

## ECOLOGY:

### A DIFFERENT PERSPECTIVE

Today's industrial society is having an encounter with ecology: in April, 1976 the French government presented the National Assembly with documents on the dumping and burning of waste in the sea, as well as on the protection of nature. Electoral campaigns, discussions and demonstrations are centered about the theme of pollution and environment. In the last century the accumulation of waste had already become a problem: "One of the most important duties of industry is to find a useful employment for waste," wrote P. L. Simmons in 1875.<sup>1</sup> The advice was heeded if we may believe what J. Gottmann wrote on the matter nearly a century later: "If our era is to be defined by its most important raw material and one that is truly proper to it, as is done for the Bronze Age or the Iron Age, we may no longer speak of a Steel or Petroleum Age, nor of an Atomic Age (which may come in the future) but of the Garbage Age."<sup>2</sup> The extraordinary demographic expansion of humanity that has

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<sup>1</sup> P. L. Simmons, *Waste Products*, quoted by S. Moscovici in *Essai sur l'histoire humaine de la nature*, Flammarion, 1968, p. 419.

<sup>2</sup> J. Gottmann, *Les marchés de matières premières*, Paris, A. Colin, 1957.

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gone from a population of five million in the Paleolithic Age to four billion today gives rise to a monstrous abundance of refuse resulting as much from the natural mechanisms of living as from industrial activity (factory waste) or from the present attitude haunted by the idea of obsolescence (the throw-away society of Alvin Toffler). The outline of a universe submerged in waste matter appears, similar to that evoked by Italo Calvino in *Città Invisibili* apropos of the town of Leonia: "The refuse of Leonia would gradually invade the world if the interminable garbage heaps were not pressed upon, beyond the last crest, by the refuse of other towns that also push mountains of refuse far away from themselves. Perhaps the entire world beyond the borders of Leonia is covered with craters of trash, each with a continually erupting metropolis in its center. The borders between foreign or enemy towns are thus contaminated bastions in which the detritus of the one and the other serves as mutual support, menacing and mixing together."<sup>3</sup> The world of *Metamorphosis* is approaching in which man, transformed into an insect, covered with dust and remains of food, gnaws on the cores and parings of half-rotten vegetables. Science fiction invents a remedy to fit the problem: a planet specialized in storing all the garbage unloaded by an entire galaxy.<sup>4</sup>

This obsession with waste is only a way of considering "the object when it has reached the end of its road."<sup>5</sup> It is engendered by a society that produces, consumes and discards. However, this invasion by trash proclaims the fabulous prodigality of our industrial societies. The idea of a depletion of resources accompanies the idea of the deterioration of nature: both are food for ecologists' campaigns. They do not date from today. With historical testimony for support we can distinguish between earlier claims and present attitudes: these last contain something new, irreducible to the already known and defining an original problematic. Certainly, the topic of the defense of the environment is full of ambiguous meaning, all the more so that the idea itself of environment is imprecise. Beginning with a restricted accep-

<sup>3</sup> Italo Calvino, *Città invisibili*, Turin, Einaudi, 1972.

<sup>4</sup> Charles Platt, *Garbage World*, New York, 1967.

<sup>5</sup> Otto Hann, *Arman*, Paris, Hazan, 1972, p. 32. Cf. Italo Calvino, "The opulence of Leonia is measured by the things that are thrown away every day to make place for new things."

tance of the term, reducing the environment to its physical and biological dimension only, we should like to show that through the attitudes of the defense of our environment a change in intellectual behavior toward science and nature is in preparation.

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Air, water and land pollution, the subsidence of the earth, noise: have they not always existed?

Tokyo is sinking more than three centimeters a year because of excessive pumping in the water table, but do the Venetians going into San Marco count the same number of steps above water that are seen in the paintings of the same church by Canaletto or Bellini? The lakes, the Rhine, the inner sea of Japan are undergoing the process of entrophization brought on by urban and industrial effluents; power plants raise the temperature of rivers and never has the definition of dust as "matter in an inappropriate place" been more exact than when suspended particles obscure the skies of Los Angeles or Kawasaki. As early as 1661 John Evelyn chastized the chalk, salt and soap burners, whose ovens infested the air "more than all the chimneys of London put together."<sup>6</sup> In 1273 an ordinance prohibited the use of coal in London as "prejudicial to health,"<sup>7</sup> just as public authorities today regulate the use of lead in motor fuel. Following Juvenal, Boileau complained of city noise just as our contemporaries do. The *Tableau de Paris* of Sébastien Mercier describes a capital city transformed into a veritable sewer, with an atmosphere fouled by the various emanations from dwellings, cemeteries and excrements thrown into the streets, but in *L'An 2440* the same author envisions a radiant Paris in which pure water flows from the fountains and roofs are covered with greenery, transforming the city into a garden. Ledoux extolled the individual house, exposed to the winds;<sup>8</sup> Voltaire<sup>9</sup> appealed to citizens to take their city in hand in order

<sup>6</sup> Cole, Freeman, Jahoda, Pavitt, *L'anti-Malthus*, Seuil, 1974, p. 302.

<sup>7</sup> *Ibid*, p. 302. See also A. C. Crombie, *Histoire des sciences de St. Augustin à Galilée*, P.U.F., 1959, Vol. I, p. 192.

<sup>8</sup> M. Ozouf, "Architecture et urbanisme: l'image de la ville chez Claude-Nicolas Ledoux," *Annales, E.S.C.*, 1966, No. 6.

<sup>9</sup> Voltaire, *Des embellissements de Paris*.

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to reduce inconveniences and make all beautiful, just as the urban developers of the "new towns" did after World War II. As industrialization gradually inflicted its damage, the literature of the affected countries evoked the ugliness and misery of factory cities,<sup>10</sup> but face to face with the complaints and desperation provoked by the destructive effects of growth stood the optimism of the technicians, convinced that they could overcome the various inconveniences of progress. In 1819, an English commission to investigate the steam engine<sup>11</sup> deemed that the fumes could and should be completely eliminated, just as our physicists claim to definitely "throttle" the leaks of a super-generator. Men constantly perceive the disagreeable or dangerous reverberations of their actions on their environment; they persevere in looking for remedies. At whatever time in history a conference in Nairobi could have produced evidence of the responsibility of man in the process of "desertification;"<sup>12</sup> man did not have to wait until the twentieth century to metamorphose the landscape. When in 1073 the German Emperor Henry IV was besieged by the Saxons in Harzburg, he made his escape through a virgin forest, arriving in Eschwege four days later. Two centuries afterward the ninety kilometers separating Eschwege and Harzburg were covered with fields and villages.<sup>13</sup> The work of civilization overturns, tramples down and exhausts nature. The finest archaeological discoveries are found in semi-deserts, and prestigious cities testifying to an advanced culture lie buried in places that are today depopulated or poverty-stricken,<sup>14</sup> as though these artifices of man disintegrated the immediate surroundings. Thus the distressing question arises, "Is man's lease on earth going to expire?"<sup>15</sup>

Faced with the extent of the damage, man rediscovers the idea of the finite that at the dawn of capitalism the Renaissance had rejected, when, filled with a sentiment of grandeur, it substi-

<sup>10</sup> This is particularly true of 19th-century English literature by authors such as Dickens, Ruskin and William Morris.

<sup>11</sup> Cole *et al.*, *op. cit.*, p. 304.

<sup>12</sup> The conference held in Nairobi August 29 - September 9, 1977, studied the present responsibility of man in the advance of the desert.

<sup>13</sup> Wilhelm Abel, *Crises agraires en Europe (XIII<sup>e</sup>-XX<sup>e</sup> siècle)*, p. 41.

<sup>14</sup> B. de Jouvenel, "De l'Economie politique à l'écologie politique," *Analyse et Prévision*, No. 2, February, 1954, p. 154.

tuted an infinite world for the closed world of feudal and theological society.<sup>16</sup> Paradoxically, the moments in which humanity experiences the almost unlimited growth of its powers are at the same time filled with dark forebodings. The demographic explosion, growth of cities and development of mines and manufacturing led 18th-century Europe to cross the threshold of consumer economy. This is the period in which Bayle became the "prophet of conquering capitalism,"<sup>17</sup> but in 1798 the cry of alarm from Malthus delineated the evidence of an implacable famine. Less than two centuries later, in full economic expansion, an author examining the state of the consumption of mine products asked himself if the earth is inexhaustible;<sup>18</sup> the pessimist prophecy reappeared in our day and took on the mathematical accents of the MIT models to announce the menace inherent in growth. Is not the anxiety of the inhabitants of Laputa,<sup>19</sup> suggesting to their academicians the project of extracting solar rays from cucumbers or a search for a means of reconvertng human excrement to its original form reexperienced today in less caricatural (but obstinate) fashion? The recycling of refuse is the order of the day;<sup>20</sup> the fight against waste is being organized; we are trying to contain the exuberance of our needs.

Thus the condemnation of the superfluous and the apologia of simplicity, indeed, of frugality, is being prepared; reinforced by Christian asceticism, obsessed by myths exalting the Golden Age of the earliest men, the scorners of technological progress and economic growth display their primitivist nostalgias. These are all the more radical since present events suggest a more virulent form of modernism. The physiocrats invalidate an indus-

<sup>15</sup> *Resources for the Future*, Bulletin No. 47, September, 1974.

<sup>16</sup> Ernest Bloch, *La philosophie de la Renaissance*, Petite Bibliothèque Payot, Paris, Payot, 1974.

<sup>17</sup> Gusdorf, *Les principes de la pensée au siècle des Lumières*, Payot, 1971. Gusdorf quotes this text from Bayle: "Promise a pension to those who invent new products for manufacturing or new means of increasing commerce; send everywhere to look for gold, send your fleets to north and south, and let not cold nor heat nor anything else arrest the passion for getting rich." p. 451.

<sup>18</sup> R. Furon, *La terre est-elle une mine inépuisable?*, Hachette, 1967.

<sup>19</sup> J. Swift, *Gulliver's Travels*.

<sup>20</sup> G. Bertolini, "Limites et contraintes du recyclage des déchets solides," *Analyse et Prévision*, No. 3, September, 1970.

trial future of which the dreaded construction was perceptible by setting up the enhanced image of a patriarchal and agrarian China.<sup>21</sup> In the last century the transcendentalism of Emerson; the protests of Ruskin against the ugliness of industrial cities; the medieval escapism of a certain type of romanticism manifest a passionate rejection of industrialization that is only the necessary other side of an aspiration to rediscover nature. Today a confused hostility toward civilization leads to dreams of flight from the cities to define the art of a natural way of life, to extol the consumption of "biological" food. A Swedish ecologist who is also an eminent biochemist,<sup>22</sup> Gösta Ehrensvärd, foresees a plan of restricting consumption in all areas: rationing of electricity and combustible liquids, a halt to production of all products not indispensable to survival (luxuries and armaments), rationing of food in all industrial countries, recycling of all metal objects, priority in research for the development of fusion energy and so on. It is not a question here of passing through a difficult period while waiting for a technological solution to the problems of scarcity; it is a question of establishing humanity in a transitional phase that will prepare the advent of a post-industrial society of the agricultural type.

This obsession for the pastoral has a dominant place in utopian literature. Even if the pure and simple return to nature remains incompatible with the utopian desire for a totalitarian organization of the universe, it is nonetheless true that a continued history of utopia has as a constant the cult of an essentially agrarian system.<sup>23</sup> The greater the growth in technological ability, the more praise it receives, the more protest is raised and the more opposition to activity that destroys nature. Thoreau criticized *Paradis à la portée de tous les hommes* in which Etzler, a German who had settled in Pennsylvania, visualized a society liberated by the machine:<sup>24</sup> today, the anti-utopias of Bradbury,

<sup>21</sup> J. Servier, *Histoire de l'utopie*, "Idées," N.R.F., p. 187 *et seq.*

<sup>22</sup> Quoted by Hans-Magnus Enzensberger, "Un critique de l'écologie politique," in *L'idéologie de/dans la science*, Seuil, 1977, pp. 228-29.

<sup>23</sup> R. Trousson, *Voyages aux pays de nulle part*, Éditions de l'université de Bruxelles, 1975, p. 20. The utopian is often hostile to disorderly nature (p. 24); the naturist myth implies a destructurement to which utopian institutionalism cannot resolve itself (p. 143); modern utopias such as those of Wells, Zamiatine, Huxley, Orwell and Werfel present an urban, mineral and geometric universe.

<sup>24</sup> Merle Curti, *L'évolution de la pensée américaine*, Plon, 1966, p. 297.

Döblin and Barjavel put at the end of what they consider to be an absurd and tragic technological evolution of humanity the happy rediscovery of a welcoming and generous nature.<sup>25</sup> Ethnology comes to the rescue to reveal that the hunting cultures of the Paleolithic age were cultures of abundance in which men, working only a few hours a day for survival, really had “bankers’ hours.”<sup>26</sup> From this point of view, the advent of agriculture would be a veritable regression; original sin would lie in the actions of man that violated the earth for its resources. The development of an industrial society is therefore only the long history of this technological capture of nature whose present intensity and extent bring the damages and risks to an unacceptable level.

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However, society develops an ability to neutralize the fears and protests aroused by the direction its development takes. On the psychological level as on the intellectual or technical and economic level, it works out attitudes, regulations and measures that leave the ideology of progress intact or strengthened.

On the psychological level, the means of communication or formation of mentality do not cover up the criticizable aspects of reality. The denunciation of pollution prepares humanity for acceptance or resignation. Mass media announces an atomic contamination, the shipwreck of some *Torrey Canyon* as if it were describing a crime of passion, a swindle, an avalanche, a technical achievement or a victory in sports. The most heterogeneous, reassuring or alarming items are thrown pell mell into the category of news of the day, making up an acceptable homogenized ensemble, in which extremes are compounded into a neutral tonality. Subtly, a fact presented one day as a catastrophe without precedent is brought back the next day as an inconsequential accident. This seesaw presentation of the news resembles at the same time the therapy of a cold shower and that of a pro-

<sup>25</sup> The fireman Montagne in Bradbury's *Fahrenheit 451*, the “Mephi” of Zamiantine, the “Colons” of Alfred Döblin, the survivors in René Barjavel's *Ravage*, all find life possible in the heart of nature. See also R. Trousson, *op. cit.*

<sup>26</sup> Marshall Sahlins, *Age de pierre, âge d'abondance. L'économie des sociétés primitives*, Paris, Gallimard, 1976, p. 76.



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gressive immunization based on stronger and stronger inoculations.

Nothing better illustrates this familiarization with a dangerously modified environment or one encumbered with its refuse than certain esthetic tendencies of today. The “garbage cans” of Arman in which are piled up trash of all kinds — tin cans, broken violins, garbage—the crushed cars and motorbikes of Baldaccini, the refuse of Beuys, express a universe that is the depository of automobile bodies, bottles, cans and plastics. This interest in “human secretions”<sup>27</sup> comes out in a new realism<sup>28</sup> that, if it is not the simple mirror of a perceived reality, is evidence of a more and more compelling interest in those aspects of reality that were formerly shunned, such as ugliness and filth.

Adorno emphasizes that the first of these two elements is especially present in modern art<sup>29</sup> even though the fauns and Silenuses of Hellenism, the appearance of man in a ridiculous or hideous aspect in certain sculptures of the Middle Ages, the grimacing monsters of Brueghel the Elder or Hieronymus Bosch, and the deformed creatures of Velasquez, have for a long time habituated us to the representation of the ugly. Formerly, however, this ugliness was not separated from the other characteristics of the real and neighbored with the graceful or the poetic. This strange comradeship shows what Bakhtine calls the “carnivalesque view of the world,”<sup>30</sup> that is, a comprehension of the unity and inexhaustible nature of an existence in which are mingled life and death, the beautiful and the ugly, the comic and the tragic. The “grotesque realities” of the Middle Ages and the Renaissance, studied by this author, express the sentiment of a concrete in which all contradictions were grouped: the *Dances Macabres* of Holbein or Dürer do not exclude comic elements. The grotesque is meant to represent the dynamism of life, the perpetual incompleteness of existence: “this is the reason he ascribes the two poles of evolution to his images,

<sup>27</sup> Otto Hahn, *op. cit.*

<sup>28</sup> Pierre Restang, *Un manifeste de la nouvelle peinture, Les nouveaux réalistes*, Paris, Editions Planète, 1968.

<sup>29</sup> Adorno, *Théorie esthétique*, Paris, Klincksieck, 1974, p. 67.

<sup>30</sup> Mikhail Bakhtine, *La poétique de Dostoïevski*, Paris, Seuil, 1970, p. 151.



what goes away and what comes at the same time, what dies and what is born; he shows two bodies in one, the burgeoning and the division of the living cells of life. In the heights of grotesque and folkloristic realism as in the death of onecelled organisms, there is never a corpse (the death of the organism coincides with its multiplication, that is, its division into two cells, two organisms with no 'waste'). Old age is pregnant, death is fat, all that is limited, characteristic, congealed, is precipitated into the lower body to be recast and reborn."<sup>31</sup>

The romantic resurrection of the grotesque does not succeed in rediscovering this sense of the world in which decadence and renaissance are in a dialectical relationship, in which the multiple facets of life are fused in the same crucible. The emphasizing of ugliness coincides with the expansion of industrial development in the 19th century. The ugly was no longer mixed with other characteristics; it was isolated and appeared as the result of an abstraction that placed it in an autonomous category, endowed with a power of structuration. Thus esthetic reflection made a concept of it, a value alongside the categories of art.<sup>32</sup>

This consenting to ugliness, this acceptance of the absence of beauty is today surpassed or completed by the interest in refuse of all types. This infatuation ends in the purposeful transmutation of values. Nothing better illustrates this fact than the sarcastic "*Essai de quelque envergure sur la crasse*," in which filth achieves the rank of a condition for existence: coarseness breathes life and growth into language, power, environment, all of society.<sup>33</sup> The apologia of refuse and filth develops what a disheartened author calls "*déqueulassolatrie*,"<sup>34</sup> the idolatry of the revolting.

<sup>31</sup> Bakhtine, *L'oeuvre de François Rabelais et culture populaire au Moyen Age et sous la Renaissance*, Bibliothèque des Idées, Paris, NRF, Gallimard, 1970, p. 62.

<sup>32</sup> Rosenkranz, a disciple of Hegel, was the first to consider ugliness as a category of esthetics. See also Raymond Polin, *Du laid, du mal, du faux*; and Lydie Krestovsky, *La laideur dans l'art* and *Le problème spirituel de la beauté et de la laideur*.

<sup>33</sup> Christian Enzensberger, *Essai de quelque envergure sur la crasse*, Paris, NRF, Gallimard, 1971. "Dirty at least exists, but clean is nothing and good for nothing; clean is dirty, mad and ill. It is powerful; what is clean never goes away: *à bon entendeur salut...*", p. 190.

<sup>34</sup> Jean Brun, *La nudité humaine*, Fayard, p. 179. "Filth is the new temple where the chalice of communion is replaced by a garbage can," p. 181.

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Interpreted as a sign of liberation, this phenomenon expresses the aspiration to an undifferentiated state, a sort of condition of original nature whose later division into “clean” and “dirty” is imposed by society; sphincter control, the consideration of excrement as disgusting, appear as the result of a cultural conditioning: their rejection implies the refusal of an axiology judged to be coercive.<sup>35</sup> But is not the evolution of contemporary thought that recognizes and absolves this filth explained by a re-evaluation of the dirty, of waste matter? This latter formerly found its worthlessness, its disgrace and finally its annihilation in the process of putrefaction:

*Le soleil rayonnait sur cette pourriture  
Comme afin de la cuire à point  
Et de rendre au centuple à la grande nature  
Tout ce qu'ensemble elle avait joint.*<sup>36</sup>

To ugliness, filth added repugnance and stench.

Now, our age takes away from waste this appearance of repulsive degradation. To the “*charogne infâme*” correspond today the sculptures of Cesare Baldaccini, with his automobile bodies, or the plastics of Oldenbourg. These residual forms escape the assimilative action of bacteria; their quasi-indestructibility makes us miss the natural disposition to decay. We regret that there is not a power of fermentation that would rapidly and completely dissolve all these worn-out products, a “putrivorous” species that would live on all these plastic and metal materials. Putrescence, formerly the mark of impurity, is becoming a desired element in the object; are we not looking for the means to restore a biodegradable nature to these indestructible materials being worked on by the chemical industry? Incorruptibility is a fault and a weakness. The “dirty” in a society that is “cleaner” than it has ever been<sup>37</sup> changes its tenor. It is no longer repulsive,

<sup>35</sup> Brun quoted from texts by Jerry Rubin (*Do It*) and David Cooper (*Mort de la Famille*).

<sup>36</sup> Baudelaire, “Une Charogne,” *Les Fleurs du Mal*, Gallimard, “La Pléiade,” p. 29.

<sup>37</sup> This cleanliness itself secretes waste and dirt. “The city of Leonia is reborn every day: every morning its population wakes up in clean sheets, washes with newly-unwrapped bars of soap, puts on brand new dressing gowns, takes an unopened container of milk out of the latest model of refri-

it is no longer something that decomposes or rots: a “nasty” cold is one that goes on and on; the “cleanliness” of an atomic explosion is measured by the limits of its effect in time and space. The “dirty” today is what endures, what stays on indefinitely, what delays deterioration by installing itself in an unassailable perpetuity.<sup>38</sup>

This paradoxical transformation explains the ambivalent feelings before the “dirty;” the concept telescopes two contradictory statutes, historically separated: the natural tendency toward dissolution, expression par excellence of the unwholesome and formerly thought of with disgust, is today regretted, rehabilitated, re-evaluated. The aversion that it inspired is now transferred to its contrary, the disposition to an infinitely prolonged and menacing existence. The emergence of the “dirty” as a constitutive category of the universe dramatically connotes the confused ambiguity of this experience in consciousness of which it is only the objective and material correlative. By demonstrating the indestructibility of trash, by reinstating it into the ecosystem, the experience suggests a non-disposition toward renewal and consequently announces an inevitable exhaustion. The encumbrance of the universe becomes the sign of its ineluctable impoverishment.

In this subtly worked-out context of ecological sensitization, the remedy for denounced evils can no longer consist of the former preaching of a simple return to a natural life. For some, it is in the ideal of stabilizing development. The “stop to growth,” the Mansholt letter, the themes of zero growth join the “stationary condition” so dear to John Stuart Mill in the 19th century.<sup>39</sup> The abolishment of excess and immoderation that all

generator... Wrapped in clean plastic sacks, the garbage of the day before waits on the sidewalk to be picked up by the garbage truck.” From this comes Leonia’s abundance. “A fortress of indestructible refuse which encircles Leonia, towering over the city like a mountain amphitheater,” Calvino, *op. cit.*, pp. 133-34. In the perspective of science fiction this accumulation ends in isolating communities from each other. Cf. Rita Kraus, “La grande décharge,” in *Le Monde*, June 16, 1972.

<sup>38</sup> E. F. Schumacher, *Small is Beautiful. Une société à la mesure de l’homme*, Paris, Seuil, 1978. “Dr. Edward D. David, science advisor to President Nixon, said, referring to the stockpiling of radioactive waste, that one feels uneasy when faced with a substance that has to be hermetically sealed and buried for 25,000 years before it becomes harmless.” p. 19.

<sup>39</sup> John Stuart Mill, *Principles of Political Economy*, 1848, quoted by B.

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these proclamations contain lends an accent of reasonable wisdom to what could appear as an unreasonable fear of the future. Progress cannot be arrested, especially in a period where industrial technology is seen in a perspective of the systematic exploitation of scientific research: and on the level of social tranquillity, it would be unthinkable to dream of stopping growth. In fact, ecological preoccupation becomes a means of fueling economic activity; a new market is opening up for enterprises specializing in the development of anti-pollution equipment. In 1969 specialized Japanese firms sold more than \$2,500,000,000 worth of such equipment; in 1971 the Americans estimated the growth rate of the new eco-industrial complex at 20% per year for the following five years and its turnover in the area of the protection of the environment at \$25,000,000,000.<sup>40</sup> The objective of a quantitative limitation of growth promotes in fact a new industrial expansion, supported by public funds and consumer taxes. As the Committee for the Environment of the O.E.C.D. pointed out in 1970, on the subject of the reestablishment of the quality of the physical environment, "the solution does not lie in renouncing growth but in favoring a good type of growth thanks to a judicious repartition of our deficient resources, not to slow down production but to create new mechanisms and installations able to treat more effectively the external factors that are not at present taken into consideration in our market economy."<sup>41</sup>

This reduction of external factors to the level of economic theory is a new blow to the idea of abundance. In fact, water and air have long been considered as inexhaustible and consequently gratuitous commodities, especially by their polluters, for

Cazes in *Contrepoint*, 1972: "I see no cause for rejoicing over the fact that individuals already richer than they need to be double their capacity of consumption of things that bring them little or no pleasure other than that of a sign of wealth, or that a larger number of individuals pass every year from the middle class to the wealthy class, or from the employed rich to the idle rich (...). The best condition for human nature is the one in which no one is rich, no one aspires to be richer and no one is afraid of being overthrown by efforts that others make to get ahead."

<sup>40</sup> Collective work, *L'idéologie de/dans la science*, Seuil, 1977, p. 205.

<sup>41</sup> Quoted in Report 1023/SG/92, presented March 4, 1971 to the OECD by Jacques Henri Gros on "problems presented by industrial use of waterways and the means to fight against water pollution."

whom it cost nothing to dump their wastes into streams and the atmosphere. However, if industry, agriculture, collectivities and private parties must pay to get rid of their harmful or residual waste, then air, water and space become rare benefits. The taking into consideration of external factors, that is, the integration of their estimated cost into the establishment of price, introduces them into the sphere of economy, into the domain of scarcity,<sup>42</sup> meaning by scarcity that which is measured in relative costs. Thus pollution transforms into scarcity, economically speaking, what was formerly thought of as inexhaustible because it was free.<sup>43</sup>

This examination of the functions of utility or harm not previously taken into account in production or consumption leads to an optimistic perspective of development. The phenomenon of pollution recentralizes the abundance-scarcity opposition; this latter is not found in the region of the material but in the symbolic domain of its transcription into cost. Each commodity corresponds to a cost. Consequently, the expensive and the cheap are measures of a degree of scarcity, and the conquest of abundance means nothing other than the putting on the market of commodities whose prices drop lower and lower. The emergence of "new scarcities" by permitting a return of growth is fuel for a realistic discourse on the reign of abundance and the alarmed insistence upon zero growth;<sup>44</sup> the extension of the field of scarcity is the condition for a new abundance.

It is not by chance that this effort of theoretical transformation of free loans by nature, such as water, air and space, into

<sup>42</sup> Scarcity is an essential dimension of economics. L. Robbins writes in *Essais sur la nature et la signification de la science économique*. "Economics is the science that studies human behavior in relation to ends and scarce means for alternative uses." Aron writes in *Paix et guerre entre les nations*, "Economics as a problem implies only scarcity and poverty" and Daniel Bell in *Vers la société post-industrielle* (Laffont, 1976) dwells upon this idea: "In all logic 'post-economic' means nothing, because the term implies a situation in which costs would be zero (economics is the management of costs) or inexhaustible resources," p. 75.

<sup>43</sup> This reduction in the domain of external economics, that is, gratuitous services and damage, undoubtedly ends in a process of appropriation whose nature and beneficiary it would be interesting to study.

<sup>44</sup> This theory of the "new scarcity" is that of Daniel Bell, *op. cit.*, p. 401 *et seq.* He distinguishes three types: cost of information, cost of coordination (participation and regulation) and cost in time (growth rarefies time).

capital, to be preserved or reconstituted, is accompanied by a particular attention to natural factors; many declarations persistently point out their importance: in 1974 a United Nations conference on world population was held in Bucharest; the "Tokyo Report" hopes for the working-out of a theory of climates; and the press revealed that a C.I.A. document contained some pessimistic conclusions on this problem. This taking into consideration of natural conditions, in an epoch in which science and technology are all-powerful, undoubtedly expresses the trials of a ruling class personally confronted with the terrible problems of pollution or depletion of resources; the damage industrialization brings touches not only the disadvantaged but the bourgeoisie itself. The latter was little concerned when in 1842 it read the investigation into sanitary conditions of the working class in Great Britain conducted by the Commission for the Poor Laws in the Home Department. In 1834, the 7,000 inhabitants of Manchester disposed of 33 sanitary facilities whose discharge pipes emptied into the street. As Hans-Magnus Enzensberger<sup>45</sup> writes, quoting from this investigation, "the idea came to no one to draw pessimistic conclusions as to the future of industrialization from such facts. It was only when living conditions in bourgeois sections were affected by the harmful results accompanying industrialization that the ecological movement was born." Parallel to the sentiment of injury to immediate interest appears a veritable political strategy, that of reducing social relationship to a simple relationship with nature. The apocalyptic description of the melting of glacial caps, of water and air pollution, relegate to second place all questions of group or class struggle. In the immediacy, the problems of daily existence are confined to the improvement of the quality of air, water and food, to the creation of green zones, the diminution of noise or travel time. The concepts of "the quality of life" or "environment" fill an ideological function by suggesting the hypothesis that the specific system of social relationships is due less to the organizing principles of society than it is to the establishing of a direct relationship of man with the natural factors that surround him. The theme of the defense of the

<sup>45</sup> *L'idéologie de/dans la science*, p. 198.



environment furnished the occasion to “naturalize” the social contradictions by transforming what is the fruit of history into a natural condition and thereby rediscovering the primitive meaning of the scientific discipline created by Ernest Haeckel in 1868. At that time ecology was defined as a branch of zoology entrusted with examining the relationship of an animal species with its environment.

We are far from the pastoral dream, the foolish desire to go back to an original simplicity, rediscovered through the sedimentation of technological transformations. This nature, dreamed or recalled, cannot replace the accomplishments of technology, as is intimated by the claims of a protesting youth that while decrying a consumer society imperiously demands all its advantages. Nonetheless, the apparent progressivism of an official ecology, mobilizing all the resources of science and technique in order to improve future living conditions, is close to the claims of an ecology that is more reactionary in its refusal of progress and its obscurantist return to nature. In the background of one and the other attitude stands out the more or less dominated fear of a society gripped by its impotence to give a human finality to the development of the forces of production. The differing versions of the ecological argument contain the same belief in a nature exterior to man, menacing for some, favorable for others, but always reduced to the status of an absolute object. This montage of man and nature face to face goes beyond the affirmation of simple ontological heterogeneity in order to release a view of the world that claims to reinstate the inviolable priority of natural conditions over historical factors. This is a particularly retrograde state of mind that in various forms and throughout the ages has strengthened the belief in the inequality of races, peoples and men because of biological or geographical factors inexorably determining their destiny and characteristics. The idea of programming, in which the use of a computer is big with consequences, when applied to the genetic process dangerously vulgarizes this abandonment of the forces of liberty that can be deployed under certain conditions in the practical field of social and historical activity.<sup>46</sup>

<sup>46</sup> Even linguistics calls upon innateness. Noam Chomsky, who cannot be



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If nature appears as external to man, it is however only a historical event, intimately bound to human activity; inert petroleum, hidden in the ground, only becomes a "natural force" thanks to the motor that uses it; "the human history of nature" belies the reality of a natural state, exempt from all human intervention; nature is always a construction of knowledge, expressing the state of the relationship of man with his natural environment: "Organic for the Greeks, mechanical in the Classical Age, today it may be qualified as cybernetic."<sup>47</sup> The successive deployment of natural states through which a society gives its cultural definition of matter responds to the needs of a period and depends on the quality of the faculties, skills and knowledge invested. It is this process that continually pushes back the limits of nature and makes its infinity comprehensible; directed research will discover resources in unexplored regions; already the taking into consideration of nodules distributed over the bottom of oceans increases the reserves of metals; the most advanced technologies will discover new forms of energy. We may share Dennis Gabor's conviction: "If industrial man fails one day it will not be because of lack of industrial energy or lack of raw material."<sup>48</sup> Ecologists do not deceive themselves on this immense potentiality of nature; it is the frightening power of the atom on the one hand and the unlimited activity of its residues on the other that motivate their opposition to a policy of nuclear energy. It is not the fear of the exhaustion of resources that obsesses the ecologist but the fear of no longer being able to control the cultural production of natural phenomena.

accused of political conservatism, wrote: "The linguistic theory (or universal grammar) is what we may suppose to be a biological fact, a genetically determined property of the species: the child does not learn the theory but applies it in developing his speech..." Noam Chomsky, *Dialogues avec Mitsou Ronat*, Flammarion, 1977, p. 144. "This grammar represents linguistic knowledge. In presenting it we have given an explanation of the fact that someone who speaks a language knows this or that: the procedure of discovery is part of his genetical baggage, and in applying it to his experience, he constructs this grammar, his knowledge of the language." *Ibid.* p. 124.

<sup>47</sup> S. Moscovici, *La société contre nature*, 10/18, 1972, p. 391. Cf. the same author, *Essai sur l'histoire humaine de la nature*, Flammarion, 1968.

<sup>48</sup> Dennis Gabor, *Inventons le futur*, Plon, 1964, p. 110.

Thus beyond the pluralism of ecological attitudes, whether they refer to a nature considered as closely confining or as unlimited production of man, is seen the fundamental question of knowing how to reconcile civilization and nature, how to define the terms of a new alliance between man and his physical environment. Before the industrial revolution the savant wooed nature in a sort of amorous *tête à tête* pursuing the unveiling of her secrets; her representation itself attracted some attention, and in the 17th century Vasari warned against a too knowing perspective that “violates nature through excessive study.”<sup>49</sup> On the contrary, the success of technical civilization is achieved through the wringing exploitation of the riches of our environment; positivism and technicalism bring into play a rationality that metamorphoses the world under the category of an agency. Everything is reduced to the role of a tool: ideas, words, methods, institutions become indifferent operative means tending solely toward efficiency. In the perspective of a concept of the growing control of nature since Bacon, sciences and techniques have been transformed into procedures of intimidation devoted to the total domination of nature, including human nature.

The revolutionary significance of ecology is in the will not to see the universe as a simple field of instrumental activity. Let us not mistake: such a refusal breaks as well with the capitalistic logic obscured by the manufacture of commercial artificial products as it does with a narrow interpretation of Marxist theory that makes work the fundamental constitutive category of the world. The two social systems under abeyance have different goals, but they are equal in their treatment of nature as pure object.

Should it then be transformed into pure subject? Marcuse, analyzing advanced capitalistic society, concludes that “technology has become the great vehicle of reification — a reification that has reached a most efficient and complete form.”<sup>50</sup> This technology owes its all-powerfulness to scientific logic whose natural disposition to transform everything into quantifiable data

<sup>49</sup> Erwin Panofsky, *La perspective comme forme symbolique*, Ed. de Minuit, 1975, p. 18.

<sup>50</sup> Herbert Marcuse, *L'homme unidimensionnel*, Ed. de Minuit, 1968, pp. 191-92.

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assures operational success. Such an analysis leads to taking science as the model for all mastery; its methods and its concepts determine a universe characterized by domination: the project of the subjection of nature finds its homologue on the level of social relations: the domination of nature and the domination of man are linked. It would suffice to break this overlapping in order to rid scientific and technological rationality of its oppressive aims. Then "the hypotheses of science, without losing their rational character, would develop in an experimental context essentially different (that of a peaceful world) and as a consequence, science would end in concepts of a different nature."<sup>51</sup> With the advent of this new science, would nature cease to be the object of domination and become the full partner of man? Marcuse acknowledges that such an analysis of present-day science may suggest that "it would be desirable that physics become in some way 'quantitative' and that teleological philosophies return." Not allowing himself the desire to develop "obscurantist ideas of that sort"<sup>52</sup> he admits that this doubt could be cast on his reasoning. Jürgen Habermas does not fail to do so and ranks Marcuse with his fellows of the Frankfurt school—Benjamin, Bloch, Horkheimer and Adorno — for whom "without a resurrection of enfeebled nature, without a return to this nature that has been exiled, men will not be able to hope for their own emancipation."<sup>53</sup>

In this vein, long exploited by romanticism, the Marxist philosopher Ernest Bloch does not hesitate to confront the accusation of mysticism. In fact, he restores a qualitative dynamism to the concept of nature, supporting his position by a pantheist interpretation of the Aristotelian idea of matter. We know that for Aristotle matter was a passive power, the receptacle for the active determinations of form; but the correlation power-action installs at the heart of matter an active force of determination that had appeared up to then as the indivisible privilege of an external form. Those whom Bloch calls the "Aristotelians of the Left" (Avicenna and Averroes) endowed all matter with

<sup>51</sup> *Ibid.*, p. 190.

<sup>52</sup> *Ibid.*, p. 189.

<sup>53</sup> Jürgen Habermas, *Profilis philosophiques et politiques, Les Essais*, Gallimard, 1974, p. 236.

an active form and all active form with matter. Forms are present in power and as potential ends at the very heart of matter. This latter thus contains in itself its own dynamism and its own structures; it is a "*natura naturans*" that bears its real, active potentialities toward the immanent forms of matter itself. It is then both a condition of existence and prospective aim, what Ernest Bloch calls the "possible real objectiveness," that we must not think of as a preliminary form of a securely foreseeable real, nor as the theoretical infinity with all sorts of possibilities, but as "determination bearing the future." "Real possibility is none other than dialectical matter." <sup>54</sup>

This teleological character of matter endows nature with intention in the phenomenological sense of the term, with a real power of meaning that is manifested in the form of "figures" of nature. Numerous metaphors (still waters run deep), numerous images like those of the sun, a storm or a rainbow that are not constituted of human materials "are instead the evidence of the existence of a sort of second writing of nature itself, a sort of real figure or real symbol." <sup>55</sup>

Thus in rediscovering the primordial place and the true character of matter,<sup>56</sup> the German philosopher establishes a dialectic of nature that acts as the correlative of a dialectic of the consciousness. To the category of "possible real objectiveness" by which matter was defined, corresponds from the side of the subject the category of "pre-appearance" (*Vorschein*); it designates a way of being that awakens the consciousness and shows it what has not yet become in the complete spread of its possibilities. The

<sup>54</sup> Ernst Bloch, *Le principe Espérance*, I. "Bibliothèque de philosophie," Gallimard, 1976, p. 249.

<sup>55</sup> *Ibid.*, pp. 200-201. Bloch pursues, "The lines of force (fire, lightning, sound); the forms of chosen objects (the palm, the cat, the human face, the crystalline style of Egypt, the luxuriant style of the Gothic) are so many designations of these real numbers. A part of the world with profoundly engraved traits is revealed to be an ensemble of symbols of an objective nature whose mathematics as well as philosophy are still non-existent... We touch here upon the problem of the science of objective utopian figures, that is, in the final account the forgotten problem (Pythagorean) of a qualitative mathematics, a new qualitative philosophy of nature."

<sup>56</sup> Terribly impoverished by machinery. Bloch applies to this process of impoverishment in which Marxism has participated this word of the English savant John Tyndall: "If matter makes its entrance into the world dressed as a beggar it is because the Jacobs of theology have stolen its birthright." p. 338.

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anticipating activity of consciousness reaches the prospective tension of the real; both are transcended by the “utopian function” that is at the same time a substance of the world and the imaginative action of the subject.<sup>57</sup> Within the terms of such an analysis, Bloch could remind us of Marx: “Thus it is society that realizes the consubstantiality of man and nature, the true resurrection of nature, naturalism formed by man and humanism formed by nature.”<sup>58</sup>

This consubstantiality of man and nature demands a new understanding of the world and consequently another science and another technique. Those which have developed are complete strangers to the qualities and proper meaning of nature. Calculating thought, supported on the quantifiable, petrifies and reifies everything it touches; Marxism is not exempt from the same practices. Bloch sees a warm current made of the spirit of emancipation, of real utopia and a cold current in which triumph analysis, the desire to reduce everything to the empirico-analytical and instrumental.<sup>59</sup>

It is not practical to reject such a system of approach and action that corresponds to an undeniably quantitative aspect of the universe, but mathematical constructions and technological manipulations grasp and use only a moment of the real. As Gérard Raulet writes, “A technique renouncing the transposal onto nature of the attitude of an animal trainer would become a ‘technique of concrete alliance’ with it and would rediscover the ‘contact’ whose loss makes the object of its manifestations foreign.”<sup>60</sup> Thus Ernst Bloch does not deny the technological experience but by an approach that, transposed to the level of criticism of science and technology, recalls that of Rousseau, he denounces social and ideological conditions that have historically perverted scientific knowledge and its use. The new technology must reactivate the latent meanings of nature; man and nature

<sup>57</sup> Bloch, *op. cit.*, p. 215. “The process of the world which has for substance the matter of possible objectiveness is itself a utopian function.”

<sup>58</sup> *Ibid.*, p. 338. We point out that these ideas were not irrelevant to the fact that the author lost his teaching post in Leipzig in 1957.

<sup>59</sup> *Ibid.*, p. 252.

<sup>60</sup> Gérard Raulet, “Encerclement technocratique et dépassement pratique, L’utopie concrète comme théorie critique,” in *Utopie, Marxism selon Ernest Bloch*, collection Critique de la Politique, Payot, 1976, pp. 301-02.

are co-producers equally launched on an enterprise of concrete fashioning of the qualitative and teleological anticipations that under the impetus of " utopian function " cross each other.

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This position of nature as subject may furnish the anchorage for a revolutionary *Weltanschauung*; through a romantic heritage, indeed a mystic one, it feeds a desire to " re-enchant the world, " according to Serge Moscovici.<sup>61</sup> It is not a matter of rejecting the quantitative aspect of nature but only of considering that it is only the manner in which we wish to dispose of it. " *Techné* is the violent activity of knowledge, " Heidegger wrote, interpreting the first chorus of Sophocles' *Antigone*. At a time when industrial society is becoming universal and a model for all human collectivity, it appears that in the East as in the West, in capitalist countries as in socialist countries, technique leads to a brutalizing conquest of the real.

This planetary extension of the techniques of violence explains the originality of an ecological project that refuses to submit itself to the disposition of one or the other economic system. Independence, theoretically proclaimed by the ecologists since the French legislative elections of 1978, illustrates this desire to transcend present forms of both capitalism and socialism. A formidable objective, because it requires a radical conversion of attitudes. The subject of industrial society owes its immense and undeniable success to its violent affirmation of its own stand. This is the very essence of *techné* as *a priori* of all experience of beings and things; technology begins then with the experience of man as a certain way of seeing and sensing nature. The ecologist regards nature differently and thus gives it the status of equality with man. He reestablishes a continuity of sympathy with it. The banishment of abnormal development in human enterprise, the appearance of soft or intermediate technologies, the abandonment of repressive behavior with regard to the body announce a modification in the technical treatment of the world. Present-day human societies attempt to inject these new

<sup>61</sup> Serge Moscovici, " Le réenchantement du monde, " in *Au-delà de la crise*, introduction by A. Touraine, Seuil, 1976.

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perspectives of development in small doses, as is seen in the ecological tint taken on by all political parties.

But the authentic ecological discourse is too opposed to common ideologies of efficiency, of profit, to accommodate itself to an apparent reformation. It is in this sense that it may be considered revolutionary, radically breaking with the past and foreshadowing a future in a new design in which appear the lineaments of a new project of society, with social, economic and political relationships, completely different from those we know today. Science in particular will cease to be the slave and the Egeria of technology; it will no longer put itself at the mercenary service of a furious production of material goods, often useless and simply a source of profit. It will remain aloof to concern itself with a disinterested knowledge of the universe. To this dematerialization of nature will correspond a spiritualization of the consumer society that will stimulate the production of cultural goods.

Utopia or a serious project? The ecological discourse may be the simple enunciation of unrealizable desires, the verbalizing of fantasies. But it may also be the program for a deliberate desire to explore this discovered territory of a new nature to which we have given a soul, a meaning. A formidable undertaking that in order to avoid the capture and brutal domination of natural forces must avoid the peril of exalted and empty mysticism.