodic memory various aspects of consciousness or subjectivity during the experience. This recall is greatly aided by a technique for organizing the recall, termed system dynamics causal loop diagramming (Richardson 1981; Sterman 2000). This technique helps one to see the elements of the recall as sequences of cause and effect, structured as a set of positive and negative feedback loops.
2. Write a narrative of the experience. For my example of purgation, see *An Engineer's Story* (Wolpert 1996, 2001), particularly the part of the narrative shown at Section II of this paper.
3. Use other techniques from system dynamics - such as stocks and flows together with one of the system dynamics software packages, such as STELLA (Richmond 1992) - to convert the causal loop diagram of step #1 into a system dynamics flow diagram (Richardson 1981; Sterman 2000). In the process of choosing the state variables or stocks of the flow diagram for a subjective experience, it is important to determine the intentionality (Follesdal 1998, Searle 1983) of the experience. The intentionality of a subjective experience is about a mental image and is modeled using state variables or stocks.
4. Establish mathematical relationships between adjacent variables in the model (e.g. Using the flow diagram for purgation in Figure 2 and its mathematical model in Appendix II: the intensity of the variable WillingAttention is dependent on the intensity of the variable FearDeathDueToKnot). The flow diagram together with the mathematical relationships between the adjacent variables form a multiloop nonlinear feedback system.
5. Use the resulting mathematical model and the software package to simulate the model's variables. For example, there are 38 variables in the model of purgation at present, 23 of which represent an aspects of consciousness during the ten-hour experience. One can use the software package to display the 23 simulations of sets of variables side-by-side on graphs to get a moment-to-moment view of various aspects of consciousness as a function of time throughout the experience.
6. The recall of the actual experience is called the reference mode. When the simulations of step 5 and the reference mode don't match, fine tune the model structure, adjust constants in the equations, and manipulate table functions. This is done recursively, recalling at subtler and subtler levels until the sets of simulations accurately match the reference mode, moment-by-moment over its duration (Forrester 1961; Richardson 1981; Sterman 2000).
7. Focus on each element of the flow diagram developed in steps 3 through 6, while at the same time always being aware of the entire flow diagram or map or total structure. This focuses the analyst's mind so that thought about the experience can proceed to more and more subtler and deeper levels.

8. Study relevant literature and scientific papers to gain both perspective and depth of insight about the various elements or aspects of consciousness shown in the flow diagram or map of consciousness.
9. The reduction: The existential reduction and the transcendental reduction.
 - + Determine the existential or physical elements. (Some of the existential or physical [biological] elements for purgation are listed at Section VI.c,d, and e.)
 - + Intuit the essence of the experience or transcendental elements. (Some of the transcendental elements intuited for the case of purgation or dark night are listed at Section VII.)

e) Some comments on the recursion of steps 1 to 9 above:

1. This recursive process is augmented by insights from the study in step 8 and limited by:
 - + motivation and detachment: willingness to explore the deepest levels of the experience.
 - + system dynamics skill.
 - + knowledge base: This includes knowledge limitations due to unresolved problems and errors in philosophy and science as they are practiced at the time of the analysis.
2. The key to the phenomenological analysis aspects of the recursion (steps 1 to 8) is Forrester's (1993) fifth principle of system dynamics: "Quantification of unmeasured but important concepts and relationships." This principle has been given some recent scientific support in the field of consciousness studies by a neurophilosopher and theoretical neuroscientist (Chalmers 1995a,b).

VI. Applying Feedback Phenomenology to analyze purgation or Dark Night.

a) Introduction:

Since December 1984 I have been simultaneously developing and applying the above nine-step Feedback Phenomenology method to examine the system structure and dynamics of core consciousness during my ten-hour experience of the dark night of the soul or purgation, which immediately preceded mystical union. The present system dynamics model of purgation is shown at Figure 2.

b) Description and analysis of the model:

1. The architecture:

The architecture of the model of the dark night of the soul or purgation incorporates a quickly operating (milliseconds to seconds) parallel processing cognitive mechanism, interacting with a relatively slow system (seconds to months) that is more embodied. The former originates in the thalamocortical system; the latter originates in the limbic-brain stem (Ledoux 1996) and the neurocirculatory system. Jackendoff (1987) calls the former the computational mind and the latter the phenomenological mind.

My representation for that part of my core consciousness that has correlations in the limbic-brain stem and neurocirculatory system is shown in the lower sector of the model. It includes variables associated with a somatosensory mental image, KnotsInHeart, HeartOpenness and the set of feedback loops associated with them. The 11 variables representing the cognitive mechanism are located in the upper sector of the model, above a semicircle that goes just above KnotOriginInsight, AttentionalFocus, and PsychicEnergyFactor. This cognitive mechanism sector incorporates the concept of redundancy from engineering, Miller's (1956) concepts from information theory of channel capacity, recoding, and "the magical number seven," and the retrieval accuracy of short term memory concept (Schouten 1967; Wickelgren 1979; Luce 1986). Communication between these two sectors of the model is provided by the six transducers or transition variables associated with Prayer and Attention.

Tentative definitions of variables are given in the mathematical model. The constants in the equations and the table functions have been tuned to give an accurate simulation of the 10-hour Dark Night or purgative stage right up to the moment preceding mystical union. (This is step 6 of the 9-step Feedback Phenomenological procedure in section V.d.)

2. Dynamics:

In my normal life HeartOpenness was stable at 5% of maximum possible openness and there were a stable set of twelve KnotsInHeart. However, at the beginning (Time = 0) of the Dark Night or purgation, the phenomenological mind undergoes a change in such a way that OpeningPressure jumps from its NormalOpening Pressure of 5% all the way up to 80%. This is reflected by the fact that I have programmed AdditionalOpeningPressure to go from 0 to 75% at Time = 0. To understand the initial dynamics of the model at this point, keep in mind that the model of the 10-hour experience of purgation shown in Figure 2 is only one subdivision of what will eventually be a larger model of the entire four-period journey. Therefore, the step input from AdditionalOpeningPressure comes from either a shift in loop dominance (Forrester 1985) or a bifurcation (Strogatz 1994) associated with a projected, but not yet modeled, adjacent subdivision. This step input causes limbic-brain stem variables in Figure 2, such as HeartOpenness, PsychicStress, FearDeathDueToKnot, KnotsInHeart and the like, to change or become dynamic, all coordinated by way of the feedback structure.

Mathematically, KnotsInHeart, HeartOpenness, and the three memories in the cognitive mechanism are called state variables. In system dynamics they are called stocks. Each stock has the characteristic of accumulation, analogous to a bathtub accumulating water. Example: "How open is the heart at this moment?" is analogous to "How full of water is the bathtub now?". ForgivenessResponse, HeartUnfoldmentRate, PrimaryInformationProcessingRate, and BackgroundInformationProcessingRate are examples of rates. They act like either the bathtub's inlet faucets or outlet drains. The arrows indicate causation. For example, the arrows coming from PrayerTrueness and PrayerIntensity and pointing at PrayerQuality indicate that the first two variables determine the value of PrayerQuality at any time. Specifically, the mathematical model gives the following definition of PrayerQuality:

$$\text{PrayerQuality} = 0.5 * (\text{PrayerTrueness} + \text{PrayerIntensity}) \dots\dots\dots \text{equation 1}$$

When PrayerQuality reaches 100%, which is the "forgiveness threshold", the ForgivenessResponse is triggered and one KnotInHeart is removed in a ratchet-like fashion. Action then shifts to the negative feedback loop associated with HeartOpenness: The removal of this one knot unseals the restricted and rigid or tight heart a bit, causing PsychicStress to decrease rapidly, which then causes the HeartUnfoldmentRate valve to open. This causes HeartOpenness to fill or open further, causing PsychicStress to rise again as the heart begins to encounter the next knot. As a result FearDeathDueToKnot, and then PrayerIntensity and WillfulAttention, begin to rise again. The rise in fear and the attention leads to a shift in loop dominance: Action shifts to the cognitive mechanism, which is essentially a negative feedback loop concerned with problem solving (Ellis 1995). The fear and attention driven PrimaryInformationProcessingRate in the cognitive mechanism speeds up, leading to an increase in KnotOriginInsight. This increasing insight is concerned with the solution to the following problem: What is the particular sin, guilt, or hatred that is at the origin of the knot? The gradual solution to this problem and its gradual acceptance lead to greater PrayerTrueness and then greater PrayerQuality until the latter reaches the "forgiveness threshold," triggering the ForgivenessResponse again. Then, the next knot cycle begins.

3. A closer look at the knot removal mechanism.

Figure 3 shows a simulation of an intense two-minute period of the Dark Night of the Soul or purgation during which the 5th, 4th, and 3rd knots in the heart are purged. For example, the 4th from last knot is removed at the 607.84 minute mark as shown by curve 1. Then begins the 3rd from last knot period, a 47 second period from the 607.84 to the 608.63 minute mark, during which curve 4, FearDeathDueToKnot, rises because of rising PsychicStress caused by the opening heart. This fear and trembling leads to a rise in PrayerIntensity. When PrayerIntensity approaches 100% it is like the prayer of a drowning man. Prayer Trueness is insightful, focused prayer. [Its simulation and PrayerIntensity's simulation are not shown in Figure 3.] PrayerQuality, shown as curve 2, is made up of both PrayerIntensity and PrayerTrueness [see equation 1].

At the end of this 47 second period, just before the removal of the 3rd from last knot at the 608.63 minute mark, is the culminating point of the 3rd knot removal period when, in fear and trembling, the mystic-to-be accepts in the depths of his heart the deep insight into his sin, hatred, or guilt. This high value of PrayerTrueness is what was needed to bring PrayerQuality to 100%, the "forgiveness threshold", and trigger the ratchet-like action of ForgivenessResponse, causing the removal of the 3rd from last knot at the 608.63 minute mark. (Deuteronomy 4:29; Jeremiah 29:13; Matthew 22:37)

Then FearDeathDueToKnot drops suddenly from 87.2% of maximum all the way down to around 1% of maximum. At that relatively peaceful, blissful, and rapturous state of core consciousness there is extreme thankfulness to the Lord. This extreme thankfulness comes about because the blessed Lord has answered his earnest prayer, granted forgiveness, and thus saved the pilgrim from impending death due to the third from last knot.

"Forgetful of myself,
My head reclined on my Beloved,
The world was gone
And all my cares at rest,
Forgotten all my grief among the lilies."

(from the Dark Night of the Soul by John of the Cross).

Then the 2nd or next to last knot period begins, as the cycle repeats itself in this purgation or dark night of the soul. Meanwhile, TruenessOfMind (curve 3) is rising inexorably as the knots are purged, leading eventually to mystical union after the last knot is removed.

4. Dynamics associated with mystical union.

The model incorporates the controversial idea that mystical union cannot occur by WilledAttention alone. To do that, it brings into play what I am calling NaturalAttention. It works like this: At the end of the purgation all twelve knots had been removed from my heart and the heart was opening. Because there were no KnotsInHeart now, there wasn't any PsychicStress or FearOfDeath and, hence, there was no WilledAttention. AttentionalFocus was increasing now only because of a rise in NaturalAttention. The rise in NaturalAttention had results from a pure, knot-free heart (KnotsInHeart = 0) that had caused TruenessOfMind to go into an exponential rise. The resulting powerful increase in NaturalAttention and then AttentionalFocus caused a rapid decrease in the RetentionTime in short term or working memory. As the RetentionTime decreased, RetrievalAccuracy (Schouten 1967; Wickelgren 1979; Luce 1986) associated with short term memory decreased to the shutoff point, triggering the PrimaryInformationProcessor in the cognitive mechanism to shut down. However, because of the redundancy built into the cognitive mechanism, it immediately switched over to the BackgroundProcessor. The shutdown in the PrimaryProcessor caused the cessation of all inner sense, including the inner sense of time. Simultaneously, I found myself in mystical union. This is indicated when the value of the artificial output variable, ReadinessForUnion, goes off to infinity.

5. The background processor.

The kind of consciousness that is associated with what I am calling the background processor has been known for millenniums: Hindus have called it the purusha or saksin (Hiriyanna 1932; Siddheswarananda 1942); ancient Greeks have called it nous (Guthrie 1965; Aristotle, Posterior Analytics); Spinoza (1982) called it "that part of the mind that is eternal." The cessation of operation of the primary processor during mystical union left the pilgrim without the sense of inner time and the ability to think, imagine, will, and make immediate recall. However, during the state of mystical union, the cognitive system associated with the background processor - working automatically - allows the pilgrim to timelessly observe while the holy experience of God consciousness is going on within his very heart and soul. The background processor processes and records that information into long term memory. Later, when the mystic descends from the state of mystical union and correspondingly the primary processor returns to operation, the mystic can use it to recall the information recorded by the background processor about mystical union. He or she can then have the opportunity to comprehend that experience, because the information processed

and stored in long term memory during mystical union is preconscious. That is, the information is permanently available for conscious introspection.

c) Neurological and physiological underpinnings of the model:

The flow diagram and its analysis describe consciousness during purgation from a first-person perspective. This information will indicate to neuroscientists underlying third-person neurobiological correlates. At present, a rank amateur in neurobiology like myself will have to sketch out the following third-person neurobiological explanation. To help in this task is an inherent compatibility: Both the system dynamics flow diagram and my neural and physiological system are multiloop nonlinear feedback systems.

1. The variables in the lower sector represent somatosensory-driven mental imagery or metaphor. These variables represent a mental image of the heart opening against a restriction or knot. These restrictions to the opening of the heart cause stress. When stress is rapidly rising, anxiety or fear of the unknown and fear of death develops. This leads to prayer. Ten hours later at the end of the dark night all restrictions or knots have been released through forgiveness and the heart is fully open; all stress, fear, and anxiety have vanished. What could be the neural and biological correlates of this sequence that underlies the changing horizon of consciousness during this 10-hours experience of purgation?
 - + Neurobiologists now know that fear and anxiety have their biological correlates in the limbic-brainstem system, specifically in archaic parts of the brain, particularly the amygdala and its central and lateral nuclei and the stria terminalis (LeDoux 1996; Damasio 1997; Hall 1999). The central nucleus of the amygdala has projections to the autonomic nervous system, including nerves associated with the heart, such as the vagus nerve. However, the causal sequence for purgation goes in the opposite direction: During my experience of purgation the heart opened against a restriction first, then stress, anxiety, and fear arose. Nevertheless, because of bidirectionality in neuronal signaling (Guyton 1991), it is possible that there are also projections from the vagus nerve to the amygdala. This may be able to be tested (see section VI.i below).
 - + KnotsInHeart and HeartOpenness represent a somatosensory mental image and are directly related to the way the muscles of the heart operate. [See quote (Sherrington 1906) in section VI.d below.] These muscles, like all of the body, are nonconsciously being monitored by what Damasio (1999) calls the proto-self. This nonconscious information is eventually converted into the somatosensory mental image associated with my core consciousness [see Section VI.d].
2. The upper sector of the model represents thought processing: The cognitive mechanism, including variables such as processing rate, working memory, and retention time in working memory. These have their neural correlates in the thalamocortical system.
3. Intermediate between these two sectors, bringing about an integration and coordination between them, are the variables for prayer and attention or attentional processing. Attentional processing is associated with the superior colliculus and the thalamus (LaBerge 1995).
4. Conjecture concerning blood flow in the vascular network. During stress and emotion hormones [chemicals, peptides] are released (LeDoux 1996). These hormones could increase cardiac output, dilate blood vessels, increase blood pressure, and increase oxygenation of the lungs (Guyton 1991). This would allow the cardiovascular system to greatly increase its ability to irrigate the organism with nutrients, remove debris, and, hence, to function optimally. This would have the purpose of preparing the organism and its nervous system for the experience of mystical union. This conjecture is prompted by the proto-self driven purification of my body going on during the flight to Boston: I was internally driven to drink huge amounts of water. (see Section II).

d) Mathematically modeling mental imagery or metaphor: The handling of somatosensory-driven mental imagery and intentionality by Feedback Phenomenology for the model of purgation:

1. How somatosensory mental imagery appears in the mind:

- + According to my amateurish understanding of Kant (1929), a mental object is produced by a combination of a form or category of the understanding that is filled in by inner bodily sensations.
- + An example is the somatosensory mental imagery. One of the forms or categories of the understanding was circular or feedback causality. It was filled in by a combination of both inhibiting and exciting sensations arising in a region or regions of the heart muscles. The assembly of category and sensation was performed by the understanding, particularly thought and imagination. The result was the intentional object of the subjective experience of purgation, a somatosensory mental image. The inhibiting or suppressing sensation - possibly suppression of neural stretch receptors located at one or more locations or regions of the heart, such as atria, ventricles, carotid sinus, aortic arch, and left coronary arteries - was represented by my imagination simply as a knot in my heart. My imagination converted that in system dynamics terms to the stock or state variable, KnotsInHeart. The exciting or contracting sensation was represented by my imagination as an opening of the heart. I converted that to the stock, HeartOpenness.
- + The following quote (Sherrington 1906) gives the key physiological basis for the above somatosensory mental image associated with purgation:
 - "...the contractions of particular sets of muscles in the heart must entail the suppression of activity of other muscles for coordinated movements of the heart to emerge."
- + This somatosensory mental image was both dynamic and orderly, because what Damasio (1999) calls the proto-self is constantly monitoring the body's inner states. In this case the proto-self is monitoring the movements of the heart muscles. The understanding, mainly the imagination, then generates an image that has its biological correlates in heart muscles. This physical basis for the mental image gives orderliness to the dynamic functioning of somatosensory mental imagery, allowing it to be modeled using system dynamics. It is analogous to Helmholtz's (1971) ideas on the orderliness of dynamic visual mental imagery produced by external objects.
- + Thought and imagination then add more detail to the somatosensory mental image: My mostly nonconscious understanding had spent some period of time on the airplane to Boston feeling and exploring the beginning of this novel somatosensory mental image. [See the excerpt from An Engineer's Story at Section II.] Enough feeling-type data [Husserl called such data, hyle or evidence {see Section VI.f below}] was collected in memory to allow my imagination to create the following scenario: The dynamics of the entire mental image that appears in the mind is an opening heart that is restrained by a sequence of knots that need to be untied one by one as the heart opens. These knots are represented by the imagination as a collection of sins, guilts, hatreds, or grievous errors. The untying is to be accomplished through prayer and forgiveness. Intentionality during purgation is about the core of the mental image associated with KnotsInHeart and HeartOpenness. The intentional object is the mental image.
- + Here are two additional items related to the appearance of the mental image:
 1. The mental image is the basic building block of subjective consciousness (Ellis 1995) during purgation.
 2. In creating the mental image and its associated scenario my imagination possibly drew on a childhood memory of pumping up a bicycle inner tube in early spring. Over the winter the tire had lost air and had become flattened, so when pumping it up I noticed the inner tube had become lightly stuck together at various points along its inner surface because of downward pressure from the rim. I realized that if the tube was to be salvaged, the air pressure had to be able to force the release of the sticking points.

2. Purgation's critical fork in the road to mystical union: The relationship of mental imagery and problem solving to the stabilization of my anxious and overstressed mind.

By creating the above scenario and its associated changing mental image in such a way that it could be intimately correlated with the movements of my heart muscles, my imagination had provided me with the solid structure that I needed. With that structure in hand, my mind was no longer overwhelmed by the moment to moment dynamics, because a large percentage of the huge amounts of information I was dealing with during purgation could be "compressed and stored" in the mental image. Thereafter, my mind was freed up from the condition of being overwhelmed with information. I could focus on the essential content of purgation or the dark night of the soul. The essential content included the following iterative sequence:

- + The anxiety, dread, and terror associated with the knots in the heart and the possibility of my approaching death at any moment.
- + My sin, guilt, grievous errors, or hatreds associated with the knots, that lay deep within my conscience.
- + My prayers, like the prayers of a drowning man going down for the last time.
- + My awareness that I was in the presence of an image or archetype of Death. [This is the image or archetype missing from Figure 2 that will be modeled in the refined version of the model {see Section VI.j below}.] The archetype of Death that appeared was a silent, watchful, divine, dark, austere, male Judge. This Judge, who was felt to be a close and intimate agent of the Lord, could grant me forgiveness and pardon me from death, if He saw fit to do so. But He was a firm taskmaster: He required that my prayers to the Lord be both true and backed up by all my heart and soul (Deuteronomy 4:29; Jeremiah 29:13; Matthew 22:37).
- + My thankfulness and peace after forgiveness.

These mental images with their ability to compress and store information for the scenario together with the grace of being granted forgiveness led me to the way toward mystical union rather than the way toward a negative psychotic episode (Deikman 1971).

3. Feedback Phenomenology, intentionality, and the mathematical modeling of mental imagery or metaphor:

A key idea in Feedback Phenomenology is that the changing state of the core of the mental imagery can be represented mathematically by state variables or stocks. For example, the one changing mental image central to my consciousness during purgation is disaggregated into two changing stocks, HeartOpenness and KnotsInHeart. The intentionality of subjective consciousness during purgation was about this mental imagery. That is, the stocks, HeartOpenness and KnotsInHeart, together represent the intentional object. Therefore when using Feedback Phenomenology to model subjective experience, one should look to the object of the intentionality, the mental image, when selecting the state variables or stocks.

4. The relationship of problem solving to the arousal of subjective consciousness:

Further reflections on the experience of purgation reveal that subjective consciousness and its associated thought, emotion, feeling, and somatosensory mental imagery or metaphor arose in my mind in response to a problem (Ellis 1995). The problem was not pain, just a hard-to-describe intense opening pressure. The problem I presented to myself was: What has caused this arousal in my heart? In great anxiety I asked myself: How long will it last? Will it ever end? Am I going to die? Without these problems the stress, fear, and anxiety components of my consciousness would not have arisen. My state of mind would have remained relatively unconscious and problem free.

e) Solution to Chalmers' hard problem

I believe my work is now closing in on a solution to Chalmers' hard problem for the case of core consciousness during purgation. The insights gained from this solution provides a prototype for the solution to the more complicated case of extended consciousness. The core consciousness solution is in two parts, the first-person analysis and the third-person analysis.

1. First-person analysis:

The method I am using in the first-person analysis is Feedback Phenomenology. The key results of the Feedback Phenomenological analysis are:

- + The Forrester-style system dynamics type flow diagram for purgation at Figure 2. It gives the structure of consciousness during purgation in the form of a multiloop nonlinear feedback system.
- + An example of a two minute simulation of consciousness in Figure 3. It occurred during a critical period of purgation. It is based on the mathematical model associated with the flow diagram of Figure 2.
- + The same mathematical model and flow diagram are also shown to be capable of successfully simulating consciousness during the entire experience, as shown by Figure 1.

2. Third-person analysis:

Here is a summary of some neural and physiological correlates associated with the first-person flow diagram in Figure 2:

- + The architecture of the model of purgation incorporates a quickly operating (milleseconds to seconds) parallel processing cognitive mechanism, imbedded within a relatively slow system (seconds to months) that is embodied. The former, sometimes also called the computational mind, originates in the thalamocortical system; the latter, sometimes called the phenomenological mind, originates in the limbic-brain stem and neurocirculatory system.
- + During the critical period of purgation (after I had laid down on my bed) core consciousness is operating; during mystical union only some sort of timeless consciousness is operating.
- + The variables in the lower sector, the phenomenological mind, represent somatosensory-driven mental imagery.
- + The cognitive mechanism in the upper sector represents thought processing and problem solving. It includes variables such as processing rate, working or short term memory and its retention time. Work by cognitive neuroscientists on the cognitive mechanism over the past few decades (Simon 1993) could be incorporated into the model, expanding the complexity and detail of this upper sector. The model of the phenomenological mind in the lower sector could serve as a "test stand": Place the expanded version of the cognitive mechanism on the test stand and test whether the resulting simulations can produce the reference mode for purgation.
- + Intermediate between these two sectors are the variables, prayer intensity, prayer trueness and attention or attentional processing. These variables bring about an integration and coordination between the upper and lower sectors. In the case of attentional processing (LaBerge 1995):
"The two subcortical structures that have been most strongly implicated as mechanisms that modulate attentional processing are the superior colliculus and the thalamus."
- + The state variables are shown in the flow diagram as rectangles. The two state variables in the lower sector, KnotsInHeart and HeartOpenness, represent a somatosensory mental image. The physiological correlate for this somatosensory mental image is in the dynamics of heart muscle movement (Sherrington 1906).
- + The variables for fear and stress in the lower sector have correlates associated with the amygdala (LeDoux 1996).
- + There are projections from the amygdala to the vagus nerve (Guyton 1991; Shepard 1988, Kandel 2000). Their communication serves as a correlate for the connections between the stress region and the heart region in the lower sector.

I now need an expert third person analysis of the flow diagram by a cognitive neuroscientist and his or her associates in allied fields in order to arrive at a thorough scientific solution to the "hard problem" for the case of core consciousness.

f) Illustrating concepts from the Phenomenological Movement in Germany by means of the Feedback Phenomenological analysis of purgation:

(The Phenomenological Movement terminology (Follesdal 1998) is shown in bold.)

1. Consciousness is always directed toward a **noema**. The noema can be either an external object or an internal mental image. Husserl called this directedness the **intentionality** of consciousness. In Feedback Phenomenology the various **features** of the noema are modeled using state variables (stocks). For example, for the subjective experience of purgation, the noema is mental imagery or metaphor in the form of an opening heart whose unfolding is restricted by the presence of knots. This particular imagery has two features and, hence, is modeled using two state variables, **KnotsInHeart** and **HeartOpenness**.
2. The noema is **filled in** with **evidence** or **hyle**. For the example of purgation, the noema's features, **KnotsInHeart** and **HeartOpenness**, are filled in with hyle or evidence, such as stress, fear of death, prayer, forgiveness, and the workings of the cognitive mechanism. This hyle indicates dynamic somatosensory mental imagery, prompted by an inner perception by the proto-self of heart muscle dynamics.
3. All the detail of the model - including the variables, the connectors, the mathematical model, the simulations of the changing horizons of consciousness, and the determination of the neural correlates of the model - are what Husserl called the results of the **phenomenological reduction**. This reduction is accomplished by means of steps 1 to 8 of the recursion of Feedback Phenomenology.
4. Phenomenology aims at understanding both the **transcendental elements** and the **existential or physical elements** in our experience. Both are intuited or determined during step 9 of the recursive procedure of Feedback Phenomenology in Section V. When both the **intuition of essences** and the determination of the physical or existential correlates of consciousness are completed, the recursion ends. Intuition of essences is what Husserl called the **eidetic reduction**. For purgation, some important transcendental elements intuited during the eidetic reduction are given at Section VII. The determination of some of the existential or physical elements resulting from the reduction are shown in Section VI at items c, d, and e.

g) The relationship of consciousness during purgation to consciousness during mystical union:

When the period of purification and opening of my heart was completed at the end of purgation, deep subcortical areas of my nervous system appear to have unlocked, giving me access to the holy ground of Being during mystical union. I have avoided the problem of the neural and physiological correlates of consciousness during mystical union for the time being. Instead, I have focused the lens of Feedback Phenomenology on the ten-hour experience of purgation, from its very beginning right up to the moment of its transition into mystical union. Because of the dynamic nature of Feedback Phenomenology, it cannot deal with mystical union itself. In that state both inner sense and inner time cease. Nevertheless, rare insights about mystical union can be obtained by meditating on consciousness at the moment of transition.

At the moment when my consciousness passed through the sudden transition from purgation to mystical union, mental imagery or metaphor suddenly vanished along with inner sense and the sense of inner time. Also, thought, sensibility, imagination, and the ability to will recall all cease. The eyelids are closed in mystical union. One is experiencing what the Japanese Zen Buddhists call *satori* or No Thing or emptiness: a timeless and unconditioned state, without mental imagery, metaphor, or thought. Simultaneously, the Zen Buddhist is experiencing an enlightenment: a supreme integrity, a supreme freedom, a supreme bliss, and a profound grounding. *Satori* is a combination of No Thing and Enlightenment. This holds, in general, for the peak experience, including mystical union, *fana*, *nirvakalpa samadhi*, *devekut*, *born again*, *wu wei*, *ecstasy*, etc.

h) Conjecture concerning various behavioral scenarios of the mystic:

Mathematicians could analyze the nonlinear differential equations developed for purgation to reveal the possible behavioral scenarios of the mystic. Here is an approach:

Make a phase portrait (Strogatz 1994) of the seeker's behavior during purgation and from it find the region of the portrait where the seeker's system behavior is attracted to the state of mystical union. If the attractor is Liapunov stable, this may mean that the system behavior of the experiencer remains stable in that region, becoming an avatar or arhat. That is: His or her behavior remains within the basin of attraction in an orbit near the state of mystical union attractor or fixed point. Then, determine how certain variables of the model (and the relationship between these variables) contribute to the behavior's stability at or near that fixed point or attractor. One can then make an analysis to determine the range of the set of variables that would produce such an avatar or arhat state. Phase portraits that show the attractor Liapunov unstable would also be of interest - particularly if a limit cycle or unstable spiral exists in the region outside the basin of attraction.

i) An example of how the analysis of purgation will eventually be tested:

Although the model was developed strictly from my Feedback Phenomenological analysis of consciousness, the indications of the feedback patterns of the biological correlates of consciousness during a stressful situation could give insights to neurobiologists now studying neurobiological feedback circuitry during stress. For example, a test of the bidirectionality described in Section VI.c.1 above could be performed, perhaps, by using a drug to increase heart activity and blood flowrate while employing neuroimaging to monitor neural activity in the brain, limbic- brainstem, and neurocirculatory system, particularly the amygdala. [Author's note: I don't believe that any drug could cause purgation and mystical union to occur, but there may be a drug that can uncover bidirectionality (Guyton 1991) in the stress circuitry between the amygdal and the vagus by the above process.]

j) Much progress still must be made. Here are two such improvements:

1. Any system dynamicist will note that there are at least two missing stocks or state variables at the center of the diagram in Figure 2. The reason is that during the period when I was developing Figure 2 - December 1984 to December 1994 - my heart refused to let my analytical faculty recognize that the missing mental image or archetype in question could be objectified using a stock. Therefore, I innovated the central region of the flow diagram shown in Figure 2 in such a way that it would allow me to accurately simulate a reference mode that I am able to recall very intimately. The innovation for filling in for the missing stocks or image was mainly to manipulate the shape of the two table functions, FearDeathDueToKnot and PsychicStress, and then, in addition, fine tune constants and other table functions until the accurate reference mode was produced. In late November 2000 - aided by six years of meditation on the flow diagram in Figure 2 - I finally gained the perspective and detachment to identify the nature of the two missing stocks: Just as KnotsInHeart and HeartOpenness together represent a mental image, the two missing stocks will be representing a second mental image. [This important second mental image is discussed briefly at Section VI.d.2] Since then I have been thinking about the new diagram for Figure 2, but it will take some time before I can develop and then post the results of this new diagram and its associated mathematical model. Of course the reference mode for this projected advanced model, and hence its simulations, will remain the same.
2. Work by cognitive neuroscientists on the cognitive mechanism over the past few decades (Simon 1993) could be incorporated into the model, expanding the complexity and detail of that sector.[see Section VI.e.2)

VII. Transcendental Elements: The metaphysical, psychological, and religious breakthrough produced by the eidetic reduction. Cracking the code.

The Feedback Phenomenological analysis of purgation and mystical in Section VI may appear mechanistic. Nevertheless, that phenomenological reduction has enabled me to arrive at the following eidetic reduction. The eidetic reduction is still tentative, but it was toward insights like these that my mind has been directed ever since I began this study in 1984, indeed, ever since I began the search in December 1957.

a) The difference between revelation and understanding:

There is a difference between the revelation the mystic obtains during the experience of purgation and mystical union and the understanding that results from the mystic's phenomenological analysis of that experience. The peak experience or mystical union reveals to the mystic knowledge of the unsurpassable Greatness, the ego ideal, and groundedness. The mystic feels he has come Home. It is the revealing of the essence of freedom, trueness, groundedness, knowledge, and love that is inherent in the unsurpassable Greatness within. For example, the experience of trueness during mystical union is experienced within by the mystic in a way very similar to the feeling experienced by a skilled mechanic after he has carefully adjusted a formerly rickety complex machine and it begins to hum or run true. The mystic carries the memory of trueness, of the unsurpassable Greatness, and of the ego ideal obtained during his revelation with him for the remainder of his life. That search is over.

On the other hand, understanding the peak experience is the aim of the mystic's phenomenological reduction of purgation leading to mystical union. The reduction ceases when the mystic determines the transcendental and existential elements that give certainty and meaning to the mystic's life. However, understanding religious experience and mystical union is unlike the mystic's finality and certitude about the revelations during mystical union. The mystic's search for certitude, meaning, and finality by means of the understanding never ceases. The philosophical mystic's aim is rather to get closer and closer to a true and rigorous understanding in all of its depth, breadth, and subtlety.

As the philosophical mystic approaches understanding of his or her peak experience, he or she approaches stability.

b) The passive nature of God: Insights into the Essence or Ground of our life.

Focusing on the transition from purgation to mystical union gives powerful insights: During purgation my imagination produced mental imagery or metaphor and an emergence of an archetype when I really needed it. These products of my imagination played a central role in stabilizing my mind during the experience of purgation. However, these products of the imagination suddenly ceased functioning at the moment of cessation in mystical union. The fact that mystical union was experienced then, after those two aspects of the imagination had shut down, conflicts with the present position of both the scientific community and the Western psychological community. The Western psychological community's extensive study of the mind has convinced them that God is a product of the imagination. My position is that we must go deeper:

During mystical union inner sense ceases and inner time stands still. Simultaneously, one has an ecstatic experience of merger with the essence of one's inner self or inner Being. This timeless essence or Immensity or Ground cannot be conditioned, either by society or authorities or by anything else. The ecstatic experience of this Ground, occurring after purgation when my heart had been purified and fully opened, is an experience of an unsurpassable Greatness that fully satisfied my desperate search for groundedness.

Immediately after, when I came down from mystical union and ordinary consciousness partially returned, I was in a heavenly state. This state is called bhava by the Hindus and 'the Peace that passeth all understanding' or 'Beulah land' or heaven by Protestant mystics. It is a state of supreme bliss.

Later, when I had completely returned to ordinary consciousness, a search of my mind and language for a name for the formless and unsurpassable Greatness experienced in mystical union developed gradually over many years, like one slowly arousing from sleep. I was born and raised in the United States and English is my native language. Eventually, I settled on the only name I could find that satisfied my heart and mind: the word, God, the name my precious mother spoke to me about when I was a boy.

If I had been born and raised in a Hindu culture, the name I would have chosen would have been Brahman; If born and raised in a Muslim culture, the name would have been Allah; etc.

c) The active nature of God: cracking the code!

There is something driving us to ultimate trueness, freedom, integrity, grounding, and love, but we never seem to attain it. Whatever trueness, freedom, integrity, grounding, or love we attain, we sense it is not enough. We need more. In my case this quest was only satisfied when I had experienced mystical union. It was in mystical union that I experienced ultimate trueness, freedom, integrity, grounding, and love. At that point I felt my search was over. I was finally satisfied. Therefore, it follows that it was this that I had been driven to, unconsciously. This goal is hidden from us. It is unconscious. Something within us is silently and wordlessly informing us: "Come to the state of ultimate freedom, trueness, integrity, grounding, and love."

From the point of view of unconscious intentionality, our lives are about reaching this goal. This unconscious intentionality is driven by some sort of unconscious life force.

With these insights the mystic had cracked the code:

1. He now knew the structure underlying the dance or game of life.
2. He now knew what drives the dance.

d) The essence of faith.

Sometimes, desperate people - when their backs are to the wall facing defeat, death, and/or disintegration - make a miraculous recovery. Examples are found among warriors, businessmen, athletes, people on their death bed, prisoners (McCain 1999), former addicts of one kind or another, etc. Do you remember the people of London during the Battle of Britain? Do you remember the people of Grand Forks, North Dakota during the Red River flood of 1997? Do you remember the night Archie Moore came back from a terrific beating in the first round to defeat a powerful Canadian boxer? An Engineer's Story (Wolpert 1996, 2001) is a narrative that details one person's experience of this mode or capability, including the desperate circumstances that brought it about.

All such people are knowers of a greatness within that has enabled them to function in these situations in a mode far more profound, powerful, and skilled than their ordinary abilities. This human capability probably evolved during the desperate battle conditions of our earliest hominid ancestors. This capability is always available to human beings. To know this is the essence of faith.

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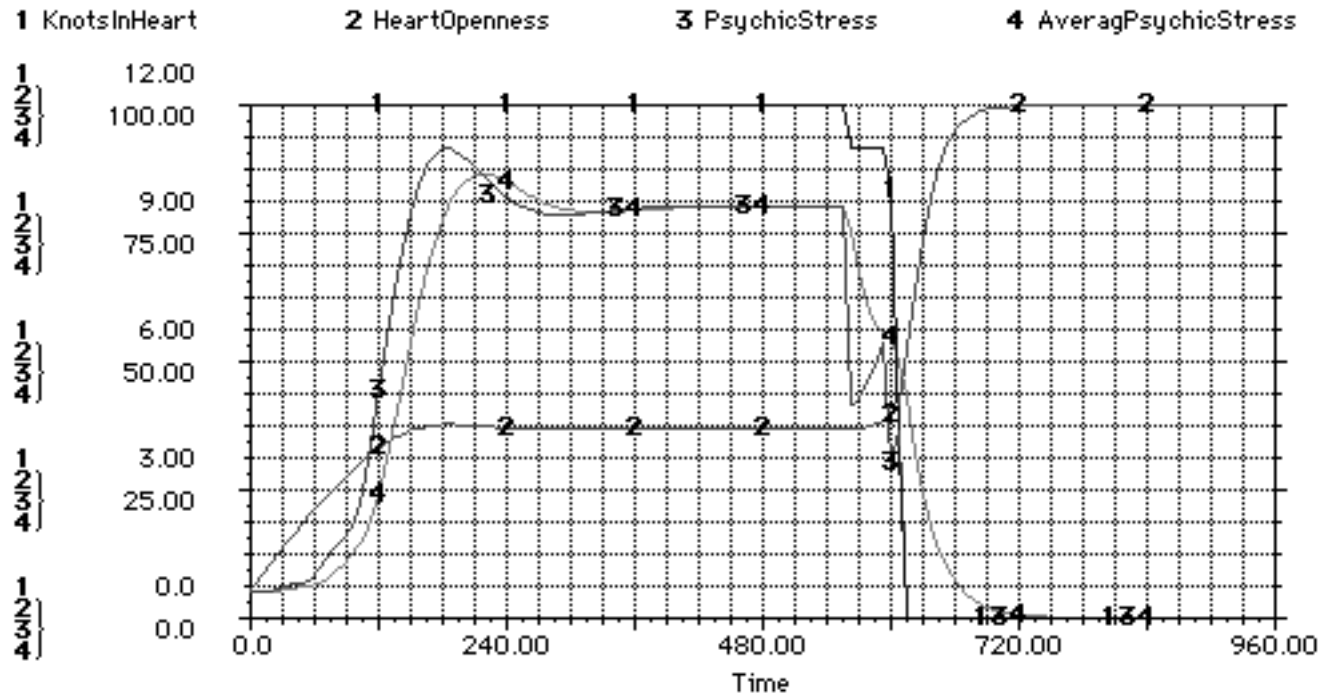
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APPENDIX I: Figures.

Figure 1: Simulation of four aspects of consciousness during the Dark Night of the Soul or Purgation:

[These are sixteen-hour (960 minute) simulations during stages #11 thru #13 of Table I, based on the system dynamics flow diagram of Figure 2 and its mathematical model in Appendix II.]



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Timetable for the Purgation simulation of Figure 1, above (estimates):

1. 0 minute mark to the 60 minute mark: The simulation begins at noon Pacific time. It starts with the 15 minute walk to the cab stand, during which the heart began to open, and extends through to the arrival of the cab at the Los Angeles airport.
2. 60 minute mark to the 120 minute mark: The one-hour wait at the airport.
3. 120 minute mark to the 450 minute mark: The flight from LA to Boston, leaving LA at about 2:00pm and arriving at Logan airport around 10:30pm Eastern time.
4. 450 minute mark to the 555 minute mark: The trip from the airport to my apartment plus about one-hour of preliminaries - thinking, pacing the floor, etc. - before lying down on my bed.
5. 555 minute mark to the 615 minute mark: The unstable period during which the 12 KnotsInHeart are purged.
6. Mystical union, lasting anywhere between 4 to 7 seconds, occurred around the 617 minute mark.
7. 617 minute mark to the 960 minute mark: Deep sleep.
8. Awaken to the divine state at the 960 minute mark.

Figure 2: The system dynamics model or flow diagram for purgation or Dark Night:

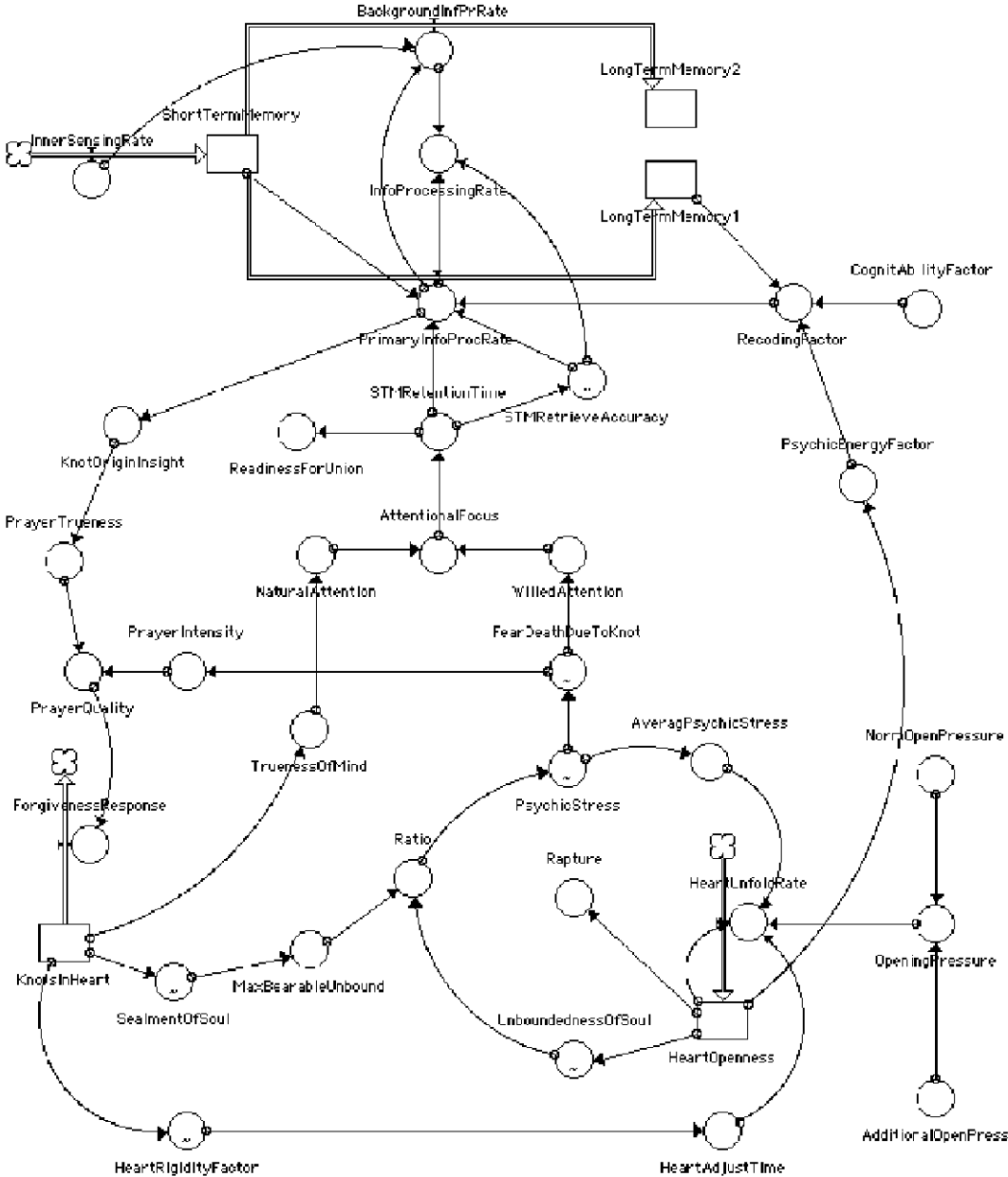
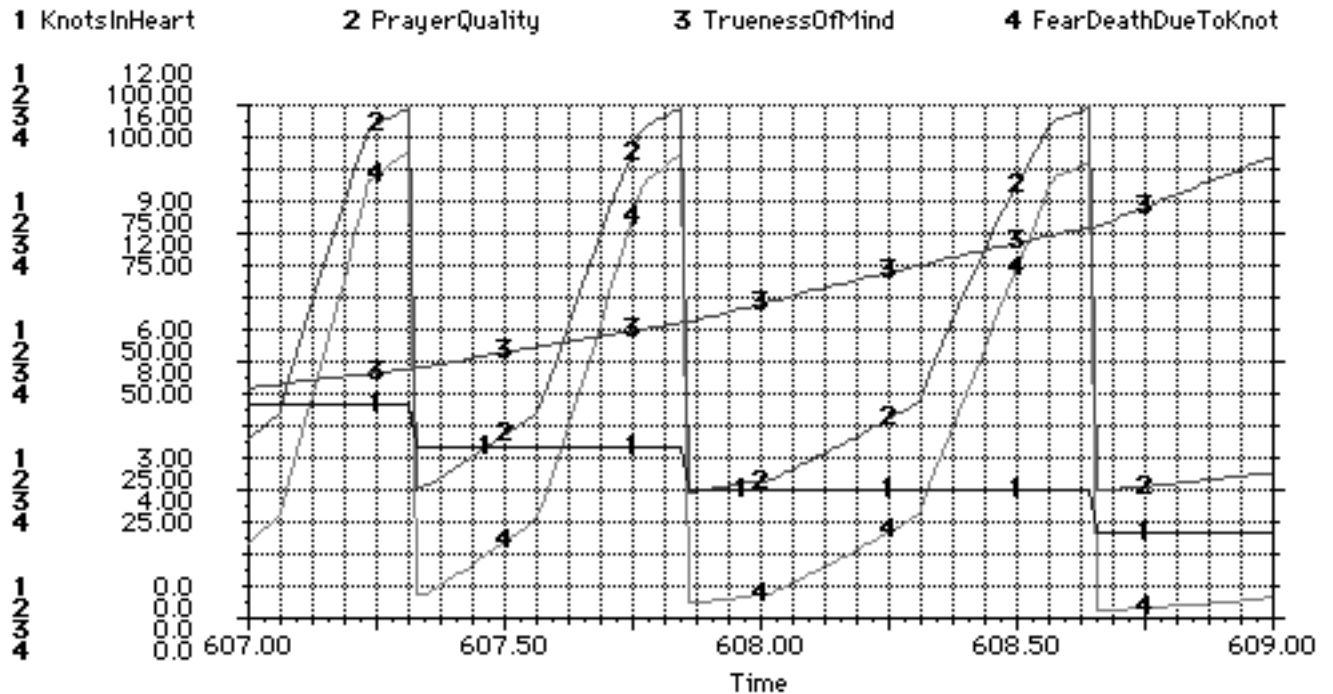


Figure 3: Two-minute simulation of four of the 38 aspects of consciousness during the Dark Night of the Soul or purgation:

[Figure 3 is based on the system dynamics flow diagram of Figure 2 and its associated mathematical model. The simulation focuses in on a two-minute period of the one-hour unstable region that was shown in Figure 1.]



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APPENDIX II: Mathematical model associated with Figure 2.

- * HeartOpenness(t) = HeartOpenness(t - dt) + (HeartUnfoldRate) * dt
INIT HeartOpenness = 5
- * HeartUnfoldRate = (OpeningPressure - AveragePsychicStress)*
((100 HeartOpenness)/100)/HeartAdjustTime
- * KnotsInHeart(t) = KnotsInHeart(t - dt) + (- ForgivenessResponse) * dt
INIT KnotsInHeart = 12
- * ForgivenessResponse = IF (PrayerQuality is greater than or equal to 100) THEN (1/dt)
ELSE 0
- * LongTermMemory1(t) = LongTermMemory1(t - dt) + (PrimaryInfoProcRate) * dt
INIT LongTermMemory1 = 0
- * PrimaryInfoProcRate = IF (STMRetrieveAccuracy is less than or equal to 0.5) THEN (0)
ELSE (ShortTermMemory*STMRetrieveAccuracy*RecodingFactor/STMRetentionTime)
- * LongTermMemory2(t) = LongTermMemory2(t - dt) + (BackgroundInfPrRate) * dt
INIT LongTermMemory2 = 0
- * BackgroundInfPrRate = InnerSensingRate - PrimaryInfoProcRate
- * ShortTermMemory(t) = ShortTermMemory(t - dt) + (InnerSensingRate -
BackgroundInfPrRate - PrimaryInfoProcRate) * dt
INIT ShortTermMemory = 7
- * InnerSensingRate = 4200
- * AdditionalOpenPress = 75
- * AttentionalFocus = (WilledAttention + NaturalAttention)*.025

* AveragePsychicStress = SMTH1(PsychicStress, 25)
 * CognitAbilityFactor = 1
 * InformationProcessingRate = IF (STMRetrieveAccuracy is less than or equal to 0.5) THEN
 BackgroundInfPrRate ELSE PrimaryInfoProcRate
 * HeartAdjustTime = 240*HeartRigidityFactor
 * KnotOriginInsight = .1*PrimaryInfoProcRate
 * MaxBearableUnboundedness = 10/SealmentOfSoul
 * NaturalAttention = TruenessOfMind + 36
 * NormOpenPressure = 5
 * OpeningPressure = NormOpenPressure + AdditionalOpenPress
 * PrayerIntensity = FearDeathDueToKnot
 * PrayerQuality = .5*(PrayerIntensity + PrayerTrueness)
 * PrayerTrueness = KnotOriginInsight
 * PsychicEnergyFactor = (100 + HeartOpenness)/100
 * Rapture = HeartOpenness
 * Ratio = UnboundednessOfSoul/MaxBearableUnboundedness
 * ReadinessForUnion = .00001/(STMRetentionTime-(1/600))^2
 * RecodingFactor = (PsychicEnergyFactor*CognitAbilityFactor*
 ((LongTermMemory1/140000)^(2/3))) + 1
 * STMRetentionTime = (4/60)/AttentionalFocus
 * TruenessOfMind = 50/SMTH1(KnotsInHeart, 1)
 * WilledAttention = FearDeathDueToKnot
 * FearDeathDueToKnot = GRAPH(PsychicStress)
 (0.00, 0.00), (10.0, 0.00), (20.0, 1.00), (30.0, 5.00), (40.0, 20.5), (50.0, 85.5), (60.0,
 97.0), (70.0, 98.0), (80.0, 98.5), (90.0, 99.0), (100, 99.5)
 * HeartRigidityFactor = GRAPH(KnotsInHeart)
 (0.00, 0.05), (1.20, 0.05), (2.40, 0.05), (3.60, 0.06), (4.80, 0.07), (6.00, 0.11), (7.20,
 0.17), (8.40, 0.28), (9.60, 0.44), (10.8, 0.67), (12.0, 1.00)
 * PsychicStress = GRAPH(Ratio)
 (0.00, 0.00), (0.1, 1.00), (0.2, 4.00), (0.3, 9.00), (0.4, 16.0), (0.5, 25.0), (0.6, 36.0),
 (0.7, 49.0), (0.8, 64.0), (0.9, 81.0), (1, 100)
 * SealmentOfSoul = GRAPH(KnotsInHeart)
 (0.00, 0.0001), (1.20, 1.70), (2.40, 3.20), (3.60, 5.50), (4.80,8.40), (6.00, 12.0),
 (7.20, 19.0), (8.40, 29.0), (9.60, 44.0), (10.8, 66.0), (12.0, 100)
 * STMRetrieveAccuracy = GRAPH(STMRetentionTime)
 (0.00, 0.00), (0.00167, 0.00), (0.00333, 0.005), (0.005, 0.01), (0.00667, 0.02),
 (0.00833, 0.04), (0.01,0.115), (0.0117, 0.275), (0.0133, 0.47), (0.015, 0.61),
 (0.0167, 0.725), (0.0183, 0.8), (0.02, 0.84), (0.0217, 0.87), (0.0233, 0.895),
 (0.025, 0.92), (0.0267, 0.94), (0.0283, 0.955), (0.03, 0.965), (0.0317, 0.968),
 (0.0333, 0.971), (0.035, 0.974), (0.0367, 0.977), (0.0383, 0.981), (0.04, 0.984),
 (0.0417, 0.987), (0.0433, 0.99), (0.045, 0.993), (0.0467, 0.996), (0.0483, 0.999),
 (0.05, 1.00)
 * UnboundednessOfSoul = GRAPH(HeartOpenness)
 (0.00, 0.022), (10.0, 0.023), (20.0, 0.027), (30.0, 0.044), (40.0, 0.11), (50.0, 5.20),
 (60.0, 49.0), (70.0, 100), (80.0, 100), (90.0, 100), (100, 100)

Suggested time step between calculations: dt = .005 minutes.