

DEGRADATION OF THE ENVIRONMENT AND MARKET ECONOMY(*)

By posing the problem of the relation between the degradation of the environment and the market economy, one presupposes a preliminary answer to a more general question: As a result of his "instincts," is man, by necessity, predatory upon the natural order which surrounds him? If the answer to this question were affirmative, the current massacre of the environment would, at best, represent no more than an acceleration of mechanisms which are as old as the emergence of man, and, if the truth be told, any hope of the relationship between man and nature finding a new balance would be in vain. It is not very likely, however, that the answer would be a positive one. For one fundamental reason, nature is to a large extent a creation of man which has constantly modified itself throughout the history of man, ever since the invention of fire. What we call 'nature' is a structured, mobile complex of cycles which relate to our mineral environment and our living environment and which enable man to survive on earth; and it is impossible to ignore the action of man himself within these cycles.

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If the answer to the above question is negative, a further question should be raised at once: under what conditions are human societies led to degrade their environment in such a way that human survival is endangered? and in this light is capitalism an exceptional factor or not? what, in fact, are the actual mechanisms which lead to this type of degradation?

Having once worked out this general problem, one should then ask oneself whether the market economy is in a position, today, to assume a different relation to the environment—in other words, to question the significance of environmentalist policies in societies which involve a liberal economy.

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In considering the degradation of the environment, can one question man's natural aggression, and the aggression in those instincts which might produce his predatory capacity? First and foremost let us consider the ethological position, which will enable us to specify the particular characteristics of man more closely as a result. In a debate which has been sparked off but which is far from being settled (UNESCO has organised two interdisciplinary conventions aimed at understanding the aggressive potential of man, one in 1970, the other in 1971; see particularly: *Understanding Aggression*, 1971), we shall follow the ideas of K. Lorenz (1969), until such time as further research will permit us to face the problem still more comprehensively. To date, Lorenz has submitted the most fully elaborated and comprehensive theory in this field. We are well aware that he has many critics. Their criticisms are often based on misunderstandings or on unjustified a priori deductions. Thus, R. Bigelow (1971) reproaches Lorenz for his conception of aggression as an instinct which can only be resolved in violence and war, and for dissociating "almost totally" biology and culture, which is strictly incorrect. R. Bigelow nevertheless maintains a thesis which is not far removed from Lorenz's thesis; in adopting a positivist stance, R. A. Hinde (1971) for his part proposes a definition of aggression as a type of behaviour dictated by "the desire to cause bodily injury" to someone else, but he fails to give any basis whatsoever for this distinction; for no other reason he too questions the possibilities of transfer: "If one reduces the

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level of aggression, one will see the emergence of other types of behaviour, but *it is probable* that these will not be of the same order as aggression, and that they will obey motivated states of mind and different mesological factors.” (p. 58—emphasis ours). When we have put forward Lorenz’s thesis, we shall enlarge upon his conclusions in a direction which he would certainly not disown.

In animal societies aggression is frequent; people maintain, however, that it is restricted to the relations between individuals or groups which belong to the same species. Between different species, the relations are complementary, be it directly or indirectly, and not concurrent; a given species, taken as a whole, lives at the expense of one or more other species, but their relations are exempt from aggression and the dominant nature of these relations is, in the final analysis, the preservation of each of the species involved. The specific features of complementary species thus find accentuation in the process of evolution; each species affirms its means of attack or defence. One of the most spectacular examples of this reciprocal evolution is incidentally the relation between the animal world and the vegetable kingdom: while the teeth of herbivores hardened in the course of natural evolution so as to be able to chew the plants which sustained them that much better, so the plants learnt ways of defending themselves that much better, and one of these ways was the incorporation of a larger quantity of silicate. The relation between two complementary species never reaches the point at which one or the other of them is eliminated; the relation always establishes a state of equilibrium for both species concerned.

The “struggle for survival”—otherwise called aggression—is in fact peculiar to intra-specific relations, but it is restricted in several ways. It is first of all linked to sedentariness, to the delimitation of an individual territory. On this basis fish may be divided into two major categories: on the one hand, those species whose members live a sedentary life, in isolation, and develop a respective level of aggression, and on the other those species who live in large shoals, constantly on the move, whose aggression is non-existent. Intra-specific aggression seems to be necessary for the preservation of those species which are aggressive. It is functional in several ways. One of these, which has

been recognised from way back, is the selection of the best-equipped individual members; any advantageous invention in one or more members of the species, which is consequently included in the dynamic of the species, tends to spread by virtue of the pattern of election and the pattern of hereditary modifications. It brings about the cancellation of a previous state of the species and the introduction of a more evolved state.

Another function of aggression is to share out the vital space available between the members of the same species. Each elementary individual or group occupies an "ecological niche" within the complex of the other living species with which it lives, not concurrently but in a complementary relation. When the number of members in one particular species exceeds a certain limit, the "ecological niche" of each one of them is endangered, which involves a consequent danger to the overall ecological equilibrium. There are also intra-specific concurrences which are alien to the extra-specific environment; the fairly short-term result of this is the extinction of the species as a result of aberrant features. Generally speaking, intra-specific aggression nevertheless fulfils a regulative function within the whole, and in fact one can see that it does not tend towards an extermination of the species, at least under normal conditions. It is "indisputably an essential factor in the organisation of instincts for the protection of Life." (K. Lorenz, 1969, p. 58). Furthermore, and during the process of phylogenesis, aggression in many of the species is ritualised in such a way that it rarely leads to serious outcomes. (See, for example on this topic, the observations of J. van Lawick-Goodall, 1971, with regard to chimpanzees). Aggression can thus be seen to be limited by specific inhibitions. In fact it is organised in such a way that one can distinguish an in-group, the members of which enjoy solidarity, and an out-group, which alone manifests aggression: solidarity is indissociably linked with aggression. In the case of animal species living in tight groups (flocks, herds, etc.), solidarity is absolutely anonymous, and the personal bond is non-existent. In the case of the most primitive animals—reptiles—intra-specific aggression is not accompanied by its antithesis. In the case of the most evolved animals, on the other hand, individual friendship develops in proportion with aggression; overall, "if there is intraspecific aggression without its antipodes, love . . . , conversely, there

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is no love without aggression.” (K. Lorenz, 1969, p. 232).

The behaviour of man is, first of all, linked to these laws of instinctive behaviour which has developed by the process of phylogenesis. One of the most remarkable similarities between the human species and the evolved animal species is the complementary opposition of types of behaviour with regard to the in-group and the out-group: all the aggression is unleashed against those individuals who do not belong to the community, within which the position of solidarity prevails.

The drama peculiar to mankind is that which originates from the contradiction between his instinctual bases and his highest qualities: conceptual thought and verbal language. The inherited accumulation of technical inventions and the development of material civilisation swiftly modify the specific balance of aggression and of the limits imposed upon it by phylogenesis. From the outset—and contrary to the frequent popular claim, man has been an omnivorous and inoffensive species, intrinsically poorly armed to aggress against his fellows; thus he does not have strong inhibitions applicable specifically to murder. From the first, material inventions have endowed his aggressiveness with tools, the use of which was virtually unchecked by instinctual limitations. Under such conditions, aggression has tended to develop within the human species in accordance with a process of natural selection which is hallmarked by being intra-specific, not associated to the extra-specific environment and consequently, as happens in all cases where this type of selection is operative, disastrous for the species. In order to restrict the consequences of these mechanisms, mankind has two means available to it. First, the ethic of responsibility, the effectiveness of which is considerably limited because it cannot be founded on any rationality, but only on affectiveness—that is to say on genetically programmed social instincts. Rationality can supply neither the aims nor the orders; it can only furnish the means and the areas of application. Its effectiveness is limited above all to the enlargement of the group having solidarity, by including within this group anonymous beings who share certain abstract characteristics with a particular individual. In other words, morals (or ethics) constitute no more than a compensatory mechanism within a behavioural system of which phylogenetic inclinations are another necessary element.

The other means available to mankind is the creation of standards and cultural rites analogous with the phylogenetic ritualisation which occurs in the animal species. These determine behaviour in a manner which is as rigid as the instincts, because they form complex wholes, distinguishing one group from another or others and setting up frontiers between the essentially complementary worlds of solidarity and concurrence. To a far greater extent, they direct the manifestations of necessary intra-specific aggression, or easily redirect it thanks to cathartic mechanisms, towards activities which are not harmful to the species, such as verbal debate, sporting competition or scientific emulation; equally, they contribute to sublimation. In this way the universality and importance of institutions which tend to reduce the violent forms of aggression in agrarian societies have been frequently underlined. To attribute misdeeds to human aggression can therefore have no other meaning than to question these institutions. "By nature man is a cultural being. In other words, his whole system of innate activities and reactions has been constructed by phylogenesis and 'calculated' by evolution in such a way that he needs to be completed by cultural tradition." (ibid., p. 279). The control of aggressive impulses by tranquillisers might be one solution which would not diminish imagination and creativity (Laborit, 1970), but which would certainly have an effect on the various feelings of solidarity, friendship and love, because these cannot exist without aggression. Such control would thus be introduced at the price of an extraordinary transformation of mankind, and it would present the aberrant character of an aggression against the biological foundations of human life, even though the institutions by which the effects of these biological foundations are directed would continue to exist.

Before going any further, and in the light of what has already been said, let us formulate a hypothesis regarding the relation between the absence of inhibition introduced by culture to aggression, or even the official recognition and intensification by culture of the different violent forms of aggressiveness: murder, war, exploitation of man by man, and the predation by man on the natural environment. We have clearly seen how the intra-specific aggression of animal species is habitually associated with the conditions of existence within the extra-specific environment, and fulfils the function of restoring a constant balance of the

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whole by means of the preservation of the various "ecological niches." On the contrary, this aggression, when detached from the conditions of the environment, leads to disastrous developments for the species and therefore, in this respect, to a partial upheaval of balance with regard to the whole.

As far as man is concerned, aggression in its most spectacular form—war—and in particular with the present-day means of massive destruction, has similar effects. War, however, is only a limited case. When aggression is translated as the domination or exploitation of man by man, it can result in consequences which are just as disastrous for the environment. In fact any domination or exploitation pushed to its logical conclusion both ignores and denies the living conditions of the dominated or exploited peoples, and at the same time tends to involve the destruction of the extra-specific environment. In other words, the emergence of a logic of intra-specific aggression which is not linked with the conditions which are extra-specific—namely, a logic peculiar to a sector of the species which is not subject to the living conditions of the species overall—leads to the degradation of the environment. Let us take one or two examples of societies which have not (re-)created a cycle of reproduction for nature, and let us examine the origins of this dynamic.

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In the course of man's history the nomadic societies of Central Asia have without a doubt been among those which have devastated nature the most. The nomadic-sedentary relation is certainly an essential factor in the history of the world, although it is still to a large extent inadequately analysed. At this point we shall not deal with the whole gamut of consequences which have issued from it, but simply with the immediate effects on the occupation of the ground. The peoples of Central Asia started out as forest-dwelling hunters; they subsequently changed to cattle-raising, with the domestication of the large mammals, and seasonal migration. At this time the steppes were their territory. Production techniques gave rise to a particular social organisation of which the major feature was the formation of concurrent tribes, jointly using the natural prairie. This development meant that war was an activity intrinsically linked to the way of life

and led to the invention of extremely elaborate fighting techniques, based on the horse and the bow which, until the 19th century, guaranteed the nomads constant military superiority over the sedentary groups. A further difference between the two classes was the extraordinary factor of an intra-specific aggression which was functionally of no practical use to the sedentary societies (see especially B. Grousset, 1960, on this topic). From the viewpoint of the nomad, agriculture stretching to the outskirts of the steppes was simply a concurrent activity with regard to the utilisation of space; thus, to begin with, it was only considered as a source of enrichment, by raiding, kidnapping and plundering accompanied by destruction and genocide, the object of which was to replace the plough by pasture. In this way agriculture, in several stages, was abolished throughout large areas of Asia, in particular in the Near and Middle East. "Some two thousand prisoners were piled up alive, one on top of the other, and covered with mud and bricks to make towers... Our soldiers built a mountain out of dead bodies, and erected towers with their heads... and when we reached the banks of the river Hilمند, we destroyed the dyke called the Roustem dyke and no trace remained of that ancient construction"... etc... (The Campaigns of Tamerlane, as chronicled by the *Zafer Namé*, quoted by R. Grousset, 1960, p. 506). And so in the 14th century the Sistan finally returned to the desert which had been violently taken from him at the price of vast irrigation works. The same fate lay in store for many other semi-arid regions which the sedentary societies had conquered by agriculture; life shrank away from these regions, and a well-developed organisation was replaced by a poorly developed one; at times the regions were reduced to the status of desert. These consequences on nature wrought by intra-specific aggression in its most violent form are remarkable. But one can note that this violence appears to be no more than mediated by the social institutions: it only manifests itself in this radical form by virtue of the basic opposition of the techniques of production and the institutions which are function in relation with these techniques with which concurrent societies have endowed themselves. Furthermore all the nomadic tribes who spread out over the confines of the steppes never wrought destruction on the scale it was wrought by Attila's hordes, or the hordes of Genghis Khan or Tamerlane; and those

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tribes which were most destructive (the most 'barbaric,' and those who had had least previous contact with the sedentary societies) swiftly assumed a different type of behaviour with regard to agriculture. They applied themselves to reviving it. Not long after the conquest, the nomad empires realised that the regular working of the land, in the form of the annual deduction of a land tax, was more beneficial than pillage and destruction, as a result of which there remained little more than the extension of poor-yielding pasturelands. A calculation of this sort, in which one can very clearly disclose the progressive affirmation in the evolution of the nomadic dynasties who dominated the sedentary societies, which reunites dominator and dominated in their relation to the extra-specific environment, results in redirecting aggression, and in so far as the most developed nomadic institutions permit, leads to the recreation of a richer organisation.

Let us take another example of fullscale destruction of nature. If, in so doing, we again find ourselves in the presence of nomadic cattle-raisers, this is not by design, nor is it due to the inveterate penchant that they might feel towards destruction; it is in fact due to the fragile nature of the ecological balance of the semi-arid region in and on which they live. For a century the Algerian steppes have been undergoing a rapid process of degradation; if their deterioration continued to worsen at the current rate, within thirty or so years from now Algeria would be reduced to a narrow coastal strip separated by the Atlas mountains from a desert which will have encroached considerably towards the North. (Montchause, 1972). The process of destruction quoted here and its cause are moreover identical to processes in other parts of the world, and, particularly, in the Near and Middle East.

Three tendencies are at play here, mutually inter-locking and reinforcing in the rupture of the ecological balance and the process of transformation into desert. The extension of land-clearance and the growing of cereal crops outside the most favorable and long since cultivated areas hardly increases resources, but rather entails a swift wind erosion in such areas, which renders them sterile. The possible scope of cattle-raising and agriculture is thus diminished, and produces increased pressure on those areas which are not yet degraded. The increase of flocks and herds on areas thus impoverished entails an overstepping of

the fodder potential, over-grazing—that is, non-renewal of the vegetation—and, once again, erosion. Lastly the search for fuel results in the eradication of ligneous species which helped to protect the soil. The disappearance of vegetation and erosion—by different physical mechanisms—determine the impoverishment of the resources of available water for the regeneration of the vegetable growth: the process of degradation cannot be reversed. It is also relatively new. In traditional society the limits of life were immediately pregnant for the communities of cattle-raisers. These communities realised that they could exceed them without running the risk of deterioration; tribal solidarities furthermore made it possible for everyone to live within the limits of the possibilities offered by the ecology of the steppes. A balance could be and was established between man and his fragile environment: the social organisation here as elsewhere responded to the relation that man had set up with nature.

The origin of the evolution of the steppes is outside them. It lies first and foremost in the property laws of colonisation which depossessed the original inhabitants of the rich lands on the coastal plain and rejected the peasants who had no land, to whom no industrial alternative was offered, except the sea. The population of the steppes has thus increased tenfold in the space of one century. Next the logic of the merchant penetrated and destructured the socio-economic organisation of the steppes themselves. Hitherto collective or community property, it became henceforth the object of private exploitation. The owners of large herds, thanks to modern transportation by trucks, managed to deprive the small cattle-farmers of their resources; they condemned them to over-grazing, or drove them back to agriculture. Here too there was a concentration of the ownership of the best land, and the ancestral practice of periodically redistributing workable land on the basis of the size of the household was abandoned. The most deprived section of the population was thus condemned to clear marginal land and become the most active (apparent) agents of transformation into desert. This economic-social disarticulation is thus clearly the cause of the degradation of the extra-specific environment. The logic of commerce entails the disappearance of solidarity with regard to the individuals living in a given ecological milieu, and by virtue of this social deconstruction, represents an obstacle to the mainten-

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ance or to the recreation of the cycle of reproduction as it applies to nature. And so it is precisely here in such a case that we find the central mechanism which leads capitalism—as a socio-economic return from production—to the destruction of the environment.

The mechanism of production is based on the exchange value; production activities are in no way undertaken on the basis of value in terms of usability, on the basis of goods for individuals or collectivities; they are determined by the market, by the possibility of exchange and of realising a profit in such a transaction. Production, therefore, is not regulated by those values and supra-individual prescriptions which issue from tradition, religion, reason and so on... and which express a worldwide organisation of society and its relation with nature; it is regulated by the mechanisms of the market, by the relation between supply and demand. If a worldwide organisation of society and a process of change does still exist, this organisation and this process are the non-concerted result of individual decisions which tend to maximise the expected results and increase the profit and the rate of profit. The social organisation and, therefore, the relation to nature are no longer the focal points at which activities find their origin and their legitimacy, but the results of such activities. They are not conceived as norms, but ideology confirms that the issue of individual activities which are motivated directly and solely by interest, can only lead to an optimum outcome for society. The mental categories of the bourgeoisie (individualism or denial of all authority above the individual, equality, liberty, universality, contract, tolerance, property) are generated by the fundamental mechanism of production which applies to it and reinforces it; once the bourgeoisie is affirmed as a class, they are proclaimed in the Philosophy of Enlightenment (Goldmann, 1970). I shall, at this juncture, insist upon the consequences of individualism, of the representation of the "individual consciousness as the absolute origin of thought and action" (*ibid.*, p. 28). Individualism determines the attitude of modern Western societies with regard to nature and, in particular, the scientific representation of nature by these societies. The denial of norms, principles and values which act above the individual within the organisation of production and exchange entails, in a correlative sense, the affirmation of human understanding as

the supreme instance and of the human individual consciousness as the absolute, and autonomous basis of knowledge and action. The immediate result of this is a series of dissociation in the concept of man's relation to the world. Since the Philosophy of Enlightenment the bond established between thought and action is incidental and fortuitous.

The practical outcome is a result—the result of application—in the action upon nature and society of the knowledge acquired by one or more individuals; conversely, knowledge in the field of the natural and social sciences develops on the basis of practical requirements and experience. But the content of such knowledge seems to be independent of the practice; the latter does not qualitatively modify man or society, nor does it preform their thought, their knowledge or their “nature.” Similarly, it is admitted that man's actions modify his extraspecific environment, but that this latter is invested with an eternal nature, and a capacity to absorb within its cycles, which are used by man, the productive activities of man. These activities seem to unfold between two immutable entities, the nature of man, and, if one can express it so, the nature of nature. The existence of these immutable forces is a *petitio principii*.

It was necessary for the rupture of the age-old social organisation whose rules were at the same time those of the relation with nature, of the maintenace of a certain reproductive cycle; it was indispensable to the confidence that the contractor had to have in his own action, detached as it was from any ethic, from any norm which was alien to the logic of exchange. Furthermore, within the framework of a (capitalist) production which is not very developed and of small units, the restricted and varied action of man did not involve any appreciable worldwide modification to the reproductive cycles of nature... Capitalism has thus been able to develop for a certain period of time without any perception of its limits in nature. Today things are not the same. But it is evident that the difficulties encountered are not linked to any qualitatively new factor, and are simply the consequence of the intrinsic nihilism inherent in capitalist production: the rejection of any rules which might limit the mechanisms of the market. Within the terms of the theory of aggression, one can say that the capitalist institutions have given free rein to intra-specific aggression in one particular direction: the direction of

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the exploitation of labour by the private appropriation of the means of production. The logic of this form of aggression is not linked with any relation regarding the survival of the species in the extra-specific environment. The result of this, in the fairly short-term view, is a threat imposed upon the conditions in which the survival of the species is possible. This survival demands, *a contrario*, that aggression is re-directed towards other objectives, or that capitalist logic be, if possible, subject to a certain number of norms relating to the recreation of nature's reproductive cycle. The dynamic of the degradation of nature which we have encountered within capitalism is clearly unable to re-occur in other relations of production, because it is enough that the logic of intra-specific concurrence is alien to the extra-specific conditions. It is thus possible or even probable to consider that a bureaucratic class which maintains and justifies its power thanks to growth, and the consumer race (which is the case in certain countries with planned economies), ignores and exceeds, in so doing, the possibilities of reproduction inherent in the extra-specific environment.

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If the capitalist system is just one of methods of production within which the degradation of nature may be a systematic process, it is beyond any doubt, and at the present time, the system which contributes most heavily to processes of degradation, simply because it constitutes the major method of productive organisation: "The decisive elements for the ecological crisis are not the rates of population growth in India, but the rate of production growth in the United States, a country which produces more than 50% of the goods for the human race... With a considerable section of its industrial capacity devoted to war, the United States is literally in the throes of crushing the earth and destroying man's vital ecological balance" (Bookchin, 1970).

The market economy is intrinsically neutral with regard to the environment and it would have to be an ill-informed mind to be outraged by the fact that the greatest polluters—the giant corporations—are also the largest suppliers to the anti-pollution market in the United States. "Most of the companies implied in the anti-pollution struggle are not only polluters themselves,

but on top of this they supply the chemical products, the machinery, the fuel and the factory plant to even greater polluters, and all the time profit from credits and facilities furnished by the State." (The making of a pollution industrial complex, 1971). One of the most extraordinary examples of the aberrations produced by the market economy, and no consideration outside the profit motive can put a stop to this absurd phenomenon, is the almost exclusive orientation of transport towards use of the automobile, although it is collectively more costly as a system of conveyance than common transport systems, and although only 30% minimum of the population, whatever the circumstances, can benefit, and although it involves a huge havoc in terms of the environment, both urban, and extra-urban, although it pollutes the air (out of 10,000 tons of pollutant which pour daily over Los Angeles, 7,000 tons issue from automobiles), although it gives rise to considerable wastage of time and involves catastrophes for the species (15,000 deaths and 300,000 injuries every year in France) (E.P.H.E., 1972). Now, these disadvantages attaching to the automobile for the collectivity, within the mechanisms of the market, become a dynamic factor: "An observer of advanced American-style capitalism who is attentive as Michael Harrington disclosed that the automobile industry of the United States, far from being checked in its growth by the crisis relating to intra-urban communications, was, quite to the contrary, deriving considerable profits from the crisis in a consolidated sense (i.e. with long-term guarantees." And he added, echoing the Johnsonian discourses about the "great society": "There are powerful forces in this land which profit from and therefore promote the mediocre society; they are unalterably opposed to the best possibilities of the future." (A subversive version of the great society, 1968, p. 49 ff.) (Decoufle, 1972, p. 30).

The effects of environment do not therefore enter of their own accord into the calculation of business and the capitalist complex as such; they are "external," unaccounted effects. One may well ask, then, why and how is capitalism concerned with the environment. The question proves all the more pertinent for the fact that if one can affirm that the homeostasis of the ecosystem is not overturned or will not shortly and irrecoverably be so, the sudden and violent preoccupation with the environment which

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has sprung up in recent years does not have a sure scientific basis (Barel, 1972) and consequently appears to be like an ideology. Of course the ecological problem was first raised by dissident movements; and equally it was taken up by official voices in capitalist countries and by industrial environments themselves. To understand this surprising *a priori* evolution, let us consider the economic history of recent times with the help of certain documentation which has made some impact.

Just ten years ago capitalism seemed to have finally emerged from its state of cyclical crisis. Some people thought it had managed to overcome its contradictions and attributed the merit for this emergence to the regulative action of the State (the new economic system which made it possible to envisage a transition, without major upheaval, towards socialism, was eventually called the Capitalism of State Monopoly,) or, again, to the squandering of surpluses in the effort to promote sales by various guile and in military expenditure. Since the early 70s, the conquest of the contradictions of the capitalist system appears, in a factual light, less and less evident, and we are returning to a state of pessimism with regard to the possibilities of a continual growth which is not ridden with crises. In January 1970, the American patronate led us to feel that in the course of the decade under way deep changes to the structure of the system would be necessary, together with a slowing-up of growth: "the most interesting questions concerning economic evolution are, at the present time, non-economic questions: pollution, the quest for a better living framework, the integration of "coloured" people, the hippie argument ... these are crisis factors which bring different influences to light than the traditional economic factors ... their solution will mean that economic growth will be very distinctly slowed down, but that, on the other hand, it will be accompanied by a sharp modification of the division of wealth". (Fortune, January 1970).

Since then the wave of anxiety has taken hold in the United States in the form of a debate which bounced off Europe with the publication of the MIT report and Dr. Mansholt's letter which accompanied it. It is not hard to recall the nullifying weaknesses of this report (E.P.H.E., 1972; Decoufle, 1972).

Some of the basic hypotheses of the study are radically erroneous: one thus admits that the raising of the material

standard of living and of the subsistence level would involve a considerable increase in the birth-rate, although the experience of the developed countries proves strictly the contrary. In other respects the MIT study is very restrictive with regard to the conventional possibilities of agricultural production, when one compares it to the evaluation of the FAO and ignores the possibilities of unconventional production which have the advantage, moreover, of limiting the degradation of nature. Admission is also made of the rapid exhaustion of fuel and mineral resources currently taking place, which is far from being proven and which, if it did occur, could be cancelled out by resorting to other resources and to recovery and recycling procedures. The gravest failing, however, lies in the actual model used: "From its beginnings, the MIT model contains conclusions. Once one has accepted the structure of the model—that is, an exponential growth within a finite system—it is intuitive that one is progressing towards the blockage of this growth. If one adds a negative sub-product of growth—pollution, the accumulation of which carries on for a far longer time than its cause and destroys the quality of the environment and thus the capacity which can support the world—one faces apocalyptic catastrophes once the system has collided with its limits" (E.P.H.E. 1972, p. 13). The MIT study therefore demonstrates nothing: on several occasions the authors themselves admit the absence of basic serious data and the limited validity of the assumptions made, but they ignore the methodological principles of the prospective which "is not worked out within the inter-crossing of common-sense evidence, but in an effort which is infinitely renewed to penetrate the universe of uncertainty: to think out, in one process, the gaps in knowledge and the hazards of action." (Decoufle, 1972, p. 29). The MIT study starts with one piece of evidence: "Today we cannot escape one piece of evidence: growth is too rapid to allow for the adaptation of the social institutions of the planet and of its ecosystem." (Introductory report of the MIT project of November 6, 1970,) to make it clear to the public at large thanks to the prestige of an econometric formalisation and to justify a new economic policy. "Although we still do not know to what extent the calculations are exact, the general implication is so blatant that it can even in this form be taken as a basis for our discussions and our studies" (Mansholt letter.) The MIT document is

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thus an ideological paper and should be read in this light. If it does not give a good prospect, it is of prime importance for the prospect, because its sole object is to lay the "theoretical" foundations for an economic policy of replacement in a period of crisis for capitalism: "it becomes increasingly clear that the national governments are no longer in a position to guarantee a stable expansion of their economies. This is not a question of a particularly European phenomenon because it can be observed in all industrialised countries (such as the United States, Japan, etc...) which are prey to galloping inflation, accompanied with the increasingly serious problem of unemployment" (Mansholt letter). What is the economic policy being proposed? Reduction of demographic growth, "priority to production of foodstuffs, by also investing in agricultural products which are known to be unprofitable," "sharp reduction in the consumption of material goods per inhabitant, compensated for by the extension of intangible goods (state insurance, intellectual boom, organisation of leisure)...," "prolongation of the life of machinery by anticipating wastage and avoiding the production of non-essential goods," "fight against pollution and the exhaustion of raw materials by the redirection of investments towards recycling and anti-pollution measures, which would naturally give rise to a shift of demand, and, subsequently, of production." To attain these objectives, a rigorous programming is needed which would guarantee everyone the vital minimum, and direct production in the sense defined (Mansholt letter). This programme corresponds very exactly in the current situation, to the customary procedures of solving crises relating to over-production as a result of capitalism. We know that these crises are due to lack of articulation inherent in the capitalist production system, and essentially to the contradiction between the increase of productive capacities and the falling-behind of consumer capacity which is limited by a wage which is not an applied income (corresponding to the value created) but a contractual income. In order to increase profit, investment and production, capitalism compresses wages and thus consumption. The difficulty of disposal with regard to the social product leads to a lowering of the profit-rate which in turn determines the contraction of the social product and unemployment. The solution of the crisis presupposes a simultaneous transformation of the two terms of the contradiction: on the one

hand, destruction of excess production or the relevant means of production, and on the other, modification of the division of wealth so as to restart consumption.

The proposals of the Mansholt letter tend, effectively, to act on these two levels; but the project is one of far-reaching implications, in proportion to the current contradictions: on the one hand, complete restructuring of the apparatus of production. The conventional sectors of industrial production are no longer profitable; the advantages which might have been derived during recent years from the multiplication of consumer goods and from their more frequent replacement, are exhausted, and all the more so because the anti-pollution measures and the procedures of recovery and recycling envisaged to reduce the exhaustion of natural resources, tend to increase the costs of production; the proposal is therefore made to reduce the volume of material goods and thus to destroy part of the machinery of production. But new sectors are still open to investment: anti-pollution, recovery, recycling, agriculture, quality of life, etc. The programming will make it possible to divide the resources between the various sectors and will accentuate the conditions of a monopolistic system of production.

The second series of measures needed to overcome the crisis consists in the modification of the division of wealth with a view to enlarging production; state insurance, the guarantee of a basic wage to everyone, etc. are modern means of extending mass consumption within the most powerful countries.

A new division of wealth between the major countries and the bordering countries throughout the world is in other respects envisaged and we are aware of the efforts made in respect of the conquest of the markets of socialist countries. This complex of transformations is aimed solely at extending profit and growth, the profit-rate, or at slowing down the latter's reduction; firstly, then, in new conditions and by new means it will extend the maintenance of the market economy. Now, one of the most serious threats hanging today over this economy is the growth of the world population. Because its object is to deduct a plus-value, the extension of activities (particularly in agriculture) tends to deprive a large number of individuals of employment and resources; the concentration in suburbs, and eventually in slums within urban complexes, of a "marginal" sub-proletariat (namely,

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rejected from the circuit of exchange by the development of the exchange) will thus tend to perpetuate itself by maintaining violent tensions and possibilities of revolution. Within the framework of the market economy it is clearly not possible to extend to these masses the institutions of social security and minimal resources envisaged for the centre. The reduction of the birth-rate (at the centre and on the outskirts, by virtue of the shift, so easily produced, of the labour force) is thus necessary to the stabilisation of the system.

From this, one can understand the role of the basic hypothesis assumed by the MIT report, and why certain data are affected by an exponential growth: population, capital, pollution, whereas others are not (such as technology which makes it possible to control pollution and to have access to new natural resources). The basic hypothesis is structured in such a way as to contain the expected answer: those remedies considered desirable for the gigantic crisis of capitalism. Let us, at this stage, specify the dual position of the environment in the politico-economic strategy. Dramatised in the extreme, the dangers of a rapid exhaustion of resources and generalised pollution constitute an ideological argument in favour of the economic changes envisaged. To be more precise, ideology tends to put over the opinion that, in the degradation of nature and the proliferation of harmful effects, which are probably only too real even if inadequately analysed, what is concerned is not the nihilistic logic of production for the market but a fault which can be ascribed, in some way or other, to mankind, and to all men; the items responsible would be progress, ever increasing needs, or, again, the predatory nature of man ... In this view we would therefore all be guilty and all invited to join together in one huge ecological crusade. In this crusade, the ultimate expectation with regard to the citizen is that he will pay up, and consent to a rise in the prices of material goods, which he already enjoys, but which will have to be transformed in such a way as to produce less harmful effects and to be more durable, including in their budget a new item of expenditure (deducted by taxation or by the purchase of services) relative to the environment and to the collective conditions of life.

In so doing, one nevertheless quantifies and introduces into the field of merchandise a new sector of individual and social life: that of the "quality of life." Commercial logic tells us: hitherto,

the demand for the improvement of the conditions of existence was applied essentially to material goods, the increase of wages and guaranteed income; today we are demanding an improvement to the quality of our life, namely, and let us specify this straight-away, the collective qualities of life and of the environment. Quality thus becomes quantity. "New" solutions are offered, which are just as reifying—the solutions of the accomplishment of an agreeable living framework—to boredom, anguish, the feeling of dereliction, repressed aggression rather than aggression transformed into its opposite but re-emerging as suicidal behavioural patterns and nihilistic violence, products of the reification of inter-personal and social relationships.

Furthermore, the recycling of used products, de-pollutant and anti-pollution equipment, the research into and putting into operation of processes of production which are non-pollutant and non-degrading, all constitute huge new sectors for the investment of any excess capital. In the United States, the turnover of these sectors should be equivalent, in the next few years, to the turnover realised in the field of space-research and space-exploration; between now and the end of this century it is reckoned that 550,000,000,000 francs will be spent to combat atmospheric pollution and 575,000,000,000 francs against water pollution (A. Semain, 1971). In France the anti-pollution industry could employ 50,000 people before the year 2000 and the market for appropriate equipment and machinery should grow at an annual rate of 15-20% in the course of the next few years (D.A.T.T.A., 1972). For several years now the giant companies and the largest financial groups (Banque de Suez and Lazard Freres, the most important in France) have formed *ad hoc* groups to intervene in the market (Riviere, 1971). "The anti-pollution fight will open the way for new and considerable industrial undertakings. This will be the focal industry of the 70s. In the United States it is like the goldrush. After the nuclear and space objectives, the next major objective for American industry is the environment. It is the new challenge; this is where money will be made in the next few years" (J. Burko, 1970). The rapid development of the new sectors is nevertheless reliant on the success of the ideological effort. This alone can introduce, by way of the consumer, the increase in prices which will issue as much from the transformation of the goods offered (longer life, reduction of

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pollutant effect for automobiles, for example, etc.) and from the change in the process of manufacture as from the profit margins accrued which monopolistic concerns may deduct. On the one hand, in fact, the giant companies will be the principal beneficiaries of the new market, and on the other hand the incidences of acquisition and use of equipment corresponding to the new norms with regard to cost, will show considerable variation for the same production on the basis of the size of the company concerned: the small company will thus be forced to fade out; the present tendency will be speeded up (E.P.H.E., 1972, p. 67) together with the effects, both future and certain, of monopolistic situations on sales prices. Thus the transformations of the manufacturing processes and the changes induced thereby run the risk of annulling the effects of economic growth for the individual. When the proposal is made to reduce growth or, again, to replace the notion of the Gross National Product by the notion of the "Gross National Utility," it is not in fact a question of suppressing either profit and accumulation or growth, but simply of restructuring the economic apparatus, and of implanting within it a new and highly profitable sector which will absorb the effects of growth, or do even better than absorb them.

The fact that the environment, both for business and for the individual as an isolated entity (*homo economicus*), is an external unaccounted effect, and the consequences of the preservation measures for the environment, both for the individual (rise of prices) and for business (inequality in the face of such measures) makes it necessary for the State to intervene. As one article heading so prettily defines it: "the policeman will make the bargain" (C. Riviere, 1971). In the creation of new economic sectors, the State will play the part of fixing pollution standards and the use of natural resources, of establishing standards with regard to manufactured products, subsidising investments, opening wide the market for public equipment, financing research and above all setting up a policy of intervention.

If our hypothesis is correct, namely that the obstruction suffered for ecological problems is due to the interest expressed by the giant corporations for a new sector of business, then the policy of State intervention should be in accordance with this interest. What is this policy? It is based on an analysis in terms of externals. Pollution, harmful effects, abuses of natural resour-

ces, these are external effects which indicate the limits of the market economy; the role of the State is thus to internalise these effects. "The external is produced by the fact that the satisfactions of certain agents depend on variables selected by others, without any *feed-back* inciting these latter to take the same into account." A rational solution to the problems of the environment will thus be found, according to this analysis, by establishing feed-back. This preoccupation occurs, among others, at the level of government in the USA and of the OCED Committee of the Environment, which proposes to internalise the external effects and set down a rational system of allocation of resources,—in other words, the charging up of costs, so that the Paretian optimum may be reached" (EPHE 1972, pp. 107 ff., quoting S. C. Kolm, 1971; in the criticism which ensues from the consequences of such analysis in terms of externals, we follow EPHE 1972).

The internalisation of these effects leads logically to the principle of the paying-polluter because it is in fact a question of re-establishing a "price truth" by the imputation to a given economic agent of the social costs incurred by its activity. This logic is irrefutable from the viewpoint of classical political economy, but this, in reality, comes up against a certain number of redhibitory difficulties. First and foremost the environment constitutes a system (the concept of structure in evolution seems more adequate in my view) which entails phenomena of self-regulation, extremely complex inter-actions, variable thresholds, and it is very often hard to identify the relation between the activity of an induced agent and a given type of pollution. A black box is sandwiched between polluter and pollution. The second difficulty is even more serious. It can be summed up as follows: the application of the paying-polluter principle necessitates an evaluation of the "social cost"; now, such an evaluation can only be the product of a commercial estimate, with regard to the exchange value of "natural" goods, and not their utilitarian value, which cannot be expressed in monetary terms. The degradations of nature wrought thus far originate effectively from the fact that the exchange value of these goods was nil because of their apparent profusion and because of the consequent absence of ownership; from this position, how can one believe that a generalised commercialisation of nature could preserve nature in the future? Furthermore, by supposing that the estimate of the

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exchange value of natural goods is a procedure of choice at each admissible moment, other objections emerge: certain types of degradation cannot be reversed. The current price of the corresponding goods thus has no meaning; other types of degradation become reality only in a fixed and future sense and cannot, as a result, have any price today.

The advantage of this procedure of taking into account certain environmental problems is that it does not re-question the bases of the market economy and its immediate interests. Let us compare it, in fact, with the component parts of its alternative. This supposes an immense research initiative with regard to the fragmented and worldwide balances of the extra-specific environment, with regard to the effects of human activities, the possible evolution of the major groups which permits the perpetuation of life, as deemed desirable or acceptable. This type of research, the cost of which would without doubt be similar to the expenditure outlaid in the field of space exploration, represents no advantage in the immediate term for business. On the contrary it would end up in a series of imperative norms situated outside the market, and rejecting it: such norms relating to the natural environment would, in the last analysis, originate in and from man, in the chances of his survival and his own perception of the conditions of this survival—that is, in the utility value, and would open a gap in the nihilistic logic of exchange, in which a new, generalised logic of use would swiftly be swallowed up (the techno-structures certainly do not exactly represent this danger which we are formulating by way of demonstration; it is equivalent that they perceive of no logic except for the logic of exchange). The subordination of production activities to an environmental finality (ecumenical in the cumulation of its dual meaning, relating to the environment and to the world as a whole) would in addition have immediate and deep-rooted consequences for the socio-economic relations and production techniques. The unevenness in the relations between the foci and the outskirts on the universal level, and the cumulative results of past inequalities should be abolished in an ecumenical perspective; conversely, nothing, for example, would be justified in objecting to destruction, when the end of this is production, of the Amazon forest, on the pretext that this forest produces 8% of the world's oxygen. What is more, the concern over preserving nature's re-

production cycles could order major changes in the utilisation of natural resources and in the techniques of production. One could in this way be led to abandon a particularly pollutant source of energy, such as petroleum, the current conditions of exploitation of which make it possible to realise some of the greatest margins of profit, to the benefit of other sources such as solar energy, tidal energy or geo-thermic energy; or then again, one might be led to adopt a composition of energy sources in such a way that basic phenomena in the universal order (temperature, world volume of oxygen etc...) are in no way affected. Likewise, if cultural techniques and chemical treatments which are simply concerned with yielding the most profitable product possible are currently vulgarising the countryside, deteriorating the soil, reducing the diversity of living forms, and impoverishing land in general in an irreversible manner (G. Long, 1972), it will indisputably be necessary to abandon them. Thus an ecological ecumenical policy (if we can hazard such a formal pleonasm) would not be a simple primary attack on the mechanisms of the market by the institution of a higher referential order; it would also condemn productive techniques and thus machinery in current use, which would have to be replaced by non-pollutant, non-degrading techniques, by processes of recycling and re-utilisation and so on... and by the appropriate machinery. Now the overall complex of current techniques and machinery did not come into being haphazardly: it is the very product of the mechanisms of the market. To question current technology is to question the structure of the profit-economy (that is, the economy set up with a view to making profits). The policy of anti-pollution does not pose this major problem; it limits itself to adding to ancient activities (production with fairly high profit margins) a new corrective sector operating on the harmful external effects provoked by the first, which, thanks to pollution standards fixed by the State, will graft itself on to the existing market, and levy, in so doing, its own profit margins.

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