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# Belief:

## *Its Role in Economic Thought and Action*

By J. BARKLEY ROSSER, JR.\*

ABSTRACT. The important role of *belief* in economic theorizing, *ideology* formation, and individual *behavior* is examined. Its role in the making of unrealistic assumptions in *economic theory* is considered. The extent to which this derives from ideological predispositions and the relationship of ideology to *theology* is analyzed. The role of self-fulfilling *prophecies* is examined as an example of belief driving economic action.

### I

#### Belief and Economic Analysis

A COMPARATIVE STUDY of academic publications in leading journals in various disciplines by Morgan (1988) reveals that economics stands out as generating more purely theoretical articles of a mathematical nature that appear to have no empirical content (47% in economics, 18% in political science, 1% in sociology, 0% in chemistry, and 12% in physics). One reason for this apparent escape from reality is the drive for scientific respectability on the part of economists. Mirowski (1989, 1990) has charged that the increasing mathematization of economics is due to "physics envy," and it is certainly true that most of the mathematical apparatus of economics has been adopted wholesale from physics. However, it increasingly appears that this drive for scientific respectability by economists may be futile since the scientific endeavor itself has come into question. Economists may be the eager rats, boarding the "ship of science" just as it is preparing to sink.

The essence of the problem lies in the breakdown of logical positivism, the traditional philosophical foundation for the scientific method. Since the mid-nineteenth century economists have sought to distinguish between "positive economics," (a supposedly value-free, objective, scientific approach to economics that attempts to study "what is") and "normative economics," (the value-laden, ideologically driven political economy of "what should be"). This desire

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for an analytical separation of the positive and the normative may explain why they have resisted more vigorously the collapse of logical positivism than have physical scientists, whose objects of study are less fraught with obvious normative implications.

The positivist approach developed gradually from foundations laid down by Roger Bacon, Galileo, Francis Bacon, René Descartes, and David Hume. The term was first applied to the social sciences by Auguste Comte in the nineteenth century and was formally codified by the Vienna Circle, led by Carnap (1936, 1937) and Ayer (1958). They purported to answer the epistemological question in, "How do we know that what we think we know, is what we really know?"

It was argued that a scientific statement is one that is capable of verification by either logical analysis or by a careful examination of empirical data. An alternative version of this is that a statement must be potentially falsifiable, a criterion due to Popper (1983). (He considered himself to be an anti-positivist in his earlier writings, but now looks more like a minor modifier of the philosophy.)

Both of these criteria share the view that, separate from the observer, there is both an objectively true system of logical analysis, and a well-defined objective reality which can be examined for data to test our various hypotheses. Both contentions are questionable.

Logical analysis depends upon a system of logic which in turn depends upon a set of axioms, unprovable assumptions that must be accepted or rejected on belief, as in Euclidean geometry. Get rid of an axiom, as Einstein did with the parallel postulate, and one is in a very different world. It was long believed that there is an irreducible set of such axioms that could provide a secure foundation for all logical analysis. However, Gödel (1931) showed that every logical system must generate at least one statement that is true but which cannot be proved or disproved within the system. This Incompleteness Theorem is devastating in its implications for logical positivism.

The significance of the realism of assumptions has been downgraded by at least one version of logical positivism influential in economic analysis, the "instrumentalist" approach of Milton Friedman (1953). According to his view, all that matters is the ability of a theory, or a model, to make empirical predictions. The logical consistency, rigor, or realism of its assumptions is irrelevant. People act "as if" they understand and believe the assumptions of the theory or model.

The second contention, the separability of the observer and the observed, was shattered by the Heisenberg Uncertainty Principle of quantum mechanics and its more recent extensions (Capra, 1983)—the conclusion that observing the behavior of a particle influences the behavior of that particle. A social science version of this is the "Hawthorn Effect:" people who know that they are being

observed will behave differently from those who are not being observed, although this operates for different reasons than the quantum mechanics effect.

The most serious blow to logical positivism came with Kuhn's (1962) *The Structure of Scientific Revolutions*. He presented the concept of the "paradigm," an all-embracing system of thought that permeates one's language and perception, determining the questions one asks and the methods of answering them, most especially in the supposedly-hard sciences. Within a paradigm, "normal science" occurs, and operates along positivist lines. But, if a fundamental contradiction arises, a new paradigm may emerge that displaces the old one, a "paradigm shift" or scientific revolution occurs. Using the example of the displacement of the Ptolemaic earth-centered view of astronomy by the Copernican sun-centered view, Kuhn showed that such shifts do not occur by reasoned argument, but by the conversion of younger thinkers to the new view and the dying out of the adherents of the old. The resistance to the new view can be fierce, thus the burning at the stake of Giordano Bruno and the persecution of Galileo.

The new view may deserve to displace the old since it resolves the contradictions arising from the old. The Copernican system provides a simpler view of planetary motion than does the epicycle model of the late Ptolemaics such as Tycho Brahe, and relative simplicity is a criterion of scientific credibility advocated since William of Occam. It explains all that the old paradigm could, and predicts in areas where the old paradigm could not. Nevertheless, simplicity of explanation is no guarantee of ultimate truth, even if it wins debating points in a struggle of paradigms. For Kuhn, there is no absolute standard by which to judge or compare competing paradigms.

Indeed, within the paradigm of Einsteinian relativity theory, the Copernican-Ptolemaic conflict can be viewed as a non-issue. Every conscious being can be viewed as a center of the universe relative to whom all of space-time and motion can be uniquely measured and defined. So earth versus sun as a center of the universe is irrelevant. Relativity reaffirms the inherent inseparability of the observer and the observed. This Kuhnian crypto-nihilism has been extended by Feyerabend (1975) who argues that there is no such thing as a meaningful scientific method, that "anything goes" in scientific discourse.

In the face of this Kuhnian critique, many have attempted to salvage something of the positivist apparatus. A strong response is Friedman's emphasizing the predictive content of a theory. But a serious problem for economics arises when we see the severe disagreements over appropriate econometric techniques and methodologies that occur. It is rarely unequivocal that one model predicts better than another.

A widely discussed middle ground was staked out by Lakatos (1970) using the concept of the "methodology of scientific research programs." Such a program is judged on its "fruitfulness" in generating interesting and useful questions in a progressive manner. Within the program, positivist rules apply. But the program as a whole is a paradigm in Kuhn's sense, ultimately judgeable only by some higher level criterion of belief. Within the program, a "hard core" set of axioms must be accepted without question and are not testable by positivist methodologies, much like the undecidable statements in a Gödelian logical system. The hard core is protected by a "protective belt" which fends off arguments with a "positive heuristic" that sometimes turns an attack into supporting evidence.

So where does this leave economics? At the level of crude empiricism of the instrumentalist sort, a remnant of positive economics remains. I assert that it is an objective fact that the sign on the coffee machine down my hall states that a cup costs 40 cents. The "true price" of such coffee is more uncertain because of possible malfunctioning of the machine, its running out of coffee from time to time, the opportunity cost of time and the prices of other goods and services.

Nevertheless, there is an inescapable residue of "normativeness" inherent in the above asserted fact because it is expressed in current US currency units. Anyone who doubts that stating a price in a particular currency is not an inherently political act should contemplate the intensity with which people in Ukraine currently support switching to a Ukrainian currency unit. Similar motives on the part of the US Founding Fathers are why the price is not in British currency units. While for an individual, using a particular currency is a matter of convenience, doing so reinforces a political order.

The problem becomes more serious in moving from raw data to generalizations and to theory. Encountered are all the issues of paradigm conflicts and the ultimate unjudgeability of scientific research programs. Despite all efforts at mathematical abstraction, normative aspects become very important in these conflicts and judgments. There is the basic question: do economists make unrealistic assumptions to generate predictions which satisfy their normative prejudices?

A notorious example from the perspective of many non-economists is the assumption made in standard neoclassical economic theory of "rationality" on the part of economic agents. This assumption is that people know what they want, that what they want is internally consistent, and that they act to get what they want to the best of their ability on the basis of the information available to them. But there is considerable evidence that people do not always know what they want, that even if they think they do that it is frequently internally inconsistent, and that their behavior reflects these inconsistencies (Machina, 1987).

An alternative to the assumption of strict rationality has been the psychological approach (Hogarth, 1975; Kahneman and Tversky, 1979; Slovic, Fischhoff, and Lichtenstein, 1983). This approach emphasizes “response mode effects” that are subject to “framing.” That is, a person’s decisionmaking approach is framed by the context in which he/she is at the time of decision.

Despite the probable unreality of the rationality assumption it can be defended on a number of grounds within the neoclassical framework. Thus, even though the law of gravity is stated for a vacuum, the existence of air pressure (and apparently gravity-defying helium-filled balloons) does not mean that the law of gravity is false or that the force of gravity does not exist. A theory can be useful, even if based on false assumptions, if it gives good predictions, (the instrumentalist positivism of Friedman, 1953). Or, even though individuals behave irrationally, their respective irrationalities cancel each other out so that they behave rationally as a group. Yet another argument is that irrational people will “go out of business;” they will be evolutionarily selected against in a Social Darwinian way in the economic jungle.

In this respect, rationality may represent a normative touchstone or ideal. This is not how people really act, but how they ought to act. An extension of this is to argue that models that assume rationality represent a fundamental point of comparison with other models. The assumption opens the door to the use of calculus to solve the problem of the supposedly rational economic agent maximizing his happiness subject to a budget constraint. The analytical power and definitive theoretical answers arising from this exercise have led some (Samuelson, 1972; Caldwell, 1991) to defend the rationality assumption in Lakatosian terms: it is a “hard core axiom” of the neoclassical economics research program that cannot be challenged.

But many do challenge that program as well as the entire positivist approach. Paradigms should be judged by their “literary” qualities, their “rhetoric” (McCloskey, 1985). A recent development has been the appearance of “post-modern” economic analysis that seeks to deconstruct economic texts and theories (Samuels, 1990; Ruccio, 1991). It may prove to be easier to deconstruct economic theory than to reconstruct it afterwards.

Many economists may be enamored with the rationality assumption for ideological reasons, notably because of the theoretical result that rationality is associated with efficiency in a properly functioning market economy. Thus the rationality assumption becomes linked with an ideological defense of free markets.

An extreme case of this can be seen in the rational expectations assumption (Muth, 1961), that people on average accurately forecast the future over time. Lucas and Sargent (1981) used this assumption to generate economic models

in which systematic government intervention in the economy only creates inflation, a strong policy conclusion with distinct ideological overtones. While strong evidence has been presented questioning the validity of this assumption (Lovell, 1986), Sargent (1982: 382) has defended it in Lakatosian terms. It is a hypothesis not amenable to empirical testing because of "the logical structure of rational expectations as a modeling strategy, the questions that it invites researchers to face, and the standards that it imposes for acceptable answers to those questions."

Conflict over this assumption is increasing. Increasing numbers of empirical studies question both the reality of the assumption and the predictive ability of models depending on it, while increasing numbers of theoretical papers make the assumption. Despite Sargent's Lakatosian eloquence, ideological factors are partially responsible for this strange state of affairs.

## II

### **Ideology and Belief**

THE MOST INTENSE IDEOLOGICAL CONFLICT in economics for quite some time has been that between pro-free market libertarianism and anti-free market Marxism. This conflict recently reached a dramatic denouement with the apparent collapse of the actually existing command socialist systems in the former Soviet bloc. Of course it can be argued that this was not really a legitimate comparison because of other differences between the societies.

It can be argued that none of the actually existing socialisms ever fulfilled the conditions set down by Marx (1890–91), notably the communist ideal of the withering away of the State in a classless society. This allowed for an ongoing Marxist critique of those systems (Mandel, 1989), for their oppressive state bureaucracies, dominated by ruling nomenklatura castes.

But a major global shift has occurred away from Marxism and towards libertarianism, much to the pleasure of Hayek (1989). In terms of belief, this revolution has coincided with a massive conversion from one ideology to the other. In some cases the process appears to have been gradual but sincere reflecting increasing frustration in socialist societies. In others we see a hypocritical opportunism an example of Pareto's "circulation of the elites" phenomenon, as the former managers of some Eastern European state enterprises "spontaneously privatize" their operations and transform themselves into nouveau market capitalist managers of the same enterprises.

Ideological orientation may, or may not, be a matter of belief. Marx and Engels argued that their system of historical materialism was "scientific socialism," the

very acme of rational science and the exact opposite of irrational religion, the “opiate of the masses.”

Despite Marx and Engels’ repudiation of religion, one of the great strengths of Marxism as an ideology has been its quasi-religious nature, a holistic system that claims to explain virtually everything in the world and provides a structure for both thought and action in the world. Although there are clearly deep differences between Christianity and Marxism, this quasi-religious nature can be seen in the comparison of equivalent concepts in both systems that was made by Russell (1945). This equivalence of conceptual structures suggests how it might not be difficult for someone to convert from one “religion” to the other and back again, despite their deep differences.

Both systems posit a fundamental driving force, in Christianity, God, in Marxism, dialectical materialism. Both systems have a Savior figure, in Christianity, Jesus, in Marxism, Karl Marx. Both have a group that will be saved, in Christianity, the Elect, in Marxism, the proletarian working class. Each has a worldly institution to carry out its message and program, in Christianity, the Church, in Marxism, the Communist Party. Each has a hoped-for event of universal judgment, in Christianity, the Second Coming of Christ, in Marxism, the International Socialist Revolution. Each has a system of punishment for evil-doers, in Christianity, damnation to Hell of sinners after death, in Marxism, the expropriation of the capitalists after the Revolution. Finally, each has a vision of the ultimate paradise that will eventually come, in Christianity, the Millennium after the Second Coming of Christ in which the Elect will be resurrected and raptured to heaven, in Marxism, the communist commonwealth after the Revolution in which the State withers away and each gives according to his ability and receives according to his needs.

### III

#### **Religion and Economic Ideology**

DESPITE THIS PARALLELISM between Christianity and Marxism, it is usually thought that religion has very little to do with economics. Many central concerns of most religions, such as the nature of life after death, rules regarding intimate personal conduct, the worship of a divine figure, seem far removed from economic issues. The spiritual focus of most religions puts them at odds with the materialistic concerns of economics.

Nevertheless, most great world religions have addressed themselves to some questions of economics. Any serious religion must be concerned with what is moral conduct related to economic matters as everyone must deal with their economy in order to live. Indeed, for a time in its historical development, eco-



nomics was considered to be “moral philosophy,” as exemplified by the writings of St. Thomas Aquinas in the Middle Ages. There was no attempt to separate the positive from the normative. This tradition continued into the period when the subject was calling itself “political economy.” The economists’ Godhead figure, Adam Smith, was a Professor of Moral Philosophy at the University of Glasgow.

Generally these discussions have not involved the total ideology of economic systems, but have focused on specific issues or practices. Thus Hindu nationalists in India seek to ban the consumption of beef. Ultra-orthodox Jews in Israel seek to ban El Al airline flights on the Jewish Sabbath. Many Protestant fundamentalists in the US seek to ban most business activities on the Christian Sabbath. Devout Moslems in many countries seek to ban the consumption of alcohol and pork. Most great world religions support what could be labeled a Better Business Bureau set of ethical business behaviors: do not covet, do not steal, do not lie, work hard, do not use false weights and measures, do not be unnecessarily wasteful, be charitable to the poor, *etc.*

Despite this emphasis on either the irrelevantly specific, or the mushily general, sometimes a great world religion issues an economic stricture of broader systemic significance. One of the most famous is the shared condemnation of the payment of interest on money loans by both Roman Catholicism and Islam, labeled “usury” by the former and “riba” by the latter. (Judaism forbids it among Jews.) Given that interest payments are a central feature of actually existing market capitalisms, the strictures have ideological significance, as well as practical import. Over time Roman Catholicism has modified and down-played this condemnation. Usury is still technically a sin, but now in the form of “excessive interest” rather than all interest. Although as a practical matter some interest payments are allowed in such strictly Islamic fundamentalist societies as Saudi Arabia (Rosser and Sheehan, 1985), there has been a recent surge of interest in the development of interest-free banking systems in the Islamic world (Uzair, 1978).

Thus ideological issues arise within religions and most have had internally conflicting views on the struggle between capitalism and socialism. Most religions are not fans of pure versions of either side, occasionally asserting an alleged “Third Way” that presumably contains good features of both. The pro Roman Catholic Christian Democratic parties of Western Europe, while generally tilting towards market capitalism, have supported government-based welfare programs, the “social market economy” as it is labeled in Germany. Many Islamic economists have strongly asserted a “Third Way” ideal (Abdul-Rauf, 1979).

These quasi-middle-of-the-road formulations mask deep conflicts over economic ideology within both Christianity and Islam. Although the very anti-Com-

munist current Pope has recently issued an encyclical firmly supporting the “social market economy,” in which excessive materialism is supposed to be kept in check and the poor taken care of, there has always been a tradition of anti-capitalism within Roman Catholicism, exemplified by the anti-usury doctrine. The tradition arguably goes back to Jesus himself with his clearly stated sympathy for the poor and his famous dictum that, “It is easier for a camel to go through the eye of a needle than it is for a rich man to enter the Kingdom of God.” (Mark 10:23) For much of its history in Europe, Roman Catholicism socially and politically supported feudalism and its aristocratic resistance to the rise of modern market capitalism. Recently in Latin America, some “liberation theologians” have openly supported Marxism, despite papal criticism.

The conflict within Protestant Christianity has been greater, especially because of the greater diversity of Protestant perspectives. There is the Weber (1904–05) thesis that the “Protestant Ethic” was the very foundation of the “Spirit of Capitalism.” Weber specifically saw Calvinism, Baptism, and the doctrine of predestination as the cutting edges of this development. One learned of one’s own Election by successfully pursuing a Calling in this world while simultaneously ascetically rejecting the things of this world. Such an attitude led to hard work and savings that could underlie a tremendous accumulation of capital. It is historically accurate that the first growth of modern capitalism was concentrated in such predominantly Protestant countries as Holland, Great Britain, and the U.S.A., and that leading capitalists in predominantly Catholic countries, such as France, were disproportionately from their minority Protestant (and also Jewish) populations.

However, the ascetic tendency in the stricter forms of Protestantism also generated a dynamic tension within this drive towards capitalism. Weber (1958, p. 175) quotes John Wesley, the founder of Methodism, as noting that, “religion must necessarily produce both industry and frugality, and these cannot but produce riches. But as riches increase, so will pride, anger, and love of the world in all its branches.” In some of the most radical branches of Baptists, this revulsion against riches led to quasi-socialist movements and communities, such as the Mulhausen uprising of 1525, much admired by Engels (1850), and many of the nineteenth century religiously-based utopian communities in the US, such as the Amana Farms in Iowa.

With respect to Weber’s thesis we note a conflict of views regarding causation. Weber strongly argued that religious doctrines cause economic ideology and action. Others, most notably Marx, have argued just the opposite, that the Protestant doctrines favorable to the spirit of capitalism developed in response to the rise of capitalism itself. Probably a majority of observers (Tawney, 1958) accept a bi-directional causality in this matter.

Within Islam the ideological debate proceeds as interest in Islamic economics accompanies the rise of Islamic political movements around the world. Pro-capitalist Islamic economists argue that the Prophet Muhammed was actually a merchant, that the Qur'an accepts the institution of private property because it details rules for inheritance and also accepts income inequalities while calling for charity for the poor (Rodinson, 1978). Pro-socialist Islamic economists cite not only the forbidding of interest (*riba*), but also certain qur'anic passages in which Allah is asserted to be the ultimate owner of all worldly things and in which the blessings and resources of the earth are to be "shared equally by all needy persons," according to a translation into English by Mannon (1970, 104), although other translations do not agree with this version of that passage (Pryor, 1985). A problem is that Classical Arabic in which the Qur'an is written is a highly poetic language, often open to a variety of interpretations.

Interest in the relationship between religion and economics is increasing (Ahmed, 1990; Wood, 1991) and coincides with an increasing global influence of religion in general. As Marxism declines we may see a rush by religions to fill the gap, especially in offering a possibly milder view that seeks to moderate some of the harsher edges of a still imperfectly functioning market capitalist system. The "Third Way" may well become the "Second Way."

#### IV

#### **Belief and Economic Action**

IN THE REAL WORLD most people neither know nor care about economic theory or ideology. They simply struggle to make ends meet. But it is at this level that belief plays its most important role because people act on what they truly believe. And the most important beliefs are often those of which they are the least aware. This is partly why the argument over rational expectations has been so vigorous. If people act on their beliefs, do their beliefs reflect reality?

This issue has been raised in financial markets with respect to the possible existence of speculative bubbles. Do they exist, and if so, are they rational? The very definition of a speculative bubble involves some degree of break with reality. The price of an asset is defined as being a bubble if it significantly deviates from what the true underlying value is, the fundamental, which equals the discounted income that the asset can be expected to earn in the future.

The history of speculative bubbles is a very colorful affair, ranging from the Dutch tulipmania in the 1630's to the 1980's bubbles in stocks and real estate in many countries (Rosser, 1991, Chapter 4). The sudden collapse of fortunes during the crashes makes the victims look foolish if not downright crazy.

Kindleberger (1989, 30–1) has vigorously supported this view in a passage presenting the following rather lurid list of descriptive phrases used by various observers of past historical bubble episodes: “manias . . . insane land speculation . . . blind passion . . . financial orgies . . . frenzies . . . feverish speculation . . . epidemic desire to become rich quick . . . wishful thinking . . . intoxicated investors . . . turning a blind eye . . . people without ears to hear or eyes to see . . . investors living in a fool’s paradise . . . a raging appetite . . . a craze . . . a mad rush to spend . . . and sapient nincompoops.” But these observations do not prove that all of the individuals in these situations were irrational. To quote the banker Martin, a participant in the South Sea bubble of 1720 (*ibid.*, 33), “When the rest of the world are mad, we must imitate them in some measure.”

This last quote suggests an important point. Making money in a market does not necessarily depend on the fundamental. It depends on the behavior of the other market participants. Keynes (1936, 156) compared the stock market to a beauty contest in which the winner is the judge who guesses most correctly the verdicts of his fellow judges, irrespective of whether or not they actually chose the most beautiful contestant. Thus, if one accurately forecasts a bubble, one is rational. And if everyone forecasts it, it becomes a self-fulfilling prophecy, a rational speculative bubble.

Samuelson (1957, 215–6) dealt with the possibility of a self-fulfilling prophetic bubble as follows: “The market literally lives on its own dreams, and each individual at every moment of time is perfectly rational to be doing what he is doing. In history all tulip manias have ended in finite time. But there is nothing in economic theory to say exactly when or even if at all. Why do some manias end when prices have become ridiculous by 10 percent, while others persist to the tune of hundreds of percents?”

This idea of a self-fulfilling prophecy has been formalized in economic theory as a “sunspot equilibrium” (Shell, 1977; Cass and Shell, 1983). If everyone believes that the economy is driven by sunspot cycles, then everyone may act in accord with this prophecy thereby driving it by them. If everyone believes that the stock market is driven by Super Bowl outcomes, they may act to make that expectation come true. The key is that everyone (or most everyone) believes that everyone else also believes in the prophecy. It is this widespread and mutually self-sustaining belief that makes the prophecy a self-fulfilling sunspot equilibrium. Thus belief itself can alter economic reality, as in Franklin D. Roosevelt’s famous dictum about the Great Depression that, “we have nothing to fear but fear itself.”

Such self-fulfilling prophetic behavior extends into many economic realities. Thus no major modern currency is backed by gold or any other commodity.

They are all “fiat” monies, possessing value because the governments issuing them declare that they have value. But that is only the surface aspect. A government’s declaration only becomes meaningful if people believe it. Money is accepted on the basis of the belief that others will accept it.

Such a mutually self-reinforcing structure of belief can break down. In a sense a stable currency is a sign of a general confidence in the entire political economy of a nation. When belief in the system breaks down and the government loses the people’s confidence, then the self-sustaining bubble of the currency will collapse and there will be hyperinflation, although other factors usually enter in as well. We see this in revolutionary situations where a system is collapsing, as in the US in the 1780s, in France in the 1790s, and in Russia after 1917 and recently.

We rely on our mutual belief in each other in more ways than we can conceive. When we drive through a green light, we believe that the drivers on the cross street will stop for their red light. The very fabric of our society and economy depend in countless ways on a web of mutually interacting and interpenetrating beliefs that sustain us in a profound self-fulfilling prophecy. We literally cannot live without believing in each other and having those beliefs fulfilled. And the most fundamental of these beliefs are the ones that we most take for granted and do not even think about.

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### ***There Are More Things in Heaven and Earth!***

WE ALL KNOW those clear-cut trenchant intellectuals, immovably encased in a hard shell of abstractions. They hold you to their abstractions by the sheer grip of personality. [However] . . . the disadvantage of exclusive attention to a group of abstractions, however well-founded, is that, by the nature of the case, you have abstracted from the remainder of things. In so far as the excluded things are important in your experience, your modes of thought are not fitted to deal with them. You cannot think without abstractions; accordingly, it is of the utmost importance to be vigilant in critically revising your *modes* of abstraction. It is here that philosophy finds its niche as essential to the healthy progress of society. It is the critic of abstractions. A civilisation which cannot burst through the current abstractions is doomed to sterility after a very limited period of progress. An active school of philosophy is quite as important for the locomotion of ideas, as is an active school of railway engineers for the locomotion of fuel.

A. N. WHITEHEAD

### ***Conflict***

*Conflict is the gadfly of thought. It stirs us to observation and memory. It instigates to invention. It shocks us out of sheeplike passivity, and sets us at noting and contriving . . . conflict is the sine qua non of reflection and ingenuity.*

JOHN DEWEY (1859-1952)