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Toward a New Age of Enlightenment:
An Effort to Improve the Quality of Decisions

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WORKING OUTLINE FOR

Part II: What Were They Thinking?

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The purpose of Part II, "What Were They Thinking?" is to explain that performance in predicting outcomes of courses of actions is enhanced by an interdisciplinary understanding of the issues and by a better understanding of the way other participants in the process think and act, and why. The why becomes important because progress may change the way in which others make their decisions.   The discussion alludes to securities investments and the war against terrorism as background for understanding the concepts.

"Predicting Outcomes," the opening chapter in this section, starts the explanation of decisions beyond reason. It is the beginning of the response to the question, "What was the reasoning that led them to that choice?" The them in the early part of the chapter refers to irrational investors in the market place. In the latter part of the chapter it refers to the terrorists who are at war with America. The chapter is built upon a discussion of the reasoning process.

The next chapter, Chapter 5, The Process of Choice: Mind and Values, considers the operation of the mind.   That chapter sheds some light on how and why different people absorb different information and process it through different patterns with different results. The discussion starts with a view of how thinking may not be logic bound. It concludes with a discussion of the mixture of emotion with reason. In between, the discussion takes a more traditional approach.

The purpose of the next chapter, Chapter 6, Discipline Perspectives: Organizing Knowledge, is to enhance our ability to deal with complex issues through the provision of an understanding of the commonalities of disciplines and an approach of blending them in order to better forecast outcomes.   Thus, the chapter provides a perspective for understanding disciplines in the context of dealing with interdisciplinary issues.

Disciplines developed out of a necessity to sharpen the focus in order to better understand the realities of life. Often this understanding comes with a different perspective. However, understanding the realities is enhanced by understanding the context, especially the system as a whole.

Drawing on fundamental principles from one discipline and applying them to another is a way of enhancing the understanding of the second discipline. Furthermore, the most difficult problems faced in the social sciences are interdisciplinary in nature and therefore require an interdisciplinary approach which involves understanding issues from multiple perspectives and dealing with two or more disciplines simultaneously.

There is a unity of knowledge in the understanding of the system as a whole in that some fundamental laws of the system are applicable to various disciplines even though they focus on different parts of the whole. This unity of knowledge is known as the concept of consilience.

Chapter 4: Predicting Outcomes

The purpose of this chapter is to explain that understanding the system is a significant aid in the process of forecasting outcomes. Additionally, the section explains that decisions of others are not necessarily rational and that understanding the process involves an application of behavioral science and may involve an application of the science of networks.

Predicting outcomes is a critical part of decision making. Prediction involves thinking through the information used in the process. Yet, on many occasions, one wonders **what were they thinking** when they made that decision. What was the **reasoning** that led them to that choice?

While, as yet, we don't have the body of knowledge developed so that we can readily draw upon the fundamental natural laws, envisioned by consilience, in looking at any particular disciplines, we do have an ability to blend disciplines in order to get better predictions of outcomes. And, we can draw on principles from one discipline to better understand another discipline. As an example, we can continue with the discussion of real estate and draw upon cognitive science in general and behavioral finance in particular, in order to better forecast outcomes of real estate investment. We can also draw on principles from real estate investment strategy to assist in developing strategies for dealing with terrorism. This is done in Part III of this book.

The discussion of this chapter leads to the next which will consider the operation of the mind.   That chapter which deals with the evolutionary and environmental considerations and the following which further explores consilience serves to provide a better understanding of our dealing with the terrorism issues considered in the final section of the book.

The real estate discussion is used to identify strategies that may be applicable to the terrorism issue. The vehicle is to extract some of the principles involved in the real estate analysis/reasoning and apply those principles in the effort to develop a strategy for dealing with terrorism.

We start with a discussion of behavioral finance which is one of the disciplines that make of the context for investing in securitized equity investments in real estate, mainly real estate investment trusts (REITs).

Behavioral Finance

Behavioral finance is a newcomer to the branches of finance. It focuses on how psychology affects finance. We will apply some of the concepts of behavioral finance to our discussion of real estate investment, focusing on securitized real estate investment, especially real estate investment trusts (REITs).

Some General Concepts

Hersh Shefrin, in his book, *Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing,* writes "People are imperfect processors of information and are frequently subject to bias, error, and perceptual illusions." [Page x.] The book is not about how to beat the market, but rather about the risk of psychologically induced errors on the part of the other participants in the market.

He further points out that, "…I think that most investors are overconfident about their vulnerability to psychologically induced errors, and although intelligent, not as intelligent as they believe themselves to be. [Page xii.] The now classic example is the technology heavy NASDAQ bubble of the past few years. It was a case of irrational exuberance.

Shefrin writes that individual investors suffer from an extrapolation bias by naively extrapolating recent trends, and that "Institutional investors suffer from gambler's fallacy, and are overly prone to predicting reversals." [Page xv.] Gambler's fallacy arises out of a misinterpretation of the law of large numbers. A fair coin flipped a very large number of times will tend to be half heads and half tails, but can run for a long series of heads and/or a long series of tails. The length of the series of the most recent flips of heads or tails has no bearing on the probability of the next flip. The expected long term 50/50 distribution doesn't work for a short series of flips in the way that the immediately preceding results have any bearing on the next result.

Thus, it is an error to reason that because recent trends are up or down that they will continue and it is also an error to reason that if they have gone way up or way down, they will revert towards an average in a near term. But different players cluster as to different errors in deficiency of reasoning.

The principle here is that different players in the market are making different errors in reasoning and to better understand the market in order to predict outcomes, one needs to disaggregate. The fundamental law for consilience is that in order to understand the system it needs to be broken down into its parts.

One might reasonably ask over what time period will adjustments take place. This is under the assumption that the market will return to fundamental values. In a chart comparing stock prices and fundamental values [p.39] there was no apparent typical length of time. Also, fundamental values will change over time.

The point is that irrational behavior will cause predicting outcomes based on reason to be in error when others are involved who are not applying the reason that we see as appropriate. They are not thinking as we would think and so behave differently. We can develop strategies for dealing with the situation, and we can apply the principles from the strategy used in one area in others areas. My favorite book in cross application of strategy is *Strategy in Poker, Business and War* by John McDonald (published in 1950) in which he shows applications of the theory of games developed by mathematician Jon von Newman and economist Oscar Morgenstern. [More discussion of this is at the beginning of Chapter 7, paragraph heading of "Strategy as a Concept."]

The key in the classic works on game theory is uncertainty and interaction. The approach here is to recognize that the irrational behavior of the other participants adds uncertainty.

The behavioral finance group at the University of Mannheim in Germany believes the irrational behavior to occur in patterns that provide a basis for predictability of the irrational behavior. [The web description of a summer 2003 course is at http://mea.uni-mannheim.de/winter/lehre/03-ss/behav.htm] At the Homer Hoyt Institute, we are supporting research that looks to the flow of funds to REITs to see which players move early and which move late in the deviations between the underlying values of the real estate assets as compared to market prices. This is a way of dealing with the irrationality – identify behavioral differences among the players.

As is discussed later, disaggregation may not only permit analysis of segments for different behavior, but by viewing segments as nodes with linkages to other nodes, the science of networks can enhance the predictability of out comes. The science of networks is discussed in Chapter 6, but a preview is in the box that follows.

The science of networks deals with the commonalities of systemic structure of linkages that form networks. Networks are composed of nodes that are connected.

The distribution of the frequency of connections among the nodes in a system is not random There is an interdependency within the system with the strength of ties among nodes varying. This is significant in that the predictability of the behavior of the system is dependent on understanding the underlying principles of the system.

 As a result, "aggregate behavior is a reflection of the interaction of the individual behaviors that are influenced by each other. In other words, group behavior may be different from the summation of predicted individual behavior because the individual behavior is being influenced by the behavior of other individuals. Thus dynamics comes into the equation." [See Joe Podolsky's review of the book authored by Barabasi, *Linked: The New Science of Networks*, appearing in *The IT Journal*, Third Quarter, 2002.]

The Flow of Funds Research Program

The flow of funds program is a Homer Hoyt Institute supported program designed to provide a better understanding of the operation of the capital markets. Real estate, as a segment of the overall capital market, gets an ebb and flow of funds responsive, in part, to the genuine need for additional real estate. The ebb and flow, aside from being affected by changing federal income tax policy, is affected by what is happening in other segments of the capital markets. Thus, when the high tech irrational exuberance was booming, real estate equity, especially the securitized portion in real estate investment trusts (REITs), was denied funds. [The research program is described on the Hoyt web site www.hoyt.org , then click on "Real Estate Capital Flows Research Program" on the left bar.]

It is not news that the real estate industry has been plagued, from time to time, by a shortage of funds. The costs of capital, if available, were devastating to the industry. At other times, the real estate industry has been plagued by an excess of capital. Under these conditions, construction was driven by the excess of capital rather than the market

demand for space. During the last real estate debacle some real estate classes averaged 30% loss of value. Some properties lost 50% or more of value.

Although the project is designed to assist in making the market a more efficient system, the process of change will enable some participants to profit by the transition. And, even if the system is not made more efficient, there is profit from the inefficiencies.

The key is in the University of Mannheim's behavioral finance thesis that even if one can not explain the behavior, if it repeats itself with enough consistency, and the consistency is identifiable, one may profit by it even when it is irrational.

Among the specific research projects in the program are those that deal with the relationship between the capital markets and the space markets and those that deal with the early movers and the late movers. Thus, for example, if mutual funds move into the market when funds are being undersupplied and individual investors or institutional investors move in late, one can by following the patterns join the early movers and drop out before the late movers make the assets overpriced with the irrational exuberance.

All of this speaks to the point that on *the one hand efforts may be made to improve the system, but even in the absence of the improvement, the intelligent investor can deal with it.* Thus, the wise decision maker may use reason but not rely on others to use reason. One simply needs to understand their thinking, as best as one can, and deal with it.

An additional aspect of understanding the thinking of others is to distinguish between individual behavior and group behavior and their relationship in the form of a network. In its simplest form we can think of it as the "herd effect" as in finance where a trend is set and others blindly follow, even over a cliff.

All of this now leads to a discussion of understanding the behavior of terrorists so that we may better combat the terrorist threat that may plague us for a long time. In order to better explain the ideas, it is useful to expand on the discussion of "what were they thinking." The thesis is that under the concept of consilience, i.e., a unity of knowledge that has different disciplines drawing on the same underlying principles (discussed in Chapter 6), we can apply the principles underlying real estate to other areas, in this case moving from an investment strategy to a political strategy.

<u>Toward an Understanding of What Were They Thinking</u>

What were they thinking? That is a question asked about other people's wisdom challenged performance in providing service in everything from retail transactions to governance decisions. "What were they thinking?" is also asked about the terrorists that have changed our daily lives.

The answers lie in understanding a complex evolutionary and environmental system that provides a foundation for habits of the heart as well as the habits of the mind. We may be interested in the answers from an intellectual perspective. We may also be interested from the perspective of the decisions that we have to make in order to deal with a variety

of situations, including development of strategies for real estate investment, and development of strategies for dealing with the risks from the threat of terrorism.

<u>Habit as a Point of Departure</u>

Much of what we do is a matter of habit. Habit, as an acquired behavioral pattern, speaks to the way we live. As Americans, we have learned to live with a great diversity. The diversity is often described as to differences in race, creed, color, and countries of national origin. The diversity may also be described from a philosophical perspective, as per Isaiah Berlin's concept of pluralism.

Pluralism, according to Isaiah Berlin is
> "…the conception that there are many different ends that men may seek and still be fully rational, fully men, capable of understanding each other, as we derive it from reading Plato or the novels of medieval Japan – worlds outlooks, very remote from our own. Of course, if we did not have values in common with these distant figures, each civilisation would be enclosed in its own impenetrable bubble, and we could not understand them at all; this is what Spengler's typology amounts to. Intercommunication between cultures in time and space is only possible because what makes men human is common to them, and acts as a bridge between them. But our values are ours, and their values are theirs. We are free to criticize the values of other cultures, to condemn them, but we cannot pretend not to understand them at all, or to regard them simply as subjective, the products of creatures in different circumstances with different tastes from our own, which do not speak to us at all. [*The Crooked Timber of Humanity,* Page 11.]

In this instance, Berlin was speaking of relativism, a related issue. Our concern is, however, with the idea that values differ and so do life styles. Even if we don't agree with the way others live we may accept the concept of pluralism, or at least tolerance.

There is an abundance of social criticism about the way in which Americans live. Terrorists, who are the violent critics, by their causing the horrific acts of 9/11/01, are a force for changing the way we live. That does not mean that America is going to become a Muslim fundamentalist state. Not likely, but consider an excerpt from a story in the New York Times (9/15/01, page B2) "Mr. Salah [Sheikh Ra'ed Salah, the leader of the Palestinian Islamic movement] had a particular message for President Bush. If the American President wanted to achieve peace and security, Mr.. Salah said, 'the only solution is for Bush to convert to Islam.' He added that there is no war between Islam and America."

As a result of the 9/11 terrorism there are changing patterns of behavior for personal security, governmental efforts at weakening the ability of terrorists to commit the destructive acts, and a search and destroy or bring to justice military action. What happens to foreign policy and life style changes is another matter that is not yet clear. But, it is clear that the immediate response was a unification of Americans. Most remarkable was the one-to-one response of victims helping other victims and firefighters

and other personnel rushing to help. Beyond that was the general American aid by individuals as well as governmental action. The crisis brought forth new behavior patterns. Thus, we see behavior patterns change over time with circumstance.

Habits of the Heart

The Way We Live. The way we live depends, in some measure, on the habits of the heart. These are the mores of our society, including the "consciousness, culture, and daily practices of life."   The preface to the first edition of Bellah's et. al. book titled, *Habits of the Heart*, starts off with, "How ought we to live? How do we think about how to live? Who are we, as Americans? What is our character?"

The answers to these questions involve a focus on political economy. From a philosophical point of view, we can trace the relationship between man and society back to Plato's *The Republic*. In Book VIII, Plato is concerned with moral degeneration. He sees society as a reflection of the individuals and in his discussion of justice looks to each individual fitting into an appropriate niche. Thus, justice is viewed as one's role in society rather than the alternative of relationship of individual to individual.

The American tradition is rooted in the individual and equality. Alexis de Tocqueville, in 1835, in his *Democracy in America*, wrote of what he called individualism. In his Chapter II, he wrote, "Individualism is a mature and calm feeling, which disposes each member of the community to sever himself from the mass of his fellows and to draw apart with his family and friends, so that after he has thus formed a little circle of his own, he willingly leaves society at large to itself. Selfishness originates in blind instinct; individualism proceeds from erroneous judgment more than from depraved feelings; it originates as much in deficiencies of mind as in perversity of heart." In his Chapter IV, he wrote, "That the Americans Combat the Effects of Individualism by Free Institutions," he points out that the infusion of political life at levels close to the people enables one to see that their gaining support for their interests often leads them to co-operation. This use of free institutions enables man to pursue his individual interests as part of a community. [See discussion of "The Way Our Culture Works" in Chapter 3.]

The free institutions are now habits of the heart for Americans. But, they have, in part, arisen because of habits of the mind. This is best understood in the context of the development of the culture and society.

Differences Emerge. Jared Diamond, in his *Guns, Germs, and Steel: The Fates of Human Societie*s, addresses the question, "Why did wealth and power become distributed as they now are, rather than in some other way?" [Page 15.]   The answer, in a single sentence is, "History followed different courses for different peoples because of differences among peoples' environments, not because of differences among peoples themselves." [Page 25.]

Out of the differing environments, differing cultures emerged. But cultures change as do the human natures that are embodied in the cultures. There is no such thing as human

nature independent of culture, according to the quotation of anthropologist Clifford Geertz as cited by Ehrlich in a footnote reference. But cultures may be segmented, and some segments change more than others. Those segments that change the least are typically identified as fundamentalists.

Paul R. Ehrlich, in his *Human Natures: Genes, Cultures, and the Human Prospect*, writes,
> "Permanence is often viewed as human nature's key feature; after all, remember, 'you can't change human nature' But, of course we *can* - and we do, all the time. The natures of Americans today are very different from their natures in 1940. Indeed, today's human natures everywhere are diverse products of change, of long genetic and, especially, cultural evolutionary processes." [Page 13.]

> The Roots of Western Civilization. Consider the following quote;
> "But to understand ourselves - and the identity we carry so effortlessly that most 'moderns' no longer give any thought to the origins of attitudes we have come to take as natural and self-evident - we must return to this great document, the cornerstone of Western civilization. My purpose is not to write an introduction to the Bible, still less to Judaism, but to discover in this unique culture of the Word some essential thread that runs through it, to uncover in outline the sensibility that under girds the whole structure, and to identify still-living sources of our Western heritage for contemporary readers, whatever color of the belief-unbelief spectrum they may inhabit."

So wrote Thomas Cahill in his book, *The Gift of the Jews: How a Tribe of Desert Nomads Changed the Way Everyone Thinks and Feels*.

The following is from the flap of the book cover,
> "In the irresistible style that made *How the Irish Saved Civilization* such a delight, Cahill explores the origins of monotheism, bringing us to the realization that many of our most treasured values are, indeed, the gifts of the Jews."

On page 5 Cahill makes reference to the earliest religious thought as cyclical:
> "As Henri-Charles Puech says of Greek thought in his seminal *Man and Time*:
> 'No event is unique, nothing is enacted but once...;every event has been enacted, is enacted, and will be enacted perpetually; the same individuals have appeared, appear, and will appear at every turn of the circle."

Cahill continues with his text,
> "The Jews were the first people to break out of this circle, and to find a new way of thinking and experiencing, a new way of understanding and feeling the world, so much so that it may be said with some justice that theirs is the only new idea that human beings have ever had."

The key to our making progress is "to find a new way of thinking and experiencing, a new way of understanding and feeling the world." And if we can't find a genuine new way, at least we may be able to find a better way for us. That would be a major step toward a new age of enlightenment.

<u>Ethics at the Heart of It All</u>

Behavior, not belief, is at the heart of civilization. Nature and nurture may generate forces for behavior, i.e., human conduct, but with free will there are choices. The range of choices may be constrained by the belief in a deity or by the law of the land, or by both.

The actions taken are based upon values. When values conflict, the choices are harder. The more that is given up, the harder the choice. But, this is what value is all about. Values are what one cherishes so highly that one is willing to sacrifice in order to pursue that of higher value.

A discussion of values is in the box that follows.

<u>Religion.</u> The Bible sets forth rules of conduct. To the observant, those rules are the law. A critical element in the prescribed ethics is justice. One biblical passage, *Shofetim* (Deut. 16;20), contains the following: "Justice, justice shall ye pursue." The *midrash* (commentary) in the *chumash* (text), *Pentateuch & Haftorahs*, edited by J. H. Hertz, "…The duplication of the word "justice," brings out with the greatest possible emphasis the supreme duty of even-handed justice to all."[Page 821] On the next page [822], the commentary continues,

"It must be noted that the idea of justice in Hebrew thought stands for something quite other than in Greek. In Plato's *Republic,* for example it implies a harmonious arrangement of society, by which every human peg is put into its appropriate hole, so that those who perform humble functions shall be content to perform them in due subservience to their superiors. It stresses the inequalities of human nature; whereas in the Hebrew conception of justice, the equality is stressed...."

Another critical element in prescribed ethics is truth. The *Encyclopedia Judaica* entry, by Steven S. Schwarzschild, contains the following:

"In Judaism truth is primarily an ethical notion: it describes not what is but what ought to be. Thus, in the Bible, truth is connected with peace, righteousness, grace, justice, and even with salvation, 'The world rests on three things—truth, justice, and peace'... "God acts truthfully in that He keeps His word. Human truthfulness is to be faithful to God and man. This is specified in many ways: to speak truth even in one's heart; always to quote correctly; to engage in commerce honestly; and to abstain from all deceit and hypocrisy. In sum, as God is truth so Judaism as a whole is the practice of truth. "Jewish philosophers generally accepted the Greek notion of truth as 'correspondence with reality.' Even such intellectualism, however, is ultimately superseded by biblical ethicism.' In modern Jewish philosophy, Hermann Cohen designates the normative unity of cognition and ethics as 'the fundamental law of truth'. Martin Buber also identifies Jewish faith with truth as interpersonal trust. Thus, truth as a human, ethical criterion is commonplace throughout the mainstream of Jewish thinking.

<u>Philosophical Foundation.</u> Western thought is rooted in ancient Greek philosophy. Socrates asked the question of, "what men should live for." Plato's thought "...was chiefly bent on the question how society could be reshaped so that man might realize the best that is in him," [page xv of *The Republic of Plato*, translated with Introduction and notes by Francis MacDonald Cornford.] As noted before. Plato's view of justice related to the individual's role in society.

Then comes Aristotle, with his *Nicomachean Ethics*. Aristotle is also looking to understand the nature of the ends being pursued by man. Some of his discussion is also on

justice. He provides a classification. In "Book V. Moral Virtue (cont.)" of the Oxford World's Classics edition of *Nicomachean Ethics*, the distinction is made between "universal justice and "particular justice." Universal justice is perceived as lawful in contrast to particular justice which is conceived as fair and equal. Additionally, the fair and equal is further divided into distributive and rectificatory justice. A major thrust is the doctrine of the mean.

According to Marvin Fox, [in *Interpreting Maimonides: Studies in Methodology, Metaphysics, and Moral Philosophy*,]
"Although the doctrine of the mean is among the most familiar and popular of Aristotle's thinking, it has been widely misunderstood and misrepresented, as a brief survey will reveal... This criticism [referring to standard criticisms that the doctrine is Greek folk rule of nothing to excess, or social convention, or established social order] gains what may seem like solid support from Aristotle's admission that all judgment concerning the application of the doctrine of the mean to particular cases depends completely on the insight of the man of practical wisdom; but critics argue, that man has no standard to which he can appeal other than the conventional attitudes and values of his society." [Page 96.]

Fox continues with,
"We have now established clearly that Aristotle's doctrine of the mean is not peculiar to moral virtue. In his system of thought, it is an overarching principle that encompasses the operations of the world of nature and the world of art." [Page 103.]

And later with,
"That ethics is closely tied to nature is eminently clear, since human virtue is determined by human nature and this in turn requires a knowledge of psychology, the principles of the human soul." [Page 100.]

The relevance of this is that the ethics is reflecting the values of the society, and it is not the same for all societies. Furthermore, the ethics or behavior is tied to nature, and human natures differ. The evolution of human nature, especially from the enlightenment on, has given us a different way of thinking about things.

For Muslims, ethics, indeed the law, is proscribed in the Koran. However, there are various interpretations of the Koran and different ethics may be associated with the different interpretations. Later in this chapter, when discussing fundamentalism [under the subheading of "Toward Understanding Islam," under the side heading "The Terrorist War on America"], there is an identification of some stark differences among Muslims. Then, in Chapter 5, at the end of the chapter [under the subheading of "Behavior of Participants in the Political Arena] there is a further discussion of diversity among Muslims. Ethics is again included in Chapter 6 in the section on value systems.

Habits of the Mind

Understanding of the modern mind is enhanced by understanding the transition of the Enlightenment.
"With Newton's synthesis, the Enlightenment began with an unprecedented confidence in human reason, and the new science's success in explicating the natural world affected by philosophy in two ways: first, by locating the basis of

human knowledge in the human mind and its encounter with the physical world; and, second, by directing philosophy's attention to an analysis of the mind that was capable of such cognitive success."

So writes Richard Tarnas in his *The Passion of the Western Mind: Understanding the Ideas That Have Shaped Our World View*. [Page 333.]

This confidence in human reason utilizes the mind's interpretation of the world. Tarnas, on page 417, writes,

"For if the human mind was in some sense fundamentally distinct and different from the external world, and if the only reality that the human mind had direct access to was its own experience, the world apprehended by the mind was only the minds interpretation of the world.... everything that this mind could perceive and judge would be to some undefined extent determined by its own character, its own subjective structures."

Locke was at the watershed. In the words of Brownowski and Mazlish in *The Western Intellectual Tradition* [page200] "Thus Locke vindicated the empirical or natural road to all knowledge against the rationalistic or supernatural approach."

This is best seen in the context of the scientific revolution. Tarnas continues on page 421 with the following:

"The modern mind has demanded a specific type of interpretation of the world: its scientific method has required explanations of phenomena that are concretely **predictive** [emphasis added], and therefore impersonal, mechanistic, structural. To fulfill their purposes, these explanations of the universe have been 'cleansed' of all spiritual and human qualities… Of course we cannot be certain that the world is what these explanations suggest. We can be certain that the world is to an indeterminate extent *susceptible* to this way of interpretation."

This may be even more so with what we know about the habits of the heart. In any case, knowing more about how the mind operates will help to understand what they were thinking. The next chapter will give more information about the mind in the context of the process of choice. The point here is to identify the paradigm for predicting outcomes. And, so far we have identified that the decisions are a function of the habits of the heart and the habits of the mind.

Habits of the Collective Hearts and Minds

Now we need to consider that predicting behavior of groups of people is not the same as aggregating predictions of individual behavior. This is so because the interaction of individuals may result in a different behavior than would occur without interaction.

Duncan J. Watts, in his book, *Six Degrees: The Science of a Connected Age,* identifies the question of how individual behavior aggregates to collective behavior as "one of the

most fundamental and pervasive questions in all science." [Page 24.] Some quotes in the box that follows elaborate on the question.

"…A human brain, for example, is in one sense a trillion neurons connected together in a big electrochemical lump. But to all of us who have one, a brain is clearly much more, exhibiting properties like consciousness, memory, and personality, whose nature cannot be explained simply in the aggregations of neurons.

"As Nobel laureate Philip Anderson explained in his famous 1971 paper. 'More is Different," physics has been reasonably successful in classifying the fundamental particles, and in describing their individual behavior and interactions, up to the scale of single atoms. But throw a bunch of atoms together, and suddenly the story is entirely different. That's why chemistry is a science of its own, not just a branch of physics. [Page 25.]

"What makes the problem hard, and what makes complex systems complex, is that the parts making up the whole don't sum up in any simple fashion. Rather they interact with each other, and in interacting, even quite simple components can generate bewildering behavior. [Pages 25-26.]

He writes,

> "Fortunately, as capricious, confusing, and unpredictable as individual humans are, when many of them get together, it is sometimes the case that we can understand the basic organizing principles while ignoring many of the complicated details. This is the flip side of complex systems. While knowing the rules that govern the behavior of individuals does nor necessarily help us predict the behavior of the mob, we *may* be able to predict the very same mob behavior without knowing very much at all about the unique personalities and characteristics of the individuals that make it up." [Page 26.]

One way of viewing the interactions of people is in the context of their connections as in a network. It is import to consider that the people in the network are doing something. Thus, there is interaction. Furthermore, the network itself may evolve with changes that make it different at different points in time. It is this dynamic character that is of principle concern because once a change has started to evolve it may die out or it may cascade with the result of a dramatic change from the way things were.

Understanding interactions is important in predicting outcomes. It is a major consideration in the science of networks discussed in Chapter 6 and in strategy discussed in Chapter 9.

 The Terrorists War on America

Our freedom is under attack! The way we live is changing as we defend our rights to choose how to live.

The attack was by terrorists who are waging a holy war against the Western infidels; that's us. Our nation has developed a three pronged effort to counter the attacks of September 11, 2001. That effort is focused on finding the perpetrators and bringing them

to justice, undermining their financial ability to pursue terrorist activities, and enhancing our security measures in an effort to deter terrorism.

It took a long time for the problems to develop, and it will take a long time to get a resolution in some fashion. Peace is the hoped for solution. But, to arrive there requires an understanding of the way the enemy is thinking, and how they got to where they are. We need to think strategically, as well as tactically, in order to effect desirable change over the long haul.

<u>The Start of the War with Whom and Over What</u>

The war began, according to a Clinton Bailey editorial (*New York Daily News, September 30, 2001*), in 1979 when Ayatollah Khomeini of Iran seized the American Embassy and jailed the American diplomats. That violation of diplomatic immunity introduced a new set of rules.

The editorial by Baily, written while a visiting professor at Hartford College, went on to say,

> "This violation of diplomatic immunity was an announcement that the norms and rules set by the West were finished. A new order, set by Islam, would replace the international dominance of the West. Our failure to understand that the West and its leader, the U.S., have been at war since 1979 is what led to the recent attack. We were unprepared. Now that the new Pearl Harbor has happened, however, our ability to win the war depends on our grasping the nature of the fundamentalist enemy."

The editorial concludes with the following:

> "Possessed of a vision of an Islamic-led world, a self-righteous sense of injustice, strong resentments against the West and the willingness to die as long as they take lots of non-Muslims within them, Islamic fundamentalists are an enemy best not ignored. America's waging the war against Islamic terrorism must be serious to be successful. First, the perpetrators of the Sept. 11 attack must be hit hard to dispel any notion that they can use terrorism against the West with impunity. Otherwise, they'll sense a lack of resolve in the West and be heartened to go on.

> "Of no less importance, however, is stopping Iran and Iraq – which are not officially fundamentalist, but of the same mind-set – from achieving nuclear, chemical, and biological capabilities.

> "If we fail at that, some fundamentalist attack down the line, with a martyr out to die anyway, will cause havoc that dwarfs even the horrific attack of Sept. 11."

We have had lots of clues on the war being waged against us, especially during the last decade. Here is a quote from Paul Berman's book, *Terror and Liberalism:*

> "And Osama bin Laden's army, together with Saudi Arabian Hezbollah and a series of other underground groups, launched their war on American sites and

people – the attack on the U.S. Marines in Mogadishu in 1993; the a truck bombing in Riyadh, the Saudi capital, in 1995; the bombing of the Khobar Towers in Dhahran, Saudi Arabia, in 1996; the bombing of the American embassies in East Africa in 1998; the attack on the USS *Cole* in 2000 – plus a few other attacks that failed to come off or were foiled at the last minute by quick thinking police officers or customs agents. The United States in its bovine stupidity failed to recognize these fleabites as war. Yet the fleas kept biting, and Saudi Arabia's role was dark and ambiguous." [Page 13.]

Berman discusses a *New York Times* op-ed piece by Richard Nixon written during the buildup to the Gulf War of 1991 that supports the just quoted position taken in the Baily editorial that says that "… the perpetrators of the Sept. 11 attack must be hit hard to dispel any notion that they can use terrorism against the West with impunity. Otherwise, they'll sense a lack of resolve in the West and be heartened to go on." Berman's quote of Nixon and his comments include the following;

"It will not be a war about democracy,' he said. He wanted to keep the American Public from sailing away on clouds of idealistic expectation. The war was going to be, instead, about 'vital economic interests.' Saddam Hussein had conquered Kuwait and the oil beneath its sandy soil, and he was nicely poised to grab hold of still other parts of the Arab world, including Saudi Arabia and still more oil."

Berman continues with a discussion of Nixon's view of Saddam's power move, especially with impact on Europe and Japan, and then notes,

"Nixon fretted over something else, as well. He wanted to maintain America's 'credibility,' meaning the ability to frighten people out of their wits. He wanted to ensure that, during any future quarrel around the world, if America's president pounded the table and muttered threats, the object of those threats would cringe and tremble. Such were Nixon's concerns. In the jargon of foreign police writers, those were 'realist' arguments." [Page 3.]

Berman writes in his book that his 750 word rebuttal to Nixon, at the invitation of the *Times* "did not dispute his every point." He wrote that endorsing any war filled him with horror and fear and that there were all kinds of wars. But, his and Nixon's were not the same.

Berman was not concerned about the politics of oil. It was the word "credibility "that "gave him the willies." And, he did "…worry about Saddam Hussein. I thought that, in Saddam Hussein and his government, we were facing a totalitarian menace – something akin to fascism. Saddam's regime was aggressive, dynamic, irrational, paranoid, murderous, grandiose, and demagogic." [Page 3.]

In trying to understand these complex issues, I am reminded of a passage in Tolstoy's *War and Peace.* It is as follows:

"The combination of causes of phenomenon is beyond the grasp of the human intellect. But the impulse to seek causes is innate in the soul of man. And the human intellect, with no inkling of the immense variety and complexity of

circumstances conditioning a phenomenon, any one of which may be separately conceived as the cause of it, snatches at the first and most easily understood approximation, and says here is the cause." [Page 1123 of Modern Library edition translated by Constance Garnett.]

Tolstoy uses that passage as a lead in to a philosophical discussion that considers the role of a leader as in the great man theory as compared to the will of the masses, those in the trenches. Not wishing to get side tracked here, it is only important t point out, as will be discussed later, that the leadership and the troops do not have the same profile and that the strategy that emerges needs to consider that the difference exists.

John Leo writes, "…this is a global cultural war, pitting a pan-Islamic Movement of fundamentalist extremists against the modern world and its primary engine, America, 'the Great Satan.' [*U.S. News and World Report*, September 24, 2001] He continues,
> "But, that does not mean that we are against Islam. The vast majority of Muslims want no part of terrorism, and many Muslim states are as nervous about extremism as we are. The problem is a religious subculture that cannot cope with openness, change, rules, democracy, secularism, and tolerance – and that wishes to destroy those who can."

The global survey by Freedom House, reported on by Claudia Winkler (*The Daily Standard,* 12/18/01) indicates that the
> "…Islamic faith is not intrinsically incompatible with democratic values. If you add together 'the large Muslim populations of such countries as India, Bangladesh, Indonesia, Nigeria, Turkey, and the Islamic populations of North America and Western Europe, the majority of the world's Muslims live under democratically constituted governments."

[Part III of this book has a table showing Muslim population in countries classified as free, partly free, or not free. See Chapter 8, side heading "A Strategic approach," indented heading "As to the World of Islam."]

Although Winkler notes that political dominance changes, she writes,
> "…Not a single one of the 16 majority Arab countries is truly democratic or free. And, the threat from fanatical Islamists gives weak regimes new excuses for holding onto the machinery of repression. The Islamists are in turn incensed by the success of the West. 'Indeed,' writes the authors of the survey, 'the global triumph of the values of democracy and human rights may well be contributing to the irrational fury of the revolutionary millenarians, who seek a series of dramatic acts of evil to reverse history and supplant the natural human instinct for autonomy and dignity with an esoteric ideology of neo-totalitarian control masked in the language of religion."

Winkler's column starts off noting that "Seven out of ten of the least free counties of the world have Islamic majorities." She continues, "Afghanistan, Iraq, Libya, Saudi Arabia, Sudan, Syria, and Turkmenistan join Burma, Cuba, and North Korea in the dubious distinction of achieving the lowest possible ratings in the latest global survey of political rights and civil liberties put out by Freedom House.

The Islamic terrorists are fundamentalists that have their own interpretation of the Koran. There are substantial differences in the interpretation of the Koran among the various Islamic groups. The list of Islamic terrorist organizations, according to the Wall Street Journal of September 25, 2001 includes the following: Al-Jihad, Al Queda, Armed Islamic Group, Gama'a al-Islamiya)Islamic Group), Hamas, Hezbollah, Palestinian Islamic Jihad, Palestinian Liberation Front, Popular Front for the Liberation of Palestine, and Popular Front for the Liberation of Palestine General Command. Since then we can add Arafat's al-Aqsa Martyrs Brigades. [A more detailed list and discussion is in Chapter 8, side heading "A Strategic Approach," indented heading "The Central Asia Case," paragraph heading Terrorist Organizations."]

The terrorists are not necessarily organized as states. Rather, they are networks of groups that use the weapon of fear through killing innocent civilians in an attempt to obtain the power to impose their will upon others. Their relationships with states may be threatening to the states and may enlist support of states. The next higher level of danger is from the states themselves when they are controlled by terrorists. The strategy and tactics may differ in fighting the war, but America is at war with terrorists whomever, and wherever, with the critical issues being where and how to deal with the confrontations, and how to strategically deal with the long run issues, and especially the variety of perspective of the various leaders and followers, including would-be followers.

We are accustomed to thinking of nation-states as the critical grouping for analyses of a variety of international affairs. The globalization of recent decades has made the state a less relevant unit because some interests transcend the state and pick up some of the power of the state of an earlier era. At the same time, some states are pressured by segments of different ethnic interests. In some cases the state may fall apart. In others, the central authority weakens. It makes sense to attempt to understand some of the transnational forces that are operating, not only for predicting their behavior, but also for predicting the behavior of the state.

Toward Understanding Islam

Predicting the outcomes of alternative strategies is enhanced by understanding how the situation got to be what it is in order to assess the realism of changes that would result in some progress. As noted, the war is not against Islam. It is against terrorists. These are terrorists who have hijacked religion.

Fundamentalism. The Islamic terrorists are fundamentalists that have their own interpretation of the Koran. There are substantial differences in the interpretation of the Koran among the Islamists, many of whom are not well educated in Islamic law, or *sharia.* Khaled Abou El Fadl, a UCLA law professor, speaks out on Islamic law as reported in U.S. News & World Report, April 15, 2002. In part, the article reports that his articles and op-ed pieces make clear that ""terrorism and suicidal bombing are 'not supported by the rigorous classical heritage' and 'are at odds with Islamic law."

He says, "We are in the dark ages of Islam." He speaks of an intellectual reign of terror by the Wahhabi influence fostering puritanical doctrines. He advocates a broad-minded-critical approach. That earned the wrath of many of his less tolerant co-religionists.

Tolerance is not in the tradition of Wahhabi. Karen Armstrong. In her book, *The Battle for God,* writes,

> "…Abd al-Wahhab tried to create an enclave of pure faith, based on the practice of the first Muslim community in the seventh century. It was an aggressive movement, which imposed itself on the people by force. Some of the violent and projectionist Wahhabi techniques would be used by some of the fundamentalist Islamic reformers during the twentieth century, a period of even greater change and unrest." [Page 44.]

The earlier period of change and unrest referred to was 18th century decline of the Ottoman Empire. During this period, when the Ottoman Empire is sometimes referred to as "The Sick Man of Europe, the empire was losing land at the margin. "In the Arabian Peninsula , Muhammad ibn Abd al-Wahhab (1703-92) managed to break away from Istanbul and create a state of his own in own in central Arabia and the Persian Gulf region." The response was in religious terms under the leadership of Abd al-Wahhab.

There was substantial tolerance of other religions by Muslims, in the time of Muhammad ibn Abdallah, (during the7[th]century of the common era) and during the ensuing era of Islamic world leadership. Karen Armstrong writes, in her earlier book, *A History of God,* "The Koran did not see revelation as canceling out the messages and insights of previous prophets, but instead stressed the continuity of the religious experience of mankind." [Pages 152-3]

Armstrong continues to note that revelation was not seen in exclusive terms and that Islam tradition says that there are a great many prophets and that "Muslims must emphasize their kinship with older religions:" and quotes the Koran 29:46

> "Do not argue with the followers of earlier revelation otherwise than in the most kindly manner – unless it be such of them as are set on doing evil – and say: "We believe in that which has been bestowed upon you: for our God and your God is one in the same, and it is unto him that we [all] surrender ourselves."

Certainly the level of tolerance of other religions has eroded over time. But, while the West embraced reason in The Age of Reason, also known as the Enlightenment, Islam, by and large, clung to the myths of their earlier culture. There was a "conservative spirit" typical of pre-modern societies which were not forward looking, but rather "turned for inspiration to the past." Armstrong writes, in her *Battle for God,* "In Sunni Islam, for example – the version of the faith practiced by most Muslims and the established religion of the Ottoman empire – it was agreed that 'the gates of *ijthad* ('independent reasoning') had closed." [See page 35 with footnote to further source.]

Human Achievement. Armstrong wrote those two books from the perspectives of religion. That sheds a great deal of light on understanding the situation. A broader perspective, that of a historian, is provided by Bernard Lewis in his recent book, *What*

Went Wrong" Western Impact and Middle East Response. Lewis focuses on the decline of the world of Islam, relative to the western world, in the arena of human achievement. Two views are considered. One is the "who did this to us?" view. The other is "what went wrong?"

He writes in the concluding paragraph of the book as follows:

> "If the peoples of the Middle East continue on their present path, the suicide bomber may become a metaphor for the whole region, and there will be no escape from a downward spiral of hate and spite, rage and self-pity, poverty and oppression, culminating sooner or later in yet another alien domination—perhaps from a new Europe reverting to old ways, perhaps from a resurgent Russia, perhaps from some expanding superpower in the East. But if they can abandon grievance and victimhood, settle their differences, and join their talents, energies, and resources in a common creative endeavor, they can once again make the Middle East, in modern times as it was in antiquity and in the Middle Ages, a major center of civilization. For the time being, the choice is theirs."

The first two sentences of the book's conclusion are as follows:

> "In the course of the twentieth century it became abundantly clear in the Middle East and indeed all over the lands of Islam that things had indeed gone badly wrong. Compared with its millennial rival, Christendom, the world of Islam had become poor, weak, and ignorant."

The Lewis book focuses on "the decline of the world of Islam, relative to the western world, in the arena of human achievement," means that progress, as we see it, resulted in an imbalance in the welfare of the people of Islam as compared to the people of the West. That imbalance developed even though modernizers tried to make changes. The changes were mainly in military, economic and political, but apparently were not sufficient.

Lewis indicates that while the Muslims adopted some of the western warfare methods, there remained a weakness of the Muslim states compared to the European powers. Then, he notes that before the end of the 18th century there was little opportunity for direct observation of the West.

The contacts occurred mainly in diplomacy, commerce and war. Early in the 19th century, language barrier began crumbling and broader communication was enabled by printing presses. There then was an increased recognition of European wealth and strength. With this increased communication, to quote Lewis [Page 45],

> "The question was now more specific – what is the source of this wealth and strength, the talisman of Western success? Traditional answers to such a question would have been in religious terms. All problems are so to speak ultimately religious, and all final answers are therefore religious. The final answers given by traditional writers to the older formulation off the question were always 'let us go back to our roots, to the good old ways, to the true faith, to the word of God.' With that of course there was always the assumption that if things are going badly, we are being punished by God for having abandoned the true path. That

argument loses cogency when it is the infidels who are benefiting from the change."

In more recent times, "the attempts to catch up with the industrial revolution fared little better." The source of wealth has been the oil in the ground, with little other by the way of exports. The investments preferred have been abroad rather than in the development of local economies.

The difference in economic approaches includes differences in corruption.
"In the West, one makes money in the market, and uses it to buy influence or power, in the East, one seizes power, and uses it to make money. Morally there is no difference between the two, but their impact on the economy and on the polity is very different." [Page 63.]

The societal organization also makes a big difference, especially the separation of church and state. The French Revolution, a secular event, was seen by some Muslims
"…as non-Christian or even anti-Christian, and some Muslims therefore looked to France in the hope of finding, in these ideas, the motors of Western science and progress, freed from Christian encumbrances. These ideas provided the main ideological inspirational of many of the modernizing and reforming movements in the Islamic world in the ninetieth and early twentieth centuries.

"From the beginning there were few who saw that these ideas could threaten not only Christianity but also Islam, and which gave warning against them. For a long time they had little influence. The minority were at all aware of European ideas were for the most part profoundly attracted by them. Among the vast majority, the challenge of Western secular ideas was not so much opposed as ignored. It is only in comparatively recent times that Muslim religious thinkers of stature have looked at secularism, understood its threat to what they regard as the highest values of religion, and responded with a decisive rejection." [Page 104.]

In Western Europe during the Enlightenment, the secularization facilitated progress. However, Islamic law and religion remained one in the same with the first separation of church and state in a Muslim country coming in the 19th century when the Turkish Republic "enacted removal of Islam from the constitution and the abrogation of the *shari's,* which ceased to be part of the law of the land." [Page 106]

 Here are some quotes to reflect a more recent situation.
"More recently there has been a strong reaction against these changes. [The move towards secularism] A whole series of Islamic radical and militant movements, loosely and inaccurately designated as 'fundamentalists,' share the objective of undoing secularization reforms of the last century, abolishing the imported cases of law and the social customs that came with them, and returning to the Holy Law of Islam and an Islamic political order. In three countries, Iran, Afghanistan, and Sudan, these forces have gained power…In some Arab countries, defenders of what has by now become the old-style secular nationalism accuse the Islamic

fundamentalists of dividing the Arab nation and setting Muslim against Christian. The fundamentalists reply that it is the nationalists who are divisive, by setting Turk against Persian against Arab within the larger community of Islam, and theirs is the greater and more heinous offense." [Pages 106-107]

Thus, the book, *What Went Wrong*? describes the changes that took place, and did not take place with Islam and then identifies the two major views: One is, "Who did this to us?" They answer that with the West. The other is, "What went wrong?" They have yet to come to grips with their solution.

Additional Perspectives. The 9/11 terrorist attacks came from an organization known as Al Queda (The Base). The leader, Osama bin Laden, a native of Saudi Arabia has been disowned by Saudi Arabia. Yet, news reports allege continued support by Saudi's for Al Queda.

For a perspective on church state relationships in Saudi Arabia, and the view towards the West, consider a PBS Frontline interview [11/9/01] with Ali Al-Ahmed. Ali Al-Ahmed is the executive director of the Saudi Institute, an independent human rights watchdog group based in McLean, Va. He is a Shi'a Muslim and grew up in Saudi Arabia.

The thrust of the interview reveals that there is not a separation of church and state, the government controls religion which religion is controlled by a small minority of fundamentalists, with hate for any non-believer. [Pages 1-5, 13-14 of interview off of the web, PBS-Frontline: Saudi time bomb]

Regarding our friendship with Saudi Arabia, Michael Barone, in a U.S. News & World Report [April 22, 2002] uses U.S. policy towards Vichy France during WW II as an example of our policy towards Saudi Arabia. He starts the editorial as follows: "Sometimes in war it is a good policy to treat enemies like friends…" The article's concluding paragraph is as follows:

"We should realize that while it may be prudent to treat Arab regimes as friends, they are in many respects enemies in the war against terrorism. All publicly oppose war against Iraq; none will denounce suicide bombings. Saudi Arabia produces 15 of the 29 September 11 hijackers, and Saudis continue to finance al Qaeda and other terrorists. Saudi Arabia, like Iraq, makes payments to families of suicide bombers. The governments of Saudi Arabia and Egypt permit the publication of the most vile forms of anti-Semitism and ant-American propaganda. They stoke the fires of Arab hatred and foster popular support for terrorism. The Saudis propagate the intolerant and totalitarian doctrines of Wahhabi Islam around the world. There may be good reason to treat them as friends, for a while. But, we do not need their support for operations against Iraq. And we should not forget they are acting more like enemies than friends."

More recently, December 15, 2003, the U.S. News & World Report provided an investigative report as a cover story, "**The Saudi connection** How billions in oil money

spawned a global terror network." One may reasonable expect that over time some changes will unfold, either in their policies or in our relationships.

The Bush Doctrine. The Bush doctrine is that we will bring the terrorists to justice or justice to the terrorists. Furthermore, those that harbor terrorists, aid and abet them, will also be brought to justice. It is summarized as follows:

"Our nation has developed a three pronged effort to counter the attacks of September 11, 2001. That effort is focused on
1. Finding the perpetrators and bringing them to justice,
2. Undermining their financial ability to pursue terrorist activities, and
3. Enhancing our security measures in an effort to deter terrorism."

The Taliban attempted some negotiations regarding Osama bin Laden. Ultimately they would not turn him over and they paid the price in losing control over Afghanistan. The NY Times reported (9/16/01) President Bush told the American military today to get ready for a long war against terrorism, and vowed to 'do what it takes to win."

The Bush strategy is to utilize a coalition. He has gone a long distance to include Arab states. It would not be surprising to see some of the coalition members would drop off as the war against terrorism continues.

The rejection of the West has focused on America. Our freedom is under attack. We are at war with terrorism fostered by extremist Muslims who classify us as infidels. Since war may be looked at as an extension of politics, let us turn to politics.

Behavioral Politics

Perhaps all politics is behavioral politics, although I have not seen the term used. As the time that this section was first drafted, the political process was being vigorously pursued in order to disarm Iraq, which under Saddam Hussein is a serious terrorist threat. The prevailing thinking then seemed to be that there will be a war with Iraq as well as the war with terrorists that operate without the status of being an internationally recognized state. Obviously, that expectation materialized.

The situation is certainly an interdisciplinary one, in that we not only have political issues, but also related issues grounded in economics and religious freedom. The politics of the situation is best dealt with after we conclude with this second part of the book.

The remaining second part of this book focuses on the operation of the mind and discipline perspectives that will assist us in grasping an interdisciplinary perspective of a variety of issues. This is intended as a means of moving toward a new age of enlightenment.

Chapter 5: The Process of Choice: Mind and Values

The purpose of this chapter is to shed some light on how people think and choose. The discussion starts with the operation of the mind and the role of reason. It sharpens the focus of the previous chapter by discussing the way by which different people absorb different information and process it through different patterns with different results. The discussion notes that thinking may not be logic bound and may be a mixture of emotion and reason. Finally, the role of values and pluralism is discussed.

Cognitive Spectrum and Analogy

Cognitive spectrum refers to the degree of focus in cognition. This degree of focus is important in attempts at artificial intelligence because the computer is being used to simulate thought, and "Almost all attempts to simulate thought on a computer have dealt exclusively with this narrow, high-focus band at the top of the spectrum." [David Gelernter, *The Muse in the Machine,* Page 5.]

The degree of focus is important for our discussion because it reflects different ways of thinking about things. The discussion that follows draws very heavily from David Gelernter's book, *The Muse in the Machine: Computerizing the Poetry of Human Thought.*" In that book, Gelernter is concerned with emotion in our thinking, in part because of attempts to deal with it in the computerization efforts of artificial intelligence. In dealing with it, Gelernter utilizes research represented by recent psychological texts and his own research on ancient biblical text.

The high focus of the spectrum is associated with the rigor of modern science. It deals with a very high quality of knowledge. Yet, decisions are made with lesser qualities of knowledge. So it behooves us to consider the nature of knowledge used in reaching decisions.

Among the ways the human mind thinks is a lower focus. In this lower focus the decision may be related to the emotion of the situation with the result that the choices made are drawn by analogy to another situation with similar emotion rather than similar facts.

The cognitive spectrum contains a "continuous range of different ways in which to think." This "mental focus" tends to be high early in the day, but as fatigue sets in it tends to be lowered, i.e., less analytical. Mental focus tends to move across the spectrum in the opposite direction, from low to high, as a child develops. Similarly, over "the millennia of humans existence the modern mind [has gradually emerged], and the character of thought [changed]."

Now, let us refer to the previous chapter by quoting the first paragraph of the subheading, "Differences Emerge."

> "Jared Diamond, in his *Guns, Germs, and Steel: The Fates of Human Societie*s,
> addresses the question, 'Why did wealth and power become distributed as they

now are, rather than in some other way?' [page 15] The answer, in a single sentence is, 'History followed different courses for different peoples because of differences among peoples' environments, not because of differences among peoples themselves." [Page 25.]

Now, refer back to the subheading "Human Achievement" in the previous chapter. Note that Bernard Lewis in book, *What Went Wrong" Western Impact and Middle East Response* he focused on the decline of the world of Islam, relative to the Western world, in the arena of human achievement. The quote from the first two sentences of the book's conclusion are as follows:

> "In the course of the twentieth century it became abundantly clear in the Middle East and indeed all over the lands of Islam that things had indeed gone badly wrong. Compared with its millennial rival, Christendom, the world of Islam had become poor, weak, and ignorant."

The environment of Islam developed differently than the environment of the West. As a result, some Islamists see reality differently from the way most Westerners see it. While the brain is an information processing machine, the way it thinks is a result of cognitive habits. The fundamentalists Islamists are apparently rooted in a lower focus than that of the modern Islamists and certainly that of the Western culture. The balance of emotion and reason in the thought process is tilted towards emotion so that the role of reason is diminished.

The Role of Reason

> "…reason is a biological product, with biological purposes and biological limitations. We are motivated by instinctive urges and emotions linked to cultural forces – **reason is their servant and not their master**." [Emphasis added.]

So writes Donald B. Calne in the preface of his book, *Within Reason.* Indeed, the first sentence of the quote is "The task of this book is to remind us that reason is a biological product, with biological purposes and biological limitations." The point is again made in the introduction as follows: "Reason is simply and solely a tool, without any legitimate claim to moral content. It is a biological product fashioned for us by the process of evolution, to help us survive in an inhospitable and unpredictable environment." Then as the quotation for opening Chapter 2, "The Definition of Reason," Herbert A. Simon's statement from *Reason in Human Affairs,* is provided as follows"

> "Reason is wholly instrumental. It cannot tell us where to go; at best it can tell us how to get there. It is a gun for hire that can be employed in the service of any goals we have, good or bad."

Coming of Age. Reason as a tool came of age as a result of the Enlightenment. Its philosophical roots led to some blossoms as a result of with the ancient Greek philosophers. But the difficulty there was that the reasoning was *a priori* alone rather than by inclusion of observation. Calne makes this point and notes that after "a few

centuries of achievement, the first Age of Reason went into a prolonged declined in Europe. He further notes that,

> "Intellectual innovation in the West slowed down for over fifteen hundred years, although in the East reason was burgeoning. The Islamic world made notable advances in mathematics, astronomy, medicine, and architecture." [Page 9.]

As the reader may recall, the point about *a priori* reasoning being combined with the results of observation was made in the opening chapter of this book under the side heading of "Evolutionary Progress in Disciplines." To repeat, the opening quote and paragraph is as follows:

> "That all our knowledge begins with experience there can be no doubt…
> But although all our knowledge begins with experience, it does not follow that it arises from experience.' [Kant, *Critique of Pure Reason*]

> "The combination of the opening sentences of the first two paragraphs of Kant's, *Critique of Pure Reason* is a pivotal point in the development of contemporary disciplines. It is retrospective in indicating the emergence the modern approach to research in that our Western heritage of philosophical roots is built upon the *a priori* reasoning of the ancient Greek philosophers, especially Plato and Aristotle."

It seems that we expected too much of reasoning, even combined with observation and experience. As noted in Chapter 2 of this book, under the side heading "The Enlightenment, A Philosophical Shift," Edward O. Wilson asserts in the

> "… start of the second paragraph […] that the essential nature of the Enlightenment and […] the weakness that brought it down can be said to be wrapped up in the life of the Marquis de Condorcet 'Science was the engine of the Enlightenment...' It provided an organization of the body of knowledge utilizing laws that dealt'...with entities that can be measured and arranged in hierarchies…"
> "Among the scientific achievements that were the precursors to the Enlightenment were the pioneer applications of mathematics to the social sciences. Condorocet's work in this area was a distant forerunner to current decision theory. It was not only the scientific developments that made progress possible, it was the applications to social change."

That last paragraph, taken from this book, speaks to the strength in the form of the essential nature. The quotes from the Wilson book, shown in this book's second chapter, do not include the following:

> "In particular, no single event better marks the end of the Enlightenment than his [Marquis de Condorcet's] death on March 24, 1794. The circumstances were exquisitely ironic. Condorcet has been called the prophet of the Laws of Progress. By virtue of his towering intellect and visionary political leadership, he seemed destined to emerge from the Revolution as the Jefferson of France. But in late 1773 and early 1974, as he was composing the ultimate Enlightenment blueprint, *Sketch for a Historical Picture of the Progress of the Human Mind,* he

was instead a fugitive from the law, liable to sentence of death by representatives of the cause he had so faithfully served. His crime was political. He was perceived to be a Girondist, a member of a faction found too moderate – too reasonable – by the radical Jacobins. Worse, he had criticized the constitution drawn up by the Jacobin-dominated National Convention."

The previous discussion of Condorcet was in the context of discipline development, a topic closely related to the application of reason in scientific endeavors. The point to be made here, as was made in the earlier discussion, is that had "…Rousseau spoken of general reason rather than general will, events may have unfolded differently."

Motivation as a Factor. Motivation is a critical factor in decisions.   According to Calne,

"Motivation is the drive to find mental rewards and to escape mental punishment… This concept of motivation can be illustrated by examples. We feel pleasure when we instinctively escape from danger, or when we emotionally reciprocate affection, or when we achieve a cultural goal such as winning an Oscar. In contrast, reason lacks the capacity to motivate because it cannot make us feel anything. Its nature does not include any direct link to mental rewards. Although it is, of course, always available to be applied to a task that entails a reward." [Page 27.]

The motivation of the Jacobins is what did Condorcet in, not reason. Motivation has also caused people to sacrifice themselves when cultures impose their irrational wills. The examples provided by Calne in his fourth chapter, "Social Behavior," include a World War I battle mounted near the Rive Somme in which there were 419,654 British casualties during a four month period with Calne noting "Nothing significant was gained in return for the appalling British losses on the first day on the Somme, but the policy to continue the attack did not falter." It showed the bravery of the soldiers consistent with 600,000 volunteers added to the British army shortly after the start of the war when the call was for 100,000 volunteers. In Calne's words, "Most men fought because they saw it as their duty. Most had no thoughts about the politics or purposes of the war, and they had no concerns about the competence or intention of their leaders." [Page 73.]

The other example in the same chapter was of the bravery displayed by the kamikaze pilots of the Japanese in World War II. The chapter quotes the "Hymn of the Dead," a *haiku* the young pilots sent home to their mothers. It is as follows:
"If I go away to sea
I shall return a corpse awash.
If duty calls me to the mountain,
a verdant sward will be my pall;
For the sake of the Emperor I will not die
peacefully at home."

We see the same motivations in the so-called suicide bombers, more accurately described as homicide bombers. They are responding to a culture that expects them to sacrifice, and in some cases provides cash incentives to the families.

Faith in reason has been associated with faith in science. Calne writes that faith in reason reached its zenith toward the end of the nineteenth century when it was seen that reason "worked."   But the hopes were not fulfilled in the twentieth century. The opposition to reasoning is coalescing and may be seen in that   "The growing strength of cults, religious fundamentalism, and political extremism reflects this disenchantment."

Consider Emotion. Emotion is sometimes considered as an alternative to reason. But emotion may in fact be part of reasoning itself. To quote from the introduction of Martha C. Nussbaum's *Upheavals of Thought: The Intelligence of Emotions,*
"A lot is at stake to view emotions in this way, as intelligent responses to the perception of value. If emotions are suffused with intelligence and discernment, and if they contain in themselves an awareness of value and importance, they cannot, for example, easily be sidelined in accounts of ethical judgment, as so often they have been in the history of philosophy. Instead of viewing morality as a system of principles to be grasped by the detached intellect, and emotions as motivations that either support or subvert our choice to act according to principle, we will have to consider emotion as part and parcel of the system of ethical reasoning."

If emotion is part of reasoning, which we have identified as a tool, then emotion is also a tool. But, we have earlier quoted Calne, in the opening of the discussion of the role of reason, noting that emotion is a motivation. Can it be that emotion is both a motivator and a tool?

Apparently Nussbaum would answer yes, if I read the following quote correctly; "Emotions are not just the fuel that powers the psychological mechanism of a reasoning creature, they are parts, highly complex and messy parts, of this creatures reasoning itself." She continues with an explanation of her views with the position that "emotions are appraisals or value judgments."

In order to better understand the processes, let us now turn to a discussion of the mind and the brain.

The Mind

The Brain. The mind is the brain at work. The brain operates as a network of connections among cells so as to be a processing system for information of various sorts. [Consider page 74, Dennet and Wilson.]   It is an information system built upon the sensory systems of the body that integrates the information into thought and emotional processes.

A paragraph from Wilson's book, *On Human Nature,* sheds a lot of light. It is as follows:
"…A schema is a configuration within the brain, either inborn or learned, against which the input of nerve cells is compared. The matching of the real and expected patterns can have one or the other of several effects. The schema can

contribute to a person's mental "set," the screening out of certain details in favor of others, so that the conscious mind perceives a certain part of the environment more vividly than others and is likely to favor one kind of decision over another. It can fill in details that are missing from the actual sensory input and create a pattern in the mind that is not entirely present in reality. In this way the gestalt of objects – the impression they give of being a square, a face, a tree, or whatever – is aided by the taxonomic powers of the schemata." [Page 75.]

Then, later in the same book,

"The search for values will then go beyond the utilitarian calculus of genetic fitness. Although natural selection has been the prime mover, it works through a cascade of decisions based on secondary values that have historically served as the enabling mechanism for survival and reproductive success. These values are defined to a large extent by our most intense emotions: enthusiasm and a sharpening of the senses from exploration; exaltation from discovery; triumph in battle and competitive sports; the restful satisfaction from an altruistic act well and truly placed; the stirring of ethnic and national pride; the strength of family ties; and the secure biophilic pleasure from the nearness of animals and growing plants." [Page 199.]

Thus, as I see it, making progress is predicated on instilling values into the schema such that the framework of decision making has a suitable foundation. That philosophy is helpful in real estate investment strategy and in political strategy. It is built upon value systems. A better understanding through the sciences, social and natural, helps in improving forecasts of the outcome of courses of action.

Paradigms. The framework for this integration is the paradigm within which the information is considered. It influences the forecast of outcomes. That paradigm is the perspective that places the information into a context. People see things differently depending upon the culture in which they developed, among other factors.

The ability to see things is, in some measure, dependent upon how well the neural connections have been developed. Just as languages are easier to learn at earlier ages than at maturity, so dealing with abstractions early on will facilitate grasping more abstract concepts at a later stage of development.

Judgment. There are some general tendencies to errors of judgment in the decision making process imbedded in the minds operation. One commonly known to astute investors goes by the name of the "gambler's fallacy." This error, a misinterpretation of the law of large numbers was briefly discussed at the beginning of Chapter 4 in the context of behavioral finance. It is in the category of reasoning from a population to an instance. The classic example is the tossing of a coin that has resulted in a long series of heads or tails and the erroneous inference that the next toss has a high probability of being the opposite of what it was in the long series. [See *Cognition: Exploring the Science of the Mind,* by Daniel Reisberg, Chapter 11.]

The statistical problem in this category of reasoning from a population to an instance is a misapplication of the law of large numbers in assuming that the law applies in the case of small numbers. The smaller the sample size the greater the variability as compared to the larger sample. Thus, judgments from a small sample, if based upon reasoning that the next event will move the enlarged sample closer to what one expects under the law of large numbers is erroneous. If the coin is a fair coin, each flip is a 50/50 chance without regard to the preceding sequence.

Another type of common error is reasoning from a single case to the entire population. Reisberg reports on a study by Hamill, Wilson, and Nisbett in which subjects being questioned on their view of the criminal justice system had been shown videotapes of prison guards. Two different tapes were shown; one of a sympathetic guard and the other of a contemptuous guard. Some subjects were told that the guard they saw was typical while others were told that the same guard was atypical. Some others were given no information about the representativeness of the guard that they saw. Different subjects saw films of different guards. The result was that information as to the representativeness of the guard made no difference to the attitude of the subjects. The conclusion in Reisberg's words, "These data and other laboratory findings … make it clear that subjects are quite willing to draw conclusions from a single case, even when they have been explicitly warned that the case is not representative.

These two judgmental errors fall into Reisberg's classification of representiveness. Additional classifications by Reisberg include errors associated with availability of information, detecting co-variation, and the influence of base rates. An example of judgment error associated with availability of information is the pattern of media coverage. The way in which media reports events, selection and language, influence people as to their reasoning about the events. The key relevance here is that in assessing policy in the war on terrorism, better quality judgments may be made by going beyond the headlines and biased pundits views to make ones own analysis of the information by a reasoned process.

Within each of the classifications there are various types of errors. One that ties back to the opening of the discussion on the brain is an example of co-variation. Referring to a particular study, Reisberg writes, "Their data reminds us that professional training does not make you immune to illusions, that professionals, just like everyone else, are fully capable of 'projecting' their beliefs onto the evidence and perceiving patterns that are not there." So, what we see is related to the schema referred to in the quote from Wilson in the opening of this section on the mind.

   Rational and Irrational. Rational and irrational refer to the use of reason. Among the dictionary definitions of reason is, "the mental powers concerned with forming conclusions, judgments or inferences." [Webster's Encyclopedic Unabridged] When considering rational or irrational thinking, one might look at the concept as a process that is a matter of degree, rather than as a discrete absolute.

Here it is worth considering the concept of "Fuzzy Logic" which holds that, "Everything is a matter of degree including truth and set membership." Furthermore, fuzzy logic refers to, " . . . reasoning with fuzzy sets or with sets of fuzzy rules." [*Fuzzy Thinking*, by Bart Kosko, p 292] Simplistically, how little hair needs to be on a man's head before he is considered bald?

Fuzzy logic appears to be rooted in the difference between digital and analog perspectives. Mathematically, we are accustomed to a digital perspective, even though we may sometimes slice the quantification to get as many decimal places as suits us. The perspective, digital or analog, makes a difference in classification, and the point is that there are degrees of rationality, or more to the point, differences in the quality of analyses and judgments. Irrationality goes beyond a border of an acceptable quality of judgment. It speaks to quality of process in application of logic.

The Essence of the Process. The essence of the process of choice is that the mind, by using the brain, processes selective information in the ways it has learned through biological development and culture (nature and nurture). This process is in a paradigm that is based on values, also learned through biological development and culture (nature and nurture). However one chooses to classify emotions as related to reason, the intelligence of the mind deals with both the forces of tightly or loosely reasoned logic melded with emotional force. The blends may be different for different people and for different circumstances, and errors in reasoning do occur, but reason alone is not as good an indicator for understanding or forecasting behavior as is a combination of reason and emotion. But, both reason and emotion are rooted in the values. Thus, the big issue is to identify the values and the way in which the individuals or groups deal with the information.

Values and Policy Choices

Policy Differences in the Stock Market

No person can really know what another person is thinking, although some pretty good guesses may be made. The quality of the guess will vary with the experience and the rigor that is applied. Having said that, we still need to pursue what others were thinking in order to better understand the outcomes of our choices. So, now instead of continuing with the description of the general process we are shifting into a mode of describing some different types of behavior and looking to the roots of that behavior.

Perhaps, in time, we will be better able to trace the whole route deductively. Indeed, the discussion in the next chapter is an attempt to foster that route, when doable. But, for now, let us see what we can understand using the method described as the Ariadne's Thread approach.

The Ariadne's Thread approach is a metaphor used for exploring knowledge by going from the branches back to the base rather than going forward from the base to the branches. It is taken from Chapter 5 of Edward O. Wilson's book *Consilience,* discussed in the next chapter of this book. The story is that Ariadne, the love struck daughter of

Crete's King Midos, gave Theseus, whom she loves, a ball of thread. Theseus unravels the thread as he makes his way through a labyrinth. He is then able to retrace his steps.

The point is that in exploring the tree of knowledge, it is less difficult to go from the branches back to the base than it is to go forward from the base to the branches. This metaphor as used by Wilson relates to the point that it is less difficult to go from biology back to chemistry and physics than it is to go forward from physics and chemistry to biology. The use made of the concept here is that it is less difficult to describe some behavior and trace to some roots than it is to start with the roots and predict behavior.

Behavior of Participants in the Stock Market. As discussed in Chapter 4, "The Paradigm for Predicting Outcomes," which started off with a discussion of behavioral finance, "…different players in the market are making different errors in reasoning…" The analysis focused on errors in reasoning not on the underlying forces generating the strategy. That is, the Chapter 4 discussion did not speak to the values of the decision makers. It spoke to decisions made because of erroneous reasoning.

Now consider the values that may underlie the strategy of some institutional investors such as pension fund managers.   Let us focus on the value identified as justice. The people on the boards or committees with the responsibility for making the decisions have a fiduciary relationship to the institution. And, while in general it is more painful to lose than pleasurable to gain, a person in a fiduciary capacity is especially adverse to loss. The penalty, for doing less well than others with similar responsibility, is likely to be loss of position. The benefit of doing much better is not significantly different from doing a little better. Thus, institutional decision makers may be mesmerized by bench mark performance. That is, even if they lose in the market, if they lost less than the average loss, they did pretty well and get to keep their position. Their defense is that they were reasonable and prudent so that it would be an injustice to penalize them. They take a strategy of self interest built upon how the value of justice would be applied to judging their performance.

One might consider this an alignment of interest issue. The interests of the fiduciary and the interests of the principal may not be the same, but the fiduciary acts to preserve his own interests even if a more aggressive strategy would perform better. Among Wall Street adages are; it is better to be a little late in getting in than too early, and it is better to be a little early in getting out than a little late.

Now consider an individual investor. A retiree born in the depression is likely to be more conservative than a baby boomer that had not experienced a stock market fiasco. Well, maybe after the turn of the decade fiasco in NASDAQ this is less likely to be true or true to a lesser degree. The point is that the values instilled in an individual by virtue of environment and experience, and perhaps genetics, will influence risk propensities. Some people thrive in high risk situations and others avoid risk with a passion.

Demographics. Consider some demographic characteristics such as age, income, wealth, marital status, family obligations, and occupation. Other things being equal, what is the risk propensity of a young high income individual with enough wealth for living style security over an reasonable adjustment period, unmarried (or if married, with an employed spouse), without family obligations, and with secure employment (tenure or strong employment contract with a golden parachute)? It is probably a case in which one is prepared to take great investment risks.

The other extreme is the widow and orphan category. This is typically a case in which the preservation of capital is critical except when income requirements are so high relative to capital that capital may be invaded up to the time of the widow's last breath or the orphan's completion of formal education and/or training.

There is a wide range of risk positions that may acceptable in between these two extremes. The strategy is usually stated in a positive vein such as in terms of investment objectives of growth or income, and some reference to risk profile such as conservative, moderate, and aggressive or speculative.

Where one selects the risk reward combination depends on a variety of factors, of which the demographics are only a part. But, before turning to this other arena, please note that the demographics of an individual changes overtime and the risk reward combination may also change with time and circumstance.

Psychographics. Psychographic characteristics refer to attributes of life style. These attributes have roots in values. But, psychographic profiling is generally concerned with the manifestations of the values as represented in consumer behavior. According to the web page of Finkleman Communications Ltd., the psychographic profiling, using the VALS system created by Arnold Mitchell,

>"[the] primary typologies break the largest cross-section of North American adults into eight primary profiles:
>
>>PRIMARY TYPOLOGIES -- and parts of their distinguishing natures
>>Survivors -- mostly older, poor, removed from cultural mainstream
>>Sustainers -- mostly young, struggling, angry, distrustful
>>Belongers -- traditional, home is domain, rather fit in than stand out
>>Emulators -- ambitious, competitive, upwardly mobile, material pursuit
>>Experientials -- want direct experience, inner growth, art and home
>>I-Am-Mes -- young, exhibitionist, impulsive, narcissistic, inventive
>>Achievers -- Leaders, professionals, status focus, materialistic, trusting
>>Societally Conscious -- responsibility, conservation, desire to heal"
>
>"The key is to understand that each of these groups or primary typologies -- according to shared values and lifestyle influences -- develops its own unique 'language'; of shapes, symbols, semiotics, images, self-images, colors and even words."

This classification approach, used for marketing, infers that once a series of characteristics of the psychographic profile is known that other characteristics may be inferred. The reasoning is that there is a common cultural base for the group.

The important point here is that people change. With changing times and circumstances, there will be changes in the groups. There are two key questions here. One relates to the goal of changing behavior. The other relates to dealing with the situations that arise out of its presence.

Academics and other Social Scientists. As academics or social scientists, part of what we do is to improve the system, be it by developing knowledge or disseminating it. The dissemination may be viewed as helping other people deal with life, especially in being educated in the discipline in which we specialize. All of this is in the area of making progress which was in the opening chapter of this book.

What has perhaps been more subtle is that we can also use the understanding to deal with the issues that we face. This is especially applicable when we are dealing with investments and we are focusing on application of the knowledge to our own investment policies. That is, we are dealing with our own self interest.

Thus far the discussion of investments has been focusing on the latter, our own interest, although the communal interest is implied. Soon we turn to the war on terrorism, and our primary focus is in defending our freedom. **But as we shall see, the interest of others is at stake, as well as ours, and the big question is will they also be better off and if not, how do we deal with it.** Before we get to that strategy, let us further explore their thinking and behavior.

Behavior of Participants in the Political Arena

Values, ambitions, and ethics may shed some light on the behavior of participants in the political arena. Perhaps we ought to be discussing the political economy rather than the political arena because of the strength of economics on the political environment. On second thought, or is it third thought, maybe the topic ought to be the religious influence on participants in the political economy.

We are searching for a better understanding of the way others are thinking. In this case the others are the terrorist segment of the Muslim population, primarily in the Mid-East. That understanding will be enhanced if we consider basic human needs as including some feeling of purpose in life. That feeling may be manifested in religion, especially when religion dominates behavior.

The first part of this book led to a discussion of the evolution to the age in which we live with a focus on the rising role of reason and the loosening of the grip of religious dogma on the decisions made in the process of modernizing Western civilization. Views on truth and justice are among the considerations in understanding the underlying forces generated by values. A big transition was the reliance on the altar of scientific method and reason as the only acceptable method of arriving at truth. Fundamentalism has a different altar. Divine revelation is truth.

We are accustomed to thinking of truth as reality. But, truth may also be thought of as what ought to be. For example, according to the *Encyclopedia Judaica,* "In Judaism truth is primarily an ethical notion: it describes not what is but what ought to be. Thus, in the Bible, truth is connected with peace (Zech. 8:16), righteousness (Mal. 2:6ff.), grace (Gen. 24:27, 49), justice (Zech. 7:9), and even with salvation (Ps. 25:4ff.; cf. Avot 1:18, 'The world rests on three things—truth, justice, and peace')." The same point is made by Armstrong [page 253, BFG] as follows: "Where the rational empiricism of the West concentrates on what *is*, the Orient seeks the truth that shall be."

   Fundamentalism. Fundamentalists take the reading of the bible literally. It is the way they see truth. Islamic fundamentalists take the reading of the Koran literally. It is the way they see truth.

Literal readings are subject to different interpretations and to misinterpretations. One view with a great deal of merit is that the Islamic terrorists have hijacked the Koran.

While religion may be the dominant force in the behavior, the political and economic aspects need to be considered. The last part of the preceding chapter included some material from the Lewis book, *What Went Wrong? Western Impact and Middle East Response,* indicating that while the West was prospering the world of Islam was in decline. The quote there was;
> "In the course of the twentieth century it became abundantly clear in the Middle East and indeed all over the lands of Islam that things had indeed gone badly wrong. Compared with its millennial rival, Christendom, the world of Islam had become poor, weak, and ignorant."

The extremists have asked the question "Who did this to us?" rather than "What went wrong? Their answer is that the West did it. And so there is hate.

The analysis of what went wrong is a complex analysis of a cultural turmoil of many dimensions. Such an analysis is provided in the Lewis book. The Armstrong book, "*The Battle for God,*" provides a focus on the emergence of fundamentalism, not only for the Muslims, but also for the Christians and Jews. A key point is that the fundamentalists are those who break with some of their co-religionists because they see their common religion differently, obviously the fundamentalists want to go back to a pure interpretation of their sacred documents, but the feud starts with the co-religionists, e.g., Muslim against Muslim.

That feud is based, in part, on the adjustments being made to modernity. For Islam, the early effort was non-political in that the religious leadership was above politics. For centuries prior to the colonialism in the Middle East "…even though religion and state were not explicitly separated, they had been separately administered by Caliphs and the *ulama* [scholars and clerics] for centuries. [Vartan Gregorian, *Islam*, page 41.] However, in time that changed.

The non-political Islamic concept seem as though it is an oxymoron, a contradiction in terms because of the non-separation of religion and civil law in an Islamic state. But, as modernization proceeded, the separation from politics faded. On the one hand there are "Islamic parties, whose traditionalist members want secular political systems to reflect the moral principles of their religion" and "activist Islamic parties, which promote Islam as an ideology in a theocratic state. "Islamism's greatest success was Ayatullah Khomeini's revolution in Iran." [Gregorian, pages 80-81,]

But, as Gregorian writes in opening the chapter on Islamism just quoted from, "Islamism is anything but a unified movement; Islamist views range across the entire spectrums of both religious and political thought. [Page 73.] He quotes Jillian Schwedler as follows:

> "Islamism is not a single idea; it has been articulated in response to historical phenomena as diverse as colonialism, new forms of migration, the creation of nation-states, the suppression of labor, leftist mobilization and Western political and economic hegemony…Islamists may be divided into radical and moderate camps, the former aiming to create an Islamic state through revolution and the latter wiling to pursue their political agendas within existing (and often quasi-democratic) state institutions…only a tiny percentage of Muslims engage in political projects that can properly be call Islamist. Far more identify with ideologies that are distinctly nationalist, socialist, communist, or democratic.
> [Excerpted from Schwedler's article, "Islamic Identity: Myth, Menace, or Mobilizer?" by Gregorian, page 73.]

The diversity of belief and division of power in the *umma* (Islamic world community) goes back to

> "…immediately after Prophet Muhammad's death, for he left no indisputable instructions about the rules of succession or whether spiritual leaders were also political leaders. Since Muhammad did not have a son, one faction wanted the Caliph to be elected from the ranks of respected leaders in the umma, the Muslim community. A rival group contended that the leadership should be confined to the Prophet's immediate family and descendants." [Page 14]

Gregorian continues noting that "We know from history that, in this instance, election won out over heredity." That refers to the selection of the first Caliphs according to the Sunni's preference. The Sunni's are the largest group of Muslims and have had further divisions. The Shii group, favoring selection of successors on the basis of blood ties to Muhammad, also had there divisions. More detailed information on this division of belief is in the box that follows.

Diversity of views among Muslims goes back to the time of making a choice as to the successor to the Prophet Muhammad in 632 of the Common Era.[i] That provided the split between what later became the Sunnis and the Shiis. Those who favored by succession by election (to the position of caliph), from among the community leaders, later to become known as the Sunnis, won out over those who favored succession by heredity.[ii]

The contender, from among those who favored succession to the position of caliph by heredity, was Muhammad's closest living relative, Ali ibn Abi Talib, who was his ward, cousin, and son-

in-law. "But Ali was continually passed over in the elections, until he finally became the fourth caliph in 656."[iii] Five years later he was assassinated by a Muslim extremist, but was mourned by both Sunnis and Shiis.

His successor, Yazid ibn Mauwiyyah, established the Umayyad dynasty which extended the Arab empire but declined for a variety of reasons, including intertribal feuding.[iv] Mauwiyyah died in 680 and was succeeded by Yazid who in response to "…huge demonstrations…in favor of Ali's second son, Husain [as a candidate to become caliph, the eldest son having died] "sent emissaries to the holy city to assassinate him."[v]

Husain "decided he must take a stand against this unjust and unholy ruler." The stand was "with a small band of fifty followers…" including wives and children. All were slaughtered en route to Kufa from Mecca.[vi]

The tack taken of the rule by the Sunnis over the next two centuries, led by the *Mu'tazilite* scholars, took a theological view that sought to "…harmonize reason with Muslim scriptures…" Vartan further writes,

> "The Mu'tazilite scholars called for a rational theology, arguing that God has a rational nature and that moral laws and free will were part of the unchangeable essence of reason. The movement was the result of the encounter of Islam with earlier civilizations – Persian and Greco Roman – and especially the traditions of Greek philosophy.[vii]

That effort would have moved Islam closer to what later emerged in mostly Christian Europe, had the view prevailed in Islam over time, at least in the sense of reason – a rational approach. But, the rule also claimed an exclusive interpretation of what constituted Islam, and so the central religious authority went by the wayside after several decades of attempted enforcement.[viii]

Each of the factions has had further splits over the years.[ix] But during the Golden Age, the five hundred years in which Islam was at the forefront of world progress, there was some tolerance for the other Abrahamic religions, Judaism and Christianity.

There are other differences among the Muslims, especially in the use of violence. Armstrong writes,

> "The Koran condemns all warfare as abhorrent, and permits only a war of self defense. The Koran as adamantly opposed to the use of force in religious matters. Its vision is inclusive; it recognizes the validity of all rightly guided religion, and praises all great prophets of the past. [page 243 , citing Koran 5:65, 22:40, 2:213-15.]

Yet, fundamentalists who chose to become terrorists make their own interpretation of the Koran and resort to a warfare that targets innocent civilians.

Changing Times. Just as there is diversity among the historic Muslim beliefs, so has there been diversity in Muslim thinking over time as well as place. A review of some key developments in different geographical areas at different times, reveals that there is a commonality among the the three monotheistic religions descendant from Abraham in tendencies toward fundamentalist related to events in Western civilization. And while some terrorist acts have occurred with all three, there is a significant difference with those terrorist of Muslim affiliation – their intent is to destroy the infidels with specific reference to Americans as the infidels.

The view of the Islamic fundamentalists is Utopian, with their concept being that the Koran is divine and serves as law. The most radical view the law without a separation of church and state, and the terrorists seek to use force to impose their will.

Western civilization has numerous examples of efforts to impose what one group sees at the Utopian vision or what they see as the only way life should be. All of these efforts to impose Utopian beliefs by force have met with disaster.

The issue in dealing with any such Utopian view is how to preserve ones own rights to believe as one wishes in the context of the efforts of others to impose their views. Understanding the situation is enhanced by understanding the concept of pluralism.

Pluralism. Pluralism refers to the idea that we "…look upon life as affording a plurality of values, equally genuine, equally ultimate, above all equally objective; incapable therefore of being ordered in a timeless hierarchy, or judged in terms of some one absolute standard." So writes Isaiah Berlin in his book *The Crooked Timber of Humanity,"* [Page 79.]

That quote continues as follows:
> "There is a finite variety of values and attitudes, some of which one society, some another, have made their own, attitudes and values which members of other societies may admire or condemn (in light of their own value-systems) but can always, if they are sufficiently imaginative and try hard enough, contrive to understand – that is, see to be intelligible ends of life for human beings situated as these men were." [Also see earlier discussion in Chapter 4, side heading ""Toward an Understanding What They Were Thinking," indented heading "Habit as a Point of departure."]

On the next page [80] he writes,
> "The fact that values of one culture may be incompatible with those of another, or that they are in conflict within one culture or group or in a single human being at different times – does not entail relativism of values, only the notion of a plurality of values not structured hierarchically; which, of course, entails the permanent possibility of inescapable conflict between values, as well as incompatibility between outlooks of different civilisations or of stages of the same civilisation."

Referring back to the quote was near the beginning of Chapter 4, side heading, "Toward an Understanding of What Were They Thinking," indented heading, "Habit as a Point of Departure," please note that the key is that there are many values and they may be in conflict. Indeed we may have conflict among our values. But, it is not an anything goes view as might be believed by relativists.

It is a problem of how to live with the differences. In the opening chapter of *The Crooked Timber of Humanity* book by Isaiah Berlin he writes as the beginning of the final paragraph,
> "Of course social or political collisions will take place; the mere conflict of positive values alone make this unavoidable. Yet, they can, I believe, be

> minimized by promoting and preserving a an uneasy equilibrium, which is constantly threatened and in constant need of repair – that alone, I repeat, is the precondition for decent societies and morally acceptable behaviour, otherwise we are bound to lose our way." [Page 19.]

The hope for a New Age of Enlightenment may be based upon an acceptance of pluralism. But, fundamentalists by definition are not pluralists. In that case, tolerance will do. The lack of tolerance will lead to conflict. Peaceful co-existence requires pluralism or tolerance. Thus, the mission may be defined as facilitating conditions that would breed tolerance, and thwart intolerance if there is an absence of pluralism. That is different from attempting to impose our values or political system. All of this calls for wisdom.

Since wisdom is based upon judging what is true and right, as well as having the judgment to discern what will work, it makes sense to realize that there are various concepts of true and right. This idea is discussed in the next chapter as are the habits used in the reasoning system. In short, the reasoning processes, through repetition of application become part of the habits of the mind; and, the emotional and cultural practices may become habits of the heart. We need some perspective to understand how others see the things that we see, and how they miss seeing the same things. We also need to find out how to see that which they see, and to understand what they see the way they see it. We can get a realistic perspective by reviewing some aspects of our organization of knowledge into disciplines and consider blending the disciplines to better understand what they were thinking and by drilling down to the commonalities as in consilience. See the next chapter for discussion of consilience.]

Chapter 6: Discipline Perspectives and the Organization of Knowledge

The purpose of this chapter is to enhance our ability to deal with complex issues through the provision of an understanding of the commonalities of disciplines and an approach of blending them in order to better forecast outcomes.   Thus, the chapter provides a perspective for understanding disciplines in the context of dealing with interdisciplinary issues.

Disciplines developed out of a necessity to sharpen the focus in order to better understand the realities of life. Often this understanding comes with a different perspective. However, understanding the realities is enhanced by understanding the context, especially the system as a whole.

Drawing on fundamental principles from one discipline and applying them to another is a way of enhancing the understanding of the second discipline. Furthermore, the most difficult problems faced in the social sciences are interdisciplinary in nature and therefore require an interdisciplinary approach which involves understanding issues from multiple perspectives and dealing with two or more disciplines simultaneously.

There is a unity of knowledge in the understanding of the system as a whole in that some fundamental laws of the system are applicable to various disciplines even though they focus on different parts of the whole. This unity of knowledge is known as the concept of consilience. It is discussed in this chapter with some examples. Then, in Chapter 8, some concepts from real estate are applied to understanding a strategy for dealing with terrorism.

Contrasts with Earlier Thinking

    Ancient Thought

David Gelernter, in his *The Muse in the Machine: Computerizing the Poetry of Human Thought*, writes,
> "I have claimed that ancient-thought streams were built differently, at least on some occasions from our own. I have also claimed that the cognitive spectrum can be used to deriddle them. In this chapter I will try to prove those claims."
> [Page 163.]

In the book's discussion, it is noted that the level of focus is different. The ancients rely more on metaphor and are not logic bound.   This is in contrast to contemporary thought which emphasizes logic.

Gelernter ascribes a greater role to emotion in the days of the ancients. [See cover flap.] The role of emotion in contemporary decision making was discussed in the "Consider Emotion" sub head of "The Role of Reason" in the preceding chapter. The jury is still out on that matter.

Another view of the ancients is presented by Lucretius. Titus Lucretius Carus, the Roman philosopher-poet who lived for most of the first half of the century B.C.E., wrote an epic poem, *On the Nature of Things,* in which he provided a detailed atomic view of the universe. He describes, in the Book III section, his view of the nature of the mind and the soul. He saw the mind and soul as corporeal, and acting together in a material fashion, and consisting of atoms. This perspective has some merit, even today.

The belief in the unity of the sciences as a conviction "that the world is orderly and can be explained by a small number of natural laws." goes back to a philosopher of the sixth century B.C.E., Thales of Milietus, in Ionia. It was Thales' belief that all matter ultimately consists of water. Although the quote is "often cited as an example of how far astray early Greek speculation could wander, [however the real significance of his thought] is the metaphysics it expressed about the material basis of the world and the unity of nature." [See pages.4-5 of *Consilience.*]

Two thousand years later, Edward O. Wilson writes his book, *Consilience: The Unity of Knowledge.* That book develops the idea that all knowledge is unified in a basic set of principles. He also writes that the mind is the brain at work.

The quality of the work done by the brain is in many ways wisdom challenged. Apparently, the brain hasn't done as good a job as we would like to see in that we are beset by a myriad of societal problems. Natural science has been doing a marvelous job since the scientific revolution of four centuries ago. Science can reasonably explain much of what the mind perceives, but it takes art to transmit the feeling among people of similar perception.

According to Wilson, there are commonalities in the arts and sciences in that they are governed by the same fundamental natural laws. These natural laws are the same for the social sciences. Yet, we have precious little progress in the social sciences relative to the natural sciences. The great leap forward started with the Enlightenment of the seventeenth and eighteenth centuries. That was when reason flowered.

Age of Enlightenment

The Enlightenment of the 17th century was focused on making progress by the use of reason. That use of reason came through the advancements in the natural and social sciences. The scientific revolution that started in the century preceding the Enlightenment brought dramatic progress to the quality of life in Western civilization.

People, today, think about things differently than did people of a few centuries ago. This thought is grounded in the scientific revolution. It has migrated from the natural sciences to the social sciences.

This migration is noted in Wilson's opening to the third chapter, to wit,

"The dream of intellectual unity first came to full flower in the original Enlightenment, an Icarian flight of the mind that spanned the seventeenth and eighteenth centuries. A vision of secular knowledge in the service of human rights and human progress, it was the West's greatest contribution to civilization. It launched the modern era for the whole world: we are all its legatees. Then it failed."

The failure referred to in the quote is discussed in Chapter 2 (in the section titled "The Enlightenment: A Philosophical Shift") of this book in which the same quote is used in a different context. The issue here is the development of the idea of the unity of knowledge.

The relevance here is that the scientific method breakthrough of Francis Bacon, in the preceding century, set the stage for the Enlightenment from the perspective of science. Bacon rejected the sharp separation of disciplines prevailing since Aristotle and visualized a pyramid of knowledge, "…with natural history forming the base, physics above, and subsuming it, and metaphysics at the peak." [Page25.]

Condorcet picked up on the idea of the cosmos being a combination of "…entities that can be measured and arranged in hierarchies." And, he furthermore "…called for the illumination of the moral and political sciences by the 'torch of analysis." [Page 24.]

Condorcet applied the math of the physical sciences to the social sciences. He thus led the way to the present day social science obsession with rigor. As I have noted in the Preface and page 39 of Part I, academics worship at the altar of rigor. Relevance takes second place because the incentive system focuses on peer reviewed research in prestigious learned journals.

A Contemporary Problem and Progress

A contemporary problem is manifest in that these journals are typically focused on discipline rather than issues. The issues may be inter-disciplinary, but the academic structures are typically departmentalized by discipline. Or, using the words of Edward O. Wilson from his *Consilience: The Unity of Knowledge*,

> "**Grants and honors are given in science for discoveries, not for scholarship and wisdom….The same professionalism atomization afflicts the social sciences and humanities**." [Emphasis added. Page.42.]

This organization of knowledge has afflicted us in the way we organize our programs and pursue our discussions. The roots of change may be found in the Enlightenment that started in the seventeenth century. As previously noted, it was then that Francis Bacon "rejected the sharp divisions among disciplines prevailing since Aristotle." [Page.28.]

It is time for a New Age of Enlightenment, one in which relevance and rigor are teamed in the analysis of issues using interdisciplinary techniques. Concilience would reveal the principles common to the various disciplines. In the meantime, we can do two things.

First we can look for the commonalities which may be in systemic structure as well as in underlying principles. Second, we can blend the paradigms in an interdisciplinary approach

Progress towards Blending Disciplines

Consilience. Edward O. Wilson's book, *Concilience: The Unity of Knowledge,* argues for the fundamental unity of all knowledge. The idea is that, "everything in our world is organized in terms of a small number of fundamental natural laws that comprise the principles underlying every branch of learning."

The word, "Consilience" goes back to the 19th century. It refers to the connection of different disciplines through shared basic laws. It was used by philosophers of science and attributed to William Whewell. See accompanying box for discussion.

Whewell introduces the term *consilience* in the following paragraph from his T*he Philosophy of the Inductive Sciences;*

"Accordingly the cases in which inductions from classes of facts altogether different have thus *jumped together*, belong only to the best established theories which the history of science contains. And I shall have occasion to refer to this particular feature in their evidence, I will take the liberty of describing it by a particular phrase; and will term it the *Consilience of Inductions.*" [Page 174 of the excerpted chapters of *Philosophy of the Inductive Sciences,* in *Nineteenth-Century Philosophy*, edited by Patrick Gardiner.]

The chapter, "Characteristics of Scientific Induction," develops the idea drawing examples from astronomy in which there are commonalities of principles from "separate classes of facts." Furthermore, he notes that "additional suppositions *tend to simplicity* and harmony. This is in contrast to having to complicate the theory in order to account for additional classes of facts. Whewell makes his point as follows: "The Consilience of our inductions [referring to the examples just discussed] give rise to a constant Convergence of our Theory Towards Simplicity and Unity." [Page 175.]

Gardiner, the editor of the compilation of excerpts from writings of selected 19th century philosophers, writes that Whewell's "writings include contributions to the fields of mathematics, mechanics, theology, ethics, and political economy, and he was opposed to the rigid division between study of the arts and study of the natural sciences which was an established feature of the English educational system." [Page 158.] He also writes as follows:

"For Whewell, induction took the form of 'a leap which is out of reach of method,' and he insisted upon invention and imagination, involving fresh modes of looking at and connecting empirical facts, as being integral to all genuine scientific discovery. Thus, new conceptions are introduced which are never mere summaries of, or abstractions from, painstakingly accumulated observations; instead they should be seen for what they are – products of insights and genius." [Page 159.]

These conceptions, in my view, include the conception of commonalities that take the form of principles that apply to a variety of disciplines. This appears to be the root of Wilson's concept of consilience, but Wilson extends the concept to produce a hierarchy of disciplines in which the principles of one discipline are derived from more fundamental disciplines.

Thus, the concept is uniting knowledge at a fundamental level. A wide range of disciplines are discussed in the book; including biology, anthropology, psychology, religion, philosophy and the arts. The key, as I see it, is that the commonality of natural laws extends from the natural sciences to the social sciences and to the humanities.

The extension of consilience to the humanities is disputed by Stephen Jay Gould in his final book, *The Hedgehog, the Fox, and the Magister's Pox.* Gould sees the sciences and humanities as working in different ways and so "cannot be morphed into one simple coherence…But the two enterprises can lead us onward together, ineluctably yoked if we wish to maintain any hope for arrival at all, toward the common goal of human wisdom, achieved through the union of natural knowledge and creative art, two different but non conflicting truths that…only human beings can forge and nurture." [Page 6.] Also, see the box that follows.

Gould writes,
> "After all, I have written this book, and used the fox and the hedgehog rather than Adriane's labyrinth as its defining image, because I want the sciences and humanities to become the greatest of pals, to recognize a deep kinship and necessary connection in pursuit of human decency and achievement, but to keep their ineluctably different aims and logics separate as they ply their joint projects and learn from each other. Let them be the two musketeers – both for one and one for both – but not graded stages of a single and grand consilient unity." [Page 195.]

While one might focus on the phrase, "but not graded stages of a single and grand consilient unity," one might also focus on the phrase, "Let them be the two musketeers." In the latter instance I would want to make it the three musketeers by specifically including the social sciences. But this is not, or should not be, about hubris. It is, or should be about the "pursuit of human decency and achievement."

Unfortunately, much of what goes on at the research oriented universities today is in an implicit structure of disciplines ranked by rigor. The status seekers try to emulate the most rigorous disciplines, such as physics and chemistry, with sophisticated quantitative methods rather than looking to the methodologies that are most useful in attacking the problems at hand. Furthermore, the selection of problems at hand is driven by data availability and methodology rather than by output needed to actually improve the quality of decisions.

In a way, we have a lot of hedgehogs. They know one big thing – their discipline. They can curl up and be protected when assailed because they are well suited to protecting their territory. But their territory ought not to be the issue. The issue is doing something useful as discussed in chapter 1of this book, *Improving Decisions: Toward a New Age of Enlightenment.* They need to be more like foxes, who know many things. Or in Gould's words,
> "Foxes owe their survival to easy flexibility and skill in reinvention, to an uncanny knack for recognizing (early on, while the getting remains good) that a chosen path will not bear fruit, and that either a different route must be quickly found, or a new game entered altogether. The Hedgehogs, on the other hand, survive by knowing exactly what they want, and by staying the chosen course with unswerving persistence, through all calumny and trouble, until the less committed opponents eventually drop away, leaving the only righteous path unencumbered for a walk to victory. [Page 5.]

Survival is a necessary condition for enhancing the quality of life, but not a sufficient condition. The conditions for sufficiency relate to making progress and understanding and improving the system are essential. The most difficult part of understanding systems is in understanding relationships among systems, usually thought of in terms of different disciplines. So we are back to blending the disciplines and we return to philosophy to aid us in this process.

The significance of the dispute on the inclusion of humanities is relevant for our purposes in the raising reductionism as an issue. Gould writes,

> "Wilson does not shy away from granting this traditional dream of unification [The Ionian Enchantment…a belief in the unity of the sciences'] both its usual direction of subsumption, and its conventional name of 'reductionism': the program of practical research…that attempts to break the most complex phenomenology (of living, cognitive, and social systems) into constituent units, all ultimately subject to explanation by the unifying physical laws regulating these basic components." [Page 191.]

While one may accept the benefits of analyses by breaking things into parts, and finding commonalities in principles among disparate systems, i.e., different disciplines, one still needs to deal with the holistic perspective that sees "…the whole as more than the sum of its parts. [Rohmann, page 31.] We shall shortly be discussing the science of networks which will make the point that "group behavior may be different from the summation of predicted individual behavior because the individual behavior is being influenced by the behavior of other individuals."

In essence, we are extracting from Wilson's concept of consilience the idea that there are commonalities that apply to the various disciplines in that they are rooted in common principles. That commonality will assist in the blending of disciplines in order to deal with interdisciplinary problems.

An interesting example of commonality is in the number PHI (not to be confused with PI), 1.618. The box that follows shows what appears to m to be an example of consilience. (An interesting discussion of it is in the current best selling novel, *The Da Vinci Code,* by Dan Brown.)

The Golden Rule *by Marcus Chown*, Thursday January 16, 2003, *The Guardian*
It links art, music and even architecture. Marcus Chown on an enigmatic number.

"Think of any two numbers. Make a third by adding the first and second, a fourth by adding the second and third, and so on. When you have written down about 20 numbers, calculate the ratio of the last to the second from last. The answer should be close to 1.6180339887...

What's the significance of this number? It's the "golden ratio" and, arguably, it crops up in more places in art, music and so on than any number except pi. Claude Debussy used it explicitly in his music and Le Corbusier in his architecture. There are claims the number was used by Leonardo da Vinci in the painting of the Mona Lisa, by the Greeks in building the Parthenon and by ancient Egyptians in the construction of the Great Pyramid of Khufu.

What makes the golden ratio special is the number of mathematical properties it possesses. The golden ratio is the only number whose square can be produced simply by adding 1 and whose reciprocal by subtracting 1. If you take a golden rectangle - one whose length-to-breadth is in the golden ratio - and snip out a square, what remains is another, smaller golden rectangle. The golden ratio is also difficult to pin down: it's the most difficult to express as any kind of fraction and its digits - 10 million of which were computed in 1996 - never repeat.

It was this elusive nature that led the 15th-century Italian friar and mathematician Luca Pacioli to equate the golden ratio with the incomprehensibility of God. Although Euclid defined it around 300 BC, and the followers of Pythagoras probably knew of it two centuries earlier, it was Pacioli's three-volume treatise, The Divine Proportion, that was crucial in disseminating the golden ratio beyond the world of mathematics.

Da Vinci was a friend of Pacioli's and almost certainly would have read the book, hence the claim that he painted the face of the Mona Lisa to fit inside a hypothetical golden rectangle.

"Of course, it all depends on how you draw the rectangle!" says Mario Livio, who has written a book called The Golden Ratio and who is head of science at Baltimore's Space Telescope Science Institute.

The appeal of the divine proportion to the human eye and brain has been scientifically tested. Dozens of psychological tests, beginning with those of Gustav Fechner in the 19th century, have shown that, when subjects are presented with a range of rectangles, they invariably pick out as most pleasing ones whose sides are in the golden ratio.

But the most surprising thing is that a number deemed aesthetically pleasing by human beings also crops up in nature and science. Take the arrangement of leaves on the stem of a plant. As each new leaf grows, it does so at an angle offset from that of the leaf below. The most com mon angle between successive leaves is 137.5 - the golden angle. Why? Because 137.5 = 360 - 360/G, where G is the golden ratio. Why does the golden ratio play a role in the arrangement of leaves? It's all down to the "irrationality" of the number. Irrational numbers are ones that cannot be expressed as the ratio of two whole numbers - for instance, 5/2.

"The golden ratio is arguably the most irrational of all irrational numbers," says Livio. This can be said more precisely. Irrational numbers can be expressed as continued fractions - basically an infinite series of ever-diminishing terms. As each successive term is added, the continued fraction converges towards a single value.

"The golden ratio is the slowest of all continued fractions to converge," says Livio. This turns out to be the key property. A new leaf must collect sunlight without throwing the leaves below it into too much shadow. A plant must arrange its leaves in such a way that the greatest number can spiral around the stem before a new leaf sprouts immediately above a lower one - that is offset at 360.

"What better way to do this than to choose an angle between leaves based on a number that takes the longest to converge?" says Livio.

The golden ratio also crops up in the hard sciences. Take the growth of "quasi-crystals". These have "five-fold symmetry", which means they make a pattern that looks the same when rotated by multiples of one-fifth of 360 . In the 1990s, physicists in Switzerland and the US imaged the

microscopic terrain of the surface of such crystals. They found flat "terraces" punctuated by abrupt vertical steps. The steps come in two predominant sizes. The ratio of the two step heights? The golden ratio!

Even pythagoreans may have known of the association of the golden ratio with five-fold symmetry. The symbol of their cult was the five-pointed star, and the ratio of the length of the side of each triangular point to its projected base is the golden ratio.

Perhaps the most surprising place the golden ratio crops up is in the physics of black holes, a discovery made by Paul Davies of the University of Adelaide in 1989. Black holes and other self-gravitating bodies such as the sun have a "negative specific heat". This means they get hotter as they lose heat. Basically, loss of heat robs the gas of a body such as the sun of internal pressure, enabling gravity to squeeze it into a smaller volume. The gas then heats up, for the same reason that the air in a bicycle pump gets hot when it is squeezed.

Things are not so simple, however, for a spinning black hole, since there is an outward "centrifugal force" acting to prevent any shrinkage of the hole. The force depends on how fast the hole is spinning. It turns out that at a critical value of the spin, a black hole flips from negative to positive specific heat - that is, from growing hotter as it loses heat to growing colder. What determines the critical value? The mass of the black hole and the golden ratio!

Why is the golden ratio associated with black holes? "It's a complete enigma," Livio confesses. Shakespeare said it all: "There are more things in heaven and earth..."

· Marcus Chown's book, The universe next door: 12 revolutionary ideas from the cutting edge of science (Headline), is out in paperback

[From the web site]   Guardian Unlimited © Guardian Newspapers Limited 2003

Additional information on *Consilience* is contained in an especially informative review from the web site http://www.geocities.com/Athens/Academy/6422/rev1125.html, provided in the box that follows.

Edward O. Wilson is best known as the author of *Sociobiology*, an early attempt to look at the social structures of human beings alongside those of other animals (he began his career as a researcher into the biology of the ant). The theme of *Consilience* is related - it is also about extending ideas of a particular kind into areas where they are not common or, to some people, welcome to go. The word "consilience", which literally means "jumping together", has been resurrected by Wilson to mean a unity of knowledge, or, more accurately, of ways to approach problems. The book is a manifesto arguing for the extension of the methods of science into the social sciences and the humanities, even to the interpretation of fine art and to ethics and religion.

This is not, of course, a new idea. Some of the weirder products of the popularization of Newton's work, for example, were half-baked attempts to derive laws like his in other fields, driven by the idea that once the initial positions of particles were fixed, mathematics would determine their positions for the rest of time. More respectably, many philosophers have tried to base their ideas on mathematical style derivations, most notably Spinoza, Hobbes, and Descartes. However, this is not quite what Wilson means; his manifesto is based on a particular aspect of the way that science works.

One of the most powerful mechanisms in scientific thought is reductionism, which basically means looking at some aspects of a process in isolation from the whole, and in particularly designing experiments to test ideas about these aspects alone. The idea is that once the simplified versions are understood, explanations can be brought together to decipher the more complex. (Wilson points out that critics of reductionism typically ignore the last part, the synthesis back into increasingly complex explanations of the original process.)

There is a hierarchy of reduction in science; biology can (in principle) be reduced to chemistry, which (in principle) can be reduced to physics. (In principle because in many cases a detailed reduction would be too complex to carry out, or some small points are not yet understood; but nevertheless no one doubts the possibility. No one would want to attempt to document every chemical reaction which goes on in a cell, but everyone would expect the processes that happen to be fundamentally chemical in nature.) This relationship between different branches of science is what Wilson means by consilience, and his view is that the social sciences are the next step up in the chain from biology, particularly as the biological underpinnings of brain functionality become better understood. His feeling is that individual psychology will then become reducible to biology, and then that sociology and anthropology will be reducible to psychology.

This is not likely to seem particularly controversial to a scientist, especially given that (as Wilson points out) this kind of reductionism is the most successful kind of explanation known to the human race. However, from the social science side it must come as a shocking attempt to usurp long cherished methods and ideologies (from Marxism to postmodernism). Wilson doesn't soften the blow, ridiculing the achievements of academics in these areas to date - drawing attention, for example, to the evident inability of economists to predict the downfall of the Soviet system. He is clearly knowledgeable about these areas, but frustrated with their inability to move on away from exploded ideas such as those parts of Freudian psychology contradicted by modern studies of the brain. To Wilson, the issue is quickly increasing in importance and urgency, for he suspects that an integration of economic and sociological thought with science will be a necessary part of any viable solution to the world's environmental problems.

Consilience is very clearly written, in a style which manages to combine precision and accessibility. A reader would not need to agree with Wilson's thesis to be impressed, but he is also an able and convincing debater. A fascinating read for anyone with an interest in the future directions of either science or the social sciences.

Others who are developing the commonality of principles include Einstein. Einstein in attempting to "establish a unified theory of the classical fields of gravitation and electromagnetism." was *de facto* working towards a unification of knowledge. A description of this effort from the web is as follows:

> "Unified Field Theory, in physics, a theory that proposes to unify the four known interactions, or forces—the strong, electromagnetic, weak, and gravitational forces—by a simple set of general laws. Four distinct forces are known to control all the observed interactions in matter: gravitation, electromagnetism, the strong force (a short-range force that holds atomic nuclei together), and the weak force (the force responsible for slow nuclear processes, such as beta decay). The attempts to develop a unified field theory are grounded in the belief that all physical phenomena should ultimately be explainable by some underlying unity."

A more recent effort at unification of knowledge is in the area of social science, specifically in communication The following, also from the web, is by Nathan Shedroff and is titled "Information Interaction Design: A Unified Field Theory of Design."

> "One of the most important skills for almost everyone to have in the next decade and beyond will be those that allow us to create valuable, compelling, and empowering information and experiences for others. To do this, we must learn existing ways of organizing and presenting data and information and develop new ones. Whether our communication tools are traditional print products, electronic products, broadcast programming, interactive experiences, or live performances makes little difference. Nor does it matter if we are employing physical or electronic devices or our own bodies and voices. The process of creating is roughly the same in any medium. The processes involved in solving problems, responding to audiences, and communicating to others are similar enough to consider them identical for the purposes of this paper. These issues apply across all types of media and experiences, because they directly address the phenomena of information overload, information anxiety, media literacy, media immersion, and technological overload--all which need better solutions."

These approaches, as well as that of consilience are based on a bottom up approach of seeking principles that apply to the different disciplines.

> Blending Disciplines. An alternative approach is to go top down. That is to blend disciplines. Among these interdisciplinary approaches is that of cognitive science, which has been referred to as a "gigantic melting pot where disciplinary boundaries no longer hold." [Page196, *The Science of the Mind.*]

Thus, we might make progress by instilling values into our schemas such that the frame work of decision making has the suitable foundation of scanning disciplines to bring in relevant principles.   Furthermore, we need better understanding through the sciences, natural and social, in order to be able to forecast the outcome of courses of action. The blending of disciplines is what consilience is about.

In Part III of this book we will discuss understanding Globalism as part of understating the terrorist threat. As a preview of coming attractions, supportive of the point of blending of disciplines, consider the following quote from Thomas L. Friedman's *The Lexus and the Olive Tree;*

> "There is increasingly a seamless web between all these different worlds and institutions, and reporters and strategists need to be as seamless as that web. Unfortunately, in both journalism and ***academe*** [emphasis added] there is a deeply ingrained tendency to think in terms of highly segmented, narrow areas of expertise, which ignores the fact that the real world in not divided up into such neat little beats and that boundaries between domestic, international, political and technological affairs are all collapsing." [Page 24.]

Cognitive Science. Cognitive science is a classic case of blending disciplines. Preparatory to reporting on cognitive science, let us return to Edward O. Wilson's discussion of consilience in his Chapter 6, "The Mind." Here is the opening paragraph of that chapter.

> "Belief in the intrinsic unity of knowledge – the reality of the labyrinth – rides ultimately on the hypothesis that every mental process has a physical grounding and is consistent with the natural sciences. The mind is supremely important to the consilience program for a reason both elementary and disturbingly profound: Everything that we know and can ever know about existence is created there. [Page 105.]

This brings to mind some of Kant's thinking in his search for a rational basis for ethics. His early work was in science, but upon, in his words, "[being] awakened from my dogmatic slumber" by the empiricism of David Hume he pursued the idea of direct knowledge beyond our experience, i.e., the empirical realm. [Page 217, *A World of Ideas*] In the words of Paul Strahern (in *Kahn in 90 Minutes,* page 26),

> "He agreed with Hume and the empiricists that there are no such things as innate ideas; but he deemed that all knowledge was derived from experience. The empiricists argued that all knowledge must conform to experience; Kant brilliantly reversed this by saying that all experience must conform to knowledge."

In essence Kant goes beyond experiential knowledge noted as phenomenon on to a priori knowledge which is analytic judgments independent of experience. These independent judgments are "transcendental, which permits knowledge by virtue of the categories of understanding, a set of preexisting (a priori) concepts that give order and form to experience…Thus experience is not a passive absorption of sensations, but the result of our own mental processes; the phenomenal world does not reveal itself to us but is revealed *by* us." [Page 217, *A World of Ideas.*] Kant calls that beyond the phenomenal "intelligible." In explaining the causality he writes, *in Critique of Pure* Reason "Of the faculty of such a being we should have to form both an *empirical* and an i*ntellectual concept* of its causality, both of which appear together in one and the same effect." [See page 275 of *18th-Century Philosophy,* edited by Lewis White Beck, containing a translation of a substantial portion of the original work.]

Applying this concept to the thinking of others of a different culture leads us to conclude that this beyond experience concept for them may be significantly different than ours, and it may be presumptuous for us to believe that we really understand their views because it is a matter of faith not reason. But what we see is the effect.

Maybe we get a glimmer of their categorical imperatives. That is a view of the principles of their faith of what they see as absolute principles of what is right. Since we may see it differently, the issue of dealing with it is raised.

Wilson sheds some further light on the differences by referring to the biological evolution of the brain. The quote from part of the second paragraph on the chapter on the mind is as follows:

"The shortcoming [failed models of the brain] is not the fault of the philosophers, who have doggedly pushed their methods to the limit, but a straightforward consequence of the biological evolution of the brain. All that has been learned empirically about evolution in general and mental processes in particular suggests that the brain is a machine assembled not to understand itself but to survive."

The discipline of cognitive science is defined in *A World of Ideas* as"…an inquiry into the nature of thought, reasoning, belief, and knowledge, that encompasses linguistics, computer science, neuroscience, and philosophy as well as psychology. [Page 68.] The opening paragraph of Paul Thagard's preface to his book *Mind: Introduction to Cognitive Science* is as follows:

"Cognitive science is the interdisciplinary study of mind and intelligence, embracing philosophy, psychology, artificial intelligence, neuroscience, linguistics, and anthropology. Its intellectual origins are in the mid-1950's when researchers in several fields began to develop theories of mind based on complex representations and computational procedures. Its organizational origins are in the mid-1970's when the Cognitive Science Society was formed and the *Journal of Cognitive Science* began. Since then more than 60 universities in North America and Europe have established cognitive science programs and many others have instituted courses in cognitive science."

There are now six interdisciplinary journals in cognitive science indicating that this in an exception to the general prevalence of journals focusing on narrow disciplinary visions. This is indeed progress towards consilience, however,

"One accomplishment that has eluded cognitive science is a unified theory that explains a full range of psychological phenomena, in the way that evolutionary and genetic theory unify biological phenomena, and relativity and quantum theory unify physical theory." [Page 127, Thagard]

The interdisciplinary approach is a step towards consilience as is the various unified theories. But, there is still a ways to go. The science of networks is an important step.

The Science of Networks. The science of networks is even younger than cognitive science. It deals with the commonalities of systemic structure alluded to at the beginning of this section, "Progress Towards Blending Disciplines."

The commonality is in the structure of linkages that form networks. Networks are composed of nodes that are connected. Up until forty years ago mathematicians assumed that the distribution of the frequency of connections between nodes in a system was random "…with nodes distributed like a normal curve, dominated by averages." [Joe Podolsky's review of the book authored by Barabasi, *Linked: The New Science of Networks*, appearing in *The IT Journal*, Third Quarter, 2002.] See accompanying box for more detail on this point, quoted from the review.

"This theory 'predicts that most people have roughly the same number of acquaintances; most neurons connect roughly to the same number of other neurons; …most Web sites are visited by roughly the same number of visitors. As nature blindly throws the links around, in the long run, no node is favored or singled out."

"We now know that this is definitely not so. First came research in 1967 on "degrees of separation" by experimental psychologist Stanley Milgram, who showed that the median number of links between any two people in the United States is only 5.5. More recently, experiments done by Barabási and some of his graduate students showed that the 800 million nodes on the Worldwide Web are, on average, only 19 clicks away from each other. The reason, first noted in a 1973 paper by Mark Granovetter, is that networks have both strong and weak ties. The strong ties form clusters, families, work colleagues, church members, while the weak ties are the people who link the clusters together, who are members of several clusters and who, therefore, pass information around. Range is created through the weak ties. 'Weak ties play an important role in any number of social activities, from spreading rumors to getting a job.… To get new information, we have to activate our weak ties.' The strong ties merely reinforce what we already know."

The significance of this is in the predictability of the behavior of the system. This predictability is attributable to some underlying principles in the order of the system

To start with, there are interdependencies within the network. Thus, aggregate behavior is a reflection of the interaction of the individual behaviors that are influenced by each other. In other words, group behavior may be different from the summation of predicted individual behavior because the individual behavior is being influenced by the behavior of other individuals. Thus dynamics comes into the equation.

Duncan J. Watts, in his book, *Six Degrees: The Science of a Connected Age,* writes
"While knowing the rules that govern the behavior of individuals does not necessarily help us to predict the behavior of the mob, we *may* be able to predict the very same mob behavior without knowing very much at all about the unique personalities and characteristics of the individuals that make it up." [Page 26.]

Cascading. This behavior of the mob, or any series of nodes, is an important element in strategy involving aggregate behavior. Of particular importance is the concept of cascading or what I prefer to call snowballing.

Watts starts out his book, *Six Degrees: The Science of a Connected Age,* with a discussion of the blackout in 1996 that started with the failure of a single transmission line in Oregon that cascaded to Washington, Idaho, Utah, Colorado, Arizona, New Mexico, Nevada, and southern California. It interrupted service to 7.5 million people. Some discussion of that follows in the box.

"It is this last comment [Finally, the report pointed to an inadequate understanding of the interdependence present in the system.], slipped innocuously between the precisely identified and easily grasped complaints, that we should focus on, because it raises the question, What is it about the *system* that enabled the failure to occur? And in this sense of the problem, we have no idea at all. The trouble with the systems like the power grid is that they are built up of many components whose individual behavior is reasonably well understood (the physics of power generation is nineteenth-century stuff) but whose collective behavior, like that of football crowds and stock market investors, can sometimes be orderly and sometimes chaotic, confusing, and even destructive. The cascading failure that struck the West on August 10, 1996, was not a sequence of independent random events that simply aggregated to the point of crisis. Rather, the initial failure made subsequent failures more likely still, and so on." [Page 23.]

He develops the idea that understanding the relationship of the group behavior to individual behavior is a science, as is understanding the group behavior itself, which may be different from simply aggregating individual behavior.

Watts continues with a discussion that points out that different disciplines may need to be brought to bear in order to better understand the science of networks. He writes,

"Physicists and mathematicians have at their disposal mind-blowing analytical and computational skills, but typically they don't spend a whole lot of time thinking about individual behavior, institutional incentives, or cultural norms. Sociologists, psychologists, and anthropologists, on the other hand do. And in the past half century or so they have thought more deeply and carefully about the relationship between networks and society than anyone else – thinking that is now turning out to be relevant to a surprising range of problems from biology to engineering. But, lacking the glittering tools of their cousins in the mathematical sciences, the social scientists have been more or less stalled on their grand project for decades." [Page 29.]

Part of the difficulty in the blending of disciplines is that the physicists that have a good deal to bring to the able are not accustomed to thinking about the social science problems and the social scientists haven't developed the skills the physicists have far enough to be able to make the transfer of the principles and the tools. Some progress has been made, as Watts notes with reference to the work of Herbert Simons of a half century ago in developing the concept of "bounded rationality." Watts notes the difficulty in drawing the lines once one goes beyond the bounds of rationality. [Page 66.]

Reductionism Revisited. Reductionism has some merits. It is the problems that need attention. Gould identifies two problems in his discussion of consilience. One is *contingency.* The other is *emergence.*

The concept of *contingency* relates to the non-predictability arising out of historical accidents. There are some elements of randomness, chaos theory, or just plain chance that adversely affect predictability. This does not mean to assert that there are not other instances that are not predictable. The criticism of reductionism is that it asserts that all is predictable from the reduction to the constituent parts. It is this reduction to constituent parts that we call analyses that turns out to be useful. The merit of reduction

is that some things are predictable because they are divisible into parts and the relationship among the parts provides the predictability. This form of analytical process may be very useful, but it is a valid criticism to say that it is not necessarily the only way of predicting outcomes.

This brings to the second point, *emergence.* Gould writes of *emergence* as
"…the entry of novel explanatory rules in complex systems, laws arising from 'nonlinear' or 'nonadditive' interactions among constituent parts that therefore, in principle cannot be discovered from the properties of parts considered separately (their status in the 'basic' sciences that provide the fundamental explanation in classically reductionist models). [Page 202.]

Consider the point made by Watts, cited earlier under the discussion of "The Science of Networks,"
"While knowing the rules that govern the behavior of individuals does not necessarily help us to predict the behavior of the mob, we *may* be able to predict the very same mob behavior without knowing very much at all about the unique personalities and characteristics of the individuals that make it up." [Page 26.]

My reading of Watts did not reveal reference to Gould, and my reading of Gould did not reveal reference to Watts. Yet, yet they both made the critical point that the group behavior is not simply an aggregation of individual behaviors. There is an interaction of the parts that makes for outcomes that may be different from aggregating individual behavior. Does this sound familiar in terms of behavioral economics and behavioral finance?

The scientific method uses some of the precepts of reductionism. The criticism goes back decades and takes a variety of forms. [See Rohmann, page 338.] One is of the view of consilience. But, using the concept that understanding is enhanced by analysis which breaks something into its parts certainly is useful. But, we need to go further, and we do.

Economics as a Social Science Example

Predictive ability requires understanding human nature or natures. (See earlier discussion of human natures in the section Habits of the Heart" under the side heading "Toward an Understanding of What Were They Thinking" near the beginning of Chapter 4.) An indictment of the social sciences is provided by Wilson in his opening paragraphs of his Chapter 9 of *Consilience*. Those two paragraphs are as follows:
"People expect from the social sciences – anthropology, sociology, economics, and political science – the knowledge to understand their lives and control; their future. They want the power to predict, not the preordained unfolding events, which does not exist, but what will happen if society selects one course of action over another.

"Political life and the economy are already pivoted upon the presumed existence of such predictive capacity. The social sciences are striving to achieve it, and to do so largely without linkage to the natural sciences. How well they are doing on

their own? Not very well, considering their track record in comparison with the resources placed at their command." [Page 197.]

Wilson continues with a comparison of the advancement of the social sciences with the advancements in medicine. He concludes that the difference is medicines use of consilience and the social sciences aversion to it. Specifically,

"Social scientists by and large spurn the idea of the hierarchical ordering of knowledge that unites and drives the natural sciences. Split into independent cadres, they stress precision in words within their specialty, but seldom speak the same technical language from one specialty to the next" [Page198.]

He continues with reference to ideological positions and includes a statement that, "They are easily shackled by tribal loyalty." [Page 199] Further on he writes,

"As a rule they ignore the findings of scientific psychology and biology. That is part of the reason, for example, why social scientists overestimated the strength of communist rule and underestimated the strength of ethnic hostility. They were genuinely startled when the Soviet empire collapsed, popping the cap off of superpower pressure cooker, and were surprised again when the result of this release of energies was the breakout of ethnic strife and nationalistic wars in the sphere of diminished Russian influence. The theorists have consistently misjudged Muslim fundamentalism, which is religion inflamed by ethnicity… In short, social sciences as a whole have paid little attention to the foundations of human nature, and have almost no interesting its deep origins." [Pages 199-200]

The relevance of this is exemplified by the events discussed in Chapter 8, especially as to Central Asia.

The search for human nature is, in essence a search for the prize of understanding human behavior. That understanding is necessary for predictive ability. And the predictive ability is important for making choices. An area in which one of the social sciences, economics, has reached back into the hierarchy of the sciences is in the arena of behavioral economics.

Economics has traditionally made some unrealistic assumptions in its theoretical constructs of man's economic behavior.

"In neoclassical economic theory, it is assumed that decision makers, given their knowledge of utilities, alternatives, and outcomes, can compute which alternative will yield the greatest subjective (expected) utility. The term bounded rationality is used to designate models of rational choice that take into account the cognitive limitations of both knowledge and cognitive capacity. Bounded rationality is a central theme in *behavioral economics*. It is concerned with the ways in which the actual decision-making process influences the decisions that are eventually reached. To this end, behavioral economics departs from one or more of the neoclassical assumptions underlying the theory of rational behavior. The two most important questions that can be posed are:

• Are the assumptions of utility or profit maximization good approximations of real behavior?

• Do individuals maximize subjective expected utility?"

[Entry by: *Joachim Winter*, June 17, 1999 *Direct questions and comments to*: Glossary master]

Wilson's criticism of economics includes the statement,

"The result of such stringency [creating models of wide application with abstractions representing little more than exercises in applied mathematics] is a body of theory that is internally consistent but little else. Although economics, in my opinion, is headed in the right direction and provides the wedge behind which social theory will wisely follow, it is still mostly irrelevant." [Page 220.]

Real Estate as a Social Science Example

Real estate may be a discipline or an area of study, depending on one's point of view. The consensus, if there is one, may be to view it as an interdisciplinary area of study taking on the caste of the particular perspective from which the question is asked. So, real estate administration is a discipline, but many of the questions involved are answered by applying the methodologies of another discipline or disciplines.

Some Real Estate Analyses. As an illustration of the applicability of the ideas on consilience and networks, the discussion that follows outlines a series of analyses that may be involved in the development of a real estate investment strategy focusing on REITs as a major component of an investment portfolio. The topics are among those that are typically included in real estate curricula at the university level, graduate and/or undergraduate.

An Ariadne's thread approach [see discussion in Chapter 5, side heading of "Values and Policy Choices"] to the selection of a particular REIT for inclusion in a portfolio would assess risk and return of the particular REIT and consider it in the context of the other assets in the portfolio and the strategy for the portfolio. That analysis would consider short term market changes expected as reflections of stock market movements resulting from capital flows. It would also consider the long term ability of the REIT to continue to pay dividends based upon the income producing ability of its current real estate portfolio and the assessment of management's ability to continue to build the portfolio. That assessment flows back to the analysis of the real estate in the REIT's portfolio and the market in which it sell the use of space and/or the market in which it would sell the ownership of the real estate. While the former market is much more local than the latter market, both are heavily dependent on the local economy in which the real estate resides.

Any local economy can be viewed as part of a network of cities. As noted in the earlier discussion of networks, nodes are not randomly distributed and do not have a random number of connections resulting in different sizes. The literature on the scale of cities focuses on the different functions provided by the different sizes. See for example a summary of the seminal work of Walter Christaller by Pragya Agarwal from the web site http://www.csiss.org/classics/content/67 in the box that follows.

Walter Christaller: Hierarchical Patterns of Urbanization
By Pragya Agarwal

The size distribution of urban locations has been a significant question in urban science. Walter Christaller, a German geographer, originally proposed the Central Place Theory (CPT) in 1933 (trans. 1966). Christaller was studying the urban settlements in Southern Germany and advanced this theory as a means of understanding how urban settlements evolve and are spaced out in relation to each other. The question Christaller posed in his landmark book was 'Are there rules that determine the size, number and distribution of towns?' He attempted to answer this question through a theory of central places that incorporated nodes and links in an idealistic situation.

The model in CPT is explained using geometric shapes, such as hexagons and triangles. Similar to other location theories by Weber and Von Thunen, the locations are assumed to be located in a Euclidean, isotropic plane with similar purchasing power in all directions. The assumption of universality in the transport network was also established and all parts of the plain were served by the central place. A Central Place is a settlement or a nodal point that serves the area around with goods and services (Mayhew, 1997). Christaller's model also was based on the premise that all goods and services were purchased by consumers from the nearest central place, that the demands placed on all central places in the plain were similar, and that none of the central places made any excessive profit.

Christaller's work was expanded on by his contemporary August Loesch who saw similarities from zoology and biology. The drawing from other disciplines is not new.

The other way of looking at the size is to focus on the individual city, consider its function, and forecast its growth based upon its economic base.

Homer Hoyt developed the approach of economic base analyses that divides employment into that which produces product or service for export (sometimes called basic industries) and that which produces product or service for consumption within the city. By establishing the ratio of the export employment to the total employment and forecasting the growth of the export employment, one could forecast the growth of the city.

There are more sophisticated methods for forecasting the employment and population growth, but the concept of networks comes into play in that the exported goods and services are an activity of the nodes of cities. Thus, an analysis of the growth of these export activities for the system as a whole is a start to understanding the changes in the growth of particular cities.

Individual cities change their productive capability over time with the emergence of new basic industries. A network type of analysis would need to factor in the location of the emergence of new industries and the flexibility of locales to adjust. It would be an interesting way to look at the growth of cities, or really metro areas. Regional science has some approaches that move in that direction.

Many institutional investors are enthralled with diversification and so would prefer to simply invest in an array of cities resulting in a diversification of the local economies in which they would hold real estate investments. The relevance of network science to that approach is in the stability of the entire system

[To my knowledge there has not been an application of the network science approach, as such, in this area. It would be worthwhile to develop the economic base idea and location quotient to cluster cities utilizing network analyses. Consider the literature for portfolio diversification by region and by industry. Thus, utilize a diversification approach instead of cherry picking by selecting a few cities based upon expectations, but diversify by selected industries with city selection as a result of nodal connections.]

Within the city or metropolitan area there is a series of space markets. These may be categorized by type of space, industrial, office, retail and residential. The clusters of space may be thought of as nodes with links to suppliers and customers.

Geographic information systems may be used as a tool in the analysis of locations, essentially looking at the competitive position within system for any particular location. One such model was developed with Homer Hoyt Institute funding research by Morton O'Kelly at The Ohio State University.

The network science approach to analyses of real estate markets seems worthwhile pursuing and may well be placed on the to do list for further Hoyt Institute funding, depending on the availability of funds. However, the Homer Hoyt Institute has embarked upon what may be considered to be a form of network analyses in it program for the study of the flow of funds in the capital market. The salient interest is the flow of funds to REITs.

Flow of Funds and Capital Markets. Interestingly enough, the flow of funds program of the Homer Hoyt Institute was started before I had read Watt's book, *Six Degrees: The Science of a Connected Age.* Nevertheless, it may still be a good example of an interdisciplinary approach to a problem utilizing a network paradigm.

The network paradigm is best illustrated by flow of funds figure that follows and the accompanying narrative. Both are from the Homer Hoyt Institute's "Capital Market Research Program: Interim Report." It and related material is available on the website www.hoyt.org.

A Framework for Analyzing the Flow of Funds into Real Estate

Overview. A framework for a flow of funds analysis in the Hendershott-Donohue project is shown as Figure 1. Figure 1 can be thought of as a pipe system with water flowing in on the left and out on the right. The left represents saving in the economy and the right represents investment in real (non-financial) capital. As measured, these saving and non-financial investment flows are equal. Each of these flows consists of a number of component parts, which we will consider momentarily.

In some cases, saving flows directly into non-financial investment. For example, households can channel funds directly into houses, and businesses can put retained earnings directly into plant and equipment (other structures and other business, respectively). However, most saving first flows into primary securities (stocks and bonds, broadly defined) and secondary securities (debt of financial intermediaries), and then into non-financial investment. For simplicity, Figure 1 contains a single primary security market and only one financial intermediary class. Thus saving flows either directly into non-financial investment, into primary securities, or into financial intermediaries. Funds going into financial intermediaries flow into either non-financial

investment or into primary securities. In the end, all the saving channeled into primary securities finances non-financial investment, and all saving channeled through intermediaries finances non-financial investment.

We know that different sectors save for different reasons. We are interested in the funds flowing into one component of investment, namely, commercial real estate. Therefore, we partition total saving into household or personal, business, and government plus foreign (henceforth called "other"). We consider three kinds of non-financial investment – owner-occupied housing (and consumer durables), commercial real estate, and other business (industrial plant and equipment and changes in inventories). Commercial real estate is defined broadly to include multifamily housing. We also know that numerous different financial intermediaries exist – banks, thrifts, REITs, insurance companies, etc. – and that these have different proclivities to invest in commercial real estate either directly or indirectly.

So, what determines the flow of funds into commercial real estate? We begin by concentrating on the composition or distribution of non-financial investment among owner-occupied housing, commercial real estate, and other business investment. Possibly the most important determinant is tax law. A second important determinant of the composition of non-financial investment is the perceived risk of the different types of investment. The last factor of relevance is the total supply of savings – the size of the inflow on the left. Various government actions affect private (household and business) saving, foreign saving, and government saving itself.

Figure 1: Flow of Funds
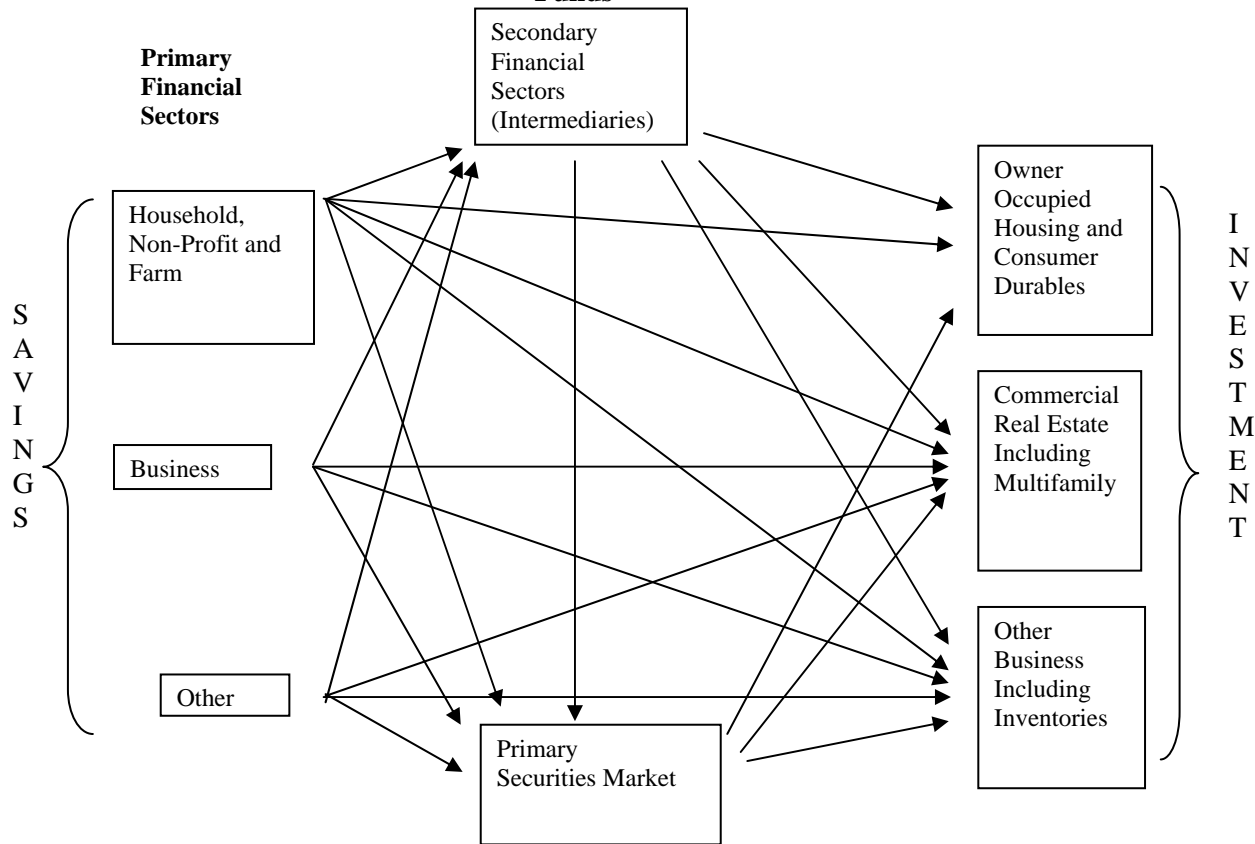
An excerpt from the welcoming remarks making specific reference to irrational exuberance and behavioral finance is in the following box.

"It is a pleasure to welcome you to this Real Estate Capital Flows Symposium. At the Homer Hoyt Institute we call it a research roundtable. The purpose is to stimulate research that is most relevant to critical issues in real estate and related areas. As you know, now that securitization is an important part of the scene, a better understanding of capital flows is critical….

"A major impediment to accurate forecasting may be the feedback effect of what may be termed irrational exuberance (to borrow a phrase). Major changes in capital flows are generally based on shifts in fundamental conditions. These shifts, even if not forecasted in early stages may be revealed as they develop. Thus, early detection of shifts is a good clue for identifying a trend. But, it is not enough, we need a paradigm that considers what is becoming known as "behavioral finance….."

"The injured parties include more than those who take capital losses. The injured parties include society as a whole because society ends up paying a price for the inefficiencies. It can be in bailouts as with the S & L debacle. It can be in a less efficient allocation of resources. We are concerned. And, we can do better."

"A better understanding of capital flows will mitigate the oversupply of capital. A better understanding of capital flows will mitigate the under supply of capital. From the Homer Hoyt Institute perspective, we wish to mitigate the excesses. This is a societal goal. In the meantime, it is wholly consistent to assist the players in the early detection of the shifts and to assist the followers in understanding enough to avoid the excessive capital flows."

"Helping players capitalize on the shifts is part of the process. We hope that this symposium helps those of you who are focused on making money. Our reasoning is that you are interested in the research that will advance the state of the art, and that out of this research will come a better functioning of the system. The incentive of making money is just that - a means of making societal progress. Some of us are driven by a mission. We see societal change as what we ought to be working on. We see institutional innovation as a means for progress. At the Homer Hoyt Institute we have shifted the focus from direct grants as we were doing sixteen years ago when we held our first research round table, to working with others of similar interests and by fostering the relevant research - with as much rigor as is doable."

The current effort with the capital markets/flow of funds project is to get more behavioral finance into the program because the neoclassical model of rational expectations does not work for the capital market. The idea is to se what patterns emerge in the flow of funds which influences price levels, and to see how long those influences last. If we can identify the sequence by which different groups of investors move, we can have an early warning system

There is also a cascading effect as described in the Watts' book. He writes, speaking of acts that initiate a cascade effect,
> "And so it is apparently with cultural fads, technological innovation, political revolutions, cascading crises, stock market crashes, and other matters of collective madness, mania, and mass action." [Page 249.]

Research is needed to identify the leaders in the shifts of flow of funds among the various sectors of the capital markets and an understanding of the triggers that take the flow of funds well beyond that justified by reason.

Discipline Development. The blending of disciplines goes beyond the finance and behavioral sciences. The ethics of management comes into play. In our early model of REIT valuation and risk assessment we quantified the value of the management, including an assessment of ethics on a judgmental basis and reflected the less desirable managements in assigning a higher warranted cap rate because of the risk associated with the investment. Now we find that there is a commercial firm that makes the assessment. GMI uses over 600 metrics to rate company management on a variety of matters, including security regulations, best practices, and some ethical considerations.

We need a better understanding of discipline development, especially in order to make progress by developing our disciplines to better deal with the issues. The Homer Hoyt Institute is engaged in such an effort. It is described in the box that follows, which is at this writing the final draft of an insert to be provided in the next ASI newsletter.

Real Estate in 3D:
The Development of a Discipline Drama
By Maury Seldin*

Prologue. The development of real estate as a discipline may be viewed as a drama in the form of three acts. Act I is the emergence of the discipline and its historical development. Act II is the current condition, especially the institutional arrangements. Act III is the future of the discipline and the role of the Homer Hoyt Institute in that future.

What follows is the outline of the drama with an identification of some of the players. The reaction of some of the players to this sketch will influence how the story plays out.

Act I is already under development. An idea for the first scene comes from Larry Wofford, a Hoyt Fellow who, having read the book titled *Geographical Voices: Fourteen Autobiographical Essays,* asked me what I thought of the idea as a model for real estate. He is proposing a comparable book as a project of the Hoyt Fellows.

Real estate as a discipline is young enough that we still have some pioneers, and some of us personally knew many of the earlier thought leaders. Furthermore, the discipline has had a rough time in academia during the last four decades due to fallout from Ford and Carnegie reports that were quite negative about specializations in schools of business administration.

Over the last four decades the place of real estate in the institutional structure of academia has changed substantially, as has the curriculum. The future is highly uncertain. Among the risks is a further lessening of the role of real estate education in schools of business administration and a narrowing of the focus of the discipline to a subset of finance. Additionally, while urban economics may continue to be taught in economics departments, the risk is that the focus will be so narrow as to exclude much treatment of the interdisciplinary aspects of real estate.

The Hoyt Group, with the right partners, can significantly alter the course of events that will form the future character of the discipline. Our interest is in the quality of decisions relating to real estate. We have a track record of bridging the gap between industry and academia. Much of the change in the discipline comes thru research and related programs.

Our history is that we have supported programs that have helped shape the future. Most notable in this regard is the series of Weimer School sessions, starting with an office markets

focus (which was noted in the special edition of an AREUEA Journal dealing with office markets). We had Weimer School sessions that took various perspectives of the discipline's development: decision makers (institutional, corporate, and economic development in the public sector), type of land use (office, retail, and residential), and research tools (simulation of city as a system, data development, and geographic information systems). We also supported research in those areas.

  Our current research support efforts are focused on capital markets/flow of funds issues. This program not only involves Weimer School Sessions and financial support for research, but provides an outreach to industry designed to integrate industry representatives into the design and the development of the research programs sharply focused in the areas of industry's particular interests.

  The purpose of the Homer Hoyt Institute's Capital Flows Research Program is to identify and quantify the sources and cost of funds available for real estate investment during various phases of the economic cycle. This study is part of HHI's continuing effort to gain a better understanding of the system in order to improve the quality of decisions.   The program addresses the long-term problem that the real estate industry experiences with recurring over and under supplies of capital as the economic environment changes. The mission is to improve the quality of real estate decision making through the collection, creation, and dissemination of real estate capital flows data and analysis. The real estate capital flows research program operates in part through a website that contains downloadable data and other publications, as well as directions to other sources, some of which may be proprietary. Some research projects are described in an interim capital markets research report on the Institute's website, www.hoyt.org.

  The proposal/program of the Hoyt Fellows, as it unfolds, can help in the development of the discipline. A discipline may emerge when a class of systems becomes the focus for a set of questions or issues and a systematic approach emerges resulting in principles and theories about the behavior in the system. The new discipline has a paradigm or framework significantly different from the discipline or disciplines from which it originated. Thus, real estate economics, like labor economics or welfare economics, emerges as a subset of a discipline, but real estate broadens its perspectives beyond that normally included in economics and takes on a life of its own. That happens when thought leaders introduce new perspectives and develop programs that produce new knowledge, theories and new principles. In the case of real estate, new knowledge is blended with a wide variety of disciplines in order to deal with the sets of questions or issues that were involved.

  The place to start in understanding the evolution and the methods of making progress is with the history of thought that expanded the horizons of accepted areas of studies. The Wofford proposal as proposed to the Hoyt Fellows could be part of this history of thought and could become part of Act I of the Discipline Development Drama, "Real Estate in 3D."

  Act I: Historical Development. In studying philosophy or the history of economic thought, development of thought is usually dealt with by identifying particular philosophers, or economists and the associated works. These may be classified by century or other eras representing a time dimension, by schools of thought, or by other dimensions that provide a network to connect ideas.

  The Wofford proposal emulates the approach taken in geography and could be part of the first act. Another part of the first act, suggested by Marc Louargand, another Hoyt Fellow, might be to trace the linkage of the academics. That may be done by tracing from mentor to doctoral student and then from that doctoral student to the next generation of doctoral students. Such a chain is one way of organizing to show the evolution of thought.

  Another way to represent the connections is to focus on the academic institutions with successive leaders over time. Of course, there is a hybrid approach, and the option of using more than one approach in parallel.

The story line for Act I is being sketched out. Indeed, Norm Miller, the ASI vice president for public relations and Weimer School faculty member, with his co-author just published an article in the *Appraisal Journal*, "*The Academic Roots and Evolution of Real Estate Appraisal,*" that may be considered a scene in Act I. Also, Maury Seldin, president of ASI and Weimer School faculty member, has written a monograph, "*A Challenge to Our Thought Leaders,*" published by the Home Hoyt Institute. It includes a substantial discussion of the plight of real estate education in academia over the last forty years. That is done in the context of a discussion of the changing academic environment and some more points about interdisciplinary development in the approach to improving the quality of decisions. Both the Miller article and the Seldin monograph are available as background for the jointly sponsored program next year and the 3D drama. [Electronic copies are available through the Hoyt website. (www.hoyt.org)] While that work may play a role, the focus is on developing the first act of the drama to include the program desired by the Hoyt Fellows and to be consented to by ARES and, hopefully, AREUEA.

The process towards a mutually approved program on development of real estate as a discipline has already started in that we met with Elaine Worzala, the newly elected Vice President/Program Chair. We discussed arranging a time slot for the ARES program to be held on Captiva Island in Florida during the week of April 18. 2004. As the discussion emerged, the possibility of a plenary session on the opening presentation date of Thursday, April 22, 2004 is under consideration. We have met with a warm reception on the idea of a co-sponsored session.

The warm reception may in part be attributed to recognition of the importance of making progress in understanding the historical development of the discipline as a step towards influencing the future. Recognizing that potential, Elaine suggested that AREUEA be invited to join the Hoyt Group and ARES in the sponsorship of the session. As soon as we have something to describe the proposed program with enough information for AREUEA to act, the invitation will be extended.

Act II: The Present. The story line for Act II is even sketchier that that for Act I. Some societal changes come through the managed institutions that stake out territory for operations. Shifts in what they do account for a great deal of the change that takes place. Act II may deal with a state of the art report on what various institutions are doing that relates to the development of the discipline.

Since domestic real estate programs have been so heavily influenced by the shifts in the wake of the Ford and Carnegie reports, we might start with a look at real estate programs in foreign countries. This look should include real estate centers as well as degree programs. The diversity of degree programs in other countries should be enlightening as to a variety of domestic options.

Domestically, in addition to the degree programs, we should also look at non-degree programs and centers. The non-degree programs and the industry programs will give us a sense of what industry sees as important in the body of knowledge. Some of this non-degree education is through centers.

Some real estate centers focus on dissemination rather than development of knowledge. Our interest is in the direction of knowledge development and strategy for selection of research programs. Program operations and changes may account for a great deal of the discipline development. These are studies that might be done for presentation at a co-sponsored session.

Act III: The Future. The future of the discipline is a major concern of the Homer Hoyt Institute. Homer, himself, was a pioneer in the development of the discipline by creating theory as well as applications. His work is still used beyond real estate, especially in geography and sociology.

Art Weimer started the movement towards an administrative approach to real estate in contrast to the then prevailing mix of economic, transaction, and legal approaches. It was he who told me that a major justification for studying real estate in higher education was that

understanding real estate would help in understanding other areas. He has educated more real estate faculty than anyone before or since his time, as well as more business school deans.

. The Institute has, with limited resources, placed its major efforts in the support of the Advanced Studies Institute that houses the Weimer School of Advanced Studies in Real Estate and Land Economics. This is a leveraged operation in that by educating the educators, the influence of the Institute is magnified. The Institute has operated through a number of programs, both through ASI and directly, especially through research roundtables and research grants. These are programs that have the potential to alter the course of events and further the development of the discipline.

. The latest addition to the Institutes arsenal of weaponry in the battle to improve the quality of decisions is the creation of the Hoyt Fellows out of the HHI Advisory Board and its expansion. The Hoyt Fellows have now reached a scale that enables them to make a significant difference in the development of the discipline. A major component of the next development plan of the Institute is the development plan of the Hoyt Fellows.

. The Hoyt Fellows have already adopted the web-based program on Capital Markets / Flow of Funds to Real Estate, and at the May meetings endorsed a program to better understand the development of the discipline and the factors that influence its future. . . .

. There is a hope to include a close connection with ARES and AREUEA. Through these partnerships will come a better understanding of the history of development of the real estate discipline, its present situation as a field of study, and its future development. And, as with a mystery drama with various endings, all of those active in the field of real estate research and education will write the concluding act of this drama.

*Dr. Maury Seldin is Chairman of the Board of the three organizations that comprise The Hoyt Group. These are: (1) Homer Hoyt Advanced Studies Institute in Real Estate and Land Economics which houses the Weimer School of Advanced Studies in Real Estate and Land Economics, (2) Home Hoyt Institute, the support organization for the Weimer School, and (3) Hoyt Advisory Services, the R&D unit, a wholly-owned subsidiary engaged in research and consulting. Together, these serve as a think tank in real estate and urban land economics. See the Hoyt Group at www.hoty.org

Value Systems

Ethics and Religion

The issue is, do moral values come from humans alone, or are they transcendent (i.e., beyond human experience)? There is a lot of debate on that matter, so just make your choice. But the choice of transcendental does not necessarily imply belief in God, although such belief is an option consistent with such a choice. Consider Wilson's opening paragraph on the Chapter titled "Ethics and Religion.

> "Centuries of debate on the origin of ethics come down to this: Either ethical precepts, such as justice and human rights, are independent of human experience or else they are human inventions. The distinction is more than an exercise for academic philosophers. The choice between the assumptions makes all the difference in the way we view ourselves as species. It measures the authority of religion and determines the conduct of moral reasoning [Page 260.]

Wilson continues on the next page, "In short, transcendentalism is fundamentally the same whether God is invoked or not." [Page 261.] Then he comes up with a powerful statement on our American civil religion.

> "For example, when Thomas Jefferson, following John Locke, derived the doctrine of natural rights from natural law, he was more concerned with the power of transcendental statements than in their divine or secular origin. In the Declaration of Independence he blended secular and religious presumptions in one transcendental sentence, thus covering all bets: 'We hold these Truths to be self-evident, that all Men are created equal, that they are endowed by their Creator with certain inalienable Rights, that among these are Life, Liberty, and the Pursuit of Happiness.' That assertion became the cardinal premise of America's civil religion, the righteous sword wielded by Lincoln and Martin Luther King, and it endures as the central ethic binding together the diverse peoples of the United States." [Page 261.]

In discussing the transcendent view as compared to the empiricist view, Wilson note that since the transcendent view has been so perverted (one might say abused), we might do well to take empiricism more seriously. The following is a set of excerpts from three paragraphs.

> "The importance of the empiricist view is its emphasis on objective knowledge…
> "[We] should be able to fashion a wiser and more enduring ethical consensus than has gone before. The current expansion of scientific inquiry into the deeper process of human though makes this venture feasible.
> "The choice between transcendentalism and empiricism will be the coming century's version of the struggle for men's souls…Where it settles will depend on which world view is proved correct, or at least which is more widely *perceived* to be correct." [Page 262.]

The reality is that Muslim's take the transcendental view, so we need to seek to understand their choices on the basis on which they choose. Understanding our choices requires understanding the mixtures that prevail in our society.

The commonality in our mixtures is the civil religion prevalent in the United States. According to Robert N. Bellah, in his *The Broken Covenant: American Civil Religion in Time of Trial,* civil religion is"…that religious dimension, found…in the life of every people, through which it interprets its historical experience in the light of transcendent reality." [Page 3.] Bellah also discusses myth which "seeks…to transfigure reality so that it provides moral and spiritual meaning to individuals or societies." He continues. "Myths may be true or false, but the test of truth or falsehood is different." [Page 3.]

Moral Sentiments

While many of us may believe that moral sentiments are not transcendent, we are still faced with forecasting outcomes of choices by those who believe in a transcendent source, deity or not. There are two points here. One is that if moral values come from humans alone, then those who deal with the change in these values can get a better

understanding through consilience. This first point relates to what we do in our society. The second point is that if we are dealing with another society,, one in which the belief is that the moral values comes from a transcendent source, a deity that that sets fundamental precepts, then logic is not a tool for changing reasoning. That is, one is wise to forecast behavior on belief, even though it is only the behavior which is our concern.

The implication is that we should explore the dimensions of belief as they relate to behavior. In so doing, there are four moral sentiments that are especially helpful in forecasting choice. Different interpretations, transcendental or not, may bring different choices. In any case, these dimensions assist in forecasting choices.

Truth. We are accustomed to the view that truth as that which is the conformity to reality. In the words of Abraham Kaplan [*In Pursuit of Wisdom: The Scope of Philosophy*, page 174]

A true proposition is one that corresponds to the facts, represents them, states them as they are. This is the 'semantic conception' of truth, or the *correspondence* theory."

Kaplan continues in the next paragraph with the following.

"This connection is central to the *pragmatic* theory of the truth. The truth about something may not be limited to what we know about it, but, at best, this is only a matter of some abstract theory; truth as known is all that has any practical significance to us. The truth is what we are justified in believing, what is useful for us to believe. Correspondence is nothing other than the capacity to make itself useful." [Pages 174-175.]

It seems to me that this perception of the truth, the correspondence with facts, is what has been driving academic research since the Enlightenment. The usefulness may be initially limited to simply enhancing understanding of the system, but at some later point in time may be reasonably expected to improve the quality of life.

Philosophers debate the nature of truth, generally based on the relation to thinkers. An interesting perspective of this is provided in the accompanying box.

The quote that follows is two a paragraphs from Tolstoy's novel, *War and Peace* (in the "Epilogue, pages 1295-1296" of the translation by Constance Garnett, Modern Library Edition).

"A bee settling on a flower has stung a child. And the child dreads bees, and says the object of the bee is to sting people. The poet admires the bee, sipping honey from the cup of the flower, and says the object of the bee is to sip the nectar of the flower. A beekeeper, noticing that the bee gathers pollen and brings it to the hive, says that the object of the bee is to gather honey. Another beekeeper, who has studied the life of the swarm more closely, says the bee gathers honey to feed the young ones, and to rear a queen, that the object of the bee is the perpetuation of its race. The botanist observes the bee flying with the pollen fertilises the pistil, and in this he sees the object of the bee. Another, watching the hybridisation of plants, sees the bee contributes to that end also, and may say that the bee's object is that. But the final aim of the bee is not exhausted by one or another, or a third aim, which the human intellect is capable of discovering. The higher the human intellect rises in the discovery of such aims, the more obvious it becomes that the final aim is beyond its reach.

> "All that is within reach of man is the observation of the analogy of the life of the bee with other manifestations of life. And the same is true with the final aims of historical persons and nations."

Those with different perspectives may see the truth differently. The facts are there, but the inference of purpose influences perspective. And if the belief of purpose is based on belief in divine purpose, then it is the divine purpose that is the truth.

There are numerous other classifications of the perceptions of truth. But, for our purposes, the following quote from Kaplan's opening chapter ("The Love of Wisdom") of his book, *In Pursuit of Wisdom,* makes the point,

> "A man who seems to be indifferent to the truth may, in reality, only care nothing for *my* truth – because he sees it as falsehood or, at best as trivial or irrelevant. *His* truth remains central to his being; it is in coming to know that truth that he becomes the man he is. [Page 2.]

That point is that someone else's truth may not be the same as ours. This is particularly relevant in dealing with fundamentalists in that divine revelation is truth. [See the end of Chapter 5.] Truth, as rooted in a mid-eastern view, may be "…primarily an ethical notion: it describes not what is but what ought to be." [See box in Chapter 4 under the side heading, "Ethics at the Heart of It All."]

Justice. Justice may also be seen as an ethical notion rooted in what ought to be, at least in a political context from a traditional Muslim perspective. Consider the following quote from the Lewis book,

> "For traditional Muslims, the converse of tyranny was not liberty, but justice. Justice in this context meant essentially two things, that the ruler was there by just right and not by usurpation, and that he governed according to God's law, or at least according to recognizable moral and legal principles." [Page 54.]

Different branches of Muslim faiths have different interpretations of the Koran. Armstrong writes in her book, *History of God,* that theological debates inspired by political questions include interpretations that,

> "The Koran has a very strong conception of God's absolute omnipotence and omniscience, and many texts could be used to support this view of predestination. But, the Koran is equally emphatic about human responsibility: 'Verily, God does not change men's conditions unless they change their inner selves.' [Page 161.]

The paragraph continues and then concludes as follows;

> "Like the Shiis, the Mutazilis declared that justice was the essence of God: he *could* not wrong anybody; he could not *enjoin* anything contrary to reason."
> [*History of God*, page 164.]

Also in the political context, earlier in the chapter, Armstrong writes,

> "Muslims regard themselves as committed to implementing a just society in accord with God's will. The *ummah* has sacramental importance, as a 'sign' that God has blessed this endeavor to redeem humanity from oppression and injustice;

its political health holds much the same place in a Muslim's spirituality as a particular theological option (Catholic, Protestant, Methodist, Baptist) in the life of a Christian." [Page 159.]

This transcendent view of justice is reflected as an element in Christian lives as well as in the lives of Muslims. A succinct statement from *The World of Ideas* is as follows:

"The goal of Christian life may be distilled in Jesus's injunctions to his disciples to treat others with charity, mercy, justice, and most important love, and to work toward a perfect faith and obedience to God and his law. [Page 62.]

The transcendent view of justice is also reflected in Jewish life with specific biblical reference as noted in the box in the "Chapter 4, The paradigm for Predicting Outcomes," under the section "Ethics at the Heart of it All." Part of it is rephrased here as follows: One biblical passage… contains the following: "Justice, justice shall ye pursue." The commentary in the text (*Pentateuch & Haftorahs*, edited by J. H. Hertz), is as follows:
"…The duplication of the word "justice," brings out with the greatest possible emphasis the supreme duty of even-handed justice to all." [Page 821.]

On the next page [822], the commentary continues,
"It must be noted that the idea of justice in Hebrew thought stands for something quite other than in Greek. In Plato's *Republic,* for example it implies a harmonious arrangement of society, by which every human peg is put into its appropriate hole, so that those who perform humble functions shall be content to perform them in due subservience to their superiors. It stresses the inequalities of human nature; whereas in the Hebrew conception of justice, the equality is stressed...."

The secular views, as reflected in philosophy literature, are complex. One approach is to use the classifications by Aristotle in his *Nicomachean Ethics*. The idea of universal or lawful justice as compared to particular or fair and equal justice is one approach. The former refers to obeying the law as being just. The latter is divided into distributive and recitificatory justice. [*The Nicomachean Ethics,* Aristotle as translated by David Ross with revision by J.L. Ackrill and J.O. Ursmon, pages 106-122.]

The fair and equal justice sub-classification of recitificatory refers to correcting a situation. This is a move toward a balance by going to the middle ground. Note that "Justice is a kind of mean…" [Page 123.] and it is part of the doctrine of the mean in which Aristotle saw moderation as an ideal virtue. This is a view of balance, one of the fundamental principles discussed in the next section of this chapter.

The distributive justice is based on a proportional concept that is merit in some sense. Aristotle uses geometric proportion as the explanatory concept, but there are other explanations.

Another explanation is in the approach that uses the classifications of commutative, distributive, and social. In Kaplan's words,

"*Distributive justice* is the adherence to moral norms of both form and content in the allocation of resources and products [Page 418.]…
*Commutativ*e *justice* is the allocation to each person of neither more nor less than he deserves.   [Page 418.]…
Social justice is a comprehensive category comprising a certain degree of equality and security, as well as distributive and commutative justice." [Page 418.]

This leads us to inquire as to whether or not a particular society is just. Even a relativist might hold that some societies are not just when it comes to the special case of social justice. Consider the following paragraph from the Chapter "Relativism and Reflection in *Ethics and the Limits of Philosophy,* Bernard Williams. [Page 165.]

"The legitimate hierarchy offered in past societies, and the ways in which we see them, are relevant to what we say about the justice or injustice of those societies. This important for the relativism distance. "Just" and "unjust" are central terms that can be applied to societies as a whole, and in principle, at least, they can be applied to societies concretely and realistically conceived. Moreover, an assessment in terms of justice can, more obviously than other, be conducted, without involving the unhelpful question of whether anyone was to blame. The combination of these features makes social justice a special case in relation to relativism. Justice and injustice are certainly ethical notions, and arguably can be applied to past societies as a whole, even when we understand a good deal about them." [Page 164.]

Relativism may be defined as

"Philosophical doctrine that no truths or values are absolute, but are related to our own personal, cultural, and historical perspective:" [Page 338 of *A World of Ideas*]
Relativism attempts to explain away conflict.

The paragraph quoted from *Ethics and the Limits of Philosophy* follows a discussion of the options available to earlier societies. The idea of distance in the relativism relates to our grasp of their perspective. The "special case in relation to relativism" is in some measure based on the following quote;

"They may not have been wrong in thinking that their social order was necessary for them. It is rather the way in which they saw it as necessary – as religiously or metaphysically – that we cannot now accept. Where we see them as wrong in the myths that legitimated their hierarchies…(The current attempt by Islamic forces in particular to reverse the process – if that is what the attempts really are – do not show that the process is local or reversible, only that it can generate despair.)"
[Page 165.]

An alternative to the view of relativism is incommensurability. This idea of incommensurability relates to differences in concepts such that can not be integrated into a consistent view. While they may not contradict each other, they do exclude each other. Relativism was mentioned at the end of the previous chapter as part of the discussion of pluralism. Berlin continued on the discussion quoted with the following referring to the comparison of pluralism with relativism;

"Relativism is something different: I take it to mean a doctrine according to which the judgment of man or a group, since it is the expression or statement of a taste, or an emotional attitude or outlook, is simply what it is, with no objective correlate which determines its truth or falsehood.

Certainly there are many elements in the concepts of justice that are common to both Islamic and Western views, especially as manifested in civil religion. It is the differences that are of concern. Of particular concern is the rights of the individual and the source of power for determination and administration of justice. This brings us to the infinite value of the individual, with individual liberty. This is in the context of the freedom in a free society.

Freedom. Freedom and liberty are here used to mean the same thing. The roots of our American heritage, as articulated in the Declaration of Independence, denote liberty as an inalienable right. The earlier quote, "We hold these Truths to be self-evident, that all Men are created equal, that they are endowed by their Creator with certain inalienable Rights, that among these are Life, Liberty, and the Pursuit of Happiness." ranks liberty high in the values of our society. There are, however, issues of interpretation of the nature of liberty.

For our purposes we will focus on the two concepts of liberty discussed by Isaiah Berlin in his essay "Two Concepts of Liberty." [Four *Essays on Liberty,* pages 121-122.] The first concept, using the label of negative liberty, is

"What is the area within which the subject – a person or group of persons – is or should be left to do or be what he is able to do or be, without interference by other persons?"

The second concept, using the label of positive liberty, is,

"What, or who, is the source of control or interference that can determine someone to do, or be, this rather than that?"

Berlin sees a conflict in these two perspectives of liberty in that they are different values, even though they are related, and there may be some overlap in the answers. There is one long paragraph by John Gray in his book, *Isaiah Berlin,* which is especially enlightening on the comparison and contrast. It is as follows:

"It will readily be seen that, if negative freedom as Berlin understands it presupposes the capacity for choice among alternatives, it shares a common root with positive freedom. Unlike negative freedom, which is freedom from interference by others, positive freedom is the freedom of self-mastery, of rational control of one's life. It is plain that, as with negative freedom, positive freedom is impaired or diminished as the capacity or power of choice is impaired or diminished, but in different ways. An agent may be unobstructed in the choice of alternatives by other agents, and yet lack the ability or power to act. This may be because of negative factors, lacks or absences - of knowledge, money or other resources – or may be because there are internal constraints, within the agent himself, preventing him from conceiving or perceiving alternatives as such, or

else, even if they are so perceived, from acting on them. Such conditions as phobias or neurotic inhibitions may close off an agent's options, even to the point that they remain unknown to him, or else he may be constrained by irrational and invincible anxiety from acting so as to take advantage of them. In this case the power of choice has been sabotaged or compromised from within. An agent may possess very considerable negative freedom and yet, because he is incapacitated for choice among alternatives that other have not closed off from him, be positively unfree to an extreme degree. What both forms of unfreedom have in common is the restriction or incapacitation of the powers of choice." [Page 16.]

An additional explanation, according to Michael Ignatieff in his book, *Isaiah Berlin*, is as follows:

"Until Rousseau, liberty had always been understood negatively, as the absence of obstacles to courses of thought and action. With Rousseau, and then with the Romantics, came the idea of liberty being achieved only when men are able to realise their innermost natures. Liberty became synonymous with self-creation ands self-expression. A person who enjoyed negative liberty – freedom of action or thought – might none the less lack positive liberty, the capacity to develop his or her innermost nature to the full." [Page 202.]

These concepts of freedom or liberty are substantially different from those of freedom in the world of Islam. See discussion in the last section of this chapter, "Toward an Interdisciplinary Model of Development."

Many values may conflict. Berlin writes of this conflict in his book, *Crooked Timber of Humanity*, particularly noting liberty and equality. Also noted is justice and mercy.

"What is clear is that values can clash – that is why civilisations are incompatible. They can be incompatible between cultures, or groups in the same culture, or between you and me…Justice, rigorous justice, is for some people an absolute value, but it is not compatible with what may be no less ultimate values for them – mercy, compassion – as arises in concrete cases.

…An artist, in order to create a masterpiece, may lead a life which plunges his family into misery and squalor to which he is indifferent. We may condemn him and declare that the masterpiece should be sacrificed to human needs, or we may take his side – but both attitudes embody values which for some men or women are ultimate, and which are intelligible to us all if we have any sympathy or imagination or understanding of human beings. Equality may demand the restraint of liberty of those who wish to dominate; liberty…may have to be curtailed in order to make room for social welfare, to feed the hungry, to clothe the naked, to shelter the homeless, to leave room for the liberty of others, to allow justice or fairness to be exercised.

…We are doomed to choose, and every choice may entail an irreparable loss. Happy are those who live under a discipline which they accept without question, who freely obey the orders of leaders, spiritual and temporal, whose word is fully accepted as unbreakable law; or who have by their own methods arrived at clear and unbreakable convictions about what to do and what to be that brook no

possible doubt. I can only say that those who rest on such comfortable beds of dogmas are victims of self-induced myopia, blinkers that may make for contentment, but not for understanding of what it is to be human." [Pages 12-14.]

Somehow, parts of the quotes brought to mind fundamentalism and Islam.

Our present interest is in the determination of the characteristics of liberty required by our view of a free society, a democratic society. We can see aspects of both of the concepts of liberty in what we have, or aspire to have, as the American way.

The heart of the thinking being developed here is that our society emerged out of an assimilation of knowledge, which coupled with reason, enables us to make wider choices than would be possible under the systems prevailing in Europe before the Enlightenment. This range of choices goes beyond consent to the extent to which we are to be governed, it goes to the issue of by whom we are to be governed.

All of this is further rooted in the idea of individual rights. To quote Berlin again,
"But if, as Kant held, all values are made so by the free acts of men, and called values only so far as they are this, there is no value higher than the individual." [Page 137.]

We are further concerned with the conditions under which liberty is to be exercised. As Berlin writes [Page liii.]
"There is one further point which may be worth reiterating. It is important to discriminate between liberty and the conditions of its exercise. If a man is too poor or too ignorant or too feeble to make use of his legal rights, the liberty that those rights confer upon him is nothing to him, but it is not thereby annihilated. The obligation to promote education, health justice, to raise standards of living, to provide opportunity for growth of the arts and sciences, to prevent reactionary political or social or legal policies or arbitrary inequalities, is not made less stringent because it is not necessarily directed to the promotion of liberty itself, but to conditions in which alone its positions is of value, or to values which may be independent of it. And still, liberty is one thing, and the conditions for it are another."

In the essay he writes that liberty is not equality or fairness or justice. The quote is as follows:
"To avoid glaring inequality or widespread misery I am ready to sacrifice some, or all, of my freedom: I may do so willingly and freely: but it is freedom that I am giving up for the sake of justice or equality or the love of my fellow men. I should be guilt-stricken, and rightly so, if I were not, in some circumstances, ready to make this sacrifice. But a sacrifice is not an increase in what is being sacrificed, namely freedom, however great the moral need or the compensation for it. Everything is what it is: liberty is liberty, not equality or fairness or justice or culture, or human happiness or a quiet conscience." [Page 125.]

This speaks to a quality of life which may be deemed to be a manifestation of other values.

Quality of Life. The pursuit of happiness infers to the pursuit of a quality of life that will bring happiness.   The composition and dimensions of the attributes that go to make up the quality of life for the diversity of individuals in our American society ranges widely. They certainly range far wider than those in an observant Muslim society, or indeed any observant sect.

These attributes are rooted in a variety of values, built in some measure upon the desire to fulfill a variety of basic needs. Aside from the physical needs such as food, clothing, and shelter, there psychological needs such as purpose for living and respect or status.

Ethics speaks to the ways in which people lead their lives in pursuit of whatever goals they are pursuing. These ways are heavily dependent upon the environment in which they live. Please note that the earlier discussion of human natures attributes a great deal of human behavior to the environment. [See Chapter 4, side heading "Toward an Understanding of What Were They Thinking," then, Habit as a Point of Departure, Habits of the Heart, Differences Emerge.]

A critical aspect of this environment is the mechanism by which progress is made. The Enlightenment provided a significant change in mechanism by increasing the role of reason. Out of that institutional change, and the changes made possible by the advances in the sciences, organizational structures changed. We operate our society through a variety of managed institutions. In the words of Peter F. Drucker, "The managed institution is society's way of getting things done these days." [Page 176 of article.]

Important values are imbedded in the mission to repair the world. A way to make progress in efforts to repair the world is to work through managed institutions. Different institutions may focus on different aspects of the quality of life, most of which are taking the tack of ameliorating hardships of underprivileged or providing highly valued amenities to the cultured as with the arts. Some institutions are in the business of preventing problems. The contrast is the curative and preventative.

A third approach, which will be further discussed in the final chapter, is what has been called the perfective approach. That approach attempts to achieve goals through the natural operation of the system, and modifies the operation of the system to that purpose. In the example of health, curative takes medicine after the fact. Preventative inoculates so as to fight off the potential disease. The perfective approach utilizes the proper foods, exercise, and the like so that the natural systems of the body can better function thereby avoiding many would be illnesses.

The issue here for quality of life is the design, development, operation, and modifications of managed institutions. But these institutions may not be generating the changes from internal forces. The source of the force is the changing environment and the change taking place in how individuals see what is that they cherish most. That is what value is all about – what one will give up for something else.

At the root of these values in our society is the individual and his or her views on truth, justice, and liberty. Values may change over time, but change in behavior is more likely to come through a better understanding of the system so that individuals and society can better manage their affairs within whatever values they choose.

<u>Some Underlying Principles</u>

<u>Balance</u>

My first thought of how the concept of balance was applicable to widely diverse disciplines occurred in the late 1960's when I was a student in an oil painting class. It was clear that the composition needed a balance, but that it could be obtained by a combination of mass and distance so that the composition did not need to be symmetrical. That made perfectly good sense to me because I recalled enough from a high school physics class that I could see that a mathematical computation could determine balance.

That was around the time that I was working on the first edition of *Real Estate Investment Strategy*, and the thought occurred to me that the portfolio diversification ideas that I was writing were based on the concept of balance. Since real estate investments are illiquid, the investment portfolio had to meet liquidity needs before investment real estate was a candidate.

Balance as a principle keeps popping up in real estate and in other areas. As noted in the insert at the beginning of Chapter 2, the excerpt reporting on the land use game used as a laboratory for the social sciences,
> "The public sector demonstrates a need for balance in the system. The balance is not only in the provision of public facilities but also in the private development of the appropriate mix of land uses."

Real estate market analyses are searches for balance. The idea is to find out what characteristics of space uses will add to the mixture demanded in the marketplace. The design of interior space is a search for balance. Indeed, the mixture of building and land is an issue of balance.   The physical construction of the building is a matter of balance. The selection of building equipment is a matter of balance.

The plea for relevant research is a plea for balance. As a fundamental principle applicable to a wide variety of disciplines, balance ranks very high.

<u>Inertia/Momentum</u>

That high school physics class was pretty good. At least I still remember that bodies at rest tend to remain at rest and that bodies in motion tend to remain in motion. That is inertia. More recently, I have been told that the natural state is motion not rest. I would have guessed rest, but science tells us differently.

Momentum in the tendency to continue in motion once in motion. We are accustomed to seeing friction slow the pace or gravity influencing the direction.   But absent such forces, bodies would continue their course.

The natural course, even with momentum, is the course resulting from the combination of forces. That combination may apply to growing things as well as material without a life as we generally perceive it. For those things that have life, momentum is the natural growth stages, presumably including death and disintegration. We will be using inertia and momentum as principles that apply to any continuation of a progression, irrespective of consequences. So momentum can carry a car over the cliff and an investor beyond reason.

Leverage

Leverage is the magnification of gains and losses. That is the first though that comes to me. However, the physics class keeps coming back. In that context I see the distance an object will be moved being magnified in accordance with the difference in the distances to the fulcrum. Naturally, to get the movement, more power is needed to get the magnification by narrowing the distances to the fulcrum. One can reverse the thought and say that by the use of more distance a greater weight can be lifted with the same force. I now have told you all I know about physics, so let's get back to the finance.

Leverage in finance, or real estate finance in our context, is based on getting the benefit of the difference in the cost of borrowed funds and the earnings from those funds. The magnification is a function of the spread between the two rates and the amount borrowed relative to the amount invested.

As we will later discuss, leverage may also apply by using relationships among people. It may also be used in a network context. The ability to use reason, or any other force, may be magnified by use of an intervening vehicle that can transform one force, based upon quantity and distance to the fulcrum, to exert another force, with a different quantity and distance to a fulcrum. As will be noted, our distance in culture to fringe or potential terrorists of Islam is far greater than the distance to Muslims who are comfortable with diversity.

Timing and Location

The adage of" location, location, location" is so hackneyed that it is nauseating. Besides, it is incomplete.

The development of Bel Air in the Los Angeles suburbs comes to mind. It is truly one of the nation's best neighborhoods. It is in the west section of Los Angeles which is the path of growth of the high income residences. My recollection is that three developers went broke trying to develop it. They were just too soon.

The key is location and timing. The comedians will tell you about timing. But the best of timing at the wrong location won't bring laughs.

Timing and location as principles for other disciplines are perhaps best seen for growing things.   Some things won't grow in some locations, or won't thrive. Other things will only grow in its season.

Politics also come to mind. Some politicians have no chance in some locations and some chance in others. But the critical combination is timing and location. The same may be said about ideas.

A critical aspect of the timing and location as a basic principle in our discussion of some underlying principles is that from an investment strategy perspective the most profitable investments are not those at the best current locations but those that are at locations that get better. [This is discussed in two of my books, *Land Investment,* and *Real Estate Investment for Profit through Appreciation.*] It is also a fine segue to thinking networks, the fifth example of underlying principles affecting a multiplicity of disciplines.

> Think Networks

Albert-Laszlo Barabasi, in the introductory chapter of his book *Linked: The New Science of Networks,* writes "This book has a simple aim: to get you to think networks. It is about how networks emerge, what they look like, and how they evolve." [Page 7.] Preceding the statement Barabasi explains that there is a strict architecture in complex systems found in various disciplines and that the events that occur are connected .in ways described in the science of networks which is discovering the laws of self organization. He concludes the introductory chapter with the following;

> "Networks are present everywhere…You will come to appreciate how the Internet, often viewed as an entirely human creation , has become more akin to an organism or an ecosystem , demonstrating the power of the basic laws that govern all networks. You will see how the emergence of terrorism is also ruled by the laws of network formation and how these deadly webs take advantage of the fundamental robustness of nature's webs. You'll wonder at the amazing similarities among such diverse systems as the economy, the cell, the Internet, using one to grasp the other. This will be an eye opening trip across disciplines that I hope will challenge you to step out of the box of reductionism and explore, link by link, the next scientific revolution: the new science of networks."

A critical aspect of networks is that they are dynamic rather than static. This requires viewing the process of change as a force in developing the structure in which nodes are linked to become a network. Linkages are critical in the production of income by real estate and the forces affecting that income production are subject to the vicissitudes of the economy and ecology, and the political environment as well as subject matter of a wide variety of other disciplines.

 A Discipline Perspective

My perspective of a discipline is that is an area of study that has a group of problems with substantial commonalities and methods of analyses that give it its own paradigm. This specialization enables one to get a better understanding of the detail of the system.

The biggest difficulty in forecasting outcomes arrives not from lack of knowledge within the system, but rather because exogenous forces in related disciplines have not adequately been dealt with because the systems have not been adequately integrated. The difficulty in such integration is that it takes a broader cognitive spectrum, such as was typical of an ancient era, to effectively deal with multiple disciplines. As social scientists our schemas have been trained to sharpen focus so that we may be rigorous in our research and analyses rather than having been trained to see the issues from a variety of perspectives and developed enough of different perspectives to be able to take a truly interdisciplinary view.

The effort of putting a man on the moon did an admirable job by forming interdisciplinary teams so that the problems could be approached with expertise from the various disciplines integrated into dealing with the relevant problems. We have not organized our universities in that fashion, although there are some attempts in the development of interdisciplinary centers and with some courses.

This chapter has noted some of the interdisciplinary efforts that have emerged. Essentially they combine disciplines. In some cases, all that one really needs to do is to extract the relevant principles from the related discipline and incorporate them into the paradigm. Such paradigms expand and it may be more difficult top get a sharp focus on the micro aspects. The key is in phasing the frameworks so that the assumptions in the sharply focused analyses are realistic. If that is not practicable because of the lack of data for a rigorous model, then if one wants reasonably reliable forecasts of outcomes one better have developed a good feel for the bigger picture. Over time, one may be in a better position to tie together the paradigms as an integrated system, as alluded to in the city as a system in the boxed insert at the beginning of Chapter 2 with a quote from City Model discussed in the Environmental Laboratory book.

There is a great deal that needs to be done on our university campuses to improve our ability to forecast outcomes from applications in the social sciences. That is part of the motivation for this book. Another part relates to simply getting better methods of solving problems. We now turn to a discussion of that effort as it relates to a real estate investment strategy. We then will look back at the principles and values in that system to see some policy guidelines applicable top another area. That area, as the reader may have surmised, is our national security – for we must defend our freedom even though it may not be used as wisely used as some of us think it should be.

Toward an Interdisciplinary Model of Development

The predominantly Muslim populated countries are not free societies. Greater freedom in those societies, along with economic development beneficial to the mass population, would in addition to enhancing their quality of life provide an environment less likely to breed new terrorists and terrorist support.

Enhancing quality of life is a value laden concept. The dimensions of quality of life vary substantially by culture. The desired balance among the various values also varies. Some are incommensurate, such as justice and mercy. One may need to be softened in order to enhance the other.

In the West we are accustomed to thinking in terms of liberty and justice for all. Liberty is an individual right. Some liberty is traded as a matter of social contract. The political structure that emerges under this system may vary widely. We are, however, accustomed to a constitutional form of government in which individual rights are protected from a tyranny of the majority.

Liberty in an Islamic view is not built upon an individual concept, but rather upon a concept of groups, starting with the family, including the tribe, and ultimately the *umma*, the Islamic world community. From the time of the decision on the criteria for the succession to Islamic leadership following the Prophet Mohammad there has been divisiveness among the Muslims.

That divisiveness was on whether the successor to Mohammad as the caliph would be by election from among the community leaders or by heredity. Those who favored succession by election from among the community leaders later to become known as the Sunnis. They won out over those who favored succession by heredity, the sect that later became known as the Shiis. See the box that follows, also provided earlier.

Diversity of views among Muslims goes back to the time of making a choice as to the successor to the Prophet Muhammad in 632 of the Common Era. [Armstrong, Karen. . *The Battle for God*. New York: Ballantine Books, 2000. Page 37.] That provided the split between what later became the Sunnis and the Shiis. Those who favored by succession by election (to the position of caliph), from among the community leaders, later to become known as the Sunnis, won out over those who favored succession by heredity. [Gregorian, Vartan. *Islam: A Mosaic, Not a Monolith*. Brookings Institution Press. Page 14.]

The contender, from among those who favored succession to the position of caliph by heredity, was Muhammad's closest living relative, Ali ibn Abi Talib, who was his ward, cousin, and son-in-law. "But Ali was continually passed over in the elections, until he finally became the fourth caliph in 656." [Armstrong, Karen. . *The Battle for God*. New York: Ballantine Books, 2000. Page 46.] Five years later he was assassinated by a Muslim extremist, but was mourned by both Sunnis and Shiis.

His successor, Yazid ibn Mauwiyyah, established the Umayyad dynasty which extended the Arab empire but declined for a variety of reasons, including intertribal feuding. [Umayyad Dynasty. Britannica Concise Encyclopedia. Retrieved from Web.] Mauwiyyah died in 680 and was

succeeded by Yazid who in response to "…huge demonstrations…in favor of Ali's second son, Husain [as a candidate to become caliph, the eldest son having died] "sent emissaries to the holy city to assassinate him." [Armstrong, op. cit. Page 46]

Husain "decided he must take a stand against this unjust and unholy ruler." The stand was "with a small band of fifty followers…" including wives and children. All were slaughtered en route to Kufa from Mecca. [Ibid. Page 46.]

The tack taken of the rule by the Sunnis over the next two centuries, led by the *Mu'tazilite* scholars, took a theological view that sought to "…harmonize reason with Muslim scriptures…" Vartan further writes,

> "The Mu'tazilite scholars called for a rational theology, arguing that God has a rational nature and that moral laws and free will were part of the unchangeable essence of reason. The movement was the result of the encounter of Islam with earlier civilizations – Persian and Greco Roman – and especially the traditions of Greek philosophy.
> [Gregorian, Vartan. *Islam: A Mosaic, Not a Monolith.* Brookings Institution Press.   Page 16.]

That effort would have moved Islam closer to what later emerged in mostly Christian Europe, had the view prevailed in Islam over time, at least in the sense of reason – a rational approach. But, the rule also claimed an exclusive interpretation of what constituted Islam, and so the central religious authority went by the wayside after several decades of attempted enforcement. [Ibid. page 17.]

Each of the factions has had further splits over the years. [Vartan describes succession disputes among the Shiis that led to the formation of major Shii sects,
the *Zaydis, Ismailis,* and *twelvers.* He also describes the formationof other sects. Armstrong
provides a more detailed description od diversity development among each of the three Abrahamic
religions in her book, *The Battle for God]* .But during the Golden Age, the five hundred years in which Islam was at the forefront of world progress, there was some tolerance for the other Abrahamic religions, Judaism and Christianity.

After the Golden Age, societal progress, especially economic and political progress, languished. Then, late in the sixteenth century, a scientific revolution began to emerge, followed by an age of Enlightenment. The developments in the predominantly Christian Europe since the Scientific Revolution and the age of the Enlightenment has left Islam remarkably poor and intellectually challenged as to making economic progress as compared with the West.

Today, Islamists believe that everyone should be or become Muslims. Other Muslims take a different view and are comfortable being integrated in Western societies.   They are integrated, but not assimilated. That is they have their culture, including religion, within a societal structure that has many cultures.   The peace is attributed to pluralism, a view that each group may have its own values, but there is no "one size fits all" in terms of absolutes.

The difficulty that arises is not with the Muslims who accept pluralism, or even with those who are tolerant. The tolerant may believe that they have the only answer, but they do not attempt to impose their beliefs and will upon others.

Among the Islamists, there are some who would force their value system upon others. They have not bought into the conclusions of Isaiah Berlin in his *Crooked Timber of Humanity* that such efforts have always resulted in failure and a great cost to humanity.

There are other Islamists who hope for conversion of all to Islam, but who would not knowingly use force to bring it about. This is comparable to Christian evangelists who would like others to convert, but who are not forcing the conversion. The inquisition of another era is a different story from that of the evangelists. It is the historical counterpart of the modern Islamists who use terror and foster terrorism in an attempt to impose their will.

As discussed earlier (in the section on "Value Systems, subsection "Justice), justice in the Western view is a complex array of values reflected in philosophy literature. However, the Islamic view of justice is from a different perspective. First, that the ruler is there by proper authority, and second that the governance is in accordance with *sharia,* the code of law of the Koran. Bernard Lewis writes, "For Traditional Muslims, the converse of tyranny is not liberty, but justice. [Lewis, Bernard, *What Went Wrong? Western Impact and Middle Eastern Response,* New York: Oxford University Press. Page 54.]

Part of the problem faced today is that while the West has prospered since the Enlightenment, Islam has lagged behind and has developed a hatred of the West. There have been some efforts at modernization of predominantly Muslim populated countries, but not with a tolerance for the old ways, i.e. a respect for the preservation of the culture. The challenge is to get the prosperity of modernization, to the extent that it is desired, within the setting of the culture that the indigenous population seeks to conserve.

The wealth from oil has inured to the benefit of the few who control the country with the dispensation of benefits to others at their discretion. This has not fostered the economic development of the country, especially since the vast majority of the oil profits are invested in Western ventures.

The challenge then starts with economic development. For some geographical areas, the choice may be to remain a Nomadic society with the quality of life that it brings. If that is the wish of the relevant tribal community, it needs to be respected. That choice may be made within the context of the local social and political structure.

The big difficulty is that there are many local areas that want the benefits of some modernization but are denied the liberty of pursuing it. The despots are protecting their power. Sometimes that power is challenged by the fundamentalists who would change the regime, but not bring freedom. Historically, the United State government has supported the non-communist tyrants when the alternative was the tyranny of communism. The more recent parallel is supporting non-Islamic tyrannical regimes when the alternative was a tyrannical Islamic regime. The idea is to foster a third option, a regime with liberty built within the values of Islam.

From a social science perspective, the design of an approach to the third option may include building a generic model of a system that engenders the Islamic values in a

social, political, and economic structure. We have examples of models of the city as a system based upon American culture. The special scope of a model to be developed may well be a country, particularly one assumed to be of predominantly Muslim population.

These city models generally have an economic sector, a social sector, and a political or governmental sector. Additionally, depending upon purpose, the model may have an environmental or other sector. Social sciences have progressed far enough that solutions to problems within a single discipline are reasonably doable for a wide range of narrow problems. The most difficult problems are, however interdisciplinary. And, they are usually the most relevant problems to improving the quality of life. The great challenge is in blending the disciplines to come up with an interdisciplinary solution.

The idea is that we should be moving towards an interdisciplinary model. That may start with a comparative analysis of Islamic and Western perspectives of sociology, economics and political science, but ultimately must blend them to be able to get an interaction among the various sectors. Such an interaction model will enhance the predictive ability of proposed programs intended to enhance quality of life. The model needs to be built upon a set of dimensions that encompass the relevant values of the subject culture.

The critical aspect of the model is the communal organizations. These are the organizations through which services are delivered. They may also be the basis for grass roots political organizations. It is a fine place from which to start individuals participating in democratic processes.

The idea is that by enhancing the quality of life through these organizations and making these organizations inherently democratic, an affinity to democratic processes may be developed.

A major problem, widely encountered, is the corruption that accompanies power, irrespective of how the power is achieved. So, the system needs to be designed to root out corruption early and to impose harsh deterrents, including ostracization by the community of those found guilty.

The key is in developing a strategy for making the changes through an institution of freedom and a rule of law.

i   Armstrong, Karen. . *The Battle for God*. New York: Ballantine Books, 2000. Page 37.

ii   Gregorian, Vartan. *Islam: A Mosaic, Not a Monolith.* Brookings Institution Press. Page 14.

iii   Armstrong, Karen. . *The Battle for God*. New York: Ballantine Books, 2000. Page 46.

iv   Umayyad Dynasty. Britannica Concise Encyclopedia. Retrieved from Web.

v   Armstrong, op. cit. Page 46.

vi   Ibid. Page 46.

vii Gregorian, Vartan. *Islam: A Mosaic, Not a Monolith.* Brookings Institution Press.   Page 16.

viii Ibid. page 17.

ix   Vartan describes succession disputes among the Shiis that led to the formation of major Shii sects, the *Zaydis, Ismailis,* and *twelvers.* He also describes the formationof other sects. Armstrong provides a more detailed description od diversity development among each of the three Abrahamic

religions in her book, *The Battle for God.*