

RESEARCH ARTICLE

Fundamental references from the Western culture

Marcílio de Freitas*

*Centro de Estudos Superiores do Trópico Úmido da Universidade do Estado do Amazonas, Amazonas,
Brasil*

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This article presents theoretical elements concerning the ‘nature versus culture’ confrontation as a particular aspect of the worldwide expansion of Western civilization. Several speculations are made concerning the philosophical foundations which have provided the base for the current political and economic mega-scenarios in the contemporary world. We turn our attention to the articulations of the concept of nature with the processes of *mondialization* of Western culture and with the history of universal culture. Finally, several considerations are made on the dynamics of economic processes on a world scale and projections on the impact of science and technology in the social and political frames that is taking place in the contemporary world.

Keywords: nature–culture; universal history–planetary occidentalization process; multilateral institutions–economic processes

Navigare est necesse; vivere non est necesse. (Roman General Pompey’s sentence, 106–48 BC, said to the sailors, afraid, who had refused to travel during the war; Plutarch, in *Life of Pompey*)

The preliminary issue

The ‘nature versus culture’ confrontation raises the main contradictions imbricated in the current hypercomplex social processes, typical of the history of Western civilization. Despite its increasing technical complexity, the twentieth century has failed to solve such major contradictions, deeply rooted in the history of mankind and systematically framed during the eighteenth and nineteenth centuries. On the contrary, these contradictions – substance versus subject, nature versus spirit, necessity versus freedom (Engels 1981, p. 210) – have increased with new conditionalities.

The logical construction of hypotheses, notions, concepts, structures, of theories and of thought systems, anchored to the independence between subject and reality (realistic principle), between reality and spirit (materialistic principle) (Bitsaks 2001, p. 8) or, with a lesser intellectual vigor, to other philosophical approaches which reveal the primordial processes of the human existence, corroborates the crystallization of a hegemonic Western conception in which the ‘human condition’ is submitted to the nature biologization or naturalization processes, and to the dynamics of the relationship between capital and labor.

*Email: mafreitas@uea.edu.br; mafreitas@vivax.com.br

The indivisibility condition of the ‘man–nature’ category¹ has not had the necessary strength to guarantee its soldering to the foundations of the main philosophical, scientific and economic theories, whether critical or not. This has contributed to the hegemony and the continuous interlacing of the prevailing focuses with notions of precedence, of localism and of causality, encrusted in the speculations concerning the origin and dynamics of the human species, and of the interactions between man and the milieu within which he is immersed, providing a functional character to the studies on universal thought.

References of rationality

Guided by rationalistic assumptions, the universal culture continues articulating the concept of nature with the planetary occidentalization process, stating and restating issues in the context of each era. It can be said, then, that the concept of nature is cultural; it, simultaneously and systemically, involves theoretical and empirical elements which are specific to several sciences, technologies and to philosophy. It has weightedly incorporated the advancements and the backtrackings, the typifications and the projections of the dynamics of the civilizing processes, in different ages.

Speculations on the concept of nature have crossed Antiquity, the Renaissance and modern times, based on four foundations: space, time, matter and spirit. Plato, Aristotle, Descartes, Kant, Brunschvicg, Schelling, Bergson, Russell, Hegel, Engels, Marx, and Whitehead, among others, are examples of philosophers who have developed theories on the ‘nature of Nature’, using as basis all or some of these foundations. By and large, the conceptions designed by such philosophers have taken the perspective of apprehending nature in a holistic and complex form, in contrast with the reductionism and empiricism proper of the so-called ‘exact sciences’.

Plato, born in Athens (427–347), provided philosophy with a rationalist conception, using the concept of Idea as the principle and the major agent of all knowledge and truth. Plato built his work highlighting the importance of justice and of the state in the lives of its citizens; he also invented the presuppositions of an idealistic conception, in which the dynamics of the universe can be explained in terms of forms and geometric symmetries. In the Platonic conception, the Ideas of culture and nature are not prisoners of an impersonal meaning, but lived as a destiny of the soul in the search of truth. Thus, the soul is the ultimate natural foundation for itself and for everything. It finds itself in a dialog and in the process of refinding itself, rather than in confrontation with an external reality. The absolute meaning, the homeland of the soul and its very nature are the place of the Ideas, the true beginning of the Being. Plato conceives nature as being in opposition to the sensory world, the education of nature replacing the cultural dimension, which is definitively refused in this conception. Education aims to be a deepening of the nature of the soul and of the nature of the Idea, in a fusionist dynamic. For Plato, there is only the dimension of the soul, its ascension, and the total rejection of culture. Plato constitutes an intellectual landmark for the scholars involved in the history of universal thought.

Aristotle, born in Estagira, Macedonia (384–322), was endowed with an encyclopedic knowledge. He founded ‘Logic’ and invented an explanatory language for the phenomena of the sciences of Nature, enlarging the horizons of the foundations of philosophy. For Aristotle, Nature is *per se*, and not by simple accident a principle and a cause of movement and rest. Thus, all natural beings carry in themselves a principle of movement and rest. He establishes a fundamental distinction between two degrees of determination of Nature: a first nature called matter, and a second nature associated with forms. He further proposes that Nature is the totality of all living and non-living things, from minerals to man, nor as

much or such as elementary matter to which everything could return. Unlike Plato to whom the type of knowledge determines the type of object (truth for the intelligible world and opinion for the sensory world), Aristotle insists on the fundamental unity of objects of knowledge.

In Aristotle's conception, culture can be understood within the context of formation, education, production and praxis. The search for the truth should not be limited to a separate domain: culture is made within and for Nature. The idea of Nature as the beginning of movement and rest, of a movement as an indefinite expression of a potency, is contained within our own nature as man to such an extent that it expresses itself within moral life. Nature is the model and the absolute origin of all activity, ethics or technique, and the dynamic equilibrium 'nature/culture' is governed by two limits. That of Nature tends towards an integral normative pattern where everything perfectly 'disinforms'. The other, that of culture, takes as its point of departure specific human needs, but tends towards a term that finds naturalness as a whole. Neither nature within its flaws, nor culture within its potential, trigger antagonisms. The potential rupture feeds the real union (Frioux 2001, pp. 18–80).

Anthropologist, thinker on ethics and on politics, Aristotle has also contributed to the development of scholastics and Thomism, building one of the main matrices of the Western thought systems that followed his age.

The works of Francis Bacon during the seventeenth century have enabled the germination of the scientific method and of scientific reason, as anchors of the notion of the conquest of a submissive Nature subordinated to human desire. Such a scientific undertaking became even more sophisticated with the Discourse of Method and with the quantitative genesis by Descartes, which created a spatial-temporal system open to action and to technique. With Bacon and Descartes, the 'man versus nature' relationship ceases to be merely religious and becomes, also, explicitly political. A special highlight is to be awarded the insertion of Man in the order of Nature, within a system of deterministic orientation of causes and effects, defended by Spinoza (Russ 2000, pp. 102–133).

The revitalization of the physical sciences and of mathematics in that same century, with important collaborations of Galileo and Newton concerning the fundamental laws of classic mechanics, has contributed to the scientific incorporation of the 'Nature' entity into the productive processes and the great philosophical debates taking place in the eighteenth century. It has emphasized the destruction of the notion of causality by Hume; the 'enthronement' of Diderot's nature; the end of the social contract proposed by Rousseau; and the critique of scientific reason permeated by the approach of experimental verification constructed by Kant (idem, pp. 144–146), which have constituted important contributions to the philosophical theories concerning Nature constructed during the nineteenth century. It has also highlighted the naturalistic conception defended by Fourier as grounded on the unity of man with the world and modulated by the idea of 'humanity', a basis for Auguste Comte's positive reason.

Critical of the reduction from complexity to simplicity, Hegel, in several works, defends the thesis that nature ought to be apprehended starting from a concept of complexity, postulating dialectic ontology as a necessary element for scientific spirit. Hegel also postulates that culture begins where the domain of Nature ceases, and that the passage from Nature to culture is not a historical development creating a double ontology, but an ontological need that puts universal history in an oscillatory motion (Frioux 2001, pp. 82–89).

Freitas Pinto (2002) stresses '... the founding systems of reason and of the modern scientific spirit, such as those of Kant and Hegel, in which Nature is the basis on which

reason and history should rise. Kant, for example, in his 1793 work, "The Religion in the Limits of Simple Reason", thinking the idea of personality as the expression of the development of humanity, civilization, proposes that the tendency or the predisposition for the good existing in the human species can be divided into three moments "as elements of determination of men". The first of those determinations is the one that comes for the 'animality', the human being simply taken as a living being, that does not require the use of reason. Such predisposition includes behaviors of self-preservation, helping to perpetuate the species and for the social contact with other human beings. Kant classifies all those behaviors under the categories of love for oneself that is purely physical and mechanical. The second element is the predisposition for humanity, the human being taken as a rational being, functioning on the basis of the practical reason which, in turn, merges into non-animal motivations. Such predisposition includes the inclination to acquire value in the opinion of others, originally a tendency to be seen as equal or also to develop a sense of superiority. Kant says that Nature creates this situation of rivalry as a chance for the creation of culture. This predisposition is based on the comparison of the self with others. The third element is the most developed since it coincides with the predisposition for the personality. Personality, alone, by itself, has practical reason as its roots. As personality the human species is rational and capable of responsibility. A being having such a faculty of choice owns a "good character" with which no one is born and that should be acquired. In fact, the idea of a moral law is not a predisposition for the personality, but is the personality itself.'

This same (nineteenth) century was also the stage for the crystallization of philosophical conceptions concerning the nature of the social and subjective, ethical and political relationships, on the agenda of research and in the civilizing processes under way at that time. An intense debate was unleashed around: the relationships between science and philosophy; the relationships among the political sciences, ideology and philosophical creation; the range and contradictions of epistemologies and of scientific methodologies; Nature as object of philosophy; Nature in dialectic thought, life as a process imbricated in Nature; human attributes and reality; the connections among unity, diversity and difference; the spatial-temporal metrics and matter, and matter and its forms. With critical analyses being permeated by historical materialism, especially, the emergence of critical macro-theories concerning the accumulation, expansion, reproduction and circulation of capital has contributed to expand the structural foundations of the philosophical theories of that period. It constitutes a landmark in the fusion of history with economics and philosophy.

An important reference for the history of philosophy, in a systemic form, Whitehead has introduced with his bifurcation theory the general principle of unity of nature that rejects the division of Nature into the world of living and the world of the non-living, one reason for the impasses in the conception and gestation of more complex theories (Whitehead 1998, pp. 170–179). Whitehead has expanded the conceptual horizons which used to sustain the concept of Nature up until the second decade of the twentieth century, pioneering sophisticated philosophical studies concerning the civilizing processes projected for the twenty-first century.

References for historicity

In publishing *Das Kapital* in 1867, Marx demarcates and builds the critical foundations of the Theory of the Development of Societies, clearly outlining the contours and the essence of the contradictions of capitalism in the modern world. Marx scientifically studies the relationship between capital and labor. He disentangles the process of production of

capital by projecting the appropriation and expropriation scenarios to which the working classes are subjected. He dialectically articulates concepts which are specific to historical materialism, such as: production relationships and productive forces, technical and social relationships of production, infrastructure and superstructure, social classes and class struggle among others by raising new issues for the current social dynamics, at all the levels. He further projects, in later works, the explanatory theory of the processes of circulation and structuring of global capital (Marx 1983).

Specifically, the eruption of the concept of social class pressed and seems to ‘asymmetrically curve’ the notions of space and time, matter and spirit. The concepts of ‘social class’, ‘capital’ and ‘labor’ have acquired vigor and historical world dimensions, contrasting with the ‘political voracity’ of capitalism that has affected the whole of Western Europe, to begin with. The instrumentation of the fetish of merchandise in the nineteenth and twentieth centuries impelled the *mondialization* of Western culture, creating new sociabilities and world geopolitical scenarios (Silva Freitas 2001), and projecting a new perception of Nature that depends on the global reality for humanity – a perception derived from a set of dynamic structures that, in the shape of a net, unifies the whole Earth whilst part of a civilizing process bringing forth its own contradictions in a planetary dimension.

Bitsaks (2001, p. 181) highlights that:

(...) capitalism was the denial of the unity of man with nature. It has isolated man from his natural environment by transforming this environment into merchandise and a source of profit (...) Today capitalistic production with its contradictions constitutes a menace for the human race, the animal world and whole biosphere (...). The socialization of the means of production will lead to the solution of the contradictions engendered by the development of capitalism. It will be the denial of capitalism, therefore the denial of the denial of the unity of man, of nature and of society.

The economic and the political processes which have permeated the ownership and expansion dynamics of European culture, starting from the fifteenth century, have constituted a decisive factor in the construction of the world hegemony of Western culture. From the age of the caravels to space satellites, from the discovery of the New World to the recent independence of East Timor, these same economic processes have guided the political interests of Europe, and more recently of the United States of America, in the construction of several prevailing geo-historical configurations.

Ianni (2000, pp. 69–70) states that:

(...) Since the end of the 15th century, the process of original accumulation in Western Europe is under way, a major process involving trading post, entrepôts, captaincies, territories and colonies, as well as piracy and the institution of several modalities of compulsory labor, among which the regime of slave labor stands out. Yes, the original accumulation is on the base of the great maritime sailings, of the discoveries and of the conquests carried out by Europeans in practically all the continents, islands and archipelagos. It passes through the exploration of local resources and productions, slavery, piracy and, therefore, the establishment of the colonial systems. It is this way that the Spanish, Portuguese, Dutch and English colonial systems, in addition to others, have been formed. Slowly, throughout the 19th century and the outset of the 20th century, the various imperialistic systems developed encompassing colonies and formally sovereign national States (...). Imperialism comprises an already advanced phase capitalism and, at a world scale, as a mode of production and civilizing process. To such an extent that at the passage from the 19th to the 20th century, the world is totally designed, chartered and divided among the imperialistic nations, chiefly comprising England, France, Holland, Belgium, Germany, Italy, Portugal, Russia and Japan (...).

Anchored on private civilizing foundations and on the ‘peace diplomacy’ paradigm, genocides, slavery, appropriations and expropriations of natural resources, the ethnocide of ancient cultures and the exacerbated Eurocentrism, a perverse inheritances of such period of colonialist and capitalist expansion have disseminated.

A hideous example of such a period has been reported by M’Bokolo (1995, pp. 22–24), who states that:

(...) The first document explicitly referring to a cargo of black people dates from 1518: it is a license given by Charles Quint to his ‘majordome’, Laurent of Gouvenot, to catch 4000 Africans from the ‘Islands of Guiné’ and to sell them in the Americas (...). There is no agreement as to the amount of trading of human beings in that period (...). The reverend priest Dieudonné of Rinchon estimates that nearly 100 million Africans have been shipped by force to the New World, while Philip D. Curtin refers to 13 million individuals.

Contemporary historians such as Woodrow Borah, Sherburn Cook and Pierre Chanu also estimate that out of an Amerindian population of 80 million in 1500, only 10 million survived until 1590 (Beseat 1995, p. 172).

This same Western civilization – impelled by consecutive scientific and technological revolutions, guided by the fetish of merchandise and by Christian morality, and regulated by a rigid juridical order – has sprawled over places, villages, cities, countries and continents, influencing and shaping new political paradigms. The revolutionary imperial cartography of Europe in the sixteenth century that has trapped places, territories and continents within the spherical geometry projected in world maps was substituted by the continuous and accurate action of satellites, which construct a gigantic ecological and cultural inventory of the planet.²

Broadly, the structure and architecture of the modern European conception have been molded and refined by several global projects, which have provided the foundation for the development of the arts, literatures, philosophies and mathematics, policies, social and exact sciences, technologies and the planetary Westernization. They have also been engendered and filtered by the classic thinkers’ critical analyses, and therefore, such a conception also contains in its essence all the contradictions proper to that culture. Within this perspective, it is possible to interpret the great civilizing ruptures as part of the processes of estrangement among the different cultures, during the processes of the original accumulation in the medieval, mercantile and colonial periods. It is, finally, due to the process of construction of the sciences, which occurred in Western Europe at the beginning of the sixteenth century, with the consolidation of the scientific method and the subsequent detachment of common sense and of metaphysical and theological precepts (Freitas 2002, pp. 363–373).

The consolidation of the industrial revolution in the eighteenth and nineteenth centuries, with an energy matrix that had coal as its main fuel, was indispensable for the globalization of the finance markets and of all its contradictions, being unfolded in the electrification and computerization processes of places, regions, nations and continents during the twentieth century. The water wheels, in turn, were replaced by steam engines, by electromagnetic generators, by photovoltaic cells, by nuclear reactors and also by space satellites. This same industrial revolution welded two essential peculiarities of the Western civilizing process: the exceptional characteristic of a self-regulated capitalist market *vis-à-vis* all previous economic organizations, and the fact that to impose itself it had to remodel the whole of society in its image and under the rule of merchandise (Polanyi, cited in Castel 1995, p. 329).

During the eighteenth and nineteenth centuries, the planet was deterritorialized through a network of waterways and roadways, while in the twentieth century the civilizing process went on to incorporate the skies, in particular the terrestrial atmosphere, within a world economic system which has permeated all the spaces of human sociability. Greenhouse gases, aerosols, chlorofluorocarbons, nitrogenated gases, acid rain matrices, pollution, meteorological science and the environmental issue have been incorporated and clearly aggregated to the means of production and reproduction of capital on a grand scale.

Progress, the important archetype of this virtual age, within the perspective of anticipating the future through fast ‘accelerations of time’, builds and projects scenarios, which reflect an asymmetric planetary humanization (Durand 1992, pp. 399–410), and a more systemic and complex scientific agenda impelling the emergence of new methodo-epistemo-ontological conceptions. The transdisciplinarity of nature, previously a target, became a presupposition of scientific language.

However, the *mondialization* of Western culture in imprinting new contours and delimitations on the civilizing processes has shown the need for building new social conceptions: conceptions centered on basic philosophical assumptions – the unveiling of the human existence and condition and of the essence of knowledge – along with the conditionalities appropriate to our times.

The occurrence and the unfoldings of the two great World Wars of the twentieth century have definitively crystallized Western hegemony, by merging a new political and economic order in institutions and in major countries. The economic networks have unchained a new planetary redivision of the labor market, and in particular, of the scientific matrix, the environmental issue assuming a world relevance that transcends and almost always prevails over the interests and national projects of the local, regional and national spheres.

This reinvigorated macroeconomics, along with the mega-production and the circulation of virtual merchandise, and with the mega-scientific and technological projects, has induced the necessary elements for the emergence of economic globalization. This globalization is constituted by an overlap of scientific, technological and political processes, which – having economic mechanisms as their material basis – are intertwined and spread in the shape of nets, impacting all the planes of sociability, ranging from the local to the global. The induction of tendencies of cultural homogenization, the restructuring and the permeability of national states to grand capital, capitalist hyper-accumulation, the great mobility of capital, the exacerbated social inequality and the ecological issue, while civilizing processes, are unfoldings of that new socioeconomic configuration.

Unlike the Copernican revolution that removed the political hegemony of conceiving the world from the standpoint of theology, dethroning the Earth as the center of the universe, globalization has substituted ‘man’ for ‘capital’ as the main ‘subject’ of the planetary occidentalization; with ‘capital’, the entity of fast mobility, attractive, fugacious and ‘convincing’, assuming the role of the main civilizing agent of the contemporary world. The concepts of consumption and consumer, public and private, poverty and wealth, war and peace, settler and colonized, religion and science, region and nation and world, ultimately gain new senses and meanings.

The complexity of this historical panel became enlarged as the governments of the major countries have focused their political agendas by means of agreements that strengthen the crystallization of economic blocks, the amplification of restrictive public policies, the reinvigoration of the minimum state and the deleterious intervention of the market into citizenship processes at all levels of sociability.

It is clear that the capitalist hyper-accumulation process has definitively welded control over the cloning process of life and speculations on the ecological depreciation of the Earth to the scientific and economic calendars. Microscopic techniques were disseminated, adapting and becoming the substratum of the methodologies of the applied sciences, enlarging the heuristic range of different technologies and of the health sciences. Sociology and anthropology were strengthened with the re-creations and the metamorphoses of the ancient problems of humanity.

The 'Freedom, Equality and Fraternity' paradigm was again questioned with new political and economic conditionalities. The isolated and group studies merged through networks, and increased for thematic research works involving institutes, universities, public and private, national, international and transnational conglomerates. The reflective nature of scientific speculations was fully incorporated by an operational science committed to the propositive and pragmatic character of the market.

The scientific and technological dependence of the 'outskirts' countries has reinforced this picture, and has corroborated with the growing disjunction between the generation of knowledge and the usufruct of new technologies by their populations, facts that contribute to the effectiveness of an asymmetric and deformed globalization.

World scenarios

The symbiosis of the sciences and technologies with the projects of development of the rich countries has constituted a foundation that reverberates in the genesis, in the methods and in the choices for new research themes in several fields of knowledge, chiefly those related with the applied sciences.

In this dimension, the process of production of facts in scientific laboratories has become one of the main bases for the current dynamics of capital. Within such complex and sophisticated environments, scientific activity, mediated by productive forces, unleashes an obstinate struggle to build reality. The new knowledge, in a frenzied rhythm, is constantly reintroduced into those same laboratories in the shape of conceptual, analytic, topologic, mechanical or electric-electronic structures, impelling the construction of new hypotheses, methodologies and products (Latour and Woolgar 1996, pp. 261–262).

The credibility of research actors and the diffusion and marketing strategies of the new products are also essential elements for their *mondializations* and for the legitimization of political and economic discourses on a local and scale.

The hegemonic religions, still 'haunted' by the ghost of Galileo Galilei, have knelt before such a full coupling of science and economy. They have also strategically expanded and spread to reach new territories and followers, weaving new alliances and ethnic and ethical commitments, and adjusting to the new world socio-geographical configurations.

A paradigmatic case refers to the developments in biology. The end of spontaneous generation with Pasteur, Darwin's pretense in unifying the natural history of life, and the emergence of heredity in the DNA physical-chemical-biological structure as proposed by Watson and Crick have, definitively, imprinted new directions on the history of universal thought. From such landmarks, biology has established an incessant and fertile dialogue with all the other scientific fields. It has also created polemic and lasting articulations with philosophy, ethics, religion, and with economic and political processes.

After countersigning 'the sciences' as one of the foundations of Western civilization, Morin (1990, pp. 115–123) proposes a set of theses on the ethical framing of the sciences, which can be summed up as follows: (1) the need to humanize science by embedding it into consciences, spirits and human lives in a systemic way and in all its political, artistic and

economic dimensions; (2) the urgency in constructing scientific methodologies to impel science to unveil complex issues, simultaneously enabling it to have historicity by acquiring self-knowledge and critical self-consciousness; (3) the importance of science being able to conceive of ‘man’ in all his bio-anthropological and bio-sociocultural complexity as an actor of a plural and ethical universe; and (4) the non-deferrable demand for deconstructing the biologizing conception found in universal history, for there is a total rupture between the idea of life in the human being and of biological survival.

Morin emphasizes that ‘... The ethical issue is an issue of a conflict of values ... there is a conflict between the imperative of knowledge for knowledge, which is that of science, and the imperative of safeguarding humanity and the human dignity’.

In modern societies, social relations, within the domain of labor, are mediated by relations of production. The capitalist mode of production is traversed by a fundamental contradiction: that between the characteristics of labor and the private appropriation of the product of labor. This is a contradiction that increases to the extent that the process of pauperization expands to gain dimensions, pressing the international political and economic agendas and turning into one of the major problems of the world.

In a recent monographic study on the social issue within the tradition of critical thought, Silva Freitas³ shows how Louis Marmoz (1984) applies the notion of pauperization in the analysis of the production and reproduction processes in capitalist society in general, of the processes that involve education and the lemmatics of teaching in particular, and of how the notion of pauperization has acquired demonstrative force regarding the effectiveness of teaching in France, building elements for the understanding of issues such as: what are the relationships between poverty and education? To what extent can the notion of poverty, turned into a category of analysis, shed some light on the weight of education in the social problematics of capitalism? To what extent are the educational processes which concretize the Western forms of teaching tied to the structural issues of the organization and development modes of capitalist society and of bourgeois sociability? In other words, it can be said that education expresses to a large extent a special and privileged dimension of understanding the contemporary social issue (Silva Freitas in press, p. 67).

These are complex issues that Marmoz unveils by constructing important points of reference for the invigoration of world citizenship. These are widespread and long-term intellectual issues which impact on all sectors of contemporary life, and which are still in the process of analysis.

The invention and the consolidation of multilateral institutions of the stature of the United Nations, UN, and of the United Nations Educational, Scientific and Cultural Organization, UNESCO, immediately after World War II have established a new world geopolitical division, reaffirming Western hegemony and setting up the contours of future political and cultural mega-scenarios to take effect as of the end of the twentieth century.

Themes such as safety and peace; culture and education; science and technology; atomic energy and international law; international trade and cooperation, labor and human rights; agriculture and health; economic and social developments; environment and ecologic depreciation; and international finances and remote areas (the Antarctic, the space, and the seas) have become the foundations of world agendas for those multilateral institutions. Under the direction of those political forums, an accelerated process of marketing and planetary institutionalization of global connections of the new emerging economic and political order (Freitas 2002) have been unleashed and maintained.

A curious fact refers to the continuing default of the industrialized countries to the UN regimental agreement that is intended to provide annual financial assistance, from this

institution, to the world's development policies. In 2000, those countries allocated a total of US\$53.7 billion for that type of assistance. This amount corresponds to some 0.22% of the gross national product of those countries. Only Denmark, Norway, Sweden and Luxembourg have contributed with 0.7% of their annual wealth, according to the target fixed by the UN. France and the United Kingdom were the G-7 countries (the seven richest countries) that contributed the most (0.32%), unlike US, which contributed 0.1% (*Bilan du Monde* 2002, p. 16).

Hegemonic institutions also created in that period, the International Monetary Fund (IMF) and the World Bank have increasingly and systematically imposed a fiscal discipline and economic formatting guided towards an accelerated process of planetary privatization to the West. Recent studies supported by the UN have shown that world economic integration, based on this premise and articulated by an industrial and technological matrix based on the use of fossil fuels, has boosted the real growth of the world economy from US\$2 trillion in 1965 to US\$28 trillion in 1995. Divided among the population, the *per capita* world economic average increased from US\$614 in 1965 to US\$4908 in 1995 (Reed and Rosa 2001), despite this growth hiding economic disparities specific to particular places, regions, countries and also continents.⁴ The projections for this end of century have indicated that poverty and social inequality have also increased proportionally to the accumulation of capital.

The growing dissociation between the economy and ethics has contributed to the worsening of that social situation.

Amartya Sen (2001, pp. 6–9) highlights that:

Economy has two origins, both associated to politics, but in a different way: one interested in 'ethics', and the other which can be called 'mechanicist'. The ethical tradition goes back at least to Aristotle (...). Aristotle establishes a line between the economy and the human purposes, evoking the relationship between economy and wealth (...). The study of the economy, in short, leads to the study of ethics and politics. It is convenient to notice here that, within such a conception, there are two issues which are fundamental to the economy. The problem of human motivation *vis-à-vis* the major moral issue 'How should we live?', and is that related to the judgement we make on what is adequate to the scale of society (...) The characteristic of the conception [mechanicist] is that above all it is concerned with logistic issues. This mechanist conception has greatly contributed to the solution of complex technical problems, specific of economic relationships, in particular within the domain of the operation of markets (...) This 'mechanicist' perspective is close of the study of the economy deriving from the analysis of the art of governing viewed from the angle of the techniques put in practice.

It is verified that the modern economy concentrates, above all, on the technical and mechanical issues, the social issues being described in a very reductionist manner.

In these approaches, the procedures which analyze human needs and motivations give priority to the mechanist conception, although the incorporation of the ecological subject in economic processes has reinforced the ethical tradition of the economy, and contributed to the emergence of economic analyses permeated by moral philosophy.

The reading of nature understood in its broader sense – matter-energy and spirit – molded and problematized by such concepts as 'space' and 'time'⁵, keeps on being pressed by empiric results, which vertiginously sprawl over all fields of knowledge. The fields of scientific knowledge, especially the sciences of nature, health and technologies irreversibly contaminated by the amorality of the economy and politics, are poised as driving axles of the economic mega-processes in course. The pulverization of political and economic interests added to the rigid and compartmentalized structures of local, national and

international, government and non-governmental institutions, responsible for the support, creation, organization, diffusion and use of scientific knowledge hinder the universalization of the social promotion state within a global sphere, the goal and reason for the existence of modern science.

The practical results of the coupling of science and technology with the twentieth century industrialization process led by the countries of the first world have been universalized by *mondializing* and destabilizing the ecological equilibrium of the Earth, and by intensifying the disparities and the social inequalities among the various peoples. With an added difficulty: the threat to the existence of life on the planet, once a biblical metaphor, has become a feasible reality.

The essence of the ‘concept of nature’ has acquired new meanings and senses, with the planetary socio-ecological scenarios demanding a new conception and regulation from the sciences. They demand a conception centered on the foundations of cultural diversity and in the processes of social inequality, especially because the effective and hegemonic conceptions are still contaminated by discriminatory and prejudiced injunctions characteristic of the ownership and colonization processes unleashed in the past and crystallized during the eighteenth, nineteenth and twentieth centuries. Reductionist injunctions, together with the market and marketing, have stamped a drastic simplification on the civilizing processes by naturalizing the notions of sociodiversity, biodiversity and self-sustainability, among other more fertile possibilities for existence and the human condition. If it is true that man is a social product, we have to invent a new ‘concept of nature’ molded into the different cultures and civilizations.

The essence of the ‘concept of nature’ — one that has substituted the ‘concept of God’ and has founded the hegemonic scientific and technological processes — needs to be transfigured and modulated by the sociocultural asymmetries appropriate to contemporary civilizations.

A prevailing tendency in the studies of environmental ethics emphasizes that the central issue is not summarized in the invention of a new morality, but in the construction of strategies which will enable the application of the dominant moral schemes to the new ecological world order: environmental pollution, the accelerated destruction of world biodiversity, the greenhouse effect and the setting up of nuclear power plants. This same tendency considers that the Western philosophical, moral, scientific and religious tradition has a sufficient theoretical arsenal to cater for the issues put forward by the ecological crisis.

However, a second tendency has considered that this tradition fails to contain the necessary elements for a solution to the current ecological crisis since it is also a part of the problem (Larrère 1997, pp. 13–14). A point of view that reinforces this last tendency is the one signals that the Western tradition shows that one cannot have perfect and inaccessible solutions to criticism with respect to the great social, political and scientific issues put in front of humankind. The representatives of such a tendency deny a perfect organization of society, which is harmonious, free from dominance and without conflicts, and affirm that any political decisions should be considered as solutions to increasingly imperfect social problems and will be open to criticism and revision (Albert 1987, pp. 53–54).

As this is an ecological issue, it is clear that, despite this critical rationalism, the international diplomatic forums have not succeeded in accommodating the interests of most people and civilizations. The stand taken by governments regarding the protocols, conventions and agreements on the current ecological crisis points towards differentiated

and fragmented solutions which are lacking major impact globally. And the people, hostages of their desires, their material and emotional concerns, their faiths, their consumerisms, etc., not to mention the absence of enlightening information, fail to move with the necessary speed for the articulation of a world synergy towards the preservation and socio-ecological promotion of the planet.

The hegemonic governments signal towards another lasting political intervention in the world socioeconomic dynamics, and as traumatic intervention in the processes of ownership of these major countries in the former American, Asian and African colonies.

The example of Christopher Columbus' attitude is illustrative. The ethnocentrical belief of Christopher Columbus' (1492) when disembarking in America, in October of 1492, is clear: '(...) They [the Indians] should be good servers and have a good temperament, as I see that they are very helpful for everything that they were told. And I believe that soon they would be made Christians, because it seemed to me that they had no belief. Our Good Lod willing, I will take along with me in my departure six for Your Highness so that they will learn how to speak (...)'

This attitude has been substituted by the despotism of the current president of the United States of America, George Bush, who has imposed a principle of non-acceptance of challenges to military supremacy and to his country's perpetuation of world hegemony.

The philosophers, educators, scientists, economists, artists, opinion-makers, and critical politicians are confronted with this added dilemma: how to continue participating in the construction of such a civilizing process that is strongly centralizing, authoritarian and impregnated by pragmatism?

The silent, audacious, enigmatic and pretentious presence of Europe in the world, as described by Fernando Pessoa in his poem 'The fields of the castles', who projects that:

Europe lies, reclining upon her elbows;
From East to West she stretches, staring,
And romantic tresses fall over,
Greek eyes, reminding.

The left elbow is stepped back;
The other laid out at an angle,
The first says Italy where it leans;
This one England where, set afar,

The hand holds the resting face,
Enigmatic and fateful she stares,
Out West, to the future of the past,
The staring face is Portugal.⁶

was, finally, subsumed and transfigured by the expansionistic and emergent historical processes of its former colonies.

The twenty-first century will show the reach of these new world scenarios.

Notes

1. Within this context the term 'indivisibility' has the connotation of reciprocal existence, of an intrinsic and intertwined existential fusion of these two entities, man and nature.

2. The current ecological topic is constituted by a group of issues created by the interlacing and mutual determination of several scientific and technological knowledge fields with the capitalist production mode.
3. See Marilene Corrêa da Silva Freitas (October 2002), in *Ocidentalização e a questão social*, a forthcoming monographic study (Silva Freitas in press).
4. The economic growth designates the variation of the gross national product (GNP), that is, the amount of wealth (goods of services) produced by a country during the course of a certain period (quarter or year). In this sense, growth does not necessarily result in improvement in living standards. Several years of growth can be accompanied by an increase in social inequality. Growth can result in more inflation and more imports, bringing about an increase in the trade deficit. Economists refer to 'balanced growth' as that which satisfies the conditions of job creation, low inflation rate and balanced trade budget and equilibrium ('La croissance', *Sciences humaines*, 105, May 2000, pp. 42–43).
5. A more attentive reader could also include energy as one of the foundations of the concept of nature. Einstein, however, showed the equivalence between mass and energy ($E = m \times c^2$) and De Broglie showed, in 1925, that to the existence of every mass particle (m) is associated an ondulatory process of oscillation frequency $f = m \times c^2/h$, and vice versa, $m = h \times f/c^2$, c being the speed of light and h a constant of nature known 'Planck's constant'. Therefore, according to the physical sciences, there is a direct connection between the concepts of mass and energy and time.
6. Translation by João Manuel Mimoso. Available from: <http://www.historia.com.pt/Mensagem/Brazao/castellos.htm#inglesa>

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