

Development, Knowledge and the Human Condition in the post-Baconian Age¹

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Introduction

We live in turbulent times. During the first years of the 21st century we are experiencing a period of accelerated transformations in all aspects and dimensions of human activity —economic and financial crises, deterioration of ecosystems and the environment, demographic changes and migrations, increase in social demands and expectations, new diseases and pandemics, climate change and extreme natural events, excessive consumption and use of energy and water, food shortages, geopolitical tensions, ethnic and religious conflicts, among many others— which are generating levels of instability and uncertainty without precedent.

More than a series or combination of crises, these transformations augur a change of epoch in human history. Diverse interpretations have been offered to appreciate the magnitude and direction of these change processes, although all of them suggest that we are facing a crossroads and that what happens during the first half of the 21st century will determine the range of options for the future of the human species. This challenges established habits of thought, demands new efforts to understand the human predicament, and requires changes in the ways of doing things that have prevailed during the last 400 years.

Ortega y Gasset's dictum: *'we don't know what is happening to us, and this is what is happening to us'*, seems appropriate to describe our bewilderment and anxiety at the accelerated pace of changes, at the way in which all aspects of the human condition are being transformed in exceedingly short periods of time. Moreover, as Eric Hobsbawm put it in his history of the 20th century:

'The Short Twentieth Century ended in problems, for which nobody had, or even claimed to have, solutions. As citizens of the fin-de-siècle tapped their way through the global fog that surrounded them, into the third millennium, all they knew for certain that an era of history had ended. They knew very little else. ... the century ended in a global disorder whose nature was unclear, and without an obvious mechanism for either ending it or keeping it under control. ... The reasons for this impotence lay not only in the genuine profundity and complexity of the world's crisis, but also in the apparent failure of all programs, old and new, for managing or improving the affairs of the human race.'

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Two key drivers underpin the fundamental changes humanity is experiencing at the beginning of the 21st century: the increasingly troublesome interactions between humanity and the ecosystems that support life, and the massive and pervasive impact of scientific and technological advances in all aspects of human activity. The combined impact of these drivers, among other forces for change, have motivated many serious thinkers to raise the possibility that humanity will experience radical alterations in the coming decades. For example, Sir Martin Rees, a British cosmologist and former President of the Royal Society, suggests there is a fifty-fifty chance that human civilization, as we know it, will survive till the end of the 21st century.

Facing such a dire prospect, a quest for explanations is inevitable. With the benefit of hindsight, it is possible to argue that what gave this period of human history its unique character was the articulation and deployment of what philosopher Hans Jonas called the 'Baconian Program' by Sir Francis Bacon 400 years ago.

The Baconian program

Sir Francis Bacon, philosopher, member of Parliament and Lord Chancellor of the British Crown, was and still remains a controversial figure. He was both modern and ancient, religious and secular, political animal and scientist, idealist and careerist, and also a man with farsighted aims and vision, but riddled with short-term ambitions and petty grudges, who had a dubious reputation and was sentenced for accepting bribes. Bacon was also a bridge between two ages, a gatekeeper who rescued the myths of antiquity and reinterpreted them with uncanny foresight in the late sixteenth and early seventeenth centuries. Employing a variety of literary styles —essays, fables, myths, treatises and aphorisms— he helped to renew the repertoire of concepts with which his contemporaries apprehended reality.

Bacon was the first to articulate a coherent view on how to use the power of modern science for the benefit of humanity. Nearly four centuries after he put forward his program, our lives and thoughts are deeply influenced by the visions of this extraordinary man. Yet, interpretations of Bacon's achievements and of his contributions to the scientific enterprise have varied over time. He has had detractors and supporters, and in a certain way, these interpretations have mirrored the contemporary concerns of science historians in different epochs.

German philosopher Hans Jonas has defined the Baconian program in the following terms: *'to aim knowledge at power over nature, and to utilize power over nature for the improvement of the human lot'*. Elaborating on this definition, I have proposed five key features that distinguished this program from other views on the production and use of knowledge that were current in Bacon's time:

- An awareness of the importance of appropriate research procedures (the scientific method);

- A clear vision of the purpose of the scientific enterprise (improving the human condition);
- The idea of indefinite and cumulative human progress, which was the driving force of the Baconian program;
- A firm conviction that humanity occupies the central place in a God-created universe; and
- A practical understanding of the arrangements necessary to put the program in practice (scientific institutions, public support, patronage).

The combination of these five features gave the Baconian program its powerful and unique character, which allowed it to withstand the test of time and endure until our days. Through its application the human condition has improved in ways that Bacon and his contemporaries could hardly imagine. These five features are equally important, but two of them are of particular interest for this article: the centrality of humanity and the idea of progress.

First, Bacon assumed that human beings occupy the central place in a God-created universe. Bacon's account and interpretation of the myth of Prometheus provides a clear statement of his view that divine intervention awarded us a privileged position. For him: *'Prometheus clearly and expressly signifies Providence ... the special and peculiar work of Providence was the creation and constitution of Man'*. According to Bacon:

"The chief aim of the parable seems to be, that Man, if we look to final causes, may be regarded as the centre of the world; insomuch that if man were taken away from the world, the rest would seem to be all astray, without aim or purpose ... For the whole world works together in the service of Man, and there is nothing from which he does not derive use and fruit.

Bacon's conception that the world is there for Man to dominate through understanding has come under attack from many fronts. New challenges to our inherited conceptions of reality and of what is to be human have emerged during the 20th century, and especially during the last five decades because of our awareness of the impact that human activity has on the ecosystems that support life and human civilization. As a consequence, we are now being compelled to regard ourselves in a new light: we are being forced to reposition humanity in an ex-centric manner in relation to other living organisms, to the diversity of ecosystems we inhabit, and to the universe as a whole.

Second, the Baconian program belief in the unending, linear and steady advance of humanity —the idea of progress—, mobilized human energies over several centuries. Beginning with the Hellenistic and Roman notions that knowledge can be acquired step by step through experience and through trial and error, the idea of progress has evolved over the whole history of Western civilization. Cyclic conceptions of the universe, in which events repeated themselves over the course of a 'great year,' had to be overcome before embracing a belief in the open ended and cumulative character of advances in human history. Faith in a divine design for the cosmos played a major role in the evolution of the idea of progress during the Middle Ages. The Renaissance added a reevaluation of

the individual and of human actions as a means to improve the human condition, while the scientific and geographical discoveries of the sixteenth and seventeenth centuries laid the ground for a belief in the inevitability of progress through the accumulation of knowledge.

With the emergence and subsequent triumph of rationalism during the seventeenth, eighteenth and nineteenth centuries, the idea of progress gradually lost its religious underpinnings and during the Enlightenment it became a thoroughly secular idea in which divine providence played a marginal role, if any. Progress acquired a distinctively social character and was seen as the almost inevitable result of human actions. During the Enlightenment enthroned the idea of continuous, cumulative and unlimited progress as a unique attribute of the human species —thus transferring to the realm of social interactions what were perceived as the essential tenets of the modern scientific enterprise, particularly in the realms of physical and biological inquiry. The cumulative and constant advances of the 'hard' sciences were seen as providing a template for similar advances in society.

Bacon died in 1626, but the unfolding and deployment of his program went hand in hand with the expansion of the capitalist system of production and its dissemination throughout the world. Organized and systematic experimentation would lead to new technologies that fueled economic growth, primarily in Europe and the United States. Experiments to improve agricultural production, together with the emergence of electricity and organic chemistry in the mid-nineteenth century, the first two science-based technologies, would help to institutionalize scientific research and technological development as a source of practical knowledge to support production activities.

The powerful idea of progress permeated all aspects of social and human affairs in the West throughout the nineteenth century, especially after the emergence of Darwin's theory of evolution. Through the transition to the 20th century, the general idea of progress would remain ingrained in Western minds as a positive driving force for improvements in the human condition, as the engine that made the Baconian program run.

Progress and development

Faith in the inevitability of human progress was eclipsed during the turbulent first half of the twentieth century. The Japanese-Russian and Japanese-Chinese wars, World War I, the Russian revolution, the rise of Nazism and Fascism, the Great Depression, the Holocaust, World War II, among other tragic events, forcefully challenged the idea of steady and unending human progress.

Yet, a rebirth of optimism and a renewed faith in the possibility of progress emerged at the end of World War II. The Allied triumph, based in large measure on an unprecedented mobilization of scientific knowledge, operational competence and management skills, brought back the idea that deliberate interventions could help to improve the human condition. The concept of 'development' that took hold

following World War II managed, at least for a few decades, to renew faith in human progress and to reinvigorate the Baconian program.

Associated with this renewed sense of optimism, the idea of '*development*' emerged in the mid-1940s to replace and renew that of progress. A 1943 paper by Paul Rosenstein-Rodin, which referred to the problems of industrialization of Eastern and South-Eastern Europe, put forward the idea that deliberate interventions, particularly large scale investments in industry, can lead to economic and social development. The same idea informed US President Harry Truman's fourth foreign policy point in his 1949 address: '*we must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas.*' Firmly rooted in Bacon's program, '*development*' emerged as the latest incarnation of the the idea of progress. Improvements in the human condition would be achieved through deliberate economic and social policy interventions, boosted by technical assistance and foreign aid from richer to poorer countries.

The subsequent quarter century of uninterrupted economic growth appeared to prove conclusively that improvements in the human condition and progress, now relabeled '*development*', were indeed possible—but only if the '*right*' things were done by poor countries with the assistance of rich (Western) societies. In this way, the notion of unlimited human progress, largely understood in terms of material wellbeing, was transformed into a universal objective for all societies.

Two alternative systems for achieving this were postulated at the onset of the Cold War between the United States and the Soviet Union: one based on market economies and pluralistic democracies, and the other on centrally planned economies and single-party political systems. In both case the underlying assumptions were, not only that development was possible and imperative for everyone, but also that economic growth and modernization were the only paths towards it. Their shared implicit definition of development was: '*To achieve in the span of a single generation the material standards of living that the industrialized countries achieved in three or four generations, and without incurring in the high social costs they had to pay (e.g. child labor) or that they inflicted on others (e.g. colonialism).*'

The Baconian program's five components underpinned both approaches and their common implicit definition of development. As it evolved over time, this reincarnation of progress had many manifestations. Notions such as '*unlimited supply of labor*' (Arthur Lewis), '*deterioration of the terms of trade*' (Hans Singer, Raul Prebisch), '*poles of development*' (Francois Perroux), '*development planning*' (P. Mahalanobis, Jan Tinbergen), '*circular cumulative causation*' (Gunnar Myrdal), '*unbalanced growth*' (Albert Hirschman), '*dependency theory*' (Fernando Henrique Cardoso, Osvaldo Sunkel), '*structural underdevelopment*' (Celso Furtado), '*unequal exchange*' (Aghiri Emmanuel), '*redistribution with growth*' (Hollis Chenery), '*basic needs*' (Hans Singer, Paul Streeten, Richard Jolly, Manfred Max Neef), '*export-oriented industrialization*' (Ann Kruger, T.N. Srinivasan), '*small is beautiful*' (E.F. Schumacher), '*ecodevelopment*' (Ignacy Sachs, Maurice Strong),

among many others, were used to interpret the reality of developing countries and to offer policy recommendations.

In addition, and notwithstanding the overwhelmingly secular character of the development enterprise, some religious groups (most notably the Roman Catholic Church) had a significant influence in development thinking. For example, during the 1950s and 1960s, Father Louis-Joseph Lebret, a French priest who worked extensively with developing countries, put forward the idea of developing a 'humane economy' based on the concept of solidarity, and this idea greatly influenced the development of Christian socio-political thought. Similarly, during the 1960s and 1970s, the views put forward by Peruvian priest Gustavo Gutiérrez on 'liberation theology' focused on the need to eradicate poverty and provided an ethical and moral underpinning to many grass-roots development efforts in Latin America and elsewhere in the developing world.

Yet, it is true that, for the greater part of the six decades, culture, religion and ethnic loyalties have been omitted from the concept and practice of development. Nevertheless, and beyond what they require for basic survival, men and women are guided by ethical and moral impulses. Non-material values and aspects of human activity are fundamental for affirming the capacity for action of both individuals and groups, for creating and sustaining institutions and for the success of efforts to achieve prosperity and wellbeing. In our work on 'Agenda: PERU', a highly participative ten-year program of research and action on development strategies, democratic governance and institutional reforms, we gave the affirmation and consolidation of a pluralistic and continuously unfolding cultural identity a key role in the design of a development strategy. When cultural identity and diversity issues are fully incorporated into strategy and policy formulation it becomes necessary to question assumptions, such as the imperatives of economic growth and natural resource exploitation.

During the last few decades we have also learnt that cultural identities, ethnic loyalties, religious affiliations and ethical principles can enter into conflict with each other and undermine any efforts to improve the human condition. This highlights the importance of tolerance as a pre-requisite for the incorporation of other non-material values and considerations into the concept of development. The paradoxical lesson which can be derived from this is that, if we are to accept the diversity of value systems and cultural perspectives, we must of necessity first recognize the primacy of certain universal values such as tolerance, respect for the opinions of others and freedom to express divergent viewpoints.

We must also recognize that the concept of development as it emerged after World War II managed to place the evolution of all societies along the same continuum, from 'least developed' to 'advanced societies.' An implicit assumption in this conception is that 'development' is 'problem' that can be 'solved' by adopting the 'right' strategies and policies, usually fashioned in the image of those prevailing in more 'advanced' societies. However, lack of development is not a 'problem,' but rather a *condition* with multiple dimensions, complex interactions, indeterminate causalities, non-linear responses, and difficult to trace sources of influence. While it is not possible to 'solve' a *condition*, we can manage it, seeking

to wiggle out of its stranglehold and to evolve towards better situations. This approach requires a more varied, specific and finely tuned range of strategy and policy interventions that should be tailored to particular situations.

The twilight of Bacon's age

Why is it we are facing the turbulent times and combination of crisis mentioned at the beginning of this chapter? Why has it become necessary to question the idea and practice of development? To understand the predicament of our times it is useful to revisit the premises, unfolding and consequences of the Baconian program. As a working hypothesis, I suggest that the first decades of the 21st century are witnessing 'the twilight of Bacon's age', primarily because *the enormous success of the Baconian program ended up undermining its own foundations*. As a consequence, our conceptions of where humanity stands at present and of its future prospects require a fundamental reassessment, which in turn forces us to reconsider the notions of progress and development.

Each of the features of the Baconian program is now being questioned. New challenges to our inherited conceptions of reality and of human nature have emerged during the second the last decades. We have been being compelled to regard ourselves in a new light and from new perspectives, discarding both the assumption of humanity's uniqueness and superiority, and the centrality we have awarded ourselves in the cosmic order. This is forcing us to reposition ourselves in an ex-centric manner in relation to other living organisms and to the world that surrounds us. In this light, Bacon's interpretation of the myth of Prometheus requires updating, reinterpreting it in much more uncertain and ambiguous terms without assuming that "Man is the center of the world."

Among the findings that require reframing of our concepts of human nature, a revision of the postulates of Bacon's program, and a redefinition of progress and development, it is possible to highlight a few.

First, advances in particle physics, which changed our ideas of physical reality and the notion that there exists an independent world separate from the observers. We are able to use the knowledge about the fundamental nature of matter, which is rather strange and based on probabilities and mathematical constructs, to produce tangible products that we can use everyday. Second, discoveries in quantum cosmology have forced us to modify our views regarding the origin and fate of the universe and the place we occupy in it, issues that were once the province of religion, reigniting the debates between science and religion. Third, findings about the nature of time require that we abandon the idea of an absolute and immutable flow of time as a backdrop to the evolution of humanity.

Fourth, advances in biotechnology and genetic engineering are giving us the capacity to consciously alter the direction of our own biological evolution. In principle, we could consciously design the type of human beings we would like to be, and the implications of this are rather staggering. Are we going to remain as a single species? Are we going to have a genetically selected and engineered set of

children and grandchildren that could evolve in different directions from the rest of humanity? Will the evolutionary story of the Cro-Magnon, Neanderthal and Homo Sapiens repeat itself with a new species of humans coming to dominate the scene?

Fifth, developments in artificial intelligence have emerged to complement and challenge conventional ideas about the uniqueness of human reason. Computer programs and robotic constructs are now mimicking, and even surpassing, human cognitive abilities, to the extent that some intellectuals have anticipated the "Singularity" —a not-too-distant future in which the aggregate capacity of artificial intelligence constructs will surpass that of biological intelligence. Highly sophisticated software can now examine massive amounts of data, which no human being could apprehend, and even help to postulate scientific hypothesis automatically. In addition, the possibility of enhancing human cognitive abilities with electronic devices has given Freud's idea of "prosthetic gods" an entirely new meaning.

Sixth, new findings in information sciences and technologies are in the process of creating new levels of reality —consider the growing applications of 'virtual reality'—, and fundamentally altering the nature of human interactions. We are now living in 'hyper communication' times that are changing how we relate to each other, and obliterating the concept of privacy. We are social animals, highly dependent on social interactions for our growth and development, but the pace and scale of human interconnectedness during the last two decades is without precedent, and this cannot help but alter the ways in which culture evolves.

Last, but not least, we have had to acknowledge the tight coupling that exists between human activities and physical ecosystems, which has forced us to abandon the idea that nature is 'out there' for us to conquer and dominate. The frightening prospect of sudden alterations of the biosphere as a result of climate change has not led, as yet, to determined action, and perhaps it is too late to prevent the consequences of the enormous increase in greenhouse gases that human civilization has produced during the last three centuries.

In each and every of these areas, our knowledge is advancing with such speed that it is nearly impossible to provide an accurate picture of the breadth and intensity of the changes under way. As a consequence of these advances, we have been compelled to accept strange notions regarding the probabilistic nature of the physical world, which is no longer seen as something objective 'out there'; and to entertain even stranger conceptions postulating that there is a multiplicity of universes, whose existence cannot be proved or disproved with the tools of modern science. We have had to revise our views of linear and absolute time, which can no longer be seen as providing a fixed backdrop for the idea of indefinite human progress.

At the same time, we are in the process of becoming responsible for guiding the biological evolution of our species, regardless of our readiness to accept such awesome responsibility; we have had to face the challenge of artificial intelligence, which has shown us that the capacity to reason is not an exclusive prerogative of

human beings; we have also been forced to cope with the swift emergence of cyberspace, a new level of reality, which has challenged the dualism that underpinned the modern scientific outlook; and we have realized that technological advances are transforming human interactions, fragmenting our selves and profoundly altering our sense of personal identity. Finally, we have also been forced to abandon our human centered view of the environment, and to renew reciprocity linkages between human beings and the biophysical world that surrounds us.

All of these challenges are a largely product of the scientific and technological advances of Western civilization, which accompanied the unfolding of the Baconian program. Their combined impact, coming with thunderous force at the beginning of the twenty-first century, is forcing us to reassess the legacy of the Baconian age. As a consequence, it is now necessary to reconsider the foundations of the Baconian program and its components.

First, the methods of modern science have evolved gradually since the time of Bacon, Descartes, Galileo and Newton and the other fathers of modern science, but are poised to experience even more significant transformations in the coming decades. New modes of knowledge production, the reflective character of the modern scientific enterprise, and the rise of theories that are beyond empirical confirmation with the tools of current science suggest that we may be entering an age in which, as Sir James Frazer pointed out at the end of the nineteenth century, science may be complemented or even superseded by new ways of *'registering the shadows on the screen'*.

Second, our efforts to improve the human condition have had myriad unintended negative consequences, which have made it impossible to unambiguously abide by Bacon's injunction to employ knowledge for the benefit of humanity. The ambivalent character of scientific discoveries has been sharply outlined through the ages by advances in military technologies, which reached a high point with the development of the atomic bomb and its deployment at the end of World War II.

Third, confidence in the steady and indefinite character of human progress has been badly shaken by the human catastrophes of the 20th century. Moreover, the progressive loss of the ethical and moral dimensions that Bacon, in his deeply felt concern for the good of mankind, had built into his program, is one of the main reasons for the paradox that the program's success ended up undermining its foundations. The Baconian program began to be fully realized, but without some of the safeguards which Bacon anticipated.

Fourth, as indicated above, the overwhelming evidence that the exponential growth of human activities is leading to irreversible changes in the ecosystems that support life and civilization as we know it, requires that we displace ourselves from the central place Bacon awarded to the human species.

Fifth, the institutional settings for the generation and utilization of knowledge, together with the idea of public support for research, are experiencing

wrenching transformations with the predominance of private funding for scientific research and technology development. The profit motive and the merciless functioning of the capitalist market economies have displaced to a second or even third plane the public interest in the generation and utilization of knowledge.

All of this suggests that we are witnessing the twilight of Baconian age. Our attempts to cope with all the assaults on the Promethean centrality of humanity and to deal with the challenges to the Baconian program, whose success has ended up undermining its own foundations, are creating confusion, anxiety and a widely shared feeling that humanity has lost its bearings. As we move deeper into the 21st century and the new millennium, humanity has embarked in a journey into uncharted territory; a journey whose destination we cannot, as yet, visualize clearly and which is forcing us to reappraise the human condition. As a corollary, it has become necessary to rethink what we mean by development, which, as advanced earlier, is the latest and last reinterpretation of progress in the context of the Baconian age. We can no longer keep on conceiving development just as growth, consumption and material wellbeing.

Rethinking progress and development

What does the twilight of the Baconian age mean for the ideas of progress development? The unfolding of this program through several centuries reached its zenith during the second half of the 20th century, opened up extraordinary possibilities for the exercise of human faculties, and allowed to improve the quality of life of a major part of humanity. Nonetheless, at the same time, it had a host of negative consequences, and its benefits were hoarded by a small part of the world's population, living mostly in rich countries, that had greater capabilities to generate and utilize scientific and technological knowledge.

The zenith of the Baconian coincided with the emergence of the concept of 'development' that carried within it the imperative economic growth. Yet, the symbiosis of 'development' and 'growth' that characterized efforts to improve the human condition in the post-World War II period began to be questioned in the 1960s with warnings about the polluting consequences of unbridled growth, in the 1970s with the introduction of the concept of *ecodevelopment* at the Stockholm United Nations Conference on Environment and Development and, a decade later, with the proposal that 'development' should be *sustainable* and consider explicitly the needs of future generations. Critics of development as growth argued that it was impossible for the whole world to achieve the levels of material prosperity and consumption of the rich countries, for this would violate the biophysical limits and threaten the viability of natural ecosystems that support human existence.

Barring acts of blind faith, the inescapable conclusion is that limitless economic growth is not possible in a finite world. The material well being for all that has been the basic aspiration of the modern development idea since its inception, has been seen by those who oppose it more as a quest to tear apart the fabric of the planet than as a means of bringing material comfort to the poor. The contrary argument is that scientific and technological advances would allow

overcoming the limitations of nature. Looked at in this way, the thinking and practice of development becomes a matter of faith —faith that human ingenuity will always be equal to the consequences of human actions, that science and technology will save humanity from itself. Moreover, it is seldom acknowledged that capacities to generate knowledge and technology are highly concentrated in rich countries with high levels of material consumption and energy use per capita. The inherent biases in the orientation of scientific and technological efforts, now largely financed with private funds, contribute to maintain the faith in the possibility of endless economic growth as the means to improve the human condition.

Therefore, the basic idea of development as a march towards limitless increases in material wellbeing and prosperity for all, along a single path for all of humanity to follow, has now become suspect. Taking into consideration all the preceding arguments, I would suggest that *development is the latest and last reinterpretation of the idea of progress within the framework of the Baconian age.*

Yet, if despondency, apathy and even nihilism, are to be avoided when regarding the human prospect, it is necessary to offer alternative ways of conceptualizing ‘development’ —or whatever improvements in the human condition may be eventually called in the post-Baconian age. Against this background, is not surprising that there have been many attempts at broadening and rethinking the idea of development, some of which take biophysical constraints explicitly into account.

During recent years, development has been reconsidered on the basis of concepts such as ‘life opportunities’ (Dahrendorf), ‘capacities’ and ‘functionings’ (Sen) that focus on the possibilities of human beings to choose their life-styles and decide their own future. In addition, two Andean countries, Ecuador and Bolivia, have moved in the direction of promoting alternative views of development. ‘Living Well’, their approach towards improvements in the quality of life, argues for a close relationship with the land, active involvement in the life of the community, frugal consumption and resource use, and greater attention to the spiritual world. It implies, at least in principle, moving away from development as growth and accumulation of material goods, and an emphasis on social relations and a balance between humans beings and nature. These concepts embody the aspiration to provide all individuals —both at present and in the future— with the same opportunities to develop their potential to the maximum.

As an example of attempts to follow this line of inquiry, the final report of ‘Agenda: PERU’ offered the following definition of the ‘common good’ as the aim of development efforts:

“To expand as far as possible the options that all Peruvians have to imagine, design, choose and freely realize their own life projects. This multiplication of options and possibilities of achieving them is based on a shared vision of Peru’s history and the future, on a pluralistic and integrated national identity, on increasing prosperity and well being for all Peruvians, on solidarity and a commitment to help the disadvantaged, on respecting the integrity of the

environment, and on seizing the opportunities offered by the emerging globalized knowledge society.'

The main report of 'Agenda: PERU' —*Development strategies for the 21st century: the case of Peru*— took this definition of the common good and proposed a vision for the future of the country; examined the international setting for development efforts in the 21st century; outlined strategic directions for economic transformation, social programs, environmental sustainability, science and technology, and physical infrastructure; identified the institutional reforms required to sustain development efforts; and it also identified the values that support the implementation of the strategic directions and the institutional reforms.

Agenda: PERU proposed an interpretation of the emerging international context in the transition to a new century and a new millennium. It linked concepts such as the 'fractured global order', its domains and manifestations with the design of development strategies, policies and interventions designed to approach the 'common good'. Perhaps one of the most interesting features of Agenda: PERU was its explicit attempt at showing how issues such cultural identity and values underpin and enable the implementation of strategic directions and institutional reforms.

'Development' in the post-Baconian age: creation and realization of values

We are still at the early stages in the process of rethinking the ideas of progress and development in the uncertain transition to the post-Baconian age. This process requires a multiplicity of practical imagination exercises and of open-ended conversations, which should be capable of accommodating a variety of provisional and partial conceptions. The idea is to enable a collective learning process capable of accumulate knowledge and experience, but without expecting to reach a definitive conclusion.

In this regard, building on the ideas of Manuel García Morente, a Spanish philosopher who stated eight decades ago that '*progress is the realization of the realm of values through human effort,*' and '*in essence progress signifies the realization of values,*' I would like to venture the suggestion that development and progress in the post-Baconian age could be redefined as:

'The open-ended process of reframing old, revitalizing existing and creating new values, of seeking to evolve shared perceptions of what humanity is and should be, and of devising the means for advancing, both individually and collectively, towards realizing these values and putting them in practice.'

As human beings, we have a capacity to establish conscious distinctions between preferred and not preferred things, states, events, emotions and ideas. However, the transition from individual to collective preferences is a problematic process, riddled with conflicts and paradoxes. It is only to the extent that certain preferences become accepted, widely shared and institutionalized that they can be

transformed into values, into a collective perception of what is desirable within a community and into values.

Implicit in this proposal is the assumption that there is no single interpretative scheme that could explain the realities of human societies and guide all of us unequivocally along a common path in the search of 'development' strategies and policies. This implies accepting diversity and a multiplicity of viewpoints, the existence of potential conflicts and the need to resolve them without violence, willingness to engage with others and the importance of sharing fundamental values such as recognition, respect, tolerance, transparency, empathy and solidarity.

At the dawn of the post-Baconian age we must embark in the search for a new program. Perhaps it will take several decades, or even longer, before a new program for the whole of humanity will be articulated with the clarity and the coherence that we can now —nearly four hundred years after the fact— attribute to Bacon's program. This search must build on the achievements of the Baconian age, taking advantage of its enormous success —but at the same time acknowledging its limitations. Two indications suggest a possible direction for our search. First, there is a need to expand what became a rather narrow range of considerations —referred almost exclusively to the exercise of our rational faculties— that were fully incorporated into the implementation of the Baconian program. Perhaps this calls for putting ethical, emotional and aesthetic questions (this is: feelings) on equal footing with reason, integrating all of them into attempts at envisaging and outlining a new program.

The second indication derives from the fact that, in the process of putting the Baconian program in practice, Western civilization took the world by storm. In just a few centuries it altered all aspects of the human condition. Other cultures and civilizations had to absorb, adapt to and respond to the advances of the Western worldview. Along the way, the potential contribution of the outlooks and mindsets of other cultures was lost, or at least ignored. Perhaps it is time to reconsider this state of affairs and begin to recover a diversity of cultural perspectives on the human condition. But we must do this while maintaining a firm and responsible ethical stand, avoiding those extreme manifestations of cultural relativism in which any and every behavior appears justifiable.

In this regard the potential contribution of Latin America to the design of a post-Baconian program could be quite significant. It is possibly the region of the world best placed to face the upheavals of the twenty-first century: it has a diversity of diversities, including ecosystem and biological diversity, cultural and ethnic diversity, and a diversity of natural resources (water, hydrocarbons, forests, fisheries, minerals, land); a shared historical legacy and a common language in practically the whole region; a population large enough to constitute a viable internal market but not so large in relation to its resource availability, and its relatively youth will allow to have a large working age population during the next few decades; and has also a rapidly growing stock of physical infrastructure that is sufficiently advanced to support economic and social activities, but not extensive enough to impose the rigidities associated with past technological decisions. In

addition, during the last few decades Latin America has experienced a social learning process that has allowed overcoming economic difficulties and violent uprisings in most countries. If appropriately capitalized, this combination of assets could improve the resilience and adaptive capacity of the region. It would also provide a unique platform for exploring novel strategy and policy options, and for undertaking the bold intellectual initiatives that could contribute to the articulation a new post-Baconian program for humanity.

Let me conclude by stating that, in my view, the future of humanity over the next centuries will be determined by our success in devising a new program to guide humanity into the post-Baconian age. The complexity and interconnectedness of the world we live in at the beginning of the 21st century implies that—in contrast with the achievements of Bacon— this new program will not be designed by a gifted individual; it will be a collective construction emerging out of a multiplicity of human interactions; it will integrate many different perspectives and perhaps take decades to articulate.

Whether we want it or not, we are moving into the post-Baconian age. The crises, turbulence, instability, uncertainty and bewilderment that characterize our times are symptoms of much more profound changes, of an epochal transformation. Wrenching adjustments in mindsets, conceptions, habits and practices will be required from all of us, together with extraordinary efforts to open our minds and apprehend the human predicament as we move deeper into the 21st century.

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