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ECOLOGY AND FREEDOM

THE view of nature that men of the Middle Ages held was of a system of substances which were willful and alive:

Earth, water, air and fire have natures which are at bottom human nature, and were recognized by those who made this picture as parts of human nature. What drives them is a kind of will, a mindless will perhaps, but still an obstinate animal will.

Second, the Middle Ages view of nature also included a conception of it as an irrefrangible, pre-ordained system that men could not influence. Apples fell down because that was their nature; what caused apples to fall down was a question that had no meaning for people of the Middle Ages: let alone the idea that they themselves might interfere with that causal process.

The growth of Western scientific curiosity, technique and understanding, which began perhaps as early as the thirteenth century and which allegedly culminated in the Scientific Revolution of the seventeenth century, radically changed men's conception of nature; and changed their view of what men might do to nature. By the time Newton had published his most important works the accepted Western view of nature was that of a machine, i.e., a system of properties that can be isolated, reproduced in space and time and, above all, which can be predicted. That is to say, nature was now perceived as inanimate, explicable and controllable.

From this arose the view that nature could be exploited, a view that jibed well with the rabid desire in the eighteenth century for power to drive the wheels of the Industrial Revolution. And from the notion that nature could be exploited grew the justifying ethic that nature should be exploited and tamed: the world (at least the civilized world) was either the result of human works or part of the machine — their technological wizardry — or it had been put there by God to be knocked into shape, beaten, exploited or improved upon by *Homo Sapiens* for the glory of God or of man himself.

However, it would be ingenuous to suggest that the Scientific Revolution alone was responsible for the rise of what I shall call the Exploitative Ideology. Both these developments, and also the Industrial Revolution, were high points in long historical developments whose roots can be traced back to at least the thirteenth century. What is more important, the three developments were creatures of what we loosely call Western civilization: and Western civilization, from at least the thirteenth century, was both the dominant civilization of the world and capitalist.

Capitalism in its homelands (and later throughout most of the world) advanced from the very beginning by subjugating, plundering, exploiting, and reshaping the environment in which it existed. The result was to transfer wealth from the periphery to the metropolis, and correspondingly to destroy the old society in the periphery and re-organize it on a dependent satellite basis. This is one aspect of the process. The other was that the wealth plundered, sucked out of the environment, out of the periphery, became the basis for the rapid development of the metropolis.

A high point in capitalist exploitation was reached in the eighteenth and nineteenth centuries; and during those two centuries Western men’s view of nature consolidated around the notion that nature is a brutish collection of impediments or opportunities to be exploited by man, the creature created in God’s image and provided by God with a treasure house to plunder.

Only the very naive would wish to call any one of these three developments the “cause” of the others; I suggest, though, that the ethic that nature is a collection of material forces and substances to be beaten or used underpins both science and capitalism: and has come increasingly to characterize the spiritual and intellectual fount of those edifices, Western civilization itself.

But we shall not remain alive to beat and use nature if we continue to try to beat and use her. The validity of this proposition becomes obvious as soon as we grasp the implications of two essential truths about the world in which we live. One is this: everything is connected with everything else. The other is that man is also a biological creature.

Strange it is that Western science has paid lip service to the first of these truths for at least 200 years without, it seems, fully grasping one of its profound implications: changing one aspect or part of the world is likely to affect changes in many other parts. Admittedly some of those changes will be negligible, so negligible as to be undetectable by present measuring devices; and other changes might be beneficial — at least to man himself and in the short term. But many other changes are at best uncertain in their effects or likely to be harmful to man, at least in the long term. One example is the increase in the carbon dioxide content of the atmosphere, which for hundreds of millions of years has been constant at a little over 320 parts per million but which by 2000 AD, as a result largely of the burning of fossil fuels (wood, coal, oil), will be...
approximately 400 ppm (assuming present rates of increase). What changes this will bring to life on Earth are uncertain at present; they will not necessarily be beneficent.

The second truth can best be understood in relation to the first. Whatever else he might be, however else he might be viewed, as poet, peasant or machine, man is also a biological creature, dependent for his survival on an interconnected web of life-support systems that provide him, putting it simply, with air, water and food. These life-support systems are intricately interwoven, in such a way that it is extremely doubtful that any single form of life is of no consequence in the functioning of the whole super-system that is our Earth. Putting it another way, it is very likely (and exceptions remain to be demonstrated) that every single form of life on Earth has an important part to play in the survival of all forms of life. As I have suggested above, everything is connected with everything else; and man's survival is linked with the survival of the millions of microbes, insects, reptiles, fish, birds, animals and plants that share the Earth with him.

Whether the total extermination, or even the drastic reduction of any particular species is compatible with man's own survival is, as I have just implied, a moot point. What we should constantly keep before us, though, is the fact that many of the changes that men are now making on the globe are irreversible; if any of these changes proves inimical to our survival it will be impossible, now that they have been effected, to turn back the clock.

Some of the changes that men have wrought in their environment have been self-conscious and intended. Many others — probably outnumbering the intended changes — have been side-effects, unintended and unforeseen. One of the most indictable features of Western capitalistic civilization is that these changes have, for the large part, not been simply unforeseen: they have been unheeded when they have occurred. I believe the point deserves emphasis: it is the exploitative ideology that is so intimate a part of Western capitalism that now threatens man's very survival.11 It should require little acumen to judge that our survival depends upon our ability to renounce that ideology; we must give up the urge to "beat" nature if we are to remain alive to the ecological crisis.

The ecological crisis to which the title of this article refers is a crisis of man's ultimate survival in a world that he is depleting, polluting, poisoning and over-peopling. However, what of the other half of the title: the notion of freedom? How is freedom connected with the ecological crisis?

What seems to be implied by freedom is the ability to exercise choice. A man in prison can choose to think his own thoughts, though his capacity to choose what he eats, when he exercises and so forth is severely reduced. At the other end of the spectrum Aristotle Onassis cannot choose to disregard gravity, or to live forever; and therefore even his exercise of choice is not unlimited. Nobody has ever been completely deprived of freedom — in the sense of having no choice at all. Even a prisoner who is to be subjected to brainwashing can choose to be unco-operative. The result of that might be death for the prisoner: but the choice is still there. On the other hand, nobody has ever had complete freedom — if that means freedom to do and be anything at all. On logical grounds alone it is impossible to have complete freedom, for this would have to include the ability to be all things and to be in all places simultaneously — a logical impossibility. So freedom — the freedom to choose one's own course of action at any time — is a concept that is most useful when used comparatively: some people have more freedom than others.

Yet in 1972 men in industrial societies still seem Hell-bent on assaulting nature and natural cycles. Poisons in rivers, lakes and coastal waters — a legacy of progressive industry and agriculture — have decimated and continue to threaten the survival of almost all species of fish, birds and amphibians that live in them. Already the mercury content of cereals and fish is causing alarm amongst health authorities throughout the world; and the average level of lead in the average Western man's body is approaching the threshold for overt clinical poisoning. Cadmium, one of the most toxic of all heavy metals, is being stored in ever increasing amounts in the bodies of most people in industrialized countries. Cadmium is thought to be implicated in high blood pressure and arteriosclerotic heart disease and possibly cancer. DDT, now thought to be a causal factor in liver and kidney malfunction, nervous system and chromosomal damage, is present in almost every living creature on Earth, including Antarctic penguins and human foetuses. The average human being is estimated by Koeferl to carry 9-11 parts per million of DDT in his body tissues; 10 ppm and less has been shown to cause liver damage in some animals. Apart from these assaults on the environment man is burdening the Earth with a host of pollutants to which most of us have become indurated. One of the most significant is sheer pollution — not only people's wastes (a serious problem in fact) but people themselves: about 3,700 million so far on a planet that, according to H. R. Hulett of Stanford University, can support 1,000 million at present U.S. levels of affluence.

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Some people have more freedom than others because they are not in prison or a ghetto and the others are. Some people have more freedom than others because they are physically or mentally healthy and the others are sick; or they are what Rokeach calls open-minded and the others are rigid and closed-minded.
At least as important as these different degrees of freedom (and their causes) is the fact that men everywhere have increased their aggregate freedom by giving up particular freedoms. One of the best examples of this is the limitation of people's right to kill other people.28 The loss of this freedom has increased people's freedom in many other directions: and there is no doubt that their net freedom is greater despite the loss of that one.

There is another important sense of the word "freedom". I have suggested that the prisoner about to be brainwashed might choose to be unco-operative and might suffer death as a consequence. This example illustrates an important truth: in general we are not free of the consequences of our actions. Amongst those consequences are ecological consequences.

Each of these ramifications of the concept of freedom is connected with the ecological crisis that now faces mankind. First, man as a bio-socio-technical creature is not free of the ecological consequences of his actions. Second, the ecological crisis has already diminished the actual freedom of millions of the world's inhabitants. Third, we must now ask what freedoms must we give up if we are to resolve the ecological crisis. I would like to examine each of those connexions.

I have already suggested that men simply are not free of the ecological consequences of their actions. Here I shall present just one example of the limits of our freedom in that respect; it also illustrates the arrogant insouciance that still, for the large part, characterizes our attitude toward nature.

In South Africa . . . a campaign was waged against hippopotamuses. Deemed useless beasts that merely cluttered up rivers they were shot on sight. Result: the debilitating disease called schistosomiasis has become as great a public health hazard in certain areas as malaria was 50 years ago. It turns out that hippos keep river silt in motion as they bathe. When they heave themselves up riverbanks to dry land, they also go single file and act like bulldozers, making natural irrigation channels. Without the animals, the rivers quickly silted up; without the overflow channels, periodic floods swept . . . over adjacent lands. The altered conditions favoured a proliferation of schistosomiasis-carrying water snails.27

Hundreds of examples could be offered to illustrate what this one does: it is foolish to assume that cutting a swathe through one part of nature's handiwork will have no repercussions on other parts of the eco-system; the precise opposite is much more likely. It is quite possible that the repercussions will be innocuous, or even beneficial as far as men are concerned; but to assume, as is so often assumed, that there will be no repercussions, or that they must inevitably be inconsequential, is crass.

I have suggested earlier that we have already increased our net freedom by surrendering certain particular freedoms. The surrender of our freedom to rape the environment is one that we should recognize as having a large pay-off in terms of increased net freedom, for, in order to exercise that one freedom we must inevitably suffer encroachments on many other freedoms. Some of these have been considered earlier in this article: others will be considered now.

The ecological crisis has already diminished the freedom of millions of the world's people. For example, a vast increase in population which has out-stripped the world's capacity to feed it has condemned over one half of the Earth's peoples to a life and death of semi-starvation.29 "Ten to twenty million people will starve to death this year [1969]."29 Some of the consequences of semi-starvation are chronic illness, lethargy and mental deficiency, which, respectively, entail increasingly narrow limits on an individual's freedom to choose. Other, perhaps so far trivial instances of encroachments on men's freedom are the rivers, lakes and oceans that agricultural poisons, human and industrial wastes have made unfit for drinking, fishing, swimming or even viewing. In the long run these present infringements on our right to enjoy aesthetic and athletic pleasures might also threaten our health or our survival.

Then there are those aspects of the ecological crisis that interfere with people's right to choose not to be involved. For example, the blanket spraying of commercial crops such as rice, wheat, vegetables and pastures negates the freedom of the vast majority of people to choose not to ingest poisons such as DDT, dieldrin, parathion, chlordane and HCB. Pollution of the air by the exhausts of the present crude motor car engine, and by industry, negates the freedom of almost all city dwellers not to breathe in lead, mercury, cadmium, nickel, asbestos, carbon monoxide, sulphur dioxide, oxides of nitrogen and various hydrocarbons.

Earlier in this paper I implied that if we are to maximize our freedom we must accept some limits on complete freedom. It might be argued that the encroachments on our freedom represented by the pollution or destruction of our physical and biological environment is a necessary price to pay for freedom from hunger, discomfort, illness29 and boredom. In other words, the price of technological progress, and all the benefits it bestows upon mankind, is a bit of pollution and despoliation. Those who gain comfort or profit from this argument should consider the evidence and conclusions of Barry Commoner and colleagues.31 The gist of their conclusion is that the staggering increase in pollution in the USA between 1946 and 1968 is mainly due to changes in the technology of productive processes. Most of those changes (e.g. a switch from cotton to synthetic fibres; a change from steel to aluminium drink cans) have not improved even the material well-being of the American consumer.

It seems to us that the foregoing data provide significant evidence that the rapid intensification of pollution in the United States in the period 1946-68 cannot be accounted for solely by concurrent increases either in population or
in affluence. What seems to be far more important than these factors in generating intense pollution is the nature of the production process; that is, its impact on the environment. The new technologies introduced following World War II have by and large provided Americans with about the same degree of affluence with respect to basic life necessities (food, clothing, and shelter); with certain increased amenities, such as private automobiles, and with certain real improvements such as household appliances.

Most of these changes have involved a much greater stress on the environment than the activities which they have replaced. Thus, the most powerful cause of environmental pollution in the United States appears to be the introduction of such changes in technology, without due regard to their untoward effects on the environment.32

Hence we should be cautious, I think, before we accept what the captains of industry and commerce incessantly tell us: that the pollution and plundering of our world is a necessary part of progress. Given the possible costs of the rape, we could be excused for doubting that we are witnessing progress at all.

But of course, none of this alters the fact that our freedom to choose has been compromised. The only question is whether this loss of freedom is one that we should sensibly accept.

How free can we afford to be and still resolve the ecological crisis? As I have already suggested, it is no paradox that men's overall freedom has been increased by surrendering certain particular freedoms. I would like to suggest the areas in which I think our freedom will necessarily be curtailed—if we are to survive—and then to discuss the proposition that we shall have more freedom as a result.

If we are to pull out of the ecological mire we must, I believe, accept what for many people is a most unpalatable truth: we cannot afford continued world economic growth. We live on a finite planet, with finite supplies of air, water, land and minerals.33 Some of these resources are replaced by nature—when we give nature the chance. Others—for example fossil fuels—will not be replaced in a million years—even if we were to control our desire to interfere with the natural processes that would allow such a replacement to occur. Eventually, therefore, we are going to run out of some natural resources. If technology continues to increase both in size and complexity we shall witness an accelerated gobbling up of resources, including water.34 (And this ignores the fouling of our resources by pollutants.) The optimists who predict that pollution in the United States appears to be the introduction of such changes in technology, without due regard to the inherent costs on the environment.

The end of economic expansion will deny men a great deal of freedom. It is almost certain that social mobility, made possible at present in the wealthy nations by constant economic growth, will be drastically reduced.31 So will people's opportunities to amass material goods, and their right to work as long and as often as they like.

One of the likely consequences of a ban on economic growth will be the cancellation of people's right to engage in private enterprise. Where economic production must be closely managed to avoid growth it will be too risky to allow individuals or groups to indulge themselves as entrepreneurs. More and more will society as a whole take charge of the economic productive processes; and, hopefully, the needs of society as a whole, rather than the greed for profit of a few, will guide the management of these processes.37

It might be objected that we must have some economic expansion to feed the world's growing millions. In some areas of the world some limited and fairly temporary economic growth is to be expected (as I have suggested above); this will be necessary just to feed and clothe the present population of those areas. If the world's population continues to grow there will be enormous pressure exerted in favour of the economic expansion that alone can provide for the needs of the increased numbers. Since it is suicidal to permit such economic expansion the conclusion is inescapable: we cannot permit such growth in population.

Yet the world's population—now about 3.7 billion—continues to grow at an alarming rate: and this presents a daunting problem even with present rates of economic expansion. Stewart Udall,
former U.S. Secretary of the Interior (now a practising ecologist) has estimated that the optimum population for America is about 100 million.\(^{38}\) Already the population of the USA is approximately 200 million; at the present rate of growth it will be 300 million by 2000 AD. In India and the South Americas at least two-thirds of the population is already undernourished; and there are no practical reasons whatever to believe that the world’s food supplies will ever be increased sufficiently to catch up with the population growth rate in those countries.\(^{39}\)

So our freedom to breed unchecked will have to be curtailed. I expect that within twenty years there will be strong deterrents against having more than two children per couple in most of the industrialized countries at least; possibly Australia will be numbered amongst those countries.

One resource that we take pretty much for granted in this great sunburned country of ours is land. Our capital cities sprawl out across some of the most arable land in the country, making transport and sewerage facilities a horrendous problem for planners and government treasuries. Australia’s national parks occupy 1.7 per cent of the continent — 0.8 per cent if one excludes Tasmania and the Northern Territory.\(^{40}\) 0.8 per cent of the Australian land mass is about 24 thousand square miles. Yet in 1968-9 110 million acres was given over to agriculture, an increase of 51 million acres over the area occupied in 1958-9.\(^{41}\) Each year at least 40 thousand acres of land in Australia becomes real estate.\(^{42}\) While both these land uses are reversible in theory, in practice they are cumulative. There is little sign of such lusty growth in the area given over to national parks: and the total area is unlikely, on present trends, ever to exceed the five per cent of total land area recommended by UNESCO.\(^{43}\) Similar land gobbling is occurring in all the developed countries: and will, given the usual encouragement, be emulated by the presently under-developed countries — assuming they survive to be developed. However, land is a finite resource: eventually we shall run out. And long before we actually run out of land to build on (or perhaps to stand on) we might well have marched more than half-way along the road to extinction by so upsetting the tightly balanced ecology of the planet that our air, food and water supplies are diminished below the level required to feed 3.7 billion people — the present population of the Earth.

I foresee a time, then, when the right to private property will be abolished. Our freedom to own a house, and perhaps a bush block up in the country or by the sea-side, will be taken from us. For it will eventually be ecological suicide to allow the whim of an oil company or a real estate developer or even honest William McCitizen to decide what will be done with any piece of land anywhere. All decisions about land use will need to be made in the light of thoroughly researched regional plans that take into consideration ecological variables as well as the desires of individual land users. Obviously such plans are the more easily implemented when the land users are tenants rather than owners.

What we face then, in the near future, is a series of restrictions on our freedom that many people, in capitalist societies in particular, will find abhorrent. We shall no longer be entitled to own land — or perhaps any property other than our clothes and personal possessions. We shall no longer be permitted to engage in private enterprise. As a result of national and international goals of zero economic growth we shall have to accept fewer material goods — or at least we shall have to make them last longer; and we shall not be able to afford so amply Western man’s traditional, even sacred right:\(^{44}\) the right to work, for zero economic growth means that there will be less work to be doled out.

However, does it logically follow that people will therefore be less free? An adequate answer to that question requires that we think beneath and beyond the trappings of apparent freedom and ask ourselves whether the apparent real: are people in the technological society more than superficially free now, in this age of material abundance? Herbert Marcuse\(^{45}\) believes that they are not: and his argument is so compelling and so germane to the present discussion that I would like to offer an outline of it here. Marcuse suggests that

In .. . advanced industrial society the productive apparatus tends to become totalitarian to the extent to which it determines not only the socially needed occupations, skills, and attitudes, but also individual needs and aspirations. It thus obliterates the opposition between the private and public existence, between individual and social needs. Technology serves to institute new, more effective, economic, political, and intellectual liberties, not because these liberties have become insignificant, but because they are too significant to be confined within the traditional forms. New modes of realization are needed, corresponding to the new capabilities of society. Contemporary industrial civilization demonstrates that it has reached the stage at which “the free society” can no longer be adequately defined in the traditional terms of economic, political, and intellectual liberties, not because these liberties have become insignificant, but because they are too significant to be confined within the traditional forms. New modes of realization are needed, corresponding to the new capabilities of society.

Such new modes can be indicated only in negative terms because they would amount to the negation of the prevailing modes. Thus economic freedom would mean freedom from the economy — from being controlled by economic forces and relationships; freedom from the daily struggle for existence, from earning a living. Political freedom would mean liberation of the individuals from politics over which they have no effective control. Similarly, intellectual freedom would mean the restoration of individual thought now absorbed by mass communication and indoctrination, abolition of “public opinion” together with its makers. The unrealistic sound of these propositions is indicative, not of their utopian character, but of the strength of the forces which prevent their realization. The most effective and enduring form of warfare against liberation is the implanting of material and intellectual needs that perpetuate obsolete forms of the struggle for existence.\(^{47}\)
The kernel of Marcuse's thesis is that men in the technological society are caught up in a system in which all of the important cultural and social forces that shape men's consciousness stifle men's freedom to transcend the given social structure people are convinced that their existing reality by judging it in terms other than those that it itself provides.

Via the propaganda of the mass media and the apparent necessity of an unquestioned social structure people are convinced that their existing needs are their only and their real needs. They fail to see and are not encouraged to see that their needs are factitious, representing, at best, only some amongst many possible choices: at worst, a degradation of human possibilities.

The society convinces men that their enslavement in the work force — where they waste natural resources to produce goods many of which are worthless and help to maintain a massive engine of world destruction in the form of military hardware — is not only necessary but tolerable, even good. After all, are they not better off than their fathers and grandfathers? Don't they enjoy a higher standard of living than ever before in history?

And those who deceive the masses are themselves deceived, for the very stuff of the social fabric — language, logic; and the new god science itself — is structured in such a way that to question the totality is almost impossible. We have almost no way of expressing our questioning; and, in any case, it is seen as so irrational in an age of increasing abundance that those few who do question, contradict or refuse to play the game are ignored as cranks or punished as madmen or criminals.

Marcuse is pessimistic about the possibility that this state of affairs can be changed, for the technological society, by its powers of double-think and pseudo-rationality, has the capacity to reconcile and absorb the very contradictions and challenges that might transform it; and the "working man", whose obvious poverty and hardship in the nineteenth century gave him a sense of his distinctiveness to lever his opposition to the status quo, is now hypnotized and bemused by the meretricious offerings of the technological society to the extent that he is often its most devoted supporter.

Marcuse still wishes to hope that the technological society will be transformed; and he asserts that it must change from within, and via technology: that is to say, we shall not achieve conditions of genuine freedom by turning our backs on technology, by going back to nature. The conditions of genuine freedom, according to Marcuse, are that the basic needs of all people — those for food, water, shelter and privacy — are satisfied in all. Beyond this, the development of people's needs should be allowed to proceed unfettered by private interests: especially the interest in making a buck out of exploiting a genuine scarcity, or out of convincing people by propaganda that they have needs they otherwise would not have developed. Since politics, corporate interests and the media are closely interwoven in the technological society, freedom from the economy, from meaningless work, from propaganda and from politics merge: people become free to develop their own genuine interests and capacities: they cease to be manipulated "stuff".

I have spent some time on the thesis of Marcuse in order to be able to suggest three things.

First, the "unfreedom" that afflicts man in the modern world is only trivially connected with whether or not he can own his own land, or a car; or whether he can work two shifts, or even one; or even whether he can vote. But it is profoundly related to the way in which man is being imprisoned and exploited by technological society in its present form: that same society which gives, or promises to give men cars, and television, and holidays by the sea-side: which gives men the carapace of freedom that hides their real unfreedom.

Second, the present "freedoms" that people in industrial societies now so abundantly enjoy — nice-tasting newspapers and short-lived gadgets, freedom from serious thinking (though not from worry) — are provided at a high cost: the despoliation of the Earth and the imperilling of man's actual existence.

Third, the loss of trivial freedoms such as the right to be an entrepreneur or the right to own land is not only essential, I believe, if we are to survive: it might lead to a freedom that the majority of people have never experienced: the freedom to be. To be what they can make of themselves, rather than what they can be made to be by those who invade their privacy and their dignity in the pursuit of profit.

Of course, as Tillich points out, to be requires courage as well as freedom. However, without the freedom the courage may turn to despair.