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Emergence of a New Age of Enlightenment*

by Maury Seldin**

The Enlightenment, also known as The Age of Reason, emerged in Europe a few centuries ago in the wake of the Scientific Revolution. Reason took hold as the salient force in decision-making, ousting the authority of royalty and church.

The ousting of the authority of the king by thirteen British colonies led to the formation of a nation that became the most powerful nation in the history of civilization, America. That nation is under terrorist attack by some of the people who, along with their forefathers, were left behind in the progress that emerged from the Enlightenment.

America's hegemony is being eroded in a globalization that is affecting job opportunities for the American work force. It is also affecting the rate of economic development of the United States of America relative to many Asian countries, especially China and India. America needs policies that facilitate strengthening its position in emerging sectors of economic production. Trying to hold back the tide is futile and detracts from developing alternative means of dealing with the changing environment, including the social and political environment as well as the economic one.

It is time for a new national strategy that comes to grips with the changing world environment, including the terrorist situation. The needed strategy may emerge by building a *New Age of Enlightenment*. This is in the wake of the Information Revolution that is facilitating globalization. The strategy expected to emerge, if it comes to grips with efforts to create a *New Age of Enlightenment*, is predicated upon five pairs of interrelated ideas.

First, there is scale and sovereignty. Then there is private property and the externality of infrastructure. Third, there is rule of law and kleptocracy (rule by corrupt officials). Fourth, there is liberty and justice. And finally, there is education and initiative. The strategy requires recognizing reality, establishing goals, and assessing risks; all in the context of considering the values prevalent in other cultures as well as the values traditional to the American culture.

Scale and Sovereignty

From a geographical perspective, the scale of the predominant socio-political-economy moved from tribal to national in stages. For Europe, the national scale that prevailed at the time of the Westphalian agreement, 1648, is of importance because it provided the rule of the non-interference of one state with the internal affairs of another.ⁱ

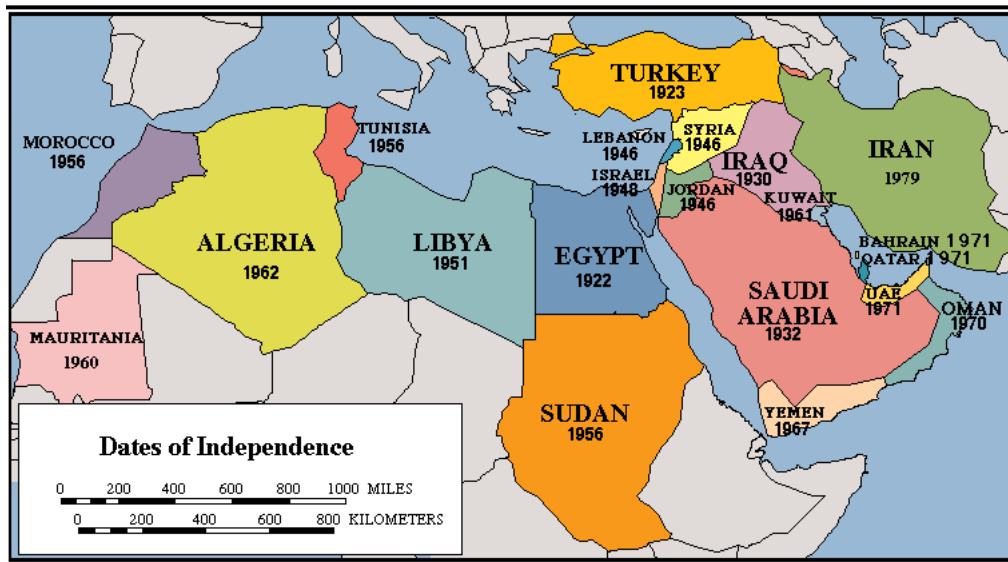
For Western civilization the great change to nation-states was the precursor to our contemporary world political structure. The Westphalian concept of international order was dominant for about the first two centuries of our nation's existence. The idea of the time was that we are part of a world of sovereign states, and disputes among different sovereign governments may be resolved by compliance with international organization determination, but the ultimate authority is the sovereign state. That has been eroded by American interference with other countries on humanitarian grounds.ⁱⁱ

Some Latecomers. Among the latecomers to the nation-states scale of sovereignty are the predominantly Muslim populated states of the Mid-east. The map in Figure 1 shows that a few predominantly Muslim populated states were created before World War II, but most were created in the decade after World War II. The tribal mentality still prevails in some of the Mid-eastern states. There is a culture lag in achieving nation-state status. However, the Islamists seek the restoration of a Caliphate, an all encompassing nation-state. One problem with that is that the Islamists want everyone to be Muslims.ⁱⁱⁱ

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Figure 1, Dates of Independence of Mid-eastern States



Source: <http://www.dartmouth.edu/~gov46/dates-independence.gif>

Many other states were also created in the post WWII era. These have come into a form that is becoming obsolete or at least peripheral to the thrust of the changing economic environment - the greater scale of economic organization. Some of these countries are so heavily integrated in transnational business enterprise that their sovereignty has eroded. Others, opposed to globalization, tend to remain isolated and pass up on the economic development opportunities. This is in part out of a resistance to change.

A Further Increase in Scale. Today, European countries that have historically been enemies are uniting as the European Union. The socio-political-economic scale has broadened even further from nation-state to a kind of confederation. The new systems of sovereignty and scale are harder to classify than in the past. One might view countries' ties in terms of commerce with particular multinational corporations operating within that group. Alternately, or additionally, there is the tie of participation in international organizational structures reached by treaties. Either way, the new structure has left many nation-states with diminished control over their futures, although with increased economic benefits. Agglomerations of countries in various dimensions that include transnational economic activities erode sovereignty even more.

A better understanding of the interactions between the age-old structures of the Mid-East countries and the developing changes of those of the West is vital to the design of new enlightened policies.

There is no end-state situation. The natural condition of the universe is a changing condition. Civilization alters the conditions and may, with a process of forecasting outcomes of different policies, influence the emerging conditions. A better understanding of the interaction of the variables in the discussion that follows will aid in designing policies that may lead to a *New Age of Enlightenment*.

Private Property and the Externality of Infrastructure

For most modern economies, the right to private property is the main incentive toward productivity. This is even more the case as the scale of the economy increases. Even within communist economies, communal property arrangements have had very limited success, and the trend is toward private ownership.

However, this economic system does require some communal property arrangements to take care of externalities - the infrastructure that facilitates the income production of private property. This includes roads and utilities as well as those services like hospitals, fire-fighting and sanitation that are more economically advantageous when provided on a communal scale. In today's Information Age, the inclusion of communication systems is a critical part of this infrastructure. It allows individuals to participate in transnational employment without going through a domestic hierarchal structure.

The income-producing ability of private property, especially real property, is highly dependent upon externalities. Many of these are owned or regulated by local government, and the quality of the management is critical to obtaining the benefits of the private property. In many countries, there is a move toward better management of these systems, which in turn encourages the participation of transnational corporations in local economies.

This local control, however, may be undermined by one of the proposed provisions of the CAFTA (Central American Free Trade Agreement). The idea of the controversial provision is to override some local land use restrictions and to thwart local government

from impeding transnational corporations from competing in the local arena. The problem is that this erodes the country's sovereignty.

In a *New Age of Enlightenment*, nation-states would realize that private property and the ability to manage externalities that encourage its productivity are essential to participation in the faster track of economic development facilitated by globalization. Those countries not so enlightened will be left further behind.

Rule of Law and Kleptocracy

Any system of competitive enterprise, to be effective, has to have a rule of law. This delineates what is permissible and what is not, and the same rules must apply to everyone. While this is a given in most Western countries, at least as the ideal, it is not so in countries of the Mid-East. Often these areas are ruled by kleptocracy, the corruption in government best seen in bribery systems. It is the antithesis of rule of law.

Today's transnational business organizations distribute production among countries with disparate socio-political environments that are advanced to varying degrees in the rule of law. The farther up the spectrum, the more likely an extensive participation in the global economy.

While there can be some benefits to diversity in this area, as with U.S. state laws, commonalities in these rules are important to facilitate economic development and international trade. An example is the European Union which has created some beneficial standards in accounting.

International agreements can be useful. However, while the idea of a comprehensive international legal system sounds appealing for its efficiency, the political difficulty of instituting such a system with disparate structures and interests is risky. Independent countries are reticent to transfer any of their sovereignty.

The practicality of the situation limits progress to incremental changes in specialized agreements. These specialized forums, however, may not be equipped to deal with and balance related issues such as the environment. *A New Age of Enlightenment* needs to incorporate mechanisms that balance a wide range of interests across a variety of dimensions. The relationships paradigm frequently used in business offers just such a mechanism.

Business relationships vary by culture. However, a business relationship takes time and effort to develop. Once developed its value increases to a point where considerations beyond the individual deal may generate choices that might not be made but for the relationship. Some transnational corporations take corporate citizenship and community support seriously.^{iv}

It is in the long term interests of the transnational organizations to have increasing markets, a great portion of which may come from increased participation by lesser developed countries in the globalization process. These interests may be furthered by appropriately assisting in the evolution of these lesser developed countries in developing institutions that facilitate their economic progress.

The various cultures have various values, some of which may be incommensurate with our values. But, since some of our values are incommensurate with each other, the problem is familiar to us.^v We approach it with pluralism.^{vi} Pluralism, the idea that there is no one set of values that applies to all cultures, may have incommensurate values within the set of values of any particular culture. Justice and mercy is an example. So is equality and liberty.

Liberty and Justice

Liberty or freedom may be thought of in a negative sense, i.e., the absence of rules that restrict action. But, freedom may be thought of in a positive sense, i.e., the possession of resources that enable one to make choices.^{vii} The latter is known as *positive liberty*. Both concepts of liberty are relevant to economic progress.

American economic progress is to some degree attributed to the philosophy in a key sentence from the Declaration of Independence. The sentence is as follows: "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." The liberty or freedom is an element in the institutional relationships that have fostered economic progress because individuals may choose to enhance their quality of life by making contributions to the economy through their economic activity. The reward relationship to contribution may not be as closely correlated as in an ideal, but the incentive makes a substantial difference.

The created equal phrase may be interpreted in various ways. It would be naïve to believe that all men are created with equal ability. It just doesn't happen that way. The genetics make a difference. Also, environment makes a big difference in the ability to compete, and not all environments are equal. Incommensurability comes here because the interpretation of equality as to rights may well go on beyond rule of law, equal treatment. It may go to the positive sense of freedom in having the resources to be able to more effectively participate in productive efforts.

Obviously there are differences of opinion as to where the balance ought to be between equality of resources in the sense of equality of opportunity and one's providing better opportunity to members of one's family by utilizing rewards for one's contributions to society. Diminishing the latter diminishes the incentives to make contributions through highly productive work.

The choices are part of the issues associated with justice. Different cultures see different attributes in the concept of justice. For example, "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.^{viii} We are accustomed to concepts of justice as described by Abraham Kaplan: "*Distributive justice* is the adherence to moral norms of both form and content in the allocation of resources and products...*Commutative justice* is the allocation to each person of neither more nor less than he deserves...*Social justice* is a comprehensive category comprising a certain degree of equality and security, as well as distributive and commutative justice."^{ix}

This is an alert to caution in using the values descriptive terms. However, within the constraints of ambiguity it is clear that the institutional arrangements, while differing from culture to culture, require some elements of liberty and justice in order for the system to work well.

Working well for us means that individuals are free to pursue life, liberty, and happiness, i.e., a quality of life of their choosing within the constraints of rule of law. This pursuit involves the positive freedom alluded to earlier. That freedom, the ability to compete by having adequate resources, implies an education. Education is critical to *New Age of Enlightenment*.

Education and Initiative

Education may take various forms. The major educational institution of the Islamic fundamentalists is the *madrasah*. These schools indoctrinate students on fundamentalist beliefs and generally have little education in secular matters. They generally indoctrinate hate of the West, especially America and Israel.

The level of secular education in predominantly Islamic countries is abysmal. According to *The Economist*, July 4, 2002, in an article titled "Arab Development: Self Doomed to Failure," the education system is not preparing the people with an education that would enable them to participate in developing their economy and their economic participation.

America is not the selection as a model at the other end of the spectrum. Some Asian countries, by focusing on the sciences, are better educating their next generation of the work force. Education for Americans varies from what may be described as deprivation to excessive specialization. One great merit of our educational system is that there is a predominance of Americans with sufficient civic education to enable our nation to function as a democracy.

The deprived portion of the American population may be considered as deprived in the sense that their education is insufficient to enable them to participate in the mainstream of an economy that affords an opportunity to pursue happiness with the type of liberty previously identified as positive liberty.

Emphasis to the absence of knowledge as a condition of absence of *positive liberty* is appropriate because the thrust of the discussion is to consider the role of education in building a *New Age of Enlightenment*. Money or other resources might also have been emphasized because of the close correlation with knowledge. The conventional wisdom is to look at such conditions and then seek to apply the value of equality, frequently with policies that would impair the freedom of others.

As Isaiah Berlin wrote, there is an incommensurability of some values, including freedom and equality. The great challenge is to use our intellect to reduce the conflict to an irreducible minimum. Such a reduction requires that we dig deeper into understanding the system so as to get to the root of the matter. In the case of the absence of knowledge, that root may well be the process by which one thinks, especially reasoning and the role of emotion.

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 that is significantly affected by culture. 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.^x

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.

The education for that better understanding is deficient for the deprived portion of the American population. It is the responsibility of our American society to do a better job in ameliorating the deficiency. There are political issues as to the way to approach the problems as well as differences in values that influence not only what should be done, but how to do it, and how much to do.

Academia, particularly the social sciences, has a great responsibility in developing the knowledge that lays out the choices and forecasts the outcomes, including unwanted side effects. The excessive specialization significantly inhibits the process.^{xi}

Whether our concern is for the population segments of our nation that receive an insufficiency of education necessary for them to avail themselves of the economic opportunities in our society, or whether our concern is for the population segments of other nations that receive an insufficiency of education necessary for them to avail themselves of the economic opportunities in their society, we need to evaluate institutional arrangements necessary to facilitate the natural processes of society that would enhance educational development. This involves an understanding of the way people are thinking and their human nature. Changing education and educational systems as well as research can make a significant difference. This is an integral part of building a *New Age of Enlightenment*.

Considering the role of education in influencing belief and then behavior, we are mindful that some behavior is instinctive, having been acquired genetically. We are also mindful that nurture as well as nature influences the way one thinks, and the resulting behavior. Thus, belief is viewed as part of a system determining behavior.

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Building the Strategy

Building the strategy will require substantial research and education efforts. It might be approached by applying the relatively young discipline known as network science.^{xii}

Network Science. Network science utilizes the concept of nodes and linkages. It has been applied to areas as diverse as power outages^{xiii} and fads in fashions.^{xiv} The key idea is that the entities that are the nodes, whether electric generators or fashion wearers, are linked to like kinds but not necessarily with like connections. What happens with one node influences what happens with other nodes through linkages. With sufficient influence the impact reaches a tipping point and there is a cascading effect - successive power failures or of adopting style in fashion.

The concept of network science has also been applied to the information system in the World Wide Web^{xv}. The speed with which information is distributed through the web is astounding. It happens because one node is connected to many other nodes, each of which is connected to additional nodes. It is a pyramid system.

An effort to build a *New Age of Enlightenment* would take the approach "think network."^{xvi} This approach may be used to supersede the traditional economic models that focus on the economies of single countries even though the models may include international trade. That paradigm is one of economic base with export activities being the generator of additional internal economic activities.

The alternative to the traditional paradigm dissolves the spatial boundary so that so that the focus is not geographical. Rather, the

focus shifts to nodes of activity and relationships to other nodes. Thus, the disaggregation of industrial and/or information production by transnational corporations shifts focus from country selection to local economy selection as being able to produce the components. That scale change has affected sovereignty.

The new focus is on operation in a local economy that permits private property and provides sufficient infrastructure. It also requires an environment of some semblance of rule of law as contrasted to kleptocracy. Additionally, some semblance of liberty and justice is required. Developing such an environment requires progress in education of the local population.

While the examples of India and China fall short of the ideal in the variables, the direction in which they are moving seems clear. They are "eating our lunch" because they are moving up the scale of economic development and in some measure it is because the working population is taking the initiative to be productive.

It is not that which we don't know that gets us into the most trouble, it is the things that we think we know that turn out not to be so. Thus, it is an error to believe that we should be discouraging the competition. What really makes sense is to extend the ability to compete to the lesser developed countries so that they too can make substantial progress.

Expanding Competition and Markets. The idea is that all ships rise in a rising tide. We should be helping in getting the tide to rise. But, it also means that we need to develop our competitive skills in the new environment, especially in upgrading products and developing new products.

The environment has changed so much that the products we are consuming today are markedly different from products of an earlier era. It would be interesting to compare Sears' catalogs of earlier generations and observe not only the range of products but the differences in features over time. Consider the timing of the introduction of communication equipment and the character or features of the changing products. Do the same with transportation equipment including motorizing equipment for mobility. Then, consider plastics and other chemical products, especially medication. Even foods are different, especially in form of delivery.

The key is in not focusing on preservation of existing production territory, but rather in focusing on better products, especially new products. That focus is for producing organizations. The focus for the people who physically participate in the production is on continuing skill development to meet changing needs. It is disastrous over the long haul for the firm and the employee to focus on protection because in time that protective ability will erode and the protectionist will be left in the cold. Those who are involved in the innovation and development of new skills will fare better.

This idea of not focusing on preserving product territory, but rather on being at the forefront of newer and better products, has an additional benefit. The successors in production of the products contribute to the rising tide of demand for additional goods and services. The size of the pie increases substantially providing ever increasing opportunity. This is aside from the idea of humanitarian considerations and the idea that participation in the benefits of globalization reduces the opposition, especially by those who are potential recruits into terrorist organizations.^{xvii}

Preparing for Change. This strategy calls for employment policies focused on education and training that will make people employable during the time that they want to be in the work force. Furthermore, it doesn't make sense for employees to have their retirement programs invested in the stock of the employing company. That lack of diversification is too risky for prudent employees.

There are other domestic policy changes that should be made in pursuing the creation of a *New Age of Enlightenment*. But, it does not stop there. On the international scene more reliance needs to be made on non-governmental organizations whose activities transcend individual countries.

This emerging structural change enables people who are abroad to be brought into the globalization system as productive participants. It empowers people to have greater control over their lives. Of course, people who live in countries such as North Korea where freedom of access to international information is denied do not have that economic opportunity. Indeed, the people in oppressed societies are denied the opportunities to benefit from the emerging global structure.

Our international policies ought to reflect our values; and, respect the rights of others, just as we declared our own rights in the Declaration of Independence. The strategy question is our appropriate role in assisting others to develop their society. This needs to be dovetailed to what we need to do in developing our own society.

Reality. One reality of structural change is that there is resistance. Indeed, a major problem in evolution of society is the presence of fundamentalists who want to return to what they envision as an idyllic past. Another reality is that change is the natural state of the universe, not static conditions, and not retrogression to an earlier stage of development as with cycles.^{xviii}

What progress will occur is in some measure determined by what civilization chooses to do. The most fruitful approach is to increase the understanding of the system - a system that is highly interdisciplinary.^{xix}

Goals. Part of understanding the system is in the realization that goals substantially differ among societies, even though there are substantial commonalities. However, the keystone of our American structure is as noted in the Declaration of Independence document that indicates that governmental authority is derived from the governed.

Others see it differently. They take a top down approach rather than a bottom-up approach. If one accepts pluralism, and that is fundamental to our society, then one accepts that other societies have the right to see it differently.

Risks. There is a big risk in attempting to impose the views of one society on the people of another society. It has been done, but it only lasts for a limited time because human natures differ and advocacy for change eventually emerges and change comes about.

Risks are reduced if changes in views are grown over time naturally with the change in circumstances that influence growth. That should be the hallmark of our policies.

Institutional Reform. One might list many ideas for institutional reform based upon this essay, and that might be useful. But, what would be more useful is to get a better understanding of the process by which change comes about.

Building a *New Age of Enlightenment* calls for a strategy that recognizes the realities of the emerging globalization system and the realities of the erosion of the nation-state system. Each nation-state has its own culture and changes are best dealt with by being sensitive to the prevailing conditions.

The closer one is to the culture the better chance one has of producing circumstances that influence change. Obviously, if the leadership comes from the indigenous population, it is more likely to be successful than if it from an external source. But, when local leadership is not up to the task an emergence^{xx} may take place.

In emergence the action is generated from the bottom-up. Education is an excellent force for that change. The building of a *New Age of Enlightenment* entails a substantial education process.

The process may take generations. But, the chance for peace and prosperity will be substantially enhanced if academia looks to better understand the system and if our policies, domestic and foreign, reflect the realities of change, especially evolution.

ⁱ According to Henry Kissinger in his book, *Does America Need a Foreign Policy? Toward a Diplomacy for the 21st Century* (2001) the non-interference rule was in the wake of the Reformation with the idea that "...the Treaty of Westphalia sought to prevent rulers of one faith from inciting uprisings of their co-religionists ruled by a prince of a different faith." [page 236] Earlier in the paragraph from which the quotation was taken, Kissinger wrote, "Thus was born the concept of noninterference in the domestic affairs of other states, and it was developed for precisely the opposite reason it is being discarded today." Kissinger illustrates the new policy with reference to our congressional legislation making demands for freedom of speech and press in China, and American and some Western European intervention in Kosovo on humanitarian grounds. [Pages 252-254.]

ⁱⁱ See preceding footnote.

ⁱⁱⁱ The term *Islamist* refers to the small proportion of Muslims who believe that all people should be Muslims. Islam is composed of a wide diversity of Muslims, many living in secular societies. Those living in predominantly Muslim countries are for the most part living in the group of the world's least free societies. Some, but not all, of the Islamists are terrorists.

^{iv} See discussion by Thomas L. Friedman in *The World is Flat* (2005) .

^v See discussion by Isaiah Berlin in his book, *Crooked Timber of Humanity* (1990) pages 12-14, 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.

.....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."

- vi Pluralism, according to Isaiah Berlin in *The Crooked Timber of Humanity* (1990) page 11, 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."
- vii One long paragraph by John Gray in his book, *Isaiah Berlin*, is especially enlightening on the comparison and contrast of the two concepts of freedom. 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** [emphasis added], 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.]
- viii See Bernard Lewis' *What Went Wrong? Western Impact and Middle Eastern Response*, (2002) .page 54.
- ix Abraham Kaplan's *In Pursuit of Wisdom: The Scope of Philosophy* (1977) page 418.
- x This paragraph and some of the other material in this essay is taken from a series of essays published and/or to be published by the Advanced Studies Institute, available on-line at www.hoyt.org.
- xi Consider this quote from Thomas L. Friedman's *The Lexus and the Olive Tree* (2000), page 24,
 "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 is not divided up into such neat little beats and that boundaries between domestic, international, political and technological affairs are all collapsing."
 Also consider following quote from one of the essays noted in the previous footnote, 'Education - The Notion Potion':
 "The thrust of most modern research is in the box of the discipline of researcher rather than structured at solving problems irrespective of discipline."
 Additional discussion is provided in the essay, including a quote from Thomas Kuhn of paradigm shift fame.
- xii The salient concepts of network science are that the connections (linkages) between nodes are not random and that 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.
- xv Duncan Watts starts out his book, *Six Degrees: The Science of a Connected Age* (2003), 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.
- xvi See Malcolm Gladwell's *The Tipping Point: How Little Things Can Make a Big Difference* (2002), New York: Little Brown and Co.
- xvii See Kevin Kelly's *New Rules for the New Economy* (1998), New York: Penguin Putnam.
- xvi See 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 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."
- xvii See "Undermining Terrorism," *Cosmos Club Journal* (2004), by Maury Seldin.
- xviii A quote from Thomas Cahill's *The Gift of the Jews: How a Tribe of Desert Nomads Changed the Way Everyone Thinks and Feels* is as follows:
 "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." [See pages 7-8.]
 Cahill also writes,
 "The Jews were the first people to break out of this circle [referring to '...a vision of the cosmos that was profoundly cyclical' in that events and people perpetually returned - no event was unique], 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." [See page 5.]
- xix Discipline development has traditionally been by increased specialization. Only recently has social science made substantial efforts at holistic approaches that blend disciplines resulting in an interdisciplinary approach to interdisciplinary problems.
- xx Emergence refers to bottom-up self organizing systems. See Steven Johnson's *Emergence: The Connected Lives of Ants, Brains, Cities, and Software* (2001), New York: Simon and Shuster.