

Progress

Humans invented it—and not that long ago.

Georges M. Halpern, MD, PhD

Our parents believed in Progress. I do not know how my father called it in Tarnoruda, Eastern Galicia, or my mother in Warszawa, Poland, but they both fled the conservative familial environment, mostly penniless, aliens in a strange land with hostile locals. Both believed that they would build a better tomorrow with luck, friendliness, hard work and relentless determination.

My wife's father followed the same path, over oceans, otherworldly i.e. Japanese culture and climate.

All had been smitten by Victor Hugo, the Impressionists, Louis Pasteur or Claude Bernard, the fame of Montparnasse, Napoleon and the Eiffel Tower.

They struggled, devoured at night by bed bugs, fed on stale bread and soup kitchen fare, wearing the same clothes rain or shine, and longing for the brighter, sunnier tomorrows that *L'Internationale* or Maurice Chevalier were announcing.

They met, loved, fought back and ultimately fled war, racism, xenophobia, anti-Semitism or *yellow monkey* yellings. And they came back. And they won, well, brilliantly, just by themselves (as couples in love). They never borrowed from banks, lenders –and there was no family left on the sidewalk.

Yes -they all believed in *PROGRESS* and they created it so obviously that everyone can, should and do witness it. For me, for all of us, they provided the proof, the evidence: ***they made the world a better place.***



Progress Isn't Natural

In the November 17, 2016 issue of *The Atlantic*, Joel Mokyr published an essay with the above title. Hereunder are the most significant excerpts, slightly edited. They will serve as the *appetizer* to this otherwise poorly digestible piece.

“We need to examine first something basic, and arguably essential: the emergence of a belief in the usefulness of progress.

Such a belief may seem self-evident today, but most people in the more-remote past believed that history moved in some kind of cycle or followed a path that was determined by higher powers. The idea that humans should and could work consciously to make the world a better place for themselves and for generations to come is, by and

large, one that emerged in the two centuries between Christopher Columbus and Isaac Newton. Of course, just believing that progress could be brought about is not enough—one must bring it about. The modern world began when people resolved to do so.

Why might people in the past have been hesitant to embrace the idea of progress? The main argument against it was that it implies a disrespect of previous generations.

But with the great voyages and the Reformation, Europeans increasingly began to doubt the great classical writings on geography, medicine, astronomy, and physics that had been the main source of wisdom in medieval times. With those doubts came a sense that their own generation knew more and was wiser than those of previous eras.

This was a departure from the beliefs of most societies in the past, which were usually given to some measure of “ancestor worship”—the belief that all wisdom had been revealed to earlier sages and that to learn anything one should peruse their writings and find the answer in their pages. In the Islamic world, wisdom was found in the Koran and the Hadith (which consists of sayings and acts attributed to the prophet Muhammad); in the Jewish world it was the Torah, the Talmud, and the sayings of Chazal; in Christianity, the Gospels; in China, wisdom was contained in Sishu Jizhu, the four books of commentary on Confucius compiled in the 12th century (more discussion on that later). In late medieval Europe, wisdom was found in a limited number of ancient texts, above all those written by Aristotle.

The respect for classical texts started to fade away in Europe in the 16th century and went into a meltdown in the 17th, when more and more of the ancient certainties were questioned and then found to be incorrect. If the classic authorities could be wrong about so many things, why should they be trusted about anything?

Many of the widely believed propositions of classical science collapsed under close examination. The examples piled up. Above all, the belief that the earth was at the center of the universe, the centerpiece of ancient cosmology, withered away. But there were so many others: Aristotle had insisted that all the stars apart from the planets were immutable and fixed, but in 1572 a young Danish astronomer named Tycho Brahe observed a supernova and realized that Aristotle had been wrong.

Even more striking, Aristotle had written that the tropical areas

around the equator were so torrid as to be uninhabitable—but Europeans found people living and thriving in such regions in Africa, America, and India. By 1600, much of ancient wisdom had crumbled.

Worse was to come: After 1600, Europeans developed scientific instruments that allowed them to see things the ancient writers could never have imagined. No wonder they began to feel superior: Ptolemy had no telescope, Pliny had no microscope, Archimedes had no barometer. The great classical writers may have been smart and well educated, but European intellectuals thought of themselves as equally intelligent and better informed—and thus able to see things the ancients could not. Hence, everything must be tested with real evidence, not on the say-so of authorities who had lived 1,500 years earlier. The motto of the Royal Society, which was founded in 1660 in London, was *in nullius verba*—“on no one’s word.”

Skepticism was the taproot of all knowledge. Even the Bible itself began to be examined critically, not least by Baruch Spinoza, who cast doubt on its divine origins and saw it as just another text.

Tradition did not give up without a fight. In the closing decades of the 17th century, an intellectual battle occurred between two groups, the ancients and the moderns. People in all seriousness debated the question of who was better, the writers and philosophers of Greek and Roman antiquity, or those of their own age. This controversy was memorably mocked by the great satirist Jonathan Swift in his *Battle of the Books*, in which he described an absurd physical battle between modern writers and those of antiquity, not unlike the Monty Python skit hundreds of years later in which caricatures of Greek and German philosophers compete in a soccer match.

It was a turning point when intellectuals started to conceive of knowledge as *cumulative*. In the past this had been questionable: much ancient knowledge, after all, had been lost when manuscripts were destroyed. But after 1500, the printing press and the proliferation of libraries in Europe made such losses increasingly unlikely. The moderns could know what the ancients did, but they continuously added to the stock of useful knowledge. The young Blaise Pascal, for instance, saw the world of knowledge as a single infinitely-lived individual, “incessantly learning.” A generation later, his compatriot Bernard de Fontenelle asserted that in his age a truth hitherto unknown—*justesse*, he called it—ruled. He predicted that in the future this truth would go much further, and that one day the

members of his generation would themselves be ancients and it would be fair and reasonable for posterity to outdo them.

It became increasingly clear, however, that economic progress, in terms of increased material prosperity, was a central part of the story, in addition to matters such as religious tolerance, equality before the law, and other human rights.

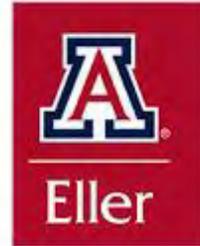
By the 18th century, the idea of economic progress had taken firm root. As it turned out, even the greatest optimists underestimated the power of technology's progress in taming electricity, making cheap steel, flooding the world with abundant high-quality food, and doubling humans' life expectancy while cutting the hours people spent working by at least half—to name but a very few of modernity's achievements.

18th-century Europe faced a number of difficult technological problems that were seen widely as requiring an urgent solution. Among those were how to measure longitude at sea, how to spin yarn from fibers without using human fingers, how to pump water out of flood prone coal mines, how to prevent smallpox (the most dreaded disease of the time), and how to refine pig iron cheaply and quickly. By 1800 these problems had all been solved by people who were ingenious, informed, and inventive, and the list could be made much longer. Of less economic significance, but of inestimable psychological impact, was the defeat of gravity through hot-air ballooning in 1783.

The belief in progress has always had opponents, many of whom stress the costs of technological advances. In the 17th century, the Jesuit order fought tirelessly against such godless innovations as Copernican astronomy and infinitesimal mathematics. During the Industrial Revolution, many writers, following the lead of Thomas Malthus, were convinced that unrestrained population growth would undo the fruits of economic growth -a belief that still had adherents in the late 1960s, such as Paul Ehrlich. Nowadays, unsubstantiated fears of monstrosities created by genetic engineering (including -God forbid! - smarter people, drought-resistant crops, and mosquitoes that don't transmit malaria) threaten to slow down research and development in crucial areas, including coping with climate change.”

Progress, as was realized early on, inevitably entails risks and costs. But the alternative, then as now, is always worse.

Etymology and Definitions



Progress

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The word Progress comes from Old French *progrès* (“a going forward”), from Latin *prōgressus* (“an advance”), from the participle stem of *prōgredi* (“to go forward, advance, develop”), from *pro-* (“forth, before”) + *gradi* (“to walk, go”).

Progress is the idea that the world can become increasingly better in terms of science, technology, modernization, liberty, democracy, quality of life, etc.

Social progress is the idea that societies can or do improve in terms of their social, political, and economic structures.

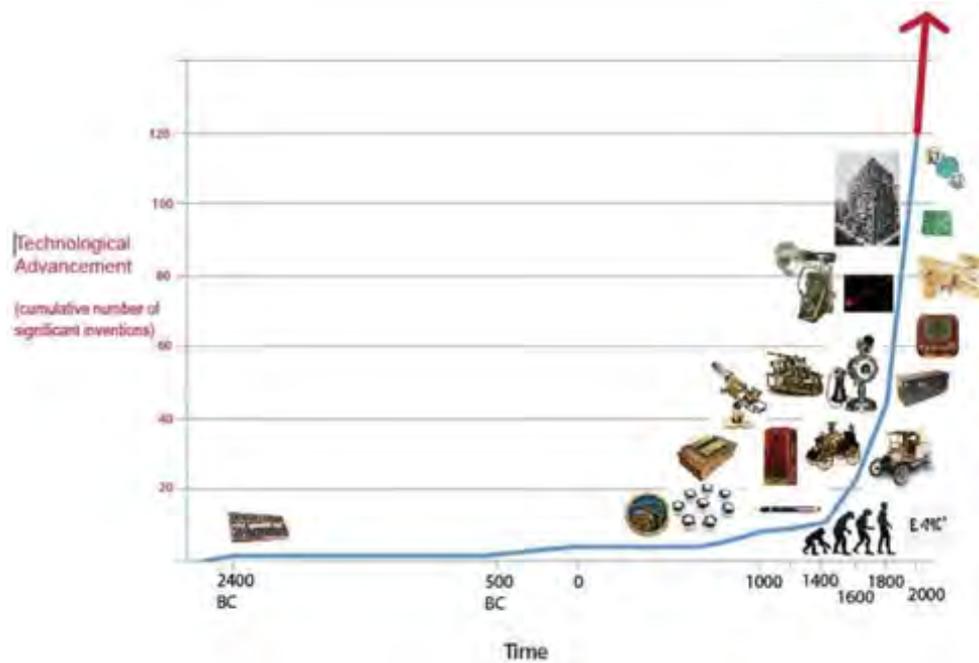
Scientific progress is the idea that science increases its problem solving ability through the application of some scientific method.

Philosophical progress is the idea that philosophy has solved or at least can solve some of the questions it studies.

Idea of Progress (to be developed further) is the theory that scientific progress drives social progress; that advances in technology, science, and social organization inevitably produce an improvement in the human condition.

Progress trap is the condition societies find themselves in when human ingenuity, in pursuing progress, inadvertently introduces problems that it does not have the resources to solve, preventing further progress or inciting social collapse.

The Idea of Progress



In intellectual history, the Idea of Progress is the idea that advances in technology, science, and social organization can produce an improvement in the human condition: people can become better in terms of quality of life (social progress) through economic development (modernization), and the application of science and technology (scientific progress).

The assumption is that the process will happen once people apply their *reason and skills*, for it is not divinely foreordained. The role of the expert is to identify hindrances that slow or neutralize progress.

The Idea of Progress (in Europe) emerged primarily in the Enlightenment in the 18th century. Significant movements in this period were Diderot's Encyclopedia, which carried on the campaign against authority and superstition, and the French Revolution. Some scholars consider the idea of progress that was affirmed with the Enlightenment, as a secularization of ideas from early Christianity, and a reworking of ideas from ancient Greece.

In the nineteenth century, the idea of progress was united by Charles Darwin and Herbert Spencer to their theories of evolution. The Spencerian version of it, called Social Darwinism, was very widely influential among intellectuals in many fields in the late nineteenth century. By the 1920s, however, Social Darwinism had generally lost favor with intellectuals, especially because World War I had shown that modern technology could cause horrible negative impacts on

human affairs.

“*Modernity*” or “*modernization*” was a key form of the Idea of progress as promoted by classical liberals in the 19th and 20th centuries, who called for the rapid modernization of the economy and society to remove the traditional hindrances to free markets and free movements of people.

John Stuart Mill 's (1806–73) ethical and political thought assumed a great faith in the power of ideas and of intellectual education for improving human nature or behavior. The English philosopher Herbert Spencer (1820–1903) in *The Principles of Sociology* (1876) and *The Principles of Ethics* (1879) proclaimed a universal law of socio-political development: societies moved from a military organization to a base in industrial production. As society evolved, he argued, there would be greater individualism, greater altruism, greater co-operation, and a more equal freedom for everyone. The laws of human society would produce the changes, and he said the only roles for government was military police, and enforcement of civil contracts in courts. Many libertarians adopted his perspective.

There was general agreement in the late 19th century that the steady accumulation of knowledge and the progressive replacement of conjectural -i.e. theological or metaphysical- notions by scientific ones was what created progress. Most scholars concluded this growth of scientific knowledge and methods led to the growth of industry and the transformation of warlike societies into an industrial and pacific one. They agreed as well that there had been a systematic decline of coercion in government, and an increasing role of liberty and of rule by consent. There was more emphasis on impersonal social and historical forces; progress was increasingly seen as the result of an inner logic of society.

Unlike Chinese Confucianism and to a certain extent Taoism -that both search for an ideal past- the (Western) Judeo-Christian-Islamic tradition believes in the fulfillment of history, which was translated into the Idea of Progress in the modern age.

But if Chinese proponents of *modernization* have looked to western models, according to Thompson, the late Qing dynasty reformer, Kang Youwei, believed he had found a model for reform and “*modernization*” in the Ancient Chinese Classics.

In the 20th century the KMT or Nationalist party, which ruled from the 1920s to the 1940s, advocated progress.

The Communists under Mao Zedong adopted Marxist-Leninist models and their ruinous projects caused mass famines. After Mao's death, however, the new direction led by Deng Xiaoping (1904-97) and his successors aggressively promoted modernization of the economy using capitalist models and imported western technology. The outcome has been impressive and unmatched in the history of humankind.

Some 20th-century authors refer to the "*Myth of Progress*" to challenge the Idea of Progress, especially the assumption that the human condition will inevitably improve.

Sociologist P. A. Sorokin argued, "*The ancient Chinese, Babylonian, Hindu, Greek, Roman, and most of the medieval thinkers supporting theories of rhythmical, cyclical or trendless movements of social processes were much nearer to reality than the present proponents of the linear view*".

Philosopher Karl Popper emphasized the inadequacies of the Idea of Progress as a scientific explanation of social phenomena. More recently, Kirkpatrick Sale, a self-proclaimed neo-luddite author, wrote exclusively about progress as a myth,

But *critics* of the Idea of Progress complain that it remains a dominant idea in the 21st century, and shows no sign of diminished influence. As one fierce critic, British historian John Gray (b. 1948) concludes: *Those who hold to the possibility of progress need not fear. The illusion that through science humans can remake the world is an integral part of the modern condition. Renewing the eschatological hopes of the past, progress is an illusion with a future.*

Sociologist Robert Nisbet finds that "*No single idea has been more important than . . . the Idea of Progress in Western civilization for three thousand years*" and defines five "*crucial premises*" of Idea of Progress:

- 1. value of the past*
- 2. nobility of Western civilization*
- 3. worth of economic/technological growth*
- 4. faith in reason and scientific/scholarly knowledge obtained through reason*
- 5. intrinsic importance and worth of life on earth*

Recently the idea of progress has been generalized to psychology, being related with the concept of a goal, that is, progress is

understood as “what counts as a means of advancing towards the end result of a given defined goal.”

Scientific Progress

The wrong view of science betrays itself in the craving to be right; for it is not his possession of knowledge, of irrefutable truth, that makes the man of science, but his persistent and recklessly critical quest for truth.

Karl Popper (The Logic of Scientific Discovery)



The first lecture of Richard Feynman that I attended at Caltech was titled: *Science is the Ignorance of the Expert*. He explained –and illustrated- this affirmation by showing that *Experts* built (and still promote and sell) their *expertise* on *existing* (i.e. past) knowledge,

and that *science being a process* always develops, and like Cronos (or Saturn) devours its children, i.e. new concepts as they form.

I always kept this in mind, in medicine (where we deal with life and death), and all my assignments for education. To be polite, let me say that I was considered as a contagious leper, or the skunk at the garden party.

Science is often distinguished from other domains of human culture by its progressive nature: in contrast to art, religion, philosophy, morality, and politics, there exist clear standards or normative criteria for identifying improvements and advances in science. *"The acquisition and systematization of positive knowledge are the only human activities which are truly cumulative and progressive,"* and *"progress has no definite and unquestionable meaning in other fields than the field of science"* (Sarton, 1936). However, many philosophers of science challenged the traditional cumulative view of scientific knowledge, and thereby the notion of progress was also questioned in the field of science. Debates on the normative concept of progress are at the same time concerned with axiological questions about the aims and goals of science. The task of philosophical analysis is to consider alternative answers to the question: *What is meant by progress in science?* This conceptual question can then be complemented by the methodological question: *How can we recognize progressive developments in science?* Relative to a definition of progress and an account of its best indicators, one may then study the factual question: *To what extent, and in which respects, is science progressive?*

The idea that science is a collective enterprise of researchers in successive generations is characteristic of the Modern Age. Classical empiricists (Francis Bacon) and rationalists (René Descartes) of the seventeenth century urged that the use of proper methods of inquiry guarantees the discovery and justification of new truths. This cumulative view of scientific progress was an important ingredient in the optimism of the eighteenth century Enlightenment, and it was incorporated in the 1830s in Auguste Comte's program of positivism: by accumulating empirically certified truths science also promotes progress in society.

Other influential trends in the nineteenth century were the Romantic vision of organic growth in culture, Hegel's dynamic account of historical change, and the theory of evolution. They all inspired

epistemological views that regarded human knowledge as a process. In the early twentieth century, analytic philosophers of science started to apply modern logic to the study of science. Their main focus was the structure of scientific theories and patterns of Karl Popper's *The Logic of Scientific Discovery* (1959), Thomas Kuhn's *The Structure of Scientific Revolutions* (1962), Paul Feyerabend's incommensurability thesis (1962), Imre Lakatos' *Methodology of Scientific Research Programs* (1978), and Larry Laudan's *Progress and Its Problems* (1977). Karl Popper's and Stephen Toulmin advocated Darwinist models of evolutionary epistemology. These works challenged the received view about the development of scientific knowledge and rationality. Popper's falsificationism, Kuhn's account of scientific revolutions, and Feyerabend's thesis of meaning variance shared the view that science does not grow simply by accumulating new established truths upon old ones.

Since the mid-1970s, a great number of philosophical works have been published on the topics of change, development, and progress in science and the systematic study of inter-theory relations, such as reduction, correspondence and belief revision.

Another issue was the recognition that, besides individual statements and theories, there is also a need to consider temporally developing units of scientific activity and achievement. A new tool that is employed in many defenses of realist views of scientific progress is the notion of truthlikeness or verisimilitude.

New interest about the development of science promoted close co-operation between historians and philosophers of science. For example, case studies of historical examples (e.g., the replacement of Newton's classical mechanics by quantum theory and theory of relativity) have inspired many philosophical treatments of scientific revolutions. Further interesting material for philosophical discussions about scientific progress is provided by quantitative approaches in the study of the growth of scientific publications, and science indicators.

Science is a multi-layered complex system involving a community of scientists engaged in research using scientific methods in order to produce new knowledge.

Thus, the notion of science may refer to a social institution, the researchers, the research process, the method of inquiry, and scientific knowledge. The concept of progress can be defined relative

to each of these aspects of science. Hence, different types of progress can be distinguished relative to science: economical (the increased funding of scientific research), professional (the rising status of the scientists and their academic institutions in the society), educational (the increased skill and expertise of the scientists), methodical (the invention of new methods of research, the refinement of scientific instruments), and cognitive (increase or advancement of scientific knowledge). These types of progress have to be conceptually distinguished from advances in other human activities, even though it may turn out that scientific progress has at least some factual connections with technological progress (increased effectiveness of tools and techniques) and social progress (economic prosperity, quality of life, justice in society).

All of these aspects of scientific progress may involve different considerations, so that there is no single concept that would cover all of them.

For many goal-directed activities it is important to distinguish between quality and progress. Quality is primarily an activity-oriented concept, concerning the skill and competence in the performance of some task. Progress is a *result-oriented* concept, concerning the success of a product relative to some goal. All acceptable work in science has to fulfill certain standards of quality. But it seems that there are no necessary connections between quality and progress in science. Sometimes very well qualified research projects fail to produce important new results, while less competent but luckier works lead to success. Nevertheless, the skillful use of the methods of science will make progress highly probable. Hence, the best practical strategy in promoting scientific progress is to support high-quality research.

Following “scientometrics,” quantitative science indicators have been proposed as measures of scientific activity. For example, output measures like publication counts are measures of scholarly achievement, but it is problematic whether such a crude measure is sufficient to indicate quality. The number of articles in refereed journals is an indicator of the quality of their author, but it is clear that this indicator cannot yet define what progress means, since publications may contribute different amounts to the advance of scientific knowledge. “Rousseau’s Law” marks off a certain part of the total number of publications as “important” or “first-rate,” but this is merely an alleged statistical regularity.

Another example of a science indicator, *citation index*, is an indicator

for the “*impact*” of a publication and for the “*visibility*” of its author within the scientific community. But we know that *peer reviewers* always favor views or results that confirm their own faith and prejudices.

It is no doubt correct that one cannot advance scientific knowledge without influencing the epistemic state of the scientific community. But the impact of a publication as such only shows that it has successfully “moved” the scientific community in some direction. If science is goal-directed, then we must acknowledge that movement in the wrong direction does not constitute progress.

The failure of science indicators to function as definitions of scientific progress is due to the fact that they do not take into account the semantic content of scientific publications.

Progress is a goal-relative concept. But even when we consider science as a knowledge-seeking cognitive enterprise, there is no reason to assume that the goal of science is one-dimensional. In contrast, the cognitive aim of scientific inquiry has to be defined as a weighted combination of several different, and even conflicting, epistemic utilities.

A goal may be accessible in the sense that it can be reached in a finite number of steps in a finite time. A goal is utopian if it cannot be reached or even approached. Thus, utopian goals cannot be rationally pursued, since no progress can be made in an attempt to reach them. Walking to the moon is a utopian task in this sense. However, not all inaccessible goals are utopian: an unreachable goal, such as being morally perfect, can function as a regulative principle in Kant’s sense, if it guides our behavior so that we are able to make progress towards it. A goal is effectively recognizable if there are routine or mechanical tests for showing that the goal has been reached or approached. If the defining criteria of progress are not recognizable in this strong sense, we have to distinguish true or real progress from our perceptions or estimations of progress.

A goal may be backward looking or forward-looking: it may refer to the starting point or to the destination point of an activity. If my aim is to travel as far from home as possible, my success is measured by my distance from Portola Valley, California. If I wish to become ever better and better piano player, my improvement can be assessed relative to my earlier stages, not to any ideal Perfect Pianist. But if I want to travel to Hong Kong, my progress is a function of my distance from the destination.

If science is viewed as a knowledge-seeking activity, it is natural to

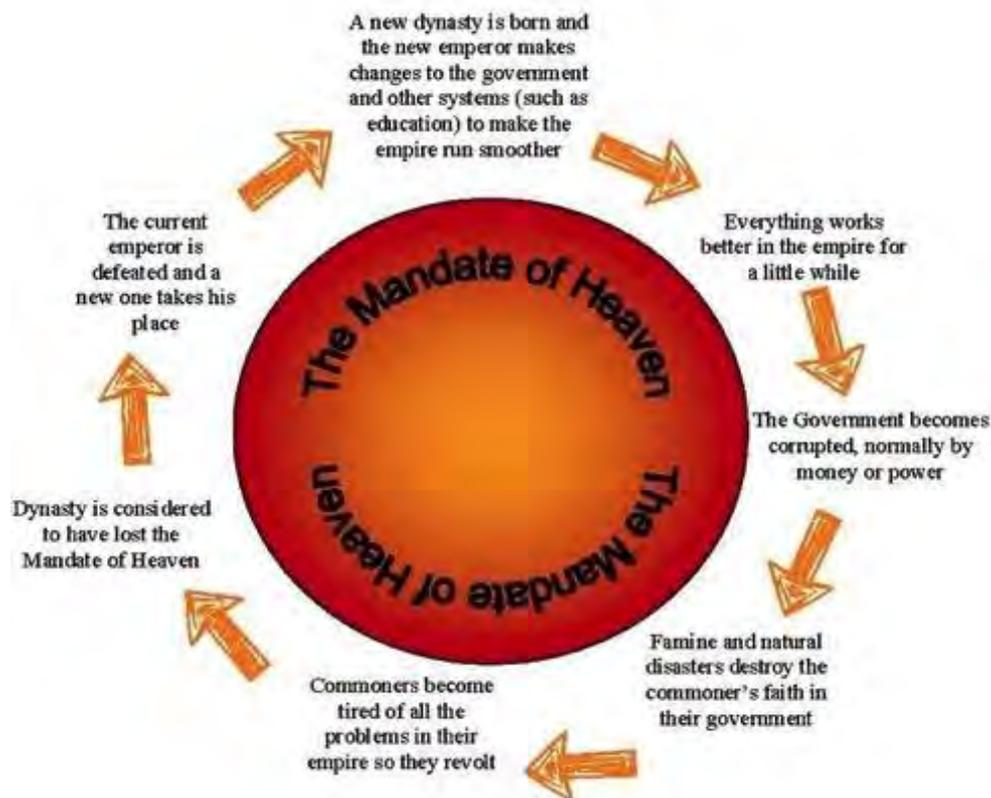
define real progress in forward-looking terms: the cognitive aim of science is to know something that is still unknown, and our real progress depends on our distance from this destination. But, as this goal is unknown to us, our estimates or perceptions of progress have to be based on backward-looking evidential considerations. This kind of view of the aims of science does not presuppose the existence of one unique ultimate goal.

The thesis that science is progressive is an overall claim about scientific activities. It does not imply that each particular step in science has in fact been progressive: individual scientists make mistakes, and even the scientific community is fallible in its collective judgments. For this reason, we should not propose such a definition that the thesis about the progressive nature of science becomes a tautology or an analytic truth. This undesirable consequence follows if we define truth as the limit of scientific inquiry (this is sometimes called the *consensus theory of truth*), as then it is a mere tautology that the limit of scientific research is the truth. The notion of truthlikeness allows us to make sense of the claim that science converges towards the truth. But the characterization of progress as increasing truthlikeness does not presuppose “teleological metaphysics”, “convergent realism”, or “scientific eschatology”, as it does not rely on any assumption about the future behavior of science.

The difficulties for realism seem to be reinforced by the observation that measures of truthlikeness are relative to languages. The choice of conceptual frameworks cannot be decided by means of the notion of truthlikeness, but needs additional criteria. In defense of the truthlikeness approach, one may point to the fact that the comparison of two theories is relevant only in those cases where they are considered (perhaps via a suitable translation) as rival answers to the same cognitive problem. It is interesting to compare Newton and Einstein’s theories for their truthlikeness, but not Newton and Darwin’s theories.

Chinese Humanism: The Chinese Way to Progress?

Scientific Progress was not a prevalent philosophy or driver in China until the late Ming dynasty, or even the Qing one. Or –maybe- I did not explore the right sources...



While searching for a Chinese cultural reference to *Progress*, I stumbled on this article published by the University of Montreal in *Surfaces* (1995; 5: 202-216). The author, Wang Hui from the Institute of Literature in Beijing attempts to *indicate the historical conceptions that underlie Western humanism and traces the evolution of Chinese humanist discourses in terms of their media of dissemination, their impact on the organization of knowledge, and their relationship to Marxist concepts of the mode of production.*

He concludes that: “Chinese humanism is one single or various modern themes. This or these modern themes have different content on different occasions, but have prefabricated the teleological conception of history and the concept of the human being. In the historical context of China, the progressive conception of history was established with Western society as its norm. The image of the human being established in this conception of history included an understanding of Western individualist culture, and was again molded by Western individualist knowledge. Though searching for

the source of value in tradition, the *renwenzhuyi* scholars' responses were quiet about to the issues regarding the modernization of China. Chinese humanistic discourses chiefly adopt newspapers and periodicals as their medium. In a very long historical period, there were no courses of humanities in the Western sense. Chinese philosophy, history, literature, and other branches of the social sciences established, around the core of the Marxist mode of production concept, a system of knowledge based on the following fundamental concepts: the economic basis, the superstructure, ideology, class, class struggle, and so forth.

This system of knowledge afforded support in various fields to the national ideology. Contemporary Chinese humanism and the concept of the human being were, at first, directed against Marxism that occupied a dominant position in ideology. Now, however, the essential objects of criticism of the discourse of humanism are the capitalist market and its individualistic concept of value that humanists looked forward to in the past. The discourses of Chinese humanism are ever changing and conflicting with each other, and their meaning should be understood in the substantial context and practices.

Chinese humanism as a theme related to Chinese Enlightenment has always belonged to elitism. Its reflection and criticism of many issues are established on this implied supposition: Humanism is a universal value that must be spread to the whole society with the intellectual elite as the medium.”

Although *Progress* is not specifically addressed as such, issues in social and political thought have been central to Chinese philosophy from its earliest moments down to the present day. Neither “social” nor “political” have ready correlates in Chinese prior to the nineteenth century, but Chinese thinkers consistently have been concerned with understanding how both individuals and institutions have broad effects in what we can call both social and political modes.

In some cases, the philosophers narrowly focus on governance and the state, but in many other cases, no firm distinction is made between the realms of political, social, and even family or individual. Several questions are central to the teachings and debates that make up Chinese social and political thought, among which the issue of how to sustain “order (*zhi*)” —often understood more particularly as “harmony (*he*)”—is the most basic. To what degree should we rely on institutions (and of what kinds?), and to what degree is human

leadership crucial? What sorts of roles, relationships, or hierarchies should structure our societies, and how are they justified? Can they be challenged or changed? Insofar as society is divided into rulers and ruled, what are the responsibilities that each owes to the other, and why? Social and political topics routinely connect up with other aspects of Chinese philosophy—for example, answers to some of the questions just raised lead to further ethical, epistemic, or metaphysical questions—but for the most part it is still possible to make sense of social and political thought in its own terms.

China's dynamic society offers a crucible within which new ideas and new political forms may be forged and tested in coming years. To be sure, genuinely novel and intellectually challenging ideas do not form the majority of contemporary Chinese political discourse, but they are nonetheless present across the entire political spectrum. It remains to be seen whether robust political values and institutions will emerge as alternatives to models with which Western political theorists are familiar, just as we cannot yet foresee what role the Marxist, Confucian, liberal, and other traditions will play in future Chinese political thinking. Concerns with harmony and virtue are unlikely to disappear, but this by no means limits the future interest of whatever political institutions and theories emerge in China.

We must also keep in mind that since the May Fourth Movement in the early twentieth century, many Chinese intellectuals abandoned Confucianism and other traditions of Chinese thought and became westernized in their mode and content of thinking. The triumph of Marxism-Leninism in Mainland China was, in a sense, a sign of the Westernization of the modern Chinese mind. However, as the radical Maoist excesses of the Cultural Revolution era came to be repudiated and as the People's Republic of China began to chart its new course of "reform and opening" four decades ago, many aspects of traditional Chinese thought have been quietly rehabilitated or gradually resurrected, or have regained the interest or even faith of Chinese intellectuals. The Chinese social and political philosophy of the twenty-first century need not and will not draw exclusively or primarily from Western sources. It is possible and likely that indigenous concept and doctrines such as the *Datong* 大同 (or Great Unity) thought will have a role to play in shaping the Chinese social and political philosophy of the future. There is in fact a surprising degree of convergence between some important ingredients of Kang Youwei's (1858-1927) *Datong*, and the official ideology currently

propagated by the Chinese Communist Party. According to this ideology, the Marxist vision of the communist society is still the highest ideal pursued by the Party and the Chinese people. However, this ideal can only be realized after socialist society has reached a high level of development. The development and perfection of socialism is a long historical process. China is, and will remain for a long time, in the preliminary stage of socialism, when China as an economically and culturally backward nation needs to undergo socialist modernization. The theory of the preliminary stage of socialism implies that full socialism cannot be practiced yet, and China may legitimately borrow capitalist techniques from the West. Not all the means of production will be socialized and subject to public ownership, and there will still be economic inequality among the Chinese people. The idea that the ideals of socialism and communism will be realized, and will only be realized, in the course of a long process of historical development and social evolution thus converges with Kang's idea of historical *progress* and his vision of the datong world in which socialist or communist principles will be applicable in economic life.

The official view of the level of economic development of Chinese society now is that it has just reached the *xiaokang* 小康社会 (Moderately Prosperous Society) level; it is hoped that by the centenary of the founding of the Chinese Communist Party (in 2021), China will have reached a higher level of *xiaokang* society, and by the centenary of the establishment of the People's Republic of China (2049), China will have reached the level of a middle-level developed country and will have basically completed its modernization. Thus the term *xiaokang*, which dates back more than two millennia ago to Liyun 禮運 (Book of Rites, 475-221 BCE), is still being used today to refer to a second best level of development. The concept of "harmonious society" advocated in recent years by the Chinese Communist Party also draws on the Chinese tradition of thought, particularly the Confucian vision of social harmony and amicable social relationships.

Looking Forward to the Future



One is showing, through a chart of human population, that all of history prior to the Industrial Revolution, its wars and empires and art and thought, is entirely irrelevant; humanity learned its purpose in the 19th century, which is to innovate; more is always better. Another is rapturously announcing that you can “interact with a virtual bartender” over Facebook Messenger. Why? It’s not clear. Everything is precisely itemized, the 20-minute time-slots and the numbered booths, but nothing seems to quite make sense: structure without order, system without restraint. This is where the future goes to be born—as always, in the “formless, mute, infant and terrifying form of monstrosity.”

In the second, broader, more materialist account, technology is seen as regulating relations *between* people. A hammer doesn’t just drive a nail, but builds a wooden house in which the distinct family unit can wall themselves off from the world; a virtual bartender keeps you in that house log after dark in a silent city full of humming unearthly-white screens. As Marx writes in *The Poverty of Philosophy*: “*the hand-mill gives you society with the feudal lord, the steam-mill, society with the industrial capitalist*”; as Lewis Mumford argued, the machine isn’t so much an ordinary if complex object as it is a mode of organization; the first such mega-machines, in ancient Egypt, used human bodies as their working parts, and their products are still here today. In our

own society the products are ephemeral, and its structure is one of increasing chaos.

You can go further. In the accounts given by philosophers like Bernard Stiegler, the human stands on the point of vanishing entirely; we become something incidental to a total technological system. As he points out, a human being without any technological prostheses is nothing, an unsteady sac of flesh defined only by what it doesn't have: no shelter, no protection, no society. We create tools, but technical apparatuses and their milieus advance according to their own logic, and these non-living objects have their own strange form of life. Our brains developed to control our hands; human consciousness itself was only the by-product of a technical evolution that moved from flint-knapping to the hammer to the virtual bartender; its real job isn't to perform any particular task but to perpetuate *itself*. "Robots," he writes, are "seemingly designed no longer to free humanity from work but to consign it either to poverty or stress." Whatever illusion of predominance we had is fading. For others, like Benjamin Bratton, the real political subject is no longer a human individual but a "user," which can be any kind of biological or digital assemblage. With production automated according to algorithmically generated targets, with the vast majority of all written language taking the form of spam and junk code, this system has less and less use for us—even as a moving part—with every passing day.

We are, most likely, in the middle of another soon-to-be-devastating tech bubble. Governments see the tech industry as the saviors of their economies and the future of work: de-centered and entrepreneurial, with people increasingly self-employed. Tech companies are roarily productive, but they don't need to produce anything in particular. Only the anxiety and desperation of a species liberated from purpose.

It's on the televisions, in the papers and in our minds. Every day we're bludgeoned by news of how bad everything is – financial collapse, unemployment, growing poverty, environmental disasters, disease, hunger, war. But the rarely acknowledged reality is that our progress over the past few decades has been unprecedented. By almost any index you care to identify, things are markedly better now than they have ever been for almost everyone alive.

Examining official data from the United Nations, the World Bank and the World Health Organization, we can trace just how far we have come in tackling the issues that define our species. While it's true that not every problem has been solved, we do now have some ideas of solutions and we should know what it will take to see this progress continue. Dramatic, uplifting and counter-intuitive, *Progress* is a call for optimism in our pessimistic, doom-laden world. But Progress is also *born out of doubt and inquiry* (Robert J. Ingersoll).

If a man will begin with certainties, he shall end in doubts; but if he will be content to begin with doubts, he shall end in certainties.

Sir Francis Bacon

The Advancement of Learning (1605), from Book I

Acknowledgements

Many friends and correspondents triggered my interest, quest, research –and ultimately composing this essay on Progress. I purposely avoided Medicine; it would (maybe will) need a much longer dissertation.

My sources were many and some are listed below: Wikipedia provided much; the Stanford Encyclopedia of Philosophy allowed for in depth analysis; *The Atlantic* and *The New Yorker* provided the itch for more.

I am always indebted to Yves P. Huin, webmaster *par excellence* and skilled editor. What I am realizing is that *time* is also a concept that requires more than just superficial consideration; Jan W. Vasbinder, at *Para Limes* in Singapore has decided to address it and I am looking

forward to his gathering. This essay –just as the previous ones- is already scarred by obsolescence. *Sic transit Gloria mundi...*

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