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# MEDIOCRITY AND THE STUDY OF HISTORY

The English Disease, which we hear so much about, is mediocrity and in the last thirty years, it has spread like a cancer throughout the fabric of our society.

What makes the disease particularly serious is that we have grown to like it, so much so that we have come to regard anything that is not mediocre as suspicious if not immoral.

Thus the few remaining beautiful buildings in our cities are increasingly regarded as offensive. They stand impudently among the grey cement blocks that so faithfully reflect the grey mediocrity of our industrial society with an intolerable air of pre-industrial superiority.

Some young men in a bar in Walsall, during the recent by-election, told us that they were ashamed of their city — a truly tragic admission — but what other sentiment could they have for a wilderness of cement blocks, polluted motorways, and shabby soulless housing estates? Can they feel nostalgia for it? Pride in belonging to it? A desire to serve and perpetuate it? No, shame is the only sentiment if can induce — shame for being a member of a society that can consider such a place as a suitable habitat for man — an illusion, what is more, that it is not prepared to shed, judging by the fact that the few remaining buildings of quality in Walsall all appear to have been struck with demolition orders issued by the grey faceless mediocrities at the Town Hall.

The mediocrity of our society is also well reflected in the food we eat. How people can survive on a diet of fish-fingers, potato chips fried in cheap oil and white bread spread with margarine and chemical jam, is truly amazing. The fact that only thirty per cent of our citizens are entirely toothless, that only twenty five per cent of them will die of cancer and that only forty per cent of them will succumb to heart-disease simply bears testimony to the extraordinary resilience of the human organism.

It is perhaps in the field of gastronomy, that any departure from the greyest mediocrity is most resented. I remember seeing an outraged article in some daily paper accusing the late Mr. Anthony Crosland of having eaten an entrecote steak and a 'poire Helene' in a Bournmouth Hotel before addressing a political meeting. To those who regard it as immoral to eat a good meal, let me point out that the 'rubbish food' we eat is the product of our industrial mass society. In pre-industrial times, particularly among tribal societies, people on the whole, ate highquality fresh and nutritious food. I doubt if, even today, we could persuade an Italian peasant, let alone an African tribesman, to eat the shoe-leather entrecote steak and the tinned pear doused with synthetic cream which Mr. Crosland had the audacity to indulge himself in.

However, it is to the perpetuation of human mediocrity that our society appears most totally committed. By interning our children for a considerable proportion of their lives in vast grey anonymous factory-like compounds in which they are systematically imbued with the values of our mass society and bombarded with increasing quantities of unrelated and largely irrelevant data, we are doing little more than mass-produce human-mediocrity.

Not surprisingly, a gifted child, rather than being rejoiced in, is today regarded as a problem. He does not constitute suitable raw material for the educational production-process. He might prevent the smoothrunning of the conveyor belt, or impede the workings of the assembly line. Worse still, he might grow up with some talent, and what then would we do with him?

Our resentment of any sort of intellectual excellence could not be better illustrated than by the Sunday Times's recent poll to determine who are the most overrated writers of the last decades. Predictably, the critics conceded the place of honour to Arnold Toynbee, whose *Study of History* was described by A.J.P. Taylor as 'neither a Study nor History.' In this trite little aphorism he thus dismissed one of the most fascinating historical masterpieces ever written.

Why? The answer must surely be obvious. Just as fine eighteenth century buildings show up the mediocrity of the cement blocks that today surround them, just as a properly cooked meal shows up the mediocrity of industrially-produced food, so does *A Study of History* show up the shattering mediocrity of the social and political thinking of A.J.P. Taylor and others of his like, which serves but to provide a wishywashy apologia for the destructive trends of the latter part of the Industrial Age which are leading us ever



closer to social, economic and ecological disaster. Thus, instead of rejoicing in the fact that Britain should have produced an intellectual giant in the person of Arnold Toynbee, whose *Study of History* is rightly regarded as a great classic throughout the world, we must, by all means, reduce him, Procrustean-like to the stature of the intellectual dwarfs, who, in the mediocre society in which we live, are alone tolerated.

It is not just as a social and political commentator, however, that A.J.P. Taylor objects to the *Study of History*, but as a professional historian. His objections, I feel sure, are largely of a methodological nature. This great work is too wide ranging; Toynbee dares look at world history as a single human experience and tries to interpret it in terms of a discernable pattern — that of the rise, the decay and the fall of civilizations.

Such a magnificent enterprise is regarded with both suspicion and resentment by historians who have devoted their professional careers to studying such intellectually stimulating and socially important subjects as 'Hittite footwear of the 14th Century BC' or 'The changing role of the court jester in mediaeval Bohemia.'

This suspicion and resentment against anything that is of high quality is to be found in other fields as well. Thus one of the reasons why we have allowed the global environment to become as degraded as it is today, is, as Barry Commoner has pointed out, *because it is no-one's job to study it*. The study of the global environment is not, even today, regarded as a legitimate field of academic enterprise.

There is, to my knowledge, no course at any university in this country for teaching people to understand the workings of the biosphere as a whole and what man is doing to it. Significantly at Heffers, the main bookshop in Cambridge, I found exactly one book dealing with the Environmental crisis, and it was classified under 'Geography'. The subject is too big for the mediocrities who run our seats of learning. Only unconnected little bits of the biosphere are regarded as legitimate fields of study.

To illustrate this, let us look at a copy of the 'Journal of Applied Ecology' — which I shall take at random. The first two articles are entitled 'The colonization of isolated patches of nettles by insects', the second, 'The effects of the lime aphid on the growth of the lime'. Patches of nettles and isolated lime trees are indeed nice cosy little subjects for study by amiable non-thinking people. It can be done without offending anyone, without, for instance, violating the canons of Empiricist Epistemology, or the absurd laws of Scientific Method, and without stepping on to the territory of other researchers who may have devoted their lives to the study of brambles or beech trees, and above all, without threatening in any way, the maintenance of the present status quo.

Today's academics do not seem to understand that the accumulation of data is of academic use only. If we are to understand the world we live in, this data must be organized into information, which means using it to construct a model of the world, and its constituent parts. This is precisely what Toynbee attempted to do in A Study of History. He tried to build a model of our historical experience.

It will be objected by most historians including A.J.P. Taylor, that historical data cannot be organized to form a model, because they are essentially unrelated. However, if this were so, there would be no difference between the work of today's historians and that of the chroniclers of ancient and mediaeval times. Yet clearly, they are as different as chalk is (or rather was) from cheese. The fact too, that such general concepts as Feudalism, Imperialism, the city-state, revolution etc. are in general use, implies that historians have noticed that there is something in common between feudal periods in different countries, the Empires established by different conquerors, the city-states that often preceeded them, and the revolutions that even more often brought them to an end.

It means, in fact, that relationships between the data included in the same linguistic classifications have been, implicitly at least, established by them. It is also often argued that each historical event is unique, in that History does not repeat itself. This is also an absurd argument. Heraclitus pointed out that one cannot step into the same river twice. The same can be said for all behavioural processes and does not prevent behaviour from being a valid field of study. They cannot repeat themselves, because the natural systems involved must be affected by each successive experience, and their responses correspondingly modified. That is what is meant by 'learning'.

In any case, on purely cybernetic grounds, History cannot conceivably be a random process, for whenever there is the slightest departure from informational entrophy in the Biosphere, i.e. as soon as information begins to build up within a natural system, its behaviour comes to display a corresponding measure of order, i.e. it *ceases to be random*.

An experiment reported some years ago in the *British Journal of Psychology*, showed that people are simply not capable of acting in a random manner. Those used in the experiment could not, for instance, choose random numbers. Those they chose inevitably reflected their particular personality and world-view.

The mechanism controlling the behaviour of societies and individuals, as has been pointed out in numerous articles in this journal, is functionally the same. The former cannot behave in a random manner, anymore than can the latter. That this is so is confirmed by anthropological literature. The most striking thing about stable human societies, which are essentially tribal ones, is that though superficially they may differ from each other in all sorts of obvious ways, they are *fundamentally very similar*.

In practically all of them, for instance, we find the extended family, the lineage group, the differentiation of functions on the basis of age and sex, the respect for the elders, the role of the ancestral spirits, who are the ultimate custodians of the traditional culture, and the ability to govern themselves without the aid of institutions external to the social system, i.e. of functioning as self-regulating systems, and hence of remaining stable.

These cultural traits can all be shown to be adaptive, as can those in terms of which such societies differ from societies are very orderly and can largely be predicted in accordance with the requirements of maintaining a stable relationship with a changing environment, though the situation is seriously complicated once the traditional culture is disrupted and self-regulating mechanisms break down.

Indeed, the historian's notion that social changes are random appears to be based partly at least, on the fact that history is largely concerned with occurrences in unstable and hence disintegrating societies. The squalid succession of wars, invasions, massacres, murders and intrigues which makes up the bulk of our history could not conceivably have occurred in stable societies — since 'stability' is defined as the ability to avoid discontinuities — in a social context of this kind.

As I have said, *History is not a subject on its own*. It is but a description, and at best an analysis of a certain set of changes, and *it is meaningless when taken seperately from whatever is undergoing the changes*. When the term is used by itself, it presumably refers to the History of Human society.

The subject that historians are studying is, in fact, the same as that studied by anthropologists and sociologists. Historians are merely looking at a particular cross-section of the relevant material — one that is arranged in some sort of temporal order, while anthropologists are looking at a different cross-section and in terms of a different methodology. What is certain is that without a knowledge of the laws governing the organization and structure of human societies, our historians can never really make much sense of history.

But to understand it, they must also know something of human psychology, for societies are made up of families, which in their turn are made up of individuals each other. In fact, changes occurring in stable whose behavioural tendencies, especially in a disintegrating society in which they are no longer subjected to appropriate social constraints, are clearly a key factor in determining social change.

They must also understand the functioning of the non-human societies out of which human ones evolved on an evolutionary time-scale, and must be able to view societies, human and non-human, in their environmental context, so as to determine, by the unfashionable teleological or teleonomic approach, in what way their particular behaviour pattern is, in fact, adaptive. They need also to understand General Systems or cybernetics (which are or should be the same) so as to understand the very basic principles governing the behaviour of all systems of which human and nonhuman societies, individual people and eco-systems are but specialized instances.

In other words, if Toynbee's A Study of History is to be faulted, it is not that it is too wide-ranging, but that on the contrary, it is nothing like wide-ranging enough. The history of human society cannot be understood by examining historical material alone, but must include the study of material (at present falling within the scope of many other separate disciplines) that casts some light on the structure and behaviour of human societies as they have evolved, Fiologically and culturally from simpler forms as long-term adaptive responses to their changing environment; and how they have progressively disintegrated and correspondingly degraded the environment they have become ever less capable of adapting to. This, among other things, has given rise to the all-pervading mediocrity of our massindustrial society.

Edward Goldsmith

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#### BUDDHIST BUDDHIST BUDDHISS BUD

**By William Ophuls** 

The search for a model for our postindustrial society has led William Ophuls to consider the Buddhist example. He shows that the Buddhist world-view, which sees individualism (samsara) as an evil, and man's goal as primarily to live in harmony with the moral law that governs the Universe (dharma) can lead to an ecological way of life.

> "Progress" as we have known it has nearly reached its physical and psychological limits. Despite the remaining (and still sizable) areas of controversy, it is almost universally acknowledged that ever bigger and better ad infinitum is impossible and would be horrible even if it were possible. As a consequence, the quietly radical ideas of the British political economist E.F. Schumacher - epitomized by the title of his underground best seller, Small Is Beatiful: Economics as if People Mattered - have begun to attract respectful attention.

> The essential spirit of Schumacher's thought is contained

in the chapter entitled "Buddhist Economics." In it, following the Buddha, Schumacher maintains that the goal of economic life should be "Right Livelihood." That is, the economy must be designed to provide all members of society with a sufficiency of material well-being through livelihoods that are inherently satisfying, that do not harm others materially or spiritually, that involve the individual in service to his community, and that therefore contribute to the purification of character that is the goal of Buddhist life. To this end, says Schumacher, to the extent that they conflict with Livelihood, "efficiency." Right "rationality," and all the other materialist values of "economic man" that pervade modern industrial civilization must be resolutely rejected. A new economics characterized by ecological harmlessness and stewardship, by a refined simplicity of ends and means alike, and above all by a scrupulous regard for the quality of individual human lives must take its place. These can only be achieved if the scale of economic institutions and of technology is deliberately kept small. Thus, "Small Is Beautiful."

It is evident that such a "Buddhist Economics" must necessarily go in tandem with a "Buddhist Politics," for the unrestrained pursuit of individual material happiness upon which the essentially laissez-faire societies of the Western industrial nations are founded is incompatible with the goals of Buddhist economics. (In effect, our political values are simply those of "economic man" transferred to the political sphere.) To state the conclusion baldly, in politics as in economics, "Small Is Beautiful'': the scale of communal life must be reduced to more human (and, at the same time, more democratic) dimensions. Above all, however, political life must come to be based on some canon of public morality higher than the self-interest of the egotistical individual.

#### The Alleged Reality of Selfishness

The modern world view says that man is fundamentally a selfish hedonist. Concerned only with the satisfaction of his own desires, he rationally pursues fame, profit, and

position - which inevitably puts him in conflict with others. Since this is so, "realism" requires us to found our political and social institutions on the "fact" of human selfishness. Thus, we merely try to channel selfseeking behaviour in benign directions - for example - by harnessing private advantage to public good or by pitting opposing interests against each other in the hope that their worst evils will cancel out and leave a residue of good. In fact, we take the position that "progress" will inevitably emerge out of such comstriving. petitive Thus. Adam Smith's famous "invisible hand" is indeed the paradigm of modern political economy: seeking only our own gain, we inadvertently benefit others and promote the commonweal. In this philosophy, controls on individual behaviour to prevent direct and immediate personal harm to others are permitted but any attempt to impose "standards" or "values" constitutes an unwarranted invasion of the individual's sacred "right" to pursue happiness as he defines it.

A Buddhist political philosopher would naturally join with other critics of this philosophy in noting that there is an inevitable tendency for the strong or callous to drive the weak or scrupulous to the wall and, what is perhaps worse, to feel little remorse for doing so in a dogeat-dog world. The Buddhist would also note that cultural life in such a system is bound to be debased: with no agreed standards and with so much profit to be gained from pandering to the desires of the multitude, the coarse will tend to drive the fine from the cultural marketplace (and tough luck for the sensitive few); worst of all, the impressionable young will be forced to breathe in, willy nilly, the miasma of pornography and violence thus created, which sets up a vicious circle of corruption. In addition, the Buddhist would join ecologists and environmentalists in pointing out that a system founded on greed is no longer compatible with the physical realities of existence on the planet; if individuals and groups continue "rationally" to pursue material gratification without heed for the morrow, much less posterity, then the inevitable outcome of such an the innate wisdom and compassion

ation of the planet's resources will be the near-total devastation and depletion of the biosphere upon which life, especially the quality of life, ultimately depends.

However, for the Buddhist philosopher, the inherent callousness, moral depravity, and selfdestructiveness of modern civilization are only secondary object-The principle ions. crime, in Buddhist eyes, is that we take selfishness and hedonism to be social facts - instead of the primordial problems that human beings are placed upon earth to solve. Thus, a vicious circle is set up in which the presumption of selfishness fosters behaviour that reinforces the original presumption.

Buddhism does not, of course, deny the actuality of selfish behaviour in the world, but it does not regard this as a given to be regarded with complacency out of a misguided sense of "realism." According to the Buddha, man's essential nature is good, but the conditions of life on earth foster a spiritual ignorance that almost always leads to the loss of his original goodness. If the ignorance that holds us all in thrall can be diluted - or, better yet, dissolved then men will moderate or abandon their selfishness

Spiritual ignorance is created in the following fashion: immaculately conceived, individuals are soon conditioned to think of themselves as separate entities or egos; this delusion of separateness leads them to believe that their interests are essentially opposed to those of others; thus, greed, hatred, and other defilements arise; worse, these defilements cause conflict and suffering that tend to reinforce the original delusion of a separateness that must at all costs be preserved and enhanced. The way to cut through this vicious circle of selfishness (called samsara) that we are all caught up in is the purification of character, not only in the economic sphere throughout the practice of Right Livelihood, but in all other spheres of life as well (as spelled out in the Noble Eightfold Path). When character has been purified, ignorance is seen through, and the selfish ego can no longer dominate one's life; samsara is cut off at its root; orgy of competitive overexploit- that are the birthright of every



human being are reborn; and one strives constantly thereafter to live in harmony with the *dharma*, the moral law that governs the universe.

#### **Re-educting the Human Heart**

Although Buddhism, in common with other religions, enjoins the avoidance of evil and the doing of good upon its followers, it places primary emphasis on re-educating individuals to perceive the dharma with their own hearts, for genuine liberation from selfishness and the suffering it causes is only to be found in total inner awareness, not in obedience to preceptual morality. The Buddhist philosopher is therefore interested in promoting psychological and social conditions that maximize individual opportunities for profound self-understanding and constructive self-development.

Conversely, things that tend to narcotize people or focus their attention on trivial externals - the widespread use of drugs, the hypnotic power of the mass media, the vast "entertainment" industry, and so on - would be regarded as profoundly undesirable. Indeed, a Buddhist would see our vaunted educational system, aptly dubbed "the Church of Reason" by Robert Pirsig, as the worst narcotic of all. With its exclusive dedication to instrumental rationality and its virtually total neglect of character training and psychophysical development, this system has become a barrier to self-knowledge and a prime cause of individual and social suffering. In Buddhist eyes, our civilization is all head and no heart; our view of reality and our sense of human possibilities are therefore impoverished. By contrast, in a

Buddhist polity, education would be predominantly experiential and aimed at the whole person. It would be carried out not in segregated educational factories, but by society as a whole (especially, of course, by the family), and the structure of society would have to permit and promote this kind of pervasive, lifelong apprenticeship.

#### The Pursuit of Dharma Not Happiness

What, briefly, are the major tenets of a political philosophy founded on dharma rather than the pursuit of happiness? The first principle of Buddhist politics is respectful tolerance. All beings and all authentic paths being spiritually equal. there is no basis for discrimination among them. Thus, a Buddhist must live and let live, without imposing anything on others - even Buddhism. This does not mean that one lapses into apathetic quietism. To the contrary, it is the duty of a Buddhist to persevere in promoting the worldly expression of the dharma - but he must take care that, in doing so, he does not unleash further suffering. This requires him to work slowly, patiently, and carefully, scrupulously respecting the rights of others. Moreover, he must always remember that his primary duty is to bring about benign changes in himself; indeed, for a Buddhist this is the chief way in which society can be improved, because the good society can only be created from the bottom up, not from the top down. Accordingly, a Buddhist philosopher works with the grain of history. respecting the actual situation; he has no grand designs, no inflexible ideologies, no particular set of institutions to peddle - only the principle of upaya, or "skillful means" that manifest wisdom in action. The truth of the dharma must be given concrete form according to the peculiar historical conditions prevailing in a given place at a given time. At one time these conditions may call for a monarchy, at another a democracy; at one place they may require a Buddhist culture, at another a Christian or even a socalled pagan culture. The important thing is the quality of individual human lives and the inner meaning of a culture, not structure and other externals.

Second, secular equality follows naturally from spiritual equality but not necessarily egalitarianism. for people can be equal without being the same. There are natural differences between man and the animals, between man and woman. and between man and man. To take cognizance of these differences and to reflect them appropriately in the social order (to the extent that historical conditions allow) fosters harmony and permits individuals to follow their own special vocation (i.e., their particular dharma or destiny). By contrast, egalitarianism as we know it, which is too often fuelled by envy, tends to reduce the social diversity that fosters genuine individuality and at the same time throws people into conflict as everyone tries to climb to the top of the same pole. For example, to the extent that the women's liberation movement attempts to throw off the prejudice that has denied women spiritual equality and the opportunity to pursue their own dharmas, it is a beneficent force; but to the extent that this same movement stirs up hatred between the sexes, denigrates the practical and spiritual importance of the traditional mother's role, or encourages women to be just as egotistically selfish and ambitious as males, it would cause a Buddhist philosopher deep concern.

Third, given that egotism is the fundamental personal and social problem, the emphasis ought to be placed on duties instead of rights. A primary characteristic of the enlightened man is compassion; he lightens the load of others instead of aggrandizing himself. He is also gratefully aware of all the debts he owes to parents, teachers, and the like and attempts generously to repay them by benefiting others in turn. One of the major paths toward self-purification is therefore the performance of loving service to one's community in whatever capacity one's talents and circumstances allow (with the spirit in which the service is performed, not the results achieved, being all-important). It just so happens that adherence to this principle of service tends also to create a better world for all. including the servitor. Conversely, a world comprised primarily of misers, rat-racers, dogs-in-the-manger, and

lookers-out-for-number-one is a world in which unbearable tension, pain, crime, and violence are inevitable.

A fourth principle of Buddhist politics is simplicity. The primary cause of suffering is desire, for this makes one constantly want and grasp things (as opposed to simply enjoying what one already has without being attached to having it or lusting after more). But wants are infinite and even their constant fulfillment can never bring lasting satisfaction. A society in which wants are deliberately multiplied and in which this kind of happiness is pursued is therefore going to contain many frustrated and unhappy people - no matter how successful their pursuit is. The way to peace is spiritual poverty - not wanting to be better off than one already is materially, socially, even spiritually. A simple society without great extremes of rank, wealth, or knowledge is likelier to foster this spirit of tranguil non-attachment than one in which people are constantly made (often deliberately) to feel insecure, disadvantaged, or inadequate. In addition, as a byproduct, a simple society maximizes individual opportunities to participate meaningfully in social life and to be of direct service to others; it is therefore better suited to serve the cause of self-development. By contrast, to construct a society so complex and grandiose that it frustrates people's need to be creatively involved with the world, puts individuals largely at the mercy of remote bureaucrats and arrogant "experts," or reduces political participation to a token vote, in what the dynamics of electoral politics almost guarantee will be, a fencestraddling contest is certain to cause widespread alienation and unrest.

Finally, an essential requirement of a Buddhist polity is non-violence — and not just toward other humans, but also toward all the rest of creation. Perfect non-violence is impossible. Humans cannot feed, clothe, or house themselves without doing some violence. But by taking heed, by being frugal, and by using or doing things with respect, we can minimize our violence and alleviate most of its harmful effects. To do as we now do, gouging the earth to gratify our demand for energy and materials that we then proceed to use wastefully to support a gluttonous standard of living and a monstrous military establishment, is to give full rein to violence, with the ecological wasteland without mirroring the spiritual wasteland within. We need not go to the opposite extreme of self-abnegation either. for Buddhism is "The Middle Way." Accordingly, the fulfillment of genuine needs and the enjoyment of natural pleasures that harm neither self nor others is legitimate, and these legitimate ends can be readily attained in a society that has eschewed violence for simplicity and frugality. Moreover, it is the spirit in which things are done, as much or more than the deed itself, that matters. For example, the welfare of the community may require the imprisonment or even the execution of a criminal; if such punishment is carried out not in a spirit of vengeance, but with insight and compassion, then it is not violent in intention. (But, of course, crime does not flourish unless people are deprived of a real role in society.) Similarly, although abortion involves killing, there are circumstances in which it may be the lesser of evils (but the violence involved in wholesale discretionary abortion for mere personal convenience is much harder for a Buddhist to condone).

#### Why Small Is Beautiful

Naturally, all the above principles are interrelated and mutually reinforcing. Thus. tolerance. equality, service, and simplicity all support non-violence, and vice versa. However, more important, all of the above are in turn dependent on a critical social variable - the scale of institutions. Bigness leads to complexity, not simplicity. Complexity in turn leads to the necessity for rationalized bureaucrtic rules and controls that frustrate or ignore the promptings of the human heart and that make people feel powerless and inadequate; it leads indirectly to inequality, quarrelsomeness, power struggles, and violence. In addition, problems that used to be solved with local initiative and ingenuity mushroom in size and become qualitatively different; citizens can no longer cope, and the call goes up for government to "do something" -

but once problems reach this stage. they are essentially insoluble. Bigness also cuts down on individual opportunities for self-development; when every important decision is made "at the centre." all but a few are denied meaningful participation in life; no matter how busy they are in executing policy or meeting the quota, people know deep down that thev are working for "headquarters," not themselves. As a consequence, we cannot expect much in the way of civic virtue from the average man; to the contrary, lacking the community involvement that would simultaneously enhance his self-respect and restrain his self-seeking, the citizen is likely to lapse into a resentful apathy antithetical to his own and the polity's health. Finally, it goes almost without saying that under these circumstances democracy, which is supposed to involve the citizen in making the laws that are to govern him, becomes symbolic at best, fraudulent at worst. In short, even if smallness were not necessary to support Buddhist economics. it would be essential in its own right.

Naturally, smallness should not be made into a fetish. A critical mass is necessary for some undertakings. and there are genuine economies of scale in some areas. Thus, in accordance with the principle of upaya, a follower of "The Middle Way" would go about determining the appropriate size of social institutions pragmatically and with an open mind. Nevertheless, we can safely put aside the question of how much smaller would be beautiful for the moment, because it is overwhelmingly clear that in almost every area it would be very much smaller than at present.

This ought not to be a startling conclusion. Aristotle and Plato both pointed out the social and political perils of over-development in the strongest possible terms, and later democratic and republican political theorists have unanimously reiterated their conclusion: only a relatively small, face-to-face society is capable of promoting and preserving a spirit of civic virtue, democratic or republican self-rule, and a general atmosphere conducive to the self-development of the citizen; conversely, bigness and complexity invite tyranny and social unrest.



But then, just like the Buddhist political philosopher, these thinkers were primarily concerned with what kind of human being was produced by a particular set of political institutions. In other words, although usually lacking the lofty spiritual aspirations of Buddhism, they also saw the purification of character as the goal of human life.

#### Escaping the Prison of "Reality"

To many readers, all of the above must seem hopelessly utopian, doomed to founder on the rock of "reality." However, it must never be forgotten that social reality is created. Different times and different places have had vastly different "realities." The ancient Athenians, for example, despised the merely wealthy. The only way to earn their respect was by excellence in the service of the community: not surprisingly, most citizens devoted themselves to public service, not private acquisition. Our current "reality" of selfishness is largely the product of a self-fulfilling prophecy: people have believed the world views of Thomas Hobbes. Adam Smith, and their ilk into existence, and this actuality can be dissolved by a willed suspension of belief. To propose a radically different, but not inherently unworkable. set of values is therefore not utopian after all, but a highly practical indeed, indispensable - prerequisite to meaningful social and political change. (Indeed, no greater - or more successful - utopians than the founding fathers of the American republic ever walked the face of the earth, and what they did can be done again.)

On the other hand, it is evident that all actual polities will necessarily fall well short of the Buddhist ideal. What matters, however, is not perfection, but the basic value orientation of the polity. Decisions are now made according to whether they will make us more secure, richer, more powerful, better off than our neighbour, and so on. When they are instead made by asking whether simplicity and the other tenets of Buddhist politics will be enhanced or not, then we would be on the right path. Above all, anything that aggrandizes the power of government, so that it begins to look after us instead of helping us to look after ourselves, must be examined with deep suspicion, for this seems inevitably to lead to bigness and complexity.

Naturally, "The Middle Way" is not easy to tread, and merely reducing the size of communal institutions to the appropriate level will not banish evil from the world but it would reduce the massiveness of the evil that could be done and bring us back into the realm of personal evil, which we can understand and deal with. By contrast, the impersonal, faceless, "banal" evil and violence that have led to the large-scale extermination of racial and political deviants and to a potential nuclear holocaust are ineluctable consequences of great size. complexity, and interdependence. Nor would smallness per se always guarantee freedom. However, the tyranny currently exercised over our lives by impersonal forces - "the market," "efficiency," "techno-logy," and the like — beyond any individual's ken, much less control, should not be overlooked. With smaller-scale tyranny, flight is usually possible, and one at least knows whom to revolt against. In any event, says the Buddhist philosopher, although the two are not completely independent, more fearsome than any political tyranny is the psycho-social tyranny of the selfish ego and its paranoid view of the world, for it locks us in a prison of our own making.

#### The Search for Models

Unfortunately, there are no useful models of Buddhist politics that we can readily apply to our current historical circumstances. But in the thought of Thomas Jefferson Americans and even many Europeans will find most of its essential features. (Others, especially in the Third World, may prefer to follow Gandhi.) Perhaps it is time to pit Jefferson's vision of republican simplicity against Alexander Hamilton's rival vision of national power and commercial complexity once again - but this time decide in favour of Jefferson, now that we have learned the hard way the truth in his famous maxim. "That Government is best that governs least."

Of course, to a Buddhist philosopher, Jefferson's vision, although firmly grounded in Christian ethics. lacks a certain spiritual depth. Perhaps the thought of Henry David Thoreau can repair some of this lack. Walden, the record of his symbolic critique of a society that had spurned Jefferson for Hamilton, is an extended sermon on the necessity of natural simplicity as the only way to avoid living the quietly desperate life of those weighed down by selfish striving for power, possessions, and position. Additional inspiration can be found in Thomas More's Utopia, still unexcelled as a description of a social order in which individuals are spontaneously obedient to moral law. Nor need the Christian tradition be neglected; indeed, Schumacher, who is not a Buddhist but a Catholic, has pointed out that the "Four Cardinal Virtues" of Christianity - prudentia, justitia. fortitudo, and temperantia - could serve as readily as Buddhist principles as the foundation for social and economic sanity. In short, Buddhist politics accords totally with the highest teachings in our own tradition. It could not be otherwise, for there is only one dharma, however differently it is expressed by different cultures.

So it appears that small is indeed beautiful. Moreover, this would be true even if one rejected totally the spiritual goals of Buddhism or the other religions. Following the principles of Buddhist politics would lead toward a more pleasant, harmonious, and humane worldly existence even without regard to ultimate spiritual consequences. So, now is not too soon to begin changing realities — starting, as always, with oneself.

# Ecology Party news

### WHERE IS THE ECOLOGICAL POWER BASE?

At the coming local elections at least a dozen candidates will be carrying The Ecology Party banner to the Polls. But at the back of all their minds will be the question "Why are there not a hundred or more Ecology candidates this year?

This is one aspect of the Question of the Decade: Where is the Ecological Power Base in Britain? Those of us in the Conservation Movement (a term which I use to cover everybody and every group with any belief in Conservation) know that it contains tens of thousands of people. A political party as large as this would rise into the league with the two big parties overnight.

Unfortunately, the Conservation Movement in Britain is as fragmented as it is possible for any movement to be. At its head, currently, are two large groups, which seem to study each other, Nelson-like, through their blind eyes. Dotted around them is a bewildering complexity of small groups all concerned with community politics, organic living, alternative technology or whathave-you, some with names so similar it is practically impossible to tell them apart. And beyond them is a large body of potential conservationists who are confounded by the babble of voices coming from within the movement and, being uncertain what to do, do nothing. It is only necessary to imagine the Labour or Tory Party similarly fragmented to realise the disastrous effect fragmentation has.

Although most of these groups do some admirable work, it seems their members are missing a basic point. It is rare even for two people to agree on everything, so wherever two people work together a degree of compromise is necessary. As the number of people increases so does the degree of compromise. If we are to unite thousands of conservationists, all with their own particular personal and political beliefs, then the principles on which there will be no compromise will be few indeed. It is due to an attempt to hang on to a large number of principles simultaneously that most groups fail to co-operate or to merge.

Apart from the belief that the Conservation Movement must come out of the woods and into the polling stations, the Ecology Party holds solidly to only two principles: that ecological considerations must be paramount, and that democracy must survive. Our lengthy manifesto is not a document for new members to sign on the dotted line, but a basis for future discussion and improvement, to which even more compromises will be made by an increasing number of people. Most of these people will probably retain their membership of other groups, as most current members have done, to give them plenty of scope for activity away from election times.

Compromise may not sound very dynamic, but since we are all in the same boat we must decide which way to sail out of the storm. If we come out safely our children can decide how to decorate the cabins.

To Membership Secretary, 2, The Old Vicarage, 26, Main Road, Kempsey, Worcester WR5 1BR.		Note: Full membership at £4 per year covers newsletter, plus ''Good Earth'' plus voting rights. Associate membership covers newsletter only at £2. Joint full membership is £6. Cheques/P.O's should be made payable to the Ecology Party.				
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Please:	tick	Name:				
Send further details about the party	8					
Accept my donation	H	Address:				
Enrol me/us as full/associate/joint member						
I am interested in the May election						

# The Primitive Barrier to Political Ecology

### by Brian Johnson

Functionalism leads to "paraprimitivism" — the notion that the primitive tribe is the model for a post-industrial society. This notion is unjustified and in any case likely only to be accepted by a small minority. The best way to favour the implementation of ecological policies is by getting them accepted by receptive middle-of-the-road political parties such as the Centre party in Sweden and the Liberal party in Great Britain.

It is now commonplace to say that the "ecological viewpoint" has become dispersed: that it has run out of steam or evaporated through diffusion among too many substantive areas of policy.

In one sense, this is clearly true. The revivalist phase of the late 1960's and the early seventies, when very diverse views and values allied together against industrial alienation and the enthronement of GNP, has certainly been followed by divisions and regroupings, despite a remarkably high success rate in the Department of Dire Predictions.

The chief cement that bound these very diverse groups and individuals was a deep desire to comprehend biological, social and economic relationships as a whole. A unifying theme which underlay The Ecologist's 'Blueprint for Survival', and other similar documents, was revulsion from scientific and social reductionism. It was a response to the conquest, not only of Western democracies, but of Marxist state capitalism, by "objective" liberal scientific technology. The holist naturally favoured renaissance alternatives to comprehensive Marxist analysis. It did so, not only because Marxist societies had clearly failed to handle the depredations of scientific reductionism, but because of a belief among environmentalists

that class struggle as a social principle represented a poor basis for the integrated behaviour and cooperation necessary to avoid further environmental destruction.

But what was the alternative? Apart from Marxism, it has been observed<sup>1</sup> that there is in fact only one serious candidate for the title of a fully-fledged theory of social science. No one would yet claim that this theory (or technique of analysis) has produced a set of propositions about political behaviour comparable in scope or force to those of Marx. However, many political scientists would claim that an alternative set of general propositions can be formulated which provide a better explanation of the known facts of political behaviour than Marxism has done. The alternative approach, generally known as "functionalism," shares with Marxism the important characteristic of setting out to provide an explanation of all the social processes.

Coming to the social sciences from biology, in the long tradition of organic analogy and of modes of reasoning about the body politic which started with Socrates, the influence of what is nowadays, referred to as "functionalism" on the social sciences dates from the early 1920's, when the impact of the two functionalist classics - Malinowski's Argonauts of the Western Radcliffe-Brown's Pacific and Andaman Islanders was first generally felt. The differences in approach of these two anthropological theorists are so considerable that to lump their thought together inevitably creates some over-simplification. However, their works both contained what is common to functionalist theory in all its forms. For, when studying a given social or political situation, they both adopted the approach of asking not how a pattern of behaviour may have originated so much as what part it. plays in maintaining a system as a whole. Perhaps Malinowski provides the classic statement of this approach:

"In every type of civilization, every custom, material object, idea and belief fulfills some vital function, has some task to accomplish, represents an indispensable part within a working whole."<sup>2</sup>

As a shift of emphasis from the conjectural evolutionary history which had been the previous anthropological fashion, this approach proved extremely valuable. But it



came, over the years, to be the adopted analytical method of a large and influential part of the political science profession in the wider sense, and thus became a prime technique of social and political analysis.

The functionalist approach is unquestionably useful in two general areas of political analysis. A study of the component groups and parts of a society or state as they exist at a given moment in time may help the analyst to understand the workings of that society by enabling him to discern what groups or forces serve to keep the essential variables of the system working together within certain pre-defined acceptable limits. Examples of such limits in a developed society might be a slump in the economic system, or civil war or anarchy in the political system.

A second area in which functional analysis is of particular value is where it is possible to speak unambiguously about the "goals" of a society. But functionalism strikes difficulties when applied to a sophisticated modern, as opposed to a simple primitive, society, for in the former case, it is impossible to arrive at an adequate definition of societal "purposes" or "goals".

#### The Failure of Functionalism

This difficulty is further compounded by the functionalist's problem of confusing social "purposes" with observable results. It is always necessary to say exactly whose purposes we mean. In certain apparently clear-cut cases Napoleon's France, Hitler's Germany, Stalin's Russia, Churchhill's Britain of 1940, or Mao's China, such purposes may be identifiable. But in the post World War II Western democracies - and most of all perhaps in the United States - a clear definition of society's criteria of success impossible.

In such cases as the totalitarian examples just mentioned, the concept on which the functional method is based — the idea that the analysis of what exists helps to explain the nature of that existence — can serve a useful purpose. But this concept clearly produces difficulties when used to explain the "why" questions which are involved in the study of a *process*. Thus, for example, functionalist analysis would lead us to conclude that any recurrent role in the process of decision-making represents a contribution to the decision-making pattern as a whole, and therefore a contribution to the maintenance of the structural continuity of a decision-making process.

However, to say that a recurrent role helps to maintain the structural continuity of the decision-making process because it plays a part in influencing the decision-making process is obviously tautological. It is only true if any recurrent role is by definition part of the continuity to which it contributes by its mere occurrence. To take a simple example, pure functional analysis would postulate that the recurrent role of a Secretary of State in the foreign policy decision-making process of Britain or the United States contributes to the maintenance of the current system of arriving at a foreign policy decision - hence to the pattern of foreign policy formation, and of foreign policy decision as a whole. The methodological basis of the functionalist analysis of a society thus involves, though it does not depend on, a logical circularity.

result of applying the The functionalist method to the political processes of complex societies is, as Runciman pointed out, a tendency to confuse classification with explanation: to forget that phenomena have not been explained when their importance has been pointed out. But demonstration of the importance of a factor is clearly not the same thing as showing how it originated, or how its function may affect future change in that society. Functional analysis, in other words, is not logically capable of accounting for historical change.

This naturally is a major defect when functional analysis is used by Goldsmith, among others, as the basis for prescriptions of social change to avert ecological catastrophy. Man, we understand from the editorial columns of *The Ecologist*, is a social creature whose goal, in whatever social group he evolves, is "survival." Men and women are "naturally" (i.e. before perversion at the hands of reductionist science) content with a modest subsistence, seeking "stability" in social, economic and ecological relationships as the means of fulfilling their survivalist goal. This pattern of behaviour is ordained. according to Goldsmith, not only by customary laws of social behaviour. but by biological laws as immutable as those which govern plant and animal behaviour, and from which only temporary deviation (temporary to Goldsmith, meaning, for example, the period in man's evolution from the earliest settled agriculture until today) is possible.

This analysis of social structures and motivations lays claim to empirical proof by reference to the instabilities (both experienced and prospective) of advanced industrial societies, and the stability and durability of primitive cultures, on which examples are selectively presented in such a way as to represent the life of most primitive peoples as easy, happy, unneurotic, long (for those surviving high infant mortality), and generally desirable.

How then did man ever fall from his primitive Edens to our present barbaric yet sybaritic industrial phase? Goldsmithian cosmology has little to say about homo sapiens' evolution, and, in fact, generally ignores the historic forces which shaped civilizations in the early modern industrial era, preferring, vide editorials and editor's articles The Ecologist 1970-1976, to in present contrasts between primitivism, the civilizations of classical times, and advanced industrial societies.

Most readers of The Ecologist share a concern bordering on horror at the rate at which science-based industry today consumes global resources, destroying natural balances, simplifying biological diversity etc. Equally horrifying, is the increasing short-sightedness with which supposedly rational man applies the argument that science and technology together with social and psychiatric manipulation, can resolve all his crises and dilemmas. But is it philosophically helpful to use a functionalist analysis that postulates para-primitive stability,

or social stasis, as an alternative to what Goldsmith rightly calls "the religion of industrialism"? That such an approach represents an intellectual dead end is evident from the basic defect within all functionally based prescriptive analysis: its inability to explain processes of change could also become an obstacle to both radical and reformist action in fact of the status-quo.

This is particularly unfortunate in view of the fact that evolution in what should now be called political ecology has divided the ranks of the environmentally concerned along the lines of political ideology. In so doing, it has pushed the Goldsmithian position still further into a corner. The corner is now hedged in by at least three broad environmental positions, all of which are clearly separable from the phalanx of "business-as-usual", and each of which is identifiable by a degree of internal consistency..

#### 1. The Centralist Environmental Liberals

Over the last three years, there has been a gradual but steady separation between "consensual" status-quo environmentalists and "business-as-usual". One piece of evidence for this is the way in which Western bureaucracies. established in the early 1970's to cope with "environment", have seen fit to cast their net wider. Their pollution mandates (in most cases the sole focus of official concern with environment in the early 1970's) have expanded to include more and more concern with (including water and resource energy conservation), and the interaction between "environmental management" and the development process in the Third World. This expansion has occurred amid a widely observed opposite tendency, disturbing to environmentalists outside Government, for aspects of environmental concern, as they emerged in the early 1970's, to be recategorised into older and more familiar pigeon-holes. The energy debate becomes separate from environment, though infused with arguments surrounding the environmental ethic, and returns to the expert fora of fuel and power specialists; the debate on food strategy,

factorification, monoculture and agricultural pollution is again the province of agronomists, plant ecologists, population biologists, economists etc., while the urban social crisis of alienation, drug taking, alcoholism, delinquency, etc., has returned — somewhat transformed by an environmental optic, it is true — to become the province of the traditional liberal welfare interest.

Separation, in official circles between relatively pure and rather modified "business-as-usual" attitudes, reveals little divide in political ideology, — the focus is on different attitudes to the investment momentum of past and present technological thrusts. Very broadly, one may say that in terms of the West European political spectrum, the separation between rather softer and harder technological lines (nuclear power and the motor car being perhaps the most sensitive current litmus tests) is that between Social and Christian Democratic manifestos: the private investment focus being more concerned with return on capital, the more dirigist public investment focus being less so. Both these "Hard" and "Soft" lines on technology retain, however, a two-fold bond: (1) a reductionist view of problems which are thus inevitably seen as technically soluble by piece-meal solutions, and (2) a commitment to centralised decision making, investment and economic control (whether in a private corporate or public agency framework).

#### 2. Marxist Alternative Technologists

The alternative technology movement, like status-quo environmentalism, is also divided over the role of private investment and ownership. But increasingly the dividing line runs along questions of scale of production and of political units. and the related issue of international management. The divide comes out most clearly in attitudes to largescale multinational corporate capitalism. The alternative technology Left are naturally, under Marxist intellectual influence, concerned more with systematic or total relationships. They therefore tend to accept a strong element of highly centralised political, social and economic control as necessary for the foreseeable future (the scale on which this should take place is an important unclarified issue) in order to control multi-national enterprise, whose rapacity these alternative technologists believe will not be checked by any change of values or tastes in the market-place, as these markets are, in their view, largely fictitious or at least manipulated by monopoly or quasi-monopoly capitalism.

Marxist alternative technologists further believe that the centralised control necessary for the foreseeable future can occur simultaneously with a burgeoning of shop-floor initiatives that will produce alternative goals for technology: and that worker control in industry and commerce will ensure that the decision-making process responds to such shop-floor initiatives. How this vision is to be realised: what sort of union and management structure will be required, has not yet been spelled out by Marxist alternative technology theorists. It is a theme to which the British Labour Party's younger left wing theorists, such as Stuart Holland and Mary Kaldor, are beginning to give attention.

The attention is long overdue. It was in the 1920's that William Morris's and Arthur Penty's concern with "small is beautiful" was dropped from the Guild Socialists' proposals for worker-ruled functional democracy. Instead, the economist S.G. Hobson envisioned the productive life of Britain as being run by about 22 Guilds - enormous organisations, each covering a whole industry - which were to evolve out of the trades union movement. With out modern experience of trades union power, especially in Britain, could we feel confident that any accommodation can be arrived at between the narrow sectional and wage-related interests of trade unions and the larger goals of society? And in Western consumer societies generally, does it make sense for either the consumption or the production function of the individual or of society as a whole to primacy? If Socialist assume functional democracy is to evolve further - even as a theory production and consumption functions of citizens must be brought

into some form of balance.

#### 3. Liberal Alternative Technologists

The alternative technology liberals, are, as one might guess, much less clear about systematic relations and structures. Their continuing belief in the efficacy of political representation, and the pluralistic society, turns them toward the concept of an alternative society growing up parallel to present social values and institutions: perhaps eventually to supersede them in a post-industrial era. It is extremely hard to gauge the strength of the liberal alternative movement. Its salient feature is its decentralized character and its focus on local issues. In Britain, for example, the liberal alternative technology cause is inseparable from that of local amenity and conservation campaigns. John Tyme, the anti-motorway organiser, represents as much a thread weaving through similar local protest movements against centralized planning, as he does an opponent of the DoE's Tyme's motorway programme. initial target is the lack of accountability and responsiveness of the supposedly democratic Governmental process. The headway that he and his colleagues have made in the last eighteen months is impressive. But were the corruption of the governmental process (which is how Tyme describes the DoE's motorway enquiries) to be resolved by more truly democratic decision making, would the public's perception of the general interest accurately reflected in reformed Governmental procedures - support liberal conservationists, and alternative technologists' value judgements? Given continued control of the national media of information and persuasion by interests tied to the wheels of "business-as-usual", it is hard to imagine that it would.

It is this perception which will increasingly reinforce the incipient alliance between liberal alternative technology and conservationist groups and political devolutionists. Their common ground will be anxiety to escape the electoral tyrannies of urban majorities, orchestrated and manipulated by the centrally organised interests of industry, commerce and information.

An important British arena for debate on these preoccupations of liberal alternative technology (and of the Marxist/anarchist technologists too) is the organisation, Alternative Society, which claims a rapidly growing membership, and has achieved a remarkable response at its weekend seminars, and to its working papers and study projects. Typically, Alternative Society shuns a political ideological line, though its philosophical position could generally be equated with radical liberalism. An example of its initiatives is its work on Land Trusts as an alternative to the sale. under pressure of taxation, of large agricultural estates to commercial enterprises, which must inevitably run their holdings along conventional high-technology, profitmaking lines. The purpose of the Land Trusts, which would be nonprofit organisations, involving local, as well as national interests, would be to run estates along lines which permit both a greater degree of longsightedness in agricultural management, and the allocation of a proportion of the land to more labour intensive and organic activities to be undertaken by the workers of smallholdings.

Perhaps the most comprehensive summary view of the liberal alternative technologists' philosophy is incorporated in a recent paper published by the European Environment Bureau (EEB) proposing an alternative strategy for a European political economy. They adopt the 'principle of subsidiarity'' - St. Augustine's principle, which simply assigns "appropriate" tasks to "appropriate" levels - a principle which was, incidentally, espoused by the Commission of the European Community in their proposals for European political union in 1975. Their paper applies these principles. in very broad terms, to the allocation of social and economic functions in an evolution towards a Federal European State.<sup>3</sup>

#### 4. Decline of the Hard Line Catastrophists

Finally, there remains the evangelical group of what one may call Ecological Catastrophists, who still see issues in more or less black and white terms, as coalescing around "survival" on the one hand, and "breakdown" on the other. Such a simplistic dichotomy will inevitably produce the sort of analysis offered in the Editorial section of the May, 1976 *Ecologist*, in which, on the "lifeboat analogy", the "doomed" areas of the world are to be excised from the world structure of trade and aid.

This is the environmental view which has lost credulity as the industrial world struggles to incorporate some degree of environmental consciousness into its responses to self-generated crisis. It is the result of the untempered application of functionalist theory to the present industrial predicament. It is also a position which could be seen to have a certain similarity of interest with elements of status-quo. "business-as-usual" ideology, as witness the names (including that of J. Paul Getty and other conservative businessmen) who subscribed to the statement of the Environment Fund published in the May 1976 Ecologist. For if a catastrophic view is taken as the basis of policy, the first (easiest) measures that will be implemented will be those which in reducing aid to poor countries (and poor sections of rich communities) save resources for consumption by the rich. The paraprimitive and puritan aspect of the catastrophists' policies (also generally advocated in The Ecologist) is likely then to have to wait indefinitely, as the ecological catastrophists quickly find that their less popularly palatable proposals have been dropped at the insistence of the "business-as-usual" opposition.

As a political position, puritanical para-primitivism was never seen as realistic by any except a small group of mountain-top devotees, despite the publicity accorded to its most fervent publicists. But have the different branches of alternative technologists done better?

#### **Progress in the Centre?**

There seems little doubt that the failure of alternative technology theorists to grasp the adaptive capacity of advanced technology has been a major blockage in the process of bridge-building between the visionaries and theorists of this sector of environmental concern, and those with the financial

resources and organisation necessary to carry "alternative" innovation through, at least into mediumscale commercial application. It seems now that this gap is more likely to be filled by experimental departures taken by management and organised labour, than by the alternative technology theorists. who start from purely environmental consideration of minimising ecological impact. The quest by the shop stewards at Lucas Aerospace for alternative technological employment in the face of cuts in defence contracts, and their disillusion with the environmental technology lobby. is a case in point.

This situation is unlikely to change until conservationists and socioenvironmental welfare interests can develop a solidly based organisational theory. The common bond of devolutionism or "small is beautiful" has so far not achieved much concrete theory beyond the vague and rather question-begging statements about the principle of subsidiarity. The issues of scale also are generally discussed in a "power vacuum", especially when it comes to questions of defence and foreign policy, whose resolution must define the upper limit of scale and the degree of functional centralisation that is sought.

In Sweden the anti-nuclear campaign helped to put Faldin's government in power. In France's "ecological explosion" 200 "little green men" look, at the time of writing, as though they will hold the balance of power in Paris's municipal government, while the defection of socialist shadow environment minister Monique Cazeaux to the ecological movement. the extraordinary success of Alsace's "Ecologie et Survie" party and the position of Dutch and Danish left-wing parties on many environment issues, all point to growing pressures on the centre.

Meanwhile the global debate on development priorities that has been sustained by a series of world conferences under UN auspices covering environment, population, food, the oceans, trade, employment, the role of women, and human settlements, has further infused environmental priorities through the newly received conventional wisdom that waste must be curbed and that the most basic human needs must be met as strategic priorities, if the world is not to splinter to pieces in strife, or perish through the perversion of our natural support systems.

In a developed world that is neurotic about social and economic breakdown, the middle ground of politics is perhaps open now as never before to the environmental message. It is therefore particularly important that we re-assess the value of advancing functionally established primitivist ethics as the only alternative to the apocalypse.

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The Ecologist, 73 Molesworth Street, Wadebridge, Cornwall, PL27 7DS, UK.

# THE CONTROL OF FOOD ADDITIVES

Britain is particularly permissive with regards the use of chemical additives in our food. Many chemicals, whose use is banned in other countries, are still allowed in Britain

Sidney Alford argues that the law should be seriously tightened and vigorously enforced. For instance food colourants, synthetic flavourings and other additives that cannot in any way be regarded as essential should be banned outright.

hen, in 1969, the American Government prohibited t the use of the synthetic sweetening agent cvclamate in foodstuffs. British Government quickly the followed its example and banned its use in Great Britain too. Since the substance had previously been approved for that purpose by toxicologists in Britain, and since the American decision was based upon research which suffered much criticism, the speed of the British Government's response was in turn criticized as being alarmist. One should not, of course, overlook the fact that, in this issue, as in most matters concerning changes in food policy, large companies had large interests in not having such prohibitions sprung on them. Soon after this newspapers became aware of reports in some scientific journals that certain members of the class of organic compound known as nitrosamines are highly carcinogenic, and in others that nitrosamines may result from reaction between naturally occurring amines, which are found in a variety of foodstuffs, and nitrates and nitrites which have, for many years, been used for preserving pork and turning it into a healthy pink. (The continued use of nitrite is defended on the grounds that it prevents botulin poisoning: since no case has been reported in the United Kingdom since 1923, it is either hardly necesary, or unbelievably effective.) One important clause in the American Food and Drug Laws is the Delaney Amendment of 1958. which prohibits the use of any food additive known to produce cancers in animals, regardless of the dose necessary to do so. In Great Britain there is no equivalent of the Delaney Amendment, so one might reasonably wonder what is the official British attitude towards food additives.

The use of food additives and the control of contaminants in food is subject to the Food and Drugs Act of 1955, and a number of Amendments to that Act which have been published at different times since. Although general clauses prohibit "the addition of any substance to food or the abstraction of any constituent from food so as to render the food injurious to health", make it an offence "to sell to the prejudice of the purchaser food which is not of the nature, substance or quality demanded", and make it an offence "to sell unsound food", a special section (Part V) is devoted to "Regulations Dealing with Additives and Contaminants in Food".

So numerous are the individual compounds which are added or otherwise find their way into our food that to look at all of them would be quite impossible

These Regulations list permitted additives according to their function (anti-oxidants, preservatives, artificial sweeteners, colouring matters, emulsifiers and stabilizers) and certain contaminants (lead, arsenic, fluorine, solvents and mineral hydrocarbons) and specify permitted levels.

The devising and amending of this legislation is the responsibility of the Ministry of Agriculture, Fisheries and Food, whose Food Additives and Contaminants Committee has the task of advising Government ministers on matters which they refer to it related to "food contaminants, additives and similar substances which are present in food, or used in its preparation". This Committee produced fifteen reports between 1965 and 1973, and the Working Party on the Monitoring of Foodstuffs for Heavy Metals produced four between 1971 and 1973. There are about a dozen Committee members, all scientists, several of whom are distinguished and, though industry is represented, the "balance of power" is apparently academic rather than commercial.

A Memorandum published by the Stationery Office (Memorandum on Procedure for Submission on Food Additives and on Methods of Toxicity Testing, HMSO 1965) expresses the hope "to make guinguennial reviews of each of the regulations on food additives'', to be preceded by invitations in the press for proposals or comments. Before considering individual "Applications for Amendment to Regulations", "Departments will require to consider whether on grounds of need the time is appropriate for submission to be made to the . . . Committee". If one is surprised by the large number of permitted additives in use in the United Kingdom, one may be the more surprised that the authorities "have regard to the reduction as far as possible to the use of nonnutritive substances in food, . . . to the desirability of keeping to a minimum the number of permitted additives consistent with reasonable trade requirements and to the overriding consideration of public health. It is desirable therefore that any application for a proposed new additive should show the need for it and that the same objective could not be obtained by good manufacturing practices or by existing approved additives."

If the existence of a true need is

# AND CONTAMINANTS IN GREAT BRITAIN

### by Sidney C. Alford

demonstrated to the satisfaction of the Committee, both parties agree upon the tests which will be necessary to demonstrate the safety of the substance in question. The Memorandum is very frank about the difficulty of doing this satisfactorily:

"It would be impossible to arrive at a complete assurance of the safety of a substance unless it had been ingested in food by persons of all ages in specified amounts over long periods and had been shown conclusively, by a careful medical follow-up, to have had no harmful results. A substance might also be considered safe as a result of an accurate knowledge of its metabolism. In practice few compounds fall into either of these cateogries. but where they are considered to do so, submissions may be made on that basis . . . Usually a comprehensive series of laboratory tests with animals is necessary. Extrapolation to man from toxicity tests in animals has obvious limitations, but for the time being, such tests are the main basis for toxicological prediction."

Such tests usually last some two or three years and cost tens (or even hundreds) of thousands of pounds. so applications are not made frivolously. They must involve more than one species of which at least one is a non-rodent. Even though it is unlikely to cut much ice with most manufacturers, the fact that some three dozen dogs and possibly some monkeys will be killed and autopsied, and many more rats and rabbits poisoned in order to ascertain the dose at which half of them die. would seem to many people a high moral price to pay for unnaturally green tinned peas.

Aspects of safety about which the Food Additives and Contaminants Committee require details concern the composition, purity and commercial usage of the substance. shortand long-term studies, including carcinogenicity, its metabolism, and its effect on man, wherever evidence can be obtained from existing sources. The same Memorandum of Procedures refers to other publications which give specifications for identity and purity of additives and experimental procedures and methods of evaluation. The difficulty of assessing toxicity is further explained: "There is no general agreement about the extrapolation of results from animal experiments to man. For example, man consumes 1/100th of his body weight as food daily and the mouse 1/10th. The composition of the human diet is very different from that which will keep rodents healthy and there may be a relationship between the effect of a food additive and the proportion of carbohydrates. fat or protein in the diet. There are certain conditions occurring in man that are extremely difficult to reproduce in animals . . . In relating the maximum daily tolerated dose producing no ill effects in animals with the daily intake for man, a safety factor of 100 is commonly employed. This factor should not, however, be regarded as an invariable guarantee of safety . . . "

#### The Problem of Where to Begin

Since it is natural to feel a degree of urgency when matters concerning one's own health are at issue, some people will no doubt feel that the Committee's average of two reports a year implies that their feelings are not shared. To do the Committee justice, however, let us examine the nature (some would say the impossibility) of their task. So numerous are the individual com pounds which are added or otherwise find their way into our food that to look at all of them — and there are

probably tens of thousands of such substances rather than thousands in detectable quantities - would be quite impossible. They are therefore obliged to establish an order of apparent urgency at any one time. Fortunately very many of the additives occur in nature: others are traditional additives which have been in use for so long that it may be considered unlikely that serious, previously unknown toxic effects will now be observed. Neither of these are absolutely reliable criteria for declaring an additive or minor component harmless: the ergot of diseased grain, the aflatoxins of mouldy peanuts, the absinthin of absinthe, the solanine of unripe potatoes, and the sulphur dioxide used by the Ancient Greeks for preserving wine are all natural compounds, and each is more or less toxic; modern analytical and epidemiological techniques have revealed the serious consequences of using lead in the manner of, for example, the Ancient Romans. It is improbable that the sale of rhubarb would be permitted if its general use were not already fait accompli because of its oxalic content unless, like tobacco, it were taxable.

It may nevertheless be safely assumed that the greatest potential danger lies in new, synthetic additives. especially those whose molecular structures resemble those of compounds of known biochemical activity, and in contaminants derived from processing techniques and technologies only recently introduced. Poisoning by polychlorinated biphenyls (PCBs) derived from plastic wrapping material is an example of the latter. Thus the Food Additives and Contaminants Committee is obliged to give priority to to so-called "chemical additives" in general, and the newest and strangest in particular. Occasionally a paper in a medical or scientific

journal draws attention to a possible, previously unsuspected danger, and the substance or class of substances implicated are shortlisted for consideration. Dangers lurk in unsuspected places. For many years it was not generally realized that it is possible to take greater quantities of some vitamins than is nutritionally desirable.

Provided one does not become addicted to carrot juice, and with such rare exceptions as raw polar bear liver, at the concentrations at which they occur in nature, to take overdose would be almost an impossible, but with freely available supplements concentrates and obtainable from various sources, it became quite easy for a wellintentioned but misinformed mother to give excessive doses of the oilsoluble vitamins to her children.

Some once-accepted additives have now been replaced and eliminated. Several dyes in common use twenty years ago are no longer used. Entry into the Common Market is placing the United Kingdom under pressure to conform with EEC practice and to eliminate some additives whose use is at the moment accepted here. This country has been comparatively permissive as far as colourants are concerned; in 1970 some twenty-five different chemicals were allowed to be used for this purpose, compared with only nine in Switzerland, for example, and a mere five in the United States. Although few gastronomes will mourn for long the imitation brown smokiness of their kippers, and hearts broken by the disappearance of blue soft-drinks will eventually mend, colour is an extremely important factor in selling food to the British, and the recent ban in the United States of Britain's third most important red food dye. amaranth, on grounds of suspected carcinogenicity must send shivers through marketing departments: it is a sad reflection on our interest in food that the average Englishman. after eating pink ice-cream flavoured with, for example, banana, claims, if subsequently asked, that it was strawberry flavoured. An interesting consequence of the British predilection for yellow egg yolks is the feeding of yellow dye to chickens which reappears in the eggs but 96

being "added" to the uneaten chicken, evades food additive regulations.

Industries catering for the British mass market may be expected to hold out for such less-than-essential additives despite European practice. The flavouring additive industry opposes interfering regulations which might oblige them to disclose the composition of their concoctions to EEC competitors: the recommendations of the recent Report on the Review of flavourings in Food concerning ingredients and purity standards are likely to be strongly opposed. Regulations are also likely to be employed as a means of imposing trade barriers.

It is reasonable to ask whether we would be better protected were British regulations to include an equivalent to the Delaney clause, and all known or potential cancertissues is not completely understood. so there is doubt about the possible existence of a threshold level above which they induce actual and irreversible cancers, and below which their presence in foodstuffs might be permitted. It could also be the case that a substance is shown to induce the changes in tissue which precede cancer, but that it would take longer than the natural human life-span for a tumour The to develop. American "Megamouse" screening procedures envisaged for testing chemicals on an enormous scale have been abandoned for lack of personnel. The relatively cheap, simple and rapid Ames test for mutagenicity of chemicals applied to a bacterial culture is now considered a promising method of identifying at least those substances most likely to be carcinogenic, which might then be

At peak television viewing times advertisements are largely dominated by the manufacturers and manipulators of foods, food substitutes and food imitations, and are so untouched by *ethical* or *nutritional* considerations that their opiate function of keeping the consumer happy with conveniant substitutes for traditional foods and dishes is probably as important to the food industry as their overt function of selling preferentially brand X or brand Y

producing substances excluded. Opponents of the clause claim that, reasonable it seemed however when written, it would be quite unworkable today. Since the 1950s, analytical techniques have greatly improved, particularly with respect to gas and thin-layer chromatography, and it is now possible easily to detect and identify trace components of foods, drugs, additives and contaminants, as well as metabolic derivatives, which would have passed unobserved even ten years ago. Examination of the apple, for example, is said to reveal ninetythree flavour components. Some toxic substances are detectable at levels at which they are unquestionably innocuous: the mechanism whereby carcinogens disturb the normal functioning of the body

tested on animals.

#### **Keeping People Happy**

The complexity of the legislation concerning food quality, and the scale on which manufacturers and sponsored research organisations are studying toxicological aspects of food components, are apparently enough to give most people concerned with public welfare the impression that, as far as these chemicals are concerned, safeguards adequate, and such vague are assurances of continued vigilance as "the hope to make guinguennial reviews" satisfy most relatively informed people. Those whose education or prejudices do not enable them to be informed are at least capable of being misinformed by advertising.

At peak television viewing times advertisements are largely dominated by the manufacturers and manipulators of foods, food substitutes, and food imitations, and are so untrammelled by ethical or nutritional considerations that their opiate function of keeping the consumer happy with convenient substitutes for traditional foods and dishes is probably as important to the food industry as their overt function of selling preferentially Brand X or Brand Y. Tate and Lyle's deplorable advertising campaign (for example. "Jim knows that sugar is pure. natural energy", The Times, 15 March, 1976) is a good example of the deliberate obfuscation of the layman's understanding of nutritional priorities. It is, however, a matter of even greater concern that the experts are as easily satisfied by the present state of affairs as the lavman. if the readiness with which they accept that the condition that an "application for a proposed new additive should show the need for it" has been met is any indication. One might reasonably suppose the intended interpretation of this phrase to pertain to a need for the nutritional well-being of the consumer, but it is inconceivable that the existence of a need to the manufacturer in order to enable him to maximize his profit constitutes a true need in the spirit of the regulation. The garish green dye added to tined peas in no measure restores lost nutritional value, but reflects the well known commercial fact that discoloured peas are unmarketable in a population conditioned to attribute more importance to a simulated pleasing reality than to reality itself. It is very difficult to see any justification on nutritional grounds for very many, if not most of the enormous. number of additives presently allowed

Cynics, as well as some realists, might argue that there is little point in worrying too much about food additives and contaminants. which might kill only a few dozen people a year, when one considers the harm done by some of the foods themselves. For example, the Great British Public unwittingly ingests vast and unnatural quantities of saturated fats and sugars such as could not possibly be amassed, let alone eaten, in the

pounds' worth of advertising helps keep us loval to the Protein Myth, according to which the more you eat the healthier and happier you will be. Would Section 476 of Part II of the Food and Drugs Act, prohibiting the use of the word "cream" for non-milk varieties, have been enacted without pressure from the milk industry? It is simply not true that "Most people eat sensibly. There are people who eat bizarre kinds of food (but) by and large the public does understand something about good nutrition". as is claimed by Dorothy Hollingsworth, Director General of the British Nutrition Foundation. and well known apologist of the food processing industry which finances it. To question the axiom that chemicals are good for your food is already treated as reactionary and hysterical by the industry which uses them, and the message that chemicals can be better than food is already being tentatively implied.

absence of our intensive and indus-

trialized agricultural systems, and in

consequence those dying premature-

ly each year of cardiovascular

disease alone are measured in their

tens of thousands. Millions of

Great

The Secretary of the British Association for the Advancement of Science and Television Personality Magnus Pyke, addressing a fund-raising after-dinner speech to the Worshipful Company of Butchers, inaccurately describing imitation meat made from vegetable protein as "meat analogue", made the extravagant claim that it possessed "the exact structure of meat" and was a product of "technical excellence". "The butcher will gain little by claiming to produce the only genuine article." Meat was represented as little less than a scourge, synonymous with saturated fat; what was not pointed out was that the saturated fat in meat was mostly generated by our perverted techniques of intensive feeding.

Regrettably it is such champions of food technology who have the ear of the "mass media", so the public will continue to be conditioned into accepting that, if a food manufacturer says that your food is improved by additives even those whose principle function is to make his product more sellable

- he has only the consumers' interest at heart. A person trained in food technology or nutritional science can, after all, much more readily find employment within the food industry furthering the cause of its technology than obtain a post of comparable status in which he is paid to criticize it. Hence the widespread process of tumbling ham, whereby it is caused to absorb solutions of inorganic phosphates in order, it is claimed, to improve the texture, and the analogous injection of such solutions into chickens (together with "traditional chicken flavour" for good measure). which are of much greater value to the manufacturer than the customer since they provide a means of selling water at the price of meat. The incorporation into these artificial and insipid foods of either phosphate or flavour in no way represents a true improvement of quality. Also undesirable are additives which, albeit harmless themselves, replace naturally occurring substances of nutritional value. thereby concealing the loss. How many of the manufacturers requesting permission to add, for example, yellow and red dyes to their discoloured produce have commissioned studies of the possible biochemical role of the flavanoid pigments (whose disappearance they are attempting to conceal) as natural anti-oxidants in the assimilation and protection of unsaturated lipids. which happen to constitute the major component of our brain next to water?

Further potential, probably actual, danger lies in treating people as average consumers instead of individuals. Between June and July, 1971, a series of letters was published in The Times on the subject of the use of the smelly fungicide diphenyl on the skins of oranges. Though this is a disagreable but relatively non-toxic chemical, its use implies that a normal person would no longer be expected to use the peel in cooking, in punch, or in marmalade. Another example

of eating "bizarre kinds of food" became apparent when our food analysts began to look at the heavymetal content of some of our fish after the large-scale poisonings which were reported from this source in Japan. It was stated that ab-

### TABLE SHOWING COLOURING MATTER PERMITTED UNDER UK LAW SCHEDULE 1 Regulations 2(1) and 6

Regulations 2(1) and 6

	PERMI	TTED COLO	URING MATTER	Name of Colour	Serial	Colour	Systematic Name or Description
Column 1	Column 2	Column 3	Column A	Hank of Colour	Number	(1971) Number	Systematic rearie of Description
Name of Colour	Serial Number	Colour Index (1971)	Systematic Name or Description	a series			-acetic acid, citric acid, phosphoric acid sulphuric acid, sulphurous acid or sulphu dioxide: -ammonium-, sodium-, potassium hydrox
Curcumin	E 100	75300	1,7-di-(4-hydroxy-3-methoxyphenyl)hepta-1,				ides or gaseous ammonia; -ammonium-, sodium-, potassium carbor ates, phosphates, sulphates or sulphites
Riboflavin or Lacto-	E 101	725	5-Greue-3,5-Groue 7,8-Dimethyl-10-(D-1-ribityl)isoalloxazine	Black PN or Brilliant Black BN	E 151	28440	tetraSodium 4-acctamido-5-hydroxy-6-[7-su pho-4-(4-sulphophenylazo)-1-naphthylazo]
Fartrazine	E 102	19140	triSodium 5-hydroxy-1-(4-sulphophenyl)-4-				naphthalene-1,7-disulphonate
Quinoline Yellow	E 104	47005	sodium salt of a mixture of the mono- and disulphonic acids (mainly the latter) of	Black 7984	E 152	27755	tetraSodium 6-amino-4-hydroxy-3-[7-sulpho 4-(4-sulphophenylazo)-1-naphthylazo] naph thalene-2,7-disulphonate
Fast Yellow AB	E 105	13015	quinophthalone or 2-(2-quinolyl)indanedione	Carbon black or Veg- etable carbon or Chan-	E 153	1	-
Yellow 2G	_	18965	denzenesulphonsie	Carotenoids:	E 160		
		10905	-4-(4-sulphophenylazo)pyrazol-1-yl]benzene- sulphonate	alpha-carotene, beta-carotene,	E 160(a)	75130	mainly in the trans forms
Sunset Yellow FCF or Drange Yellow S	E 110	15985	diSodium 6-hydroxy-5-(4-sulphophenylazo) naphthakme-2-salphonate	gamma-carotene annatto,	E 160(b)	75120	annatto includes bixin, the principal colourin
Drange G	-	16230	diSodium 7-hydroxy-8-phenylazonaphthalene -1,3-disulphonate	bixin, norbixin			of oil extracts of annatto, and norbixin, th alkaline salt of which is the principal colour ing of aqueous extracts of annatto
Orange RN	-	15970	Sodium 6-hydroxy-5-phenylazonaphthalene- 2-sulphonate	capsanthin or capsorubin	E 160(c)	-	paprika extract
Cochineal or Carminic acid	E 120	75470	extract of Coccus cacti (Ammonium salts are included)	lycopene	E 160(d)	75125	mainly in the trans forms
Orchil or Orcein	E 121	-	extract obtained with ammonia solution, in air, of the red colouring matter of the species	beta-apo-8'- carotenal (C30)	E 160(e)	40820	β-8'-apocarotenal mainly in the trans forms
Carmoisine or Azoru-	E 122	14720	Roccella, Lechanora and Orchella diSodium 4-hydroxy-3-(4-sulpho-1-naphthy-	ethyl ester of beta- apo-8 -carotenoic acid (C30)	E 160(f)	40825	ethyl β-8'-apocarotenate mainly in the trans forms
Amaranth	E 123	16185	azo)naphthalene-1-sulphonate tr/Sodium 3-hydroxy-4-(4-sulpho-1-naphthy-	Flavoxanthin	E 161(a) E 161(b)	1	
Ponceau 4R or Cochi-	E 124	16255	lazo)naphthaiene-2,7-disulphonate triSodium 7-hydroxy-8-(4-sulpho-1-naphthy-	Cryptoxanthin Rubixanthin Violaxanthin	E 161(c) E 161(d) E 161(e)	75135	the ketonic or hydroxylic derivatives or the ketonic and hydroxylic derivatives of carol enes
Erythrosine BS	E 127	45430	diSodium salt of 2,4,5,7-tetrajodofluorescein	Rhodoxanthin Canthaxanthin	E 161(f) E 161(g)	40850	
Red 2G		18050	(xanthene numbering) diSodium 5-acetamido-4-hydroxy-3-pheny-	Beetroot Red or Beta- nin	E 162	-	aqueous extract of red beetroots
Solanthrene Blue RS	E 130	69800	6,15-Dihydro-5,9,14,18-anthrazinetetrone	Anthocyanins	E 163	-	<ul> <li>(a) those glycosides of 2-phenylbenzopyrylium salts which are anthocyanins;</li> <li>(b) the following anthocyanidin aslycong</li> </ul>
or Anthragen Blue or Indanthrene Blue	1		(Indanthrone)				pelargonidin; cyanidin; peonidin; del phinidin; petunidin; malvidin.
Patent Blue V	E 131	42051	Calcium di- 4-[4-diethylammoniocyclohexa- 2,5-dienylidene-(4-diethylaminophenyl) methyl]-6-hydroxybenzene-1,3-disulphonate	The following natural			te Provential resta
Indigo Carmine or Indigotine	E 132	73015	diSodium 5,5'- indigotindisulphonate	secondary colouring effect:			
Brilliant Blue FCF	-	42090	diSodium 4',4"-di-(N-ethyl-3-sulphonatoben- zylamino)triphenylmethylium-2-sulphonate	(b) turmeric	-	75300	- -
Chlorophyll	E 140	75810	Chlorophyll a: Phytyl 4-ethyl-10-methoxy- carbonyl-1,3,5,8-tetramethyl- 9-oxo-2-viniyhorbin-7- propionate, magnesium com- plex Chlorophyll b: Phytyl 4-ethyl-3-formyl-10-	<ul> <li>(c) santon</li> <li>(d) santalwood</li> <li>(e) the pure colour- ing principle of any of the col- ouring matters listed under (a)</li> </ul>	E	75100	
		150	thyl-9-oxo-2-vinylphorbin- 7-propionate, magnesium	Titanium dioxide	E 171	77891	
Copper complexes of chlorophyll and chlor- ophyllins	E 141	75810	copper chlorophyll complex and copper chlorophyllin complex	Iron oxides and hyd- roxides	E 172	77489 77491 77492 77499	Ē
Green S or Acid Bril- liant Green BS or Lis-	E 142	44090	monoSodium 4-[4-dimethylammoniocyclo- bexa-2 5-dienylidene-(4-dimethylamino-	COLOURING MATT	ERS FOR	CERTAIN	
samine Green			phenyl)methyl]-3-hydroxynaphthalene-2,7- disulphonate	PURPOSES ONLY Aluminium Silver	E 173 E 174	77000	-
Brown FK	-	-	mixture of the following components: (1) Sodium 2',4'-diaminoazobenzene-4-	Gold Pigment Rubine or L Lithol Rubine BK	E 175 E 180	77480	only the calcium and aluminium salts of 3
			(11) Sodium 2, 4'-diamino-5'-methylazoben- zene-4-sulphonate (11) d/Sodium 4, 4'-(4, 6-diamino-1, 3-phen- ylenebisazo/dibenzenesulphonate (12) d/Sedium 4, 4'-(2, 4-diamino-1, 3-phen- centric)	Burnt Umber	E 181	-	hydroxy-4-(2-sulpho-p-tolylazo)-2-naphthoic acid product obtained by roasting in air a mixtur consisting essentially of iron and manganes oxides and calcium and aluminum silbates
	kin ni Vira A		(V) initial providence of the state of th	Methyl violet	-	42535	carbonates and sulphates mixture of the hydrochlorides of the mor highly methylated pararosanilines containin principally the N-tetra, penta-, and hexa
Chocolate Brown FB	-		1,3,5-triazo)tribenzenesulphonate	The synthetic equiva-			methyl derivatives
	also-	ean i	onic acid with osage orange extract (princi- pally a mixture of maclurin (CI 75240) and motin (CI 75660))	lent identical with the pure colouring prin- ciple of any natural	15		
Chocolate Brown HT	-	20285	diSodium 4.4-(2,4-dihydroxy-5-hydroxy- methyl-1,3-phenylenebisazo)di(naphthalene -1-subponate)	colouring matter des- cribed in this Part of this Schedule	-	ы <del>д</del> ага (	-
Caramel	E 150	-	products obtained exclusively by heating sucrose or other edible sugars; or water- soluble amorphous brown products, obtained				

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normally large traces had been detected, but that the *average* Englishman did not eat quantities sufficient to cause exceptional risk. But what of bizarre foreign residents, Japanese for example, or even bizarre Englishmen for whom, for reasons of poverty or preference, fish might be the main source of protein and of fat?

#### **Making Do With Fewer Additives**

Not all cases of poisoning by food additives and contaminants affect a mere half-dozen people, and not all toxins are as easily identifiable as was the mercury which killed and maimed hundreds of Iranians and Japanese who ate contaminated grain and fish. Since some dietary deficiencies take more than one generation to produce observable pathological changes, it is not unreasonable to suppose that some poisons do too, so every new sub-

stance introduced into the diet presents some extra risk of eventual accident, and it has been realistically estimated that significant human exposure to some six thousand new chemicals occurs each year. The glib response of the food industry is to ask whether one would prefer to do without foods which are out of season, or imported from exotic places, and to suffer rotten meat. This is the most extreme alternative. however, and there is without doubt a more reasonable compromise. Many foreign foods can be imported without preservatives, and there are other reasons for trying to develop less dependency on food from countries poorer than our own. Many foods preserved by additives and by refrigeration (and often both) "convenience foods" are and. and conditioned were the lazy housewife to be prepared once more to peel her own potatoes and mix

her own sauces, she could easily dispense with most of them.

It might be considered that the banning of artificial complete colourants, and even synthetic flavours (regardless of whether or not the component chemicals occur in nature), would be desirable from the consumers' point of view. Not only would few important foodstuffs be affected, but very many of the rubbishy and positively harmful foods and food substitutes such as fruit-flavour cordials (which often contain no natural ingredient other than sugar, and that at unnatural concentration), cheap biscuits. potato crisps. corn-flakes and inferior ice-cream and confectionary would disappear. Then cakes, biscuits, ice-cream and sweets would once more become worth eating as delicacies, and no long constitute the degenerate staples of the uneducated and poor.

# WINDSCALE APPEAL

The outcome of the Windscale Public Inquiry, starting 14th June, 1977. at Whitehaven in Cumbria, is of crucial importance to our society — if not our entire civilization. Nuclear technology began here some thirty years ago; this Inquiry will determine it's continuance or demise.

British Nuclear Fuels Limited intends to process plutonium from imported, radio-active, nuclearoxide wastes. This, together with the construction of fast-breeder reactors and the accumulation of highly toxic nuclear wastes with no safe storage, will commit us to incalculable dangers for thousands of years. It could destroy all life.

The commitment to a 'plutonium economy' for the sake of a questionable energy-gap will leave no choices or second chances for our children and descendants in the centuries ahead. Today we still have a choice, another chance to adopt new safe energy systems to meet our present needs, ensure our future well-being and bequeath something of lasting value to those generations to come.

Thus it is vital that a thorough examination at a wide-ranging Public Inquiry is properly made of this issue. Our whole future is at stake.

So far this year £1,300,000,000 has been allotted to British Nuclear Fuels Limited and it's associates. No public funds however are available to ensure a proper hearing for those who doubt the benefits of nuclear technology.

We need a fund of at least £30,000; to engage expert witnesses, prepare detailed evidence, instruct solicitors and brief counsel, provide for advertising and publicity, arrange transport and accommodation at Whitehaven, maintain liaison with other groups and cover our office overheads.

We must not fail. There is not likely to be another opportunity to decide our future. Please send your donation, your support and advice to us now.

WINDSCALE APPEAL 19 Cheyne Walk, London, SW3

ALTERNATIVE TECHNOLOGY LIAISON GROUP : CONCERNS AGAINST NUCLEAR TECHNOLOGY ORGANISATION : CONSERVATION SOCIETY : CORNWALL NUCLEAR ALARM : ECOLOGIST : ECOLOGY PARTY : FRIENDS OF THE EARTH : FRIENDS OF THE LAKE DISTRICT : GREEN BAN ACTION COMMITTEE : GREENPEACE : HALF LIFE : NETWORK FOR NUCLEAR CONCERN : NUCLEAR REACTOR VIGILANTES : SCOTTISH REACTION TO ATOMIC MENACE : SOCIALIST ENVIRONMENT AND RESOURCES ASSOCIATION : SOCIETY FOR ENVIRONMENTAL IMPROVEMENT

All groups wishing to join us should contact us immediately at the above address.



(Director of Henry Doubleday Research Association)

Tree farming, the growing of trees for food rather than timber, is one of the most rational types of land-use. Several tree crops appear particularly suitable for mass cultivation such as the carob, the algaroba or mesquite and the honey locust.

# Little information is available on this whole subject. For this reason an International Tree Farming Institute is necessary, which, it is suggested, should be set up in Britain under the aegis of the Henry Doubleday Research Association.

The idea of growing trees for food rather than timber, with pasture and other crops beneath them, on land that cannot be kept under arable cultivation, began with the late J. Russell Smith, whose Tree Crops -A Permanent Agriculture was published by Harcourt, Brace & Co. (New York) in 1929, with a new edition in 1959. The many articles and papers by Mr. J. Sholto Douglas that appeared through the 1960s kept the idea alive, and inspired work in many countries, notably Japan and the United States. In 1976, a new book Forest Farming by J. Sholto Douglas and Robert A. de J. Hart (Watkins, London) created much new interest in the subject.

The world today has the problem of feeding a population that doubles every 37 years (with some countries like Colombia, doubling in 20 and Thailand in 25) from a finite area of arable land. In Japan, for example, only 15% of the land area is cultivatable and 60% of the rest is too steep and rocky for even Japanese methods of food production. Almost every country has large areas that are now written off as impossible for agriculture, especially the dry hillsides of Spain, Mexico, South Africa and the Near East, and the wet mountains of Scotland, Wales and Northern Europe. There are even larger areas in the tropics, like the exhausted coffee land of Brazil where forests have been devastated leaving mineral-poor and eroded soil behind.

Forests are fragile in dry countries. The destruction of the cedars of Lebanon for the temple and mummy case trade, the ship building of classical Greece and Rome that stripped the Mediterranean of trees, and the timber greed and goats that destroyed all but a few areas of the giant pine trees of the Canary Islands have ruined climates that may not recover in two thousand years.

Bring back productive forests to the marginal lands of the world at a cost of less than the development of nuclear power, and you open a mighty new Continent for everincreasing humanity, and give us breathing time to stabilise our population at a level that will allow us to live on our income from the sun, the sea and the soil. Unlike a real new Continent, with a new Statue of Liberty to welcome the teeming millions, the forest farmlands of the future are spread over almost every country so their food and timber is available with little transport energy compared with that which once moved 9 million tons of wheat in a year, from the United States surplus, to relieve an Indian famine.

There is an important difference between nuclear power generation and tree farming. In twenty years when the power station is spent, it must be sealed and guarded through the centuries while its "ashes" stay deadly. In twenty years the trees that are most suitable for forest farming are beginning their productive 40-50 year maximum vield period, that ends when they must be felled for timber and replanted in rotation. Instead of pollution and the risk of disasters, they leave improved climates and dwindling deserts, for the future.



A Carob orchard in Mexico, planted with Tylliria and Sfax the leading varieties.Harvest is in October, but cold sea mists north of San Diego can rot the pods on the trees. Photograph L.D. Hills.

#### Why Farm Trees?

Trees are successful because they have certain advantages that allow them to build up assets through the years. They have deep roots with powerful secretions that can etch their way into almost solid rock to release plant foods. They can suck soil moisture and pump it higher and more effectively into the air than any short lived and shallow rooted plant. They can filter the wind with their leaves that select the trace elements they need from the tiny particles that float in the air, which is how pine trees have calcium-rich ash yet thrive on limeless Highland hills. And they can produce seed, as a generous crop that can be gathered year after year and brought down with little expenditure of energy.

This seed is unique, for forest trees are perhaps the only crops we grow that are *species*, not inbred to pure lines like modern wheats or cabbages, and, as Darwin knew, all species vary. We have in the genetics of trees and the exploration of how to farm with them, an unknown new frontier of vastly greater importance than anything in Space. for there is no hillside so barren or desert so lifeless as Mars or the Moon. The "spinoff" from Forest Farming could well make a vast contribution to the quality of life, as vandalism fell all over the Western world with more people learning to love and respect their trees.

Foresters think in terms of trees from seed, but not since the Romans taught us how to graft have we thought of Pyrus mali, the apple, and Pyrus communis, the pear. We think of Cox's Orange Pippins, and the long self fertile Conference pears. Had Forest Farming been written on a scroll in Latin and shown to a British gardener by a Roman villa owner, he would not have believed the yield figures. No crab apple could produce these fantastic crops. In Forest Farming the yields are unfortunately not measured and weighed through the years, but estimated, and the authors assume that every tree on an acre is as good as the best, as it would be if all were grafted and identical.

Foresters know that the trees that set the most seed rarely grow the best timber, and therefore avoid cheap seed that has been gathered quickly from specimens with the best crop. Every farmer knows scrubby little oaks in his hedges that produce heavy acorn crops each year, and almost all tree species have this guality, which we have neglected, because we are concerned with either timber or tourists. These "Coxes" and "Conferences" among oaks could be grafted on to seedlings to grow the pig food of the future at low levels in Highland glens or Welsh cwms where scrub oaks thrive today.

Sussex oaks, with taproots reaching twenty feet down into solid clay. like ash, beech and even chestnut. need good land that could grow more food under rotational farming. So their place is in shelterbelts, not in the non-intensive, low energy, low labour, forest farms of the future. This principle of variation from seed applies to all species in all countries, and the preliminary task of the Tree Farming Institute would be to find the best trees for seed production and to raise identical specimens by grafting on to strong seedlings, either in nursery beds or on stocks ready established on the farms.

There are many trees and tree farming systems to be discovered for all the soils, altitudes and climates of the world, and though there may be guide lines in peasant agriculture, unless we can produce far better methods than those used in the past, we shall fail.

Though trees on hillsides hold the most water for the longest time, the basic tree farm problem is to take off as lilttle as possible in the crop. Apples, pears, plums, peaches and all juicy fruits are for good soil on low lands, where the water is, because the water to swell the fruit must be taken up the hills or into the desert. The successful dry hillside trees, the carob, the almond and the olive, all bear dry crops of concentrated food value.

Where water is no problem, as in Scotland or Wales, but cold weather is, broad shelterbelts of conifers felled in rotation in strips, with sheep or cattle pastured between, are a likely system. Land that will grow timber best, should grow it to save imports. In the high, dry mountains of other countries, honey bees can be the "sheep" of the hillsides, coming back with a "payload" from a two mile range over country too steep for even helicopters to harvest.

#### Some Leading Tree Farm Crops

The best tree crop for mass cultivation is the carob, (Ceratonia siliqua), with a theoretical maximum yield of 20 tons an acre. If it is possible to obtain this, it would be producing four times as much carbohydrate as a four-ton-an-acre crop of Maris Huntsman wheat on good British farmland. The best recorded production figure is 7 tons is what can be expected in good average from Cyprus, and 4-5 tons what can be expected in Mexico. The carob is not a regular cropping tree, and in every four years Cyprus growers expect one heavy crop, two medium and one poor. Even with these very conservative yield figures from existing methods, the carob could become the "wheat" of the 12-18 inch rainfall areas of the world.

These yields are not from seedlings, whose proportion of trees with all male flowers and therefore no crop, makes them unusable for anything but stocks to graft on. They are from Tylliria, the leading Cyprus Variety, and Sfax, the best North African. The analysis of carob is near that of barley, and no other crop will produce so much food to the acre from the same kind of land with such a low rainfall.

The best Cyprus plantation the writer has seen, is owned by the Department of Agriculture near Nicosia. It consists of 100 acres, with seedling stocks planted in holes blasted through the 2-3 foot thick cap rock with dynamite, so the roots can reach the poor, limey soil below. The stocks were grafted after they had been in for four years, and now, seven years later, they are just starting to produce a saleable crop. They are set twenty feet between trees and forty between rows and this between-row space is cropped with vetches for sheep grazing (goats are forbidden. because they damage trees) and barley for stock feed. The trees should continue to bear for another fifty years, and the plantation provides an outstanding example of forest farming in a dry climate. The heavy pods are solid food, unlike any nut with a shell.

There is another excellent planting of about 30 acres, in Mexico at Ensenalda in the Baja California, owned by Mrs. Cleo Badan, which is also 13 years old and averaging 5-6 tons an acre, on better soil and with some irrigation. Another, reputed to cover 500 acres at Alice Springs, is financed by the Australian Government, but details are not available. Carob is also grown extensively in Greece, Crete, Spain, Itlaly, Corsica and in other Mediterranean countries, but mainly by peasants who receive very poor prices for a crop they usually neglect.

The seeds produce a gum with a large number of industrial uses. and the kibbled pods are used either for stock feed or ground to make "chocolate" bars and a powder that is a substitute for cocoa. Both are entirely free from caffeine and they are therefore sold widely in health food shops in the U.S.A., Australia and Britain. With coffee and cocoa prices both rising at a phenomenal rate, it is likely that the place of carob will be as a cheaper cocoa and chocolate for though the present price of kibbled pods is low, sales are handicapped by small scale production and the high profit margin on a slow selling line in grocers and on everything that is sold in health food shops.

Edal Marcus, the Australian tree farming enthusiast, considers the carob to the best crop for spreading slowly across their central desert. In his view, the aboriginal custom of burning the undergrowth in the eucalyptus forests to improve the growth of kangaroo grass (Themeda australis), increasing the game numbers and gaining a clear field for boomerang throwing, must have produced some mighty bush fires. These, with no one to control them, could well have burnt the trees off what is now the "dead Heart of Australia" with the same effect as Mediterranean de-afforestation. Australia has not peat bogs to preserve the pollen of the past for study by palaeobotanists who can determine the flora even fifty thousand years ago, so this can never be proved. But where trees have grown once, they can, with patience, be grown again.

His project is to plant carobs. which are both drought, and to some degree, salt, tolerant, to provide the shade that kangaroo and several other native grasses need, and stock with the Red Kangaroo, (Macropus giganteum) which stands nearly as tall as a man and measures up to eight feet from nose to tail tip. From South Afican experience, he considers that kangaroo meat (now only sold tinned as dog food) which has almost no fat, would be ideal for making biltong, the dries meat made from various buck in South Africa. This could be a regular export commodity for adding meaty flavour to soups and stews in a future when meat may have a scarcity value. His suggested use for carob pods is in industrial alcohol with the residue either a mineral rich stock food, or an organic fertiliser with the 0.95% potassium and 0.28% phosphate concentrated down to useful quantities.

Another likely tree is the Algaroba or Mesquite (*Prosopis juliflora*) which is extensively planted in Hawaii where its pods and beans are used as stock feed and the beans alone are dried and ground as a cereal for direct human consumption. The roots are reputed to go 100 feet down after moisture. There are many species 16 are cultivated in the Argentine and the best variations are thornless. New plant-



The Honey Locust (next to bungalow) is deciduous, unlike the Carob which is evergreen and bears a commercial crop south of San Francisco. Photograph: L. D. Hills

ings are reputed to bear in two years and mature specimens are *reported* to yield 20 tons an acre in the most productive forms. A rapidly growing drought resister of this kind would repay intensive selection and in view of its high protein compared with carob, could be an even better desert reclaimer. It is also a good bee crop.

The Honey Locust (*Gleditisia triacanthos*) is an American native, growing as far North as Ontaria and South to Texas. It is deep rooting and grows 140 feet tall in Texas, but less in other states, with 60 ft. a British maximum. The pods are from six to even eighteen inches long, but though the tree grows in England, and is frost resisting, the only forms that appear to survive are those with dry and papery pods; in such cases only the seeds are of value. Selections have been made for better yields of the pods that have been fed to livestock and eaten by human beings.

These three promising legumes with reported 20-ton-an-acre yields and "cereal substitute" crops all need grafting on seedling stocks planted on the Tree Farm, for they send down strong taproots that are broken if they are transplanted. Honey Locust is very easily grafted. There are many hundreds of potential tree farm subjects, but though almost every species has its fierce supporters, there is no gain in collecting rarities for their own sake, or as potential parents. The trees for the tree farmer are already growing. What is needed is observation and selection of existing high yielders to provide grafting wood.

The tree crops in this table are all suitable for direct grinding, or easy processing, unlike nuts with indigestible shells to crack, or fruits that need moisture drying out before they can be transported from high and awkward places to consumers. Perishable fruits are unsuitable for tree farming.

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	Moisture	Carbohydrate	Protein	Oil	Fibre
	%	%	%	%	%
Algaroba pods and seeds		65.0	17.0	2.0	
Honey Locust pods and seeds	· · · ·	60.5	4.0	7.5	
Carob pods and seeds	· 15	69.0	5.8	1.3	6.4
Carob pods only	· 13.0	70.0	4.0	1.0	9.0
Acorns fresh ,	. 50.0	35.3	3.3	2.4	6.8
Acorns dry	. 15.0	65.5	5.7	4.1	11.6
Barley meal	. 15.0	65.5	4.0	1.9	1.3
Maize (corn)	. 13.0	69.4	9.6	1.5	2.0

#### Programme for the International Tree Farming Institute

There is today a great demand for information on tree farming, which appears to have caught the imagination of the young as methane gen-"Flower erators and Power'' captured an earlier generation. It has had plenty of publicity but what is scarce is reliable knowledge. This is important, because if you plant unsuitable potatoes or beans, you can correct your mistake next year. but mistakes made with trees stay made for decades.

Planting trees is an act of faith. There must be a firm prospect of a worthwhile crop of food or timber, to keep the peasants from cutting down the trees for firewood. Those who have the responsibility of spending their country's money must be able to go and see good productive stands of a tree crop before they start.

#### **The International Headquarters**

This does not require the large areas that have been offered for tree farming research, for land is of little value without money to staff and plant it. It needs an office building, perhaps in California because of the number of tree enthusiasts in that State, and the very many Trusts and Foundations there are in the U.S.A. It could be anywhere with good communications, even London, Rome or Geneva, but California has the advantage of being within easy reach of large areas of dry hillside and semi-desert.

With this information gathered in, the Institute could give a unique form of travelling scholarship to



A Prickly Pear cactus (Opuntia) among the collection of rare fruits owned by Mr. Paul Thompson, in the background are persimmon varieties. Photograph: L. D. Hills

these men and others (who may be elderly, for it is hard to teach young people fast enough) who can visit areas and collect yield figures from selected trees. The work could well be done by local research stations, if any. Ideally, every tree needs at least three years of observation to determine if it is merely an irregular cropper, not a truly heavy yielder. Honey locusts in particular need observation, and these should be young trees for early bearing is a major asset.

The institute would need a department of food chemistry to collect analysis figures including vitamins, minerals and amino acids in the protein of such legumes as algaroba (this would have to be paid for) to explore ways they could be used for stock feed and human nutrition. Industrial uses should also be explored, ideally for development in the country of origin.

After the gathering period, the functions of the Headquarters would be:

- (a) To supply information and advice relating to Tree Farming to individuals, organisations and Governments in all countries.
- (b) To gather in a continual flow of information and experience from the Overseas Centres.
- (c) To provide support, financial and otherwise for research directed to the development of tree farming.

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- (d) To maintain a Directory of Tree Farms and organise visits to these for officials and research workers from organisations and Governments.
- (e) To finance land survey teams investigating suitable sites for new Tree Farm areas, and reporting on their prospects to Government and landowners.

#### **Overseas Centres**

The Headquarters could be anywhere with the necessary technical knowledge available, good communications and reasonable costs. The very high salaries for typists etc., in the U.S., Switzerland and even Rome, is an argument for having it in England. The Overseas Centres however should be near existing research stations already concerned with trees as food crops. probably as a branch of the forestry service, where plantations of foodbearing trees are already thriving, or where good stands of wild species offer scope for field observations and recording of individual specimens.

Existing tree farms that could be visited and recorded, would be far more valuable than estates with mansions that could only show new planted trees, and swallow money in running costs. Politicians, foresters and sceptical experts from all countries must be shown evidence convincing enough to start them planting trees on their empty hillsides.

Every country with a potential Tree Farm area would need its local body. co-operating with local research stations, conservation and wild life protection societies, and gaining local publicity. It might need a "National Tree Farmers Union" to organise marketing, land purchase and loans to establish farms. Because of the long waiting period before trees bear, it is possible that the State or local Authority would advance funds to tide over the gap between planting and production. In Cyprus, the cropping space between trees on the 100 acre carob plantation is leased to local peasants. and so far rents received have covered the establishment cost. The undercrops begin earning quickly, unlike a conifer forest which may be twenty years before income begins.

Most Governments today are concerned with unemployment and

some have spent as much as £150,000 per job created. Establishing tree farms to feed the future would create more jobs per pound or dollar spent than aircraft, computers or any high technology industry. Today there are thousands of young people seeking self-sufficiency on the land, and millions upon millions of unemployed peasants flocking to cities like Bombay, Calcutta and Sau Paulo (Brazil) in search of work. An industry on their own hillsides giving them employment would be of major economic importance.

Tree farming differs from forestry in having processing industries and great labour intensiveness, with annual harvests, stock tending and marketing. The Tree Farming Institutes themselves with local organisations would employ more people in jobs of higher salary and status than a struggling farming community, surviving only on subsidies, and would be producing more from the hills to pay those salaries and the incomes of the forest farmers.

The conquest of the Space that is empty hillsides might cost as much on a world scale involving millions of acres, as the visits the Astronauts have paid to the Moon, but the knowledge won would be of far greater importance than anything to be discovered in outer space.

#### The Immediate Programme

The first stage of this enterprise could well begin in England. The Henry Doubleday Research Association is a Registered Charity with about 7,000 members in many countries. Its constitution would cover handling the early stages of starting the International Tree Farming Institute, and it has the necessary accommodation. Once the idea drew publicity there would be a heavy load of clerical work which could easily swamp any of the many small bodies that are concerned with trees. There is an ever-growing interest in the idea of Tree Farming, but it needs a central body to draw this interest together. This should not begin by competing for members with the 300 odd bodies already concerned with the environment in Britain or by producing a small and smudgily duplicated magazine. That would get it nowhere but waste valuable time and money.

Neither must it *begin* with the idea of Youth Employment on an open air job of permanent value to the world, perhaps as a peaceful replacement for military service. That could well come later. *First* we need to assemble existing knowledge, and make on the spot surveys. The failure of the Ground Nut scheme should have taught us the importance of field research.

What is needed is a sufficient sum to make a prompt start, to pay for analysis, for travelling, for stationery and postage, and for salaries, so that a few skilled people could work full time to get the idea off the ground. Information, hard knowledge and organisation must come before publicity, which will grow from it.

#### Conclusion

This report is *Preliminary*. It is written to introduce an idea that needs the ideas of others added to it from all countries. There may well be important aspects that have been neglected, but the present report is not concerned with points of detail except for illustration purposes. Its purpose is to introduce the idea that there are trees that could provide the basic foods of civilisations from otherwise wasted acres, to supplement the agricultural production from better land at lower levels and in better climates.

All civilisations depend on a nutritious and storable foodstuff. There are and have been wheat, maize and rice civilisations. There was even a potato one in the high Andes, and there is no reason why there should not be one partly based on the seeds of trees that can be vastly more productive and less greedy of energy, water and fertility, than orthodox agriculture.

First we have to learn how it can be done and with the pressure of world population behind us, we have to learn fast. It is not "know how" that the Henry Doubleday Research Association is offering to the countries of the world. It is "let's find out together". For we are searching not for new uses for new machines, new chemicals, and new electronics, but a new life resource for people, using trees, on the eternal hills.



### FOR RICHER FOR POORER – A Report from Another Sweden

The American philosopher Robert Heilbroner wrote recently that "of all the changes in our background awareness perhaps none is so important as our startled realisation that the quality of life is worsening".

"For some time" he continues, "observers sceptical of the panacea of economic growth have wondered why their contemporaries, who are three or five or ten times richer than their grandparents, did not seem to be three or five or ten times happier or more content or more richly developed as human beings. This scepticism, formerly the preserve of the few philosophically minded critics has now begun to enter the consciousness of large numbers of ordinary men and women."

Similar words have been echoing round academic walls for some time and last year they bounced out into a United Nations Symposium in Cocoyoc, Mexico, which warned the developed world that "it does not help us to go on producing and consuming more and more if the end result is an ever-increasing need for tranquilisers and mental hospitals".

But the idea that this rebellious thought, previously harboured only by those already locked up in institutions like universities and the United Nations, is now being nurtured in the bosoms of large numbers of ordinary men and women is an altogether more serious allegation.

At first sight, there doesn't seem to be much in it. The wave of industrial disputes and political unrest, which crashes down on any administration rash or careless enough to retard the growth and spending power of large numbers of ordinary men and women, would seem to indicate the possibility of a philosophical flaw.

Late last year, however, Norwegian social scientist Johan Galtung, who holds professorships at the Universities of Oslo, Geneva and Dubrovnik, scrummed down behind Heilbroner to push the argument that ordinary people do indeed yearn alternative life-style. for an Assuming that the ever present pressures of the consumer society, advertising and the popping of the next door neighbour's champagne corks, distort the everyday priorities of ordinary people, Galtung asks "What do people in rich countries do when they are in a position to do what they want to do?"

He suggests that the answer to this question is to be found by the simple expedient of looking at what ordinary people do on their holidays.

"Many people seek a simpler life" he argues. "No effort is spared in order to get into a primitive hut or camping place where one can live in much closer contact with nature, be closer together, and perhaps get food more directly from nature through hunting, fishing and gathering."

"Let us now see" he writes in an article in the latest Dag Hammarskjold Foundation Report "what it is that people seem to be after during that one month or so of the year." Galtung's short-list is "togetherness, friendship, love, sex, unprogrammed time, experience, new challenges, new inputs, some opportunity for creativity, selfactuation, work rather than a job. self-fulfillment, self-realisation. well-being, happiness, a sense of the meaning of life and existence."

"One thing is clear," he concludes, "they want an alternative life-style."

Some would cynically suggest that there are more people in queues outside fish and chip shops in Benidorm than there are on the waiting list for primitive huts. But rival guesses aside, the whole idea has had a much more thorough public trial in Sweden recently. How Much is Enough?

Last year, Swedish sociologists Lars Ingelstam and Göran Bäckstrand of the Cabinet Office's Secretariat for Future Studies in Stockholm, published a report under the title "How Much is Enough? — Another Sweden".

The report began by pointing out that, assuming only very moderate rates of economic growth, Sweden will be producing and consuming three times as much paper, six times as many chemicals, four times as much steel, at least twice as much food and four times as many industrial products by the year 2000.

Sweden's population is not expected to increase during this period. So what, asked Ingelstam and Bäckstrand, will be the net result of all these increases? A fair question — and one whose relevance is not peculiar to Sweden.

The conventional answer better life for the people of Sweden is beginning to wear a little thin, argued the two futurologists. The work-horse of economic growth has long pulled behind it the wagon of human welfare as measured by such dependable milestones as health and life expectancy. But now there are signs that the tow-rope is beginning to fray. Obesity, for example, has been promoted to the rank of major killer and male life expectancy, which has been rising steadily for over a hundred years, has now remained static since 1965 and may even be beginning to decline.

On the other hand, the negative aspects of economic growth, argued the report, are showing no signs of tiring. Boredom at work, mental illness, suicide rates, alcoholism, alienation, loneliness are all problems of increasing concern in Sweden as in other developed societies.

Two other factors coincided to prompt publication of the report. First, Sweden has long been in the forefront of the environmental movement and it was already widely recognised by the Swedish public that ever increasing consumption and production is depleting the earth's resources and polluting the earth's environment at unsustainable rates.

Second, Sweden has also been in the van of the New Economic Order debate in which the developing countries are calling for a transfer of future opportunities for economic growth from developed to developing nations in order to meet the basic needs of the poor rather than to increase the luxuries of the rich. Ingelstam and Bäckstrand's work on the report was itself part of a broader study concerned with Sweden's input to the Seventh Special Session of the United Nations General Assembly in September 1975 at which the general principles of the New Economic Order were debated.

The authors harnessed these three convergent ideas in their report and argued that Sweden should now say "Enough is enough" — for the sake of the environment, the Third World, and Sweden itself.

"The time seems right" they began, "to choose a different direction for the future development of the industrialised societies and to formulate some moderately radical policy suggestions that point in a new direction."

First of all, they toyed with the idea of a maximum income. "Could not a goal be set" they asked "for a permissible maximum income of \$10,000 and a permissible minimum income of \$2,000 to be achieved over the next ten years?"

This idea has already been whispered about in Denmark where Professor Adler Karlsson of Roskilde University has bluntly stated that "no one now should increase his affluence until everyone has his essentials", and in the corridors of the World Council of Churches where Pakistan's C.I. Itty said recently that "The time has come for us to strive towards a permissible maximum - if we are serious about putting a floor under poverty then we need to establish a ceiling of affluence".

But Ingelstam and Bäckstrand reject a pay-ceiling on the grounds that "focusing directly on the purse strings may be psychologically the worst of all possible approaches". Instead, they set out to express the concept of a maximum standard of living in "concrete real-life terms".

Their first suggestion is a ceiling on meat-eating, limiting each person to 15 Kgs. of beef and 22 Kgs. of pork per year. This is slightly less than Sweden's present average consumption of 17 Kgs. of beef and 31 Kgs. of pork but would still allow each person about 3 pork chops, 1 steak and a generous slice of roast beef each week. The limit would work through price controls and meat coupons to ensure an equal carve-up of this somewhat shrunken joint.

Oil consumption would similarly be levelled off at the 1970 rate of 3.5 tonnes per person per year. Faced with this limit, the authors believe, Swedish industry would veer away to less energy-intensive technologies and Swedish householders would reach for an extra sweater rather than for the central heating thermostat — and nobody would significantly be worse off.

To put the brake on urban sprawl and stabilise the consumption of energy, land and other resources, the 'Another Sweden' report suggests financial penalties for under-used buildings and more intensive use of non-residential premises like schools as community and adult education centres.

At present Sweden's buildings provide an average of 40 square metres per person and the report sees no sense in going on year after year increasing this figure.

On consumer goods, Ingelstam and Bäckstrand argue that all products from pots and pans to fridges and washing machines should have a legally stated lifeexpectancy - and that manufacturers be made responsible for making sure their products live up to it. As a second brake on the throwaway economy, the authors advocate that manufacturers should also assume responsibility for the total life-span of their products, including the scrapping and recycling processes.

Finally, the private car would be banished from 'Another Sweden'. Public transport, including fleets of taxis and dial-a-bus services would take over all short distance citycentre travelling. For medium and long distance journeys cars would continue to be the main means of getting about but they would be hired from municipally owned rental companies. The speed limit on main roads would be set at 90 k.p.h. and enforced by the cunning device of not allowing cars to be made which will go faster. Under these proposals the number of cars in Sweden would probably fall to about 60 per cent of present levels and the car would claim far fewer victims than the 1200 who now die on Sweden's roads each year.

#### **Pork-Chop Detectives**

The concrete proposals are scant, to say the least. Using schoolpremises as community centres in the evenings is not exactly revolutionary (there are several such schemes, like the one at Swavesey Village College in Cambridgeshire, already operating quietly in the UK). And practically every other Friends of the Earth group has come up with better thought-out proposals for coping with the car.

But the 'Another Sweden' report did not aspire to be a blueprint for a new society — merely to stimulate public debate about Sweden's future. And in that it has most certainly succeeded.

Within days of the report being published, in the small-circulation Dag Hammarskjold publication 'Development Dialogue', 49 news items had been published in the Swedish media, and, in the following month, 71 editorials appeared in 55 different newspapers representing over 60 per cent of the Swedish press.

6 per cent of the editorials on the report could be described as 'positive', 35 per cent 'neutral' and 59 per cent 'negative'. But 'negative' hardly captures the hostility and sarcasm which was thrown like acid in the face of the report by most of Sweden's big papers.

"Being a futurologist" commented Stockholm's largest evening newspaper "can apparently be the same thing as being divorced from reality and floating about in the blue — or rather the red, the Communist red. It would be something like the totalitarian hell described in George Orwell's Nineteen Eighty Four if Ingelstam and Bäckstrand's proposals were to become reality.

"A glass of schnapps before supper" continued the same leaderwriter "mustn"t be too frequent an indulgence — only on special occasions like when Fidel Castro visits our land."

*Expressen* a liberal daily with Sweden's largest circulation, interviewed a car dealer — "the craziest thing I ever heard" and the Swedish Minister of Transport and Com-



WORLDWATCH PAPERS provide the most informative, clearly written and up-to-date summaries of the critical problems facing the world today. They are essential reading for all those involved inshaping public policy and all within the ecology movement who are desperately trying to force decision makers to face world realities.

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- 7. The Unfinished Assignment: Equal Education for Women. Patricia McGrath.

New educational opportunities for women are rapidly developing around the world. The author outlines recent trends and suggests that women's education is one of the most important investments any nation can make.

- 8. World Population Trends: Signs of Hope, Signs of Stress. Lester Brown. The stabilization of population growth in industrialized countries is a sign of hope. Unfortunately, any decline there is in the world's poorer countries is due to increase in the death rate as a result of famine and severe nutritional stress. The author
- 9. The Two Faces of Malnutrition. Erik Eckholm and Frank Record.

discusses the implications of these trends.

Undernutrition in the Third World is taking a vast toll by increasing the frequency and severity of disease. The authors discuss its probable role in impairing intellectual development as well. In the West the problems are those of diseases caused by the diets of the affluent society.

10. Health: The Family Planning Factor. Erik Eckholm and Kathleen Newland. Uncontrolled fertility threatens the health of mothers and infants and may undermine the health

mothers and infants and may undermine the health of other members of the family. The importance of spacing and timing pregnancies is discussed.

Price £1.00 each post free from The Ecologist, 73 Molesworth St., Wadebridge, Cornwall PL27 7DS.

#### Another Sweden continued

munications said of the report "there is only one place for such a proposal, in the wastepaper basket".

Svenska Dagbladet's editor-inchief, personally took up the pen in a rare signed article about the report which he concluded by saying ''I, for my part, find it disgusting''.

Sweden's magazines, were equally unkind to the two by-nowbruised futurologists. When Ingelstam appeared on a TV chat-show to discuss the proposals, a popular weekly commented "he looked just like you'd expect somebody who proposes abolishing the family car to look - a young, sweater-clad. bearded genius with a glint of Marx in his eyes". This particular writer was evidently blinded by prejudice - Ingelstam has never sported a beard.

A popular Stockholm girlie magazine thought *Another Sweden* a fittingly respectable subject with which to pad out its already soft porn and published a flashy critique of the proposals which asked "Is this really the way we want it to be, with thermostat spies and porkchop detectives?"

The 'positive' views of 'Another Sweden' were, on the whole, more thoughtful. The Social Democratic daily Arbetet, published in Malmö, ran an article by Sweden's Minister for Development Cooperation, Gertrud Sigurdsen, who disagreed with the report on many matters of detail but concluded that "much of what the authors propose is correct - we Swedes must get used to the fact that we can no longer continue to raise our standard of living and still demonstrate our solidarity with developing countries and it is very important that this debate should get under way".

A third Cabinet member to comment on the proposals was Education Minister, Bertil Zachrisson, who wrote in the Christian Social Democrat journal: "One can still hear the echos of the guffaws and catcalls that rained down on Lars Ingelstam and Göran Bäckstrand's attempts to get us to consider what might be a 'lagom' future. But wasn't the laughter provocatively Sweden's large church press in general gave the report a more favourable airing. "The whole issue is entirely logical and self-evident particularly for a Christian" said the weekly Church of Sweden paper Var Kyrka. "Sweden has cast her vote (in the United Nations) to help to carry all sorts of egalitarian programmes — now something must also be done here at home in this, the richest of all industrialised societies. Changes must be made in our devastating way of life".

Land a publication owned by the Federation of Swedish Farmers with a circulation of over 300,000 carried an editorial which argued -"Proposals like these may seem unrealistic or repugnant to those who much prefer to discuss generous pay rises, conversion to a six hour working day, and five weeks guaranteed holiday for the well-to-do Swedish worker, but it would be far better to welcome proposals which try to tell us that the future may bring changes than to simply say 'boo' to the authors and then let things go on as before. Doing this, we shall one day face an even ruder awakening."

In a similar vein, the metal workers union newspaper Metallarbetaren (circulation 385,000)commented "The know-alls were on the alert and suddenly all Sweden was laughing out loud. The proposals are debateable. That was the point. Perhaps the content is weak. In that case we shall have to think up something better. The important thing is that without further ado we start getting used to thinking and acting along these lines. It won't be long before we are forced to do so whether we like it or not."

#### **Enraged Fascination**

Whatever else this report has achieved, it has certainly widened the circle of discussion well beyond Heilbronner's 'few philosophically minded critics'. It is almost as though some wild and dangerous thoughts, well caged-up in a kind of intellectual zoo, had suddenly escaped to go marauding amongst the general public. But how true a guide is political and press reaction to the feelings of our 'large numbers of ordinary men and women'? According to Olle Alsen, one of Sweden's best known social commentators, 'the whole affair shows just how easily politicians in a democracy can become the prisoners of distorted or misinterpreted expressions of 'public' opinion. How will they ever acquire the backbone needed'' he asks 'to speak and act for a longer term than the electoral period?''

This implied criticism of the media was also picked up by former liberal member of the Swedish parliament Ingrid Segerstedt-Wiberg who commented: "The authors made one grave error. They assumed that journalists and others in the media would be interested enough in the world's most pressing problems to be willing to take up a serious discussion, even of a proposal they may not approve of in all, or even most respects."

Stig Lindholm, who read and categorised every single press notice of the report over a six month period for the Dag Hammarskjold Foundation, concluded that the overriding characteristic of the 'negative' responses was ''intense emotional reaction'' and a ''refusal to enter into serious discussion''.

These terms are very close to those used by Philip Slater in *The Pursuit of Loneliness* which describes press and public reaction to radical movements in the United States as "enraged fascination".

But there are also some strands of evidence to support the idea that there are ordinary people quietly deciding that 'Enough *is* enough'. Last year, for example, a reporter from *Time* magazine did yet another story on 'What's wrong with Britain' in the course of which he asked a Welsh miner why he habitually worked only a 4 day week. Back came the reply — ''Because I can't live at the standard I want to live at on a 3 day week''.

Peter Adamson

# **Energy and the Future**

Peter Bunyard reviews two recent books on energy

THE POVERTY OF POWER. Energy and the Economic Crisis, Barry Commoner, Jonathan Cape, £5.50.

THE POLITICS OF ENERGY. Douglas Evans. Macmillan £7.95.

Although it seems that Western man can no longer survive unless he understands the concept of energy. with all that that entails of atom splitting and nuclear technology, the peasant can manage perfectly well without ever letting the problem of energy cross his mind. The peasant may be lucky or unlucky depending on your viewpoint, but it becomes manifestly clear, in the debate as to what constitutes a reasonable allowance of energy, that the permissible level varies according to the political and social beliefs of the individual. On this score I find it fascinating to get some inkling of the social credos of the authors of two recent books on energy.

Barry Commoner, that indefatigable environmentalist, has just produced a follow up to The Closing Circle. In his new book The Poverty of Power, Commoner builds up a marvellously gripping thesis that if industrial societies only used a more scientific approach to their industrial and domestic energy problems not only would they perforce create a more equitable social system but. equally important, their industrial activities would make a far less disastrous impact on the environment. Hence, given the right political set-up, he does not see any predictable limits to growth.

The two basic laws of thermodynamics should give us all the clues we need, Barry Commoner suggests, to run an efficient industrial society. The First Law says that the energy of the universe is conserved; the Second Law that the energy of the universe is constantly degrading, or put another way, that entropy is ever-increasing. In today's passion for measuring energy inputs and outputs the First Law is usually invoked. Commoner takes the example of the oil-burning furnace for heating a house. To measure the efficiency of that system the amount of energy delivered to the rooms must be compared to the total amount generated when the oil is burned, and typically we would expect efficiency in the region of 60 to 65 per cent.

But that calculation tells us nothing about the capacity of heating oil to do work, and as it turns out we are misusing our fuels in the most wasteful fashion by not making any distinction between high grade energy that will do mechanical work for us, and low grade energy that may be good for heating rooms, but not much more. The American Physical Society tells us how to measure Second Law efficiencies: all we have to do is to compare the least available work that could do the job in question, to the actual available work used to do the job, "When such a Second Law efficiency is computed for the oil-burner system, it turns out to be 8.2 per cent" says Commoner. "According to the First Law the oil-burner wastes a little less than half the energy it uses: according to the Second Law it wastes all but 8 per cent of the work available from the energy it uses. The Second Law efficiency tells us that there is much more room for improvement than the First Law would suggest."

efficient way to heat a house is not by burning fuel, but by using a heat pump which, like a refrigerator in reverse, takes heat from the environment outside and brings it into the house. Someone has already worked out the Second Law efficiencies of such a system and makes it out to be 20 per cent, which if not fantastic, is at least a considerable improvement on 8 per cent.

I don't suppose that many nuclear engineers have bothered to measure the Second Law efficiencies of nuclear reactors, but if they did they would certainly be a little shamefaced at the performance of what for them, must be the most advanced technological system of our time. Imagine; to generate electricity, water needs to be heated to a temperature somewhere between 1000 and 2000°F. But the energy associated with the fission process is closer to a million degrees. It is a case, exclaims Commoner, of thermodynamic overspill.

Of co se modern industrial societie: e not run rationally, they are governed by the dictates of profit, and it seems that profit and scientific good sense all too rarely coincide. Thus nuclear power is invoked as a salvation for our energy problems because it provides unlimited energy at a theoretically low cost. Again, the giants in the oil business are not particularly concerned as to how petroleum and its by-products are used, but what profit they will bring in. The same goes for the motor industry and many others.

In The Poverty of Power Commoner launches into a hardthrusting attack on American oil companies for wholly misleading the nation with regard to the true cause of oil shortages, following the Yom Kippur war of 1973. According to the major companies, indigenous resources of oil in the U.S. were both running out and becoming excessively costly to find and extract. One of the industry's chief experts, M. King Hubbert, who is now with the U.S. Geological Survey, claims that the amount of oil discovered through exploratory drilling has undergone a precipitate decline since the mid 1950's. Commoner begs to differ. With the data of geologist A. D. Zapp as evidence, he claims that the discovery of oil in the United States has fallen because the oil companies lost interest in looking for it once they realised they could make far bigger profits from investing in oil overseas. He then takes the oil companies to task

because they are demanding far greater profits than are generally encountered within private enterprise in order to generate sufficient capital to finance exploration of indigenous oil resources. "Like a poorly trained gun dog distracted by the appearance of a stray rabbit, an oil company is likely to drop one project for another whenever there is a hint of larger profits . . ." and as he says later, ". . . the oil companies' devotion to producing profits rather than to producing petroleum, challenges the wisdom of relving on these companies to find and produce the nation's oil." Of course, it could be argued that in the long-run the oil companies lust for profit will prove beneficial to the U.S. Economy. America may have to pay more for its oil today but on the other hand, invaluable resources are being preserved for use when Arab oil runs out. It is also interesting to note that in Canada, the opposite situation has occured. The oil companies tend to have overestimated Canadian oil reserves. according to Professor North - by fifteen times - in order to fulfil their sales to the U.S.

On both sides of the Atlantic there has been glib talk of using coal to run the industrial society on rather the same lines as we think of it today. Thus when petroleum and natural gas run out, coal will neatly take their place through liquefaction and gasification; Commoner again points to the pitfalls. Thus coal conversion plants will be very costly and the final product may well have to be sold for a price as high as 26 dollars per barrel, which is more than double the price of oil today. The plants will also need phenomenal quantities of water, and in the United States at least there are already doubts whether sufficient water will be available, that is if agriculture is to be sustained as well. Nor is coal conversion a clean process; it produces a host of carcinogens that, like radioactive waste, would have to be kept isolated from the environment. Indeed in one pilot conversion plant in West Virginia a disturbingly high percentage of the workers developed skin cancer. Out of 342 workers in the plant with nine or more month's exposure between 1954 and 1959 five definitely had skin cancer, another

Commoner also criticizes coal conversion schemes on thermodynamic grounds. "By the time the fuel has been produced, about a third of the coal's original energy content has been used to run the liquefaction process. Thus when the fuel is used to run cars and trucks most of it is wasted because these vehicles operate with a Second Law Efficiency of about 10 per cent."

On the other hand when coal is used for electricity generation to drive electric vehicles such as trains and trolley buses the Second Law Efficiency of the system is more than doubled. So where have all the trolley buses gone? Commoner describes how in the United States the General Motors Corporation set out to create a market for its new line of buses by financing the conversion from streetcars to buses in small cities. Its scheme snowballed and as Bradford C. Snell for the Senate subcommittee on Antitrust and Monopoly reported, "by 1949 General Motors had been involved in the replacement of more than 100 electric transit system with GM buses in 45 cities including New York, Philadelphia, Baltimore, St. Louis, Oakland, Salt Lake City and Los Angeles." In all a rather extraordinary tale of how a single company's pursuit of profit could turn a relatively efficient transport system into one of mediocrity, not to mention the photochemical smog which has enveloped so many cities in the United States over the past 20 years.

Without going so far as to say that capitalism is at the root of all evil Commoner nevertheless indicts it as being largely responsible for much that is wrong with the economy, environment and energy supply system in the United States. The petrochemical industry has a lot to answer for, according to Commoner. Its products, because they must be mass produced to be economic, have flooded the market, driving out natural products that need greater

care in their production. Consequently not only has the environment become saturated with chemicals that, being alien to nature, resist decay but also the population has become hooked and can no longer do without plastics, artificial fibres, detergents, pesticides and artificial fertilisers, all of which are petrochemical products. Yet slowly the pendulum appears to be swinging back. Dr. William Lockeretz, and a team from the Centre for the Biology of Natural Systems, have studied the economics and production of both organic and conventional farmers neighbouring on each other and sharing similar soil and climate.

In 1974 the market value of crops produced by conventional farms was 179 dollars per acre while the average for organic farms was 165 dollars per acre. However the operating costs averaged 47 dollars per acre for the conventional farms compared to 31 dollars per acre for the organic farms. As a result the net income per acre of crops is essentially the same for the two types of farms. The difference is that conventional farmers have had to pass money on to the agro-industry and have hence subscribed to a thermodynamically less efficient system. Indeed the conventional farmer cannot operate unless he receives a large energy subsidy. Thus the organic farms used only 6,800 BTU of energy to produce a dollar of output, while the conventional farms used 18,400 BTU. "We hope to learn how to help the farmers find their way back to the sun", Commoner comments.

Commoner has a lovely chapter on the sun and how it can and should be used to reduce dependency on vanishing and potentially dangerous sources of energy. The sun, he points out, is a source of energy in which capital costs are likely to fall with improving techniques. Nonrenewable sources of energy on the other hand are costing more and in profit terms are achieving less. Thus profits have fallen from an average of about 20 per cent in the late 1940s to less than 10 per cent today in non-financial corporations; hence the economy is suffering the consequences of acute capital shortage. In particular the shortage of capital is being felt in the energy industries, and as Commoner states:

### **BOOK SHOP**



"If the energy industry's demand for capital continues to grow at the present rate, it may take up so much of the available capital that it interfers with the capital requirements of the rest of the industry. The energy industry would then be in the absurd position of interfering with the growth of its own customers."

With scientific sense injected into the running of the industrial system, combined with sound humanistic principles, many of the growing problems facing American society would vanish. Commoner believes. "Thus the energy crisis and the web of inter-related problems confront us with the need to explore the possibility of creating a production system that is consciously intended to serve social needs and that judges the value of its products by their use, and an economic system that is committed to these purposes. At least in principle such a system is socialism.'

Whereas Barry Commoner has imbued energy problems with his own brand of 'scientific' socialism in *The Politics of Energy* Douglas

#### FOUNDATION FOR ALTERNATIVES

### INTERNATIONAL SUMMER SCHOOL SWINDON

#### July 4-15, 1977

The School is concerned with the search for constructive alternatives to the present social order, and will be led by a distinguished team of people actively concerned in health, industry, technology, education and agriculture.

Write to: Stan Windass, The Rookery, Adderbury, Nr. Banbury, Oxfordshire. Evans has set out to show how the Superstate has emerged as industrial nations have found themselves forced establish far-ranging to energy policies. Sometimes those policies have brought about interesting alliances. Thus Japan now helps Russia obtain gas and oil from its Siberian deposits in return for assured energy supplies and at the same time is one of the main importers of Chinese oil. Meanwhile Russia, with an eye to American wheat and other agricultural commodities, sells natural gas to the United States. Energy has become an international problem and consequently the means by which unlikely trade agreements have been sought and won.

Douglas Evans has managed to keep his own political convictions well concealed and takes for granted the official view that energy will be needed on a massive scale by the industrial nations for some time to come. He seems in fact to be in favour of the superstate, presumably because he sees such large power structures as leading ultimately to peaceful trade relations between the east and west, as well as between the industrial and developing. countries. If he is critical of the way that energy is used and of the environmental effects of that use, he keeps it to himself, although he admits, perhaps critically, that he can see Russia and possibly even China going the same way as the capitalist countries as they find themselves with surpluses of oil and an increasingly consumer-conscious population. Barry Commoner should perhaps take heed that even the best socialist principles are likely to go astray when they are combined with massive industrialisation.

It is good to have a history of the way that energy has come to dominate political thinking in the world since the Second World War. Even if Evans has not come up with the conclusions himself, it is obvious that the world is heading for economic disaster if it continues to pursue its expansionist aims for industry. Moreover the desperate struggle for economic survival in such a world certainly leads us far away from making the kind of moral, humanistic decisions that I am sure Commoner would like us to make.

# This Month's Authors

Sidney Alford obtained his doctorate at the University of Paris as an organic chemist, then went as a research fellow to Tokyo. After working in the pharmaceutical industry he studied environmental pollution science at Brunel University. His present research interests include brain lipid chemistry and explosives technology.

Peter Adamson was educated at Oxford where he reads English language and literature. He was founder of New Internationalist and is now a freelance, writing on development themes for European and American Newspapers.

Lawrence D. Hills, Director of the H.D.R.A. needs no introduction to our readers. He is among the most distinguished innovators in the field of organic farming and gardening in our country. He is an Associate Editor of *The Ecologist*.

William Ophuls is an author and thinker well known for his contributions to the debate on the limits to growth. His book Ecology and the Politics of Scarcity: Prologue to a Political Theory of the Steady State will be published shortly.



Poor Peasants, Poor Kingdom, Poor King...

RADICAL AGRICULTURE, edited by Richard Merrill, Harper and Row, U.S.A. (Price not marked).

Agriculture, said the old economists, is the basis of all wealth. If farming is impoverished, the nation is impoverished. American agriculture is certainly not impoverished, at least in a conventional sense, but if this book is to be believed it is close to bankruptcy spiritually, and since it is still America's largest industry perhaps its condition tells us something disturbing about the rest of the society.

Radical agriculture is not, as you might think, simply some generalized alternative to conventional practices, although organic farming is becoming a part of it. Nor is it "radicalisation" the simply of agriculture, based on the growing political awareness of those who work on the land, although that is part of it, too. If you marry organic farming with the formation of a labour force that is aware of the ways in which it is exploited unfairly, and if then you add a good dash of "alternative technology", then you begin to capture its flavour.

It is peculiarly American. That is not to say that many of its precepts have no application in Europe, but the structure of American agriculture is very different from that of, say, British agriculture.

Most of the precepts are not new. They are enshrined in the constitution, based on the Jeffersonian ideal of the family farm as the backbone of the nation. "Enshrined" is exactly what they are, for while lip service is paid to them, and while laws may exist to implement them, in the real world American food production is falling more and more under the domination of vast industrial complexes.

The picture that emerges is horrifying. Immigrant and child labour is used - and widely - to keep down costs. The immigrants are refused any rights and one group is set against another quite deliberately to ensure that they cannot unite. Workers who object to wages or conditions can be sent home these days usually to Mexico - and replaced by others so hungry they will accept anything. The progress of the seasons across the country drags families of migrant workers in its wake, harvesting the fruit and vegetables, a ghostly population that flits across the landscape no sooner seen than vanished, gone from one squalid camp to another. The system is cruel, vicious, degrading, and there is little sign that its end is in sight.

Most American farmers are small businessmen. using their own labour and that of their families, supported by employed workers. Yet more and more of the land is owned by large corporations. In a few years, if this process continues, who will own America? Some of these have the virtue of being food companies. Most or all of their profit is derived from the sale of food products, and so the vertical integration of the enterprise whereby one firm controls everything from seed to package at least leaves them with an interest in the welfare of the farm. The non-agricultural corporation has no such interest. Its entry into farming may be motivated by a desire to write off taxable profits; a profitable farm is of no advantage and when, at last, the soil is destroyed, the company can sell and move on.

The book is a collection of articles -20 of them - all written within the last few years. There is some repetition, inevitably, yet this emphasises points of importance rather than detracting from them.

The central theme is a plea for the family farm, based on a challenge to the economies of scale that large units can achieve. The fact that large units produce less food per hectare than small units (true of crop production but less certainly so of livestock production) has been of no importance in America in the past. though it may be in the future. The real advantage lies in the higher capital investment possible for the larger unit and the consequent reduction in the size of the work force. This advantage accrues to the corporation, but in the world outside its offices communities are disrupted and workers possessing skills that are relevant only to the growing of food are despatched to swell the ranks of the urban underemployed and discontented.

Organic farming enters the picture as a means whereby small farmers can survive by growing for a premium market outside the main distribution network. It was used in this way first by civil rights workers in the southern states. The craze for organically grown food has waned somewhat, but its place has been taken by an informal network of urban cooperatives, buying foed in bulk, mainly from local growers, and selling it at prices below those in most supermarkets. As they become more confident, these cooperatives are beginning to contract local farmers, and so bringing grower and consumer into much closer contact than ever before.

The natural extension of cooperatives leads to the production of food in an urban setting, and this introduces an element of new technology. Throughout, the aim is the same: to provide people with more control over the way they live and thus with a better standard of living, more independence and more dignity.

I read many books, articles and papers about agriculture. If one half of what this book says is true — and I have no reason to doubt any of it it amounts to the most serious indictment of an inefficient and wicked system that I have ever seen, and yet, in the alternatives it proposes, it offers the hope of the kind of reform that would bring America back to its philosophical origins, and that is bright optimism indeed.

Michael Allaby



The Objectivity of our Nuclear Experts

Dear Sir,

The two key figures in the present nuclear controversy whose opinions seem to be taken particularly seriously have government posts which give them conflicting loyalties and thereby prevent them from displaying the objectivity that should be required of Government advisers.

Sir John Hill is Chairman both of AEA and of BNFL. AEA is supposed to promote unbiassed work and research over the whole nuclear field, and to give unbiassed advice. BNFL has to operate at a profit, and processing imported radio-active waste would help in this. Hill's many public pronouncements make it clear that his heart is wholly in the nuclear energy field.

Dr. Walter Marshall, CBE, FRS, is Chief Scientist of the Dept, of Energy (since 1974). From 1968 he was Director of AERE, Harwell. As Chief Scientist he is responsible for giving the Government unbiassed advice over the whole energy field.

You will see from Who's Who that both these men have spent their lives, and won high reputations, in the very specialised field of nuclear energy. Because of this, they are uniquely unfitted to give unbiassed advice over the whole energy field. They have, for instance, *less* competence than most others to pronounce on the alleged 'energy gap' because their specialised interest, over many decades, has left them no time to study the wider issues involved.

The National Radiological Protection Board (which is mentioned unflatteringly by the Royal Commission) has as its Director a medical doctor: Dr. MacLean. It is staffed with dedicated nuclear scientists. Their reports are directed to the exclusively scientific aspects of nuclear energy, except for some blatant exceptions, As a medical doctor, Dr. MacLean is unlikely to be able to call their bluff when they produce (as they do) outrageously biassed 'scientific' reports. Their Report R.24, by Webb, is a case in point. Their pamphlet Living with Radiation is another. This latter, having admitted that there are dangers associated with the exploitation of nuclear energy, says that if there were no counterbalancing advantages the simple conclusion would be to have nothing more to do with anything so dangerous. Then, for some two pages, it enlarges on the alleged advantages, on the alleged 'gap' and on the serious results if nuclear energy is not developed to fill it, as

nuclear energy is the only thing that *can* fill it. Again, NRPB is uniquely unfitted to pronounce on this, and in doing so has gone right outside the terms of reference given it by its Act of Parliament. The general public should note that nearly all the advocates of an expanded nuclear energy industry and spent fuel processing industry have a vested interest in such expansion. This goes for the many trade unionists who packed the local meeting at Windscale; it goes also for those with scientific reputations, including Fellows of the Royal Society, whose vested interest is *their professional reputation*.

The hope is, that as so often in our history, the ordinary citizen will refuse to be taken for a ride by a powerful lobby of those with vested interests, and will succeed, once again, in stemming the arrogance of those who trade on their reputation in a very specialised field to make pronouncements in a wider field in which they have less competence than many others, because of their specialised education and career. Yours faithfully, John Hanson,

Director CRAC.

19 Cheyne Walk, London SW3.

#### How Much Lead in Your Cabbages?

Dear Sir,

It is known that 50 per cent of the lead in petrol falls within 100 feet of the road, but this figure is mainly based on motorway observations. It is possible that cars going slowly in towns and suburbs drop more lead sooner from cooler exhaust gases. May we appeal to those who are interested in the problem of lead pollution to write for details of how to take part in our Cabbage Campaign?

We would like to hear from gardeners who are willing to grow a few *primo* or *greyhound* cabbages in their front gardens and some more in the back and to send us samples we can analyse for lead. The differences between them will show how good a shield our houses are against lead pollution in our vegetable crops. The front garden figure should show the comparative lead analysis at pram, toddler, dog and cabbage level with different traffic densities. Those in city centres where traffic jams are common, especially where cars accelerate away from traffic lights or roundabouts, could grow street side cabbages in pots on doorsteps or windowsills.

Lead analysis is expensive and we should welcome contributions towards the cost of chemicals and skilled help in testing the hundreds of samples we hope to gather. The Henry Doubleday Research Association is registered as a Charity (No. 205178) and is the largest body of organic gardeners in Britain, and we hope it will be possible for your readers to cooperate in a serious experiment on a very serious subject. We may well find justification for a Government Health Warning on every petrol pump. Leadless petrol is sold in the U.S.A. Why not here? Yours faithfully

Lawrence D. Hills, Director, H.D.R.A., Bocking, Braintree, Essex. A Steely Look at Growth

#### Dear Sir,

Your Liberal correspondent, Doreen Elton, asks (The Ecologist Jan/Feb 1977) if people have ever heard a Liberal politician calling for more growth. She might be interested to know that David Steele himself said on a Radio Phone-in programme (B.B.C. "It's Your Line" December 22nd 1976) "We need more growth to get us out of our present situation". The statement was made in answer to a question from an Ecology Party councillor, on Mr. Steele's view of the need for a sustainable or steady-state society. Most telling was the fact that the Liberal Leader did not understand either of these terms and, incredibly, went on to talk about Private and Public sector spending. Even ex-President Ford would have gone green with envy, had he been listening, at such a colossal blunder

Your correspondent also failed to appreciate another point, namely, when have we heard a Liberal politician calling for Zero-growth? Are we really expected to believe that a Party can be committed to radical policies and yet keep totally quiet about them?

Your correspondent should think again about joining the Ecology Party. Quite apart from being an "honest" course of action, in that she will then be joining the Party which most closely echos her own beliefs, she will probably find that she has more impact on the Liberals from outside than she does inside.

Yours faithfully, K.M. Rushworth,

Secretary Leeds Branch of the Ecology Party.

#### An Irresponsible Silence

Dear Sir.

Doreen Elton in *The Ecologist* Jan/Feb 1977 asks when did a Liberal politician call for more growth? The answer is David Steel, on a Radio 4 phone-in, December 1976. His conventional growthist views are also to be found in *The Guardian* (6.12.76) John Pardoe is too wily to give gratuitous quotes, but I would be especially interested in *his* reaction to the suggestions for Liberal recruitment at the end of this letter.

Mrs. Elton has the gall to deride the Ecology Party's nil publicity whilst admitting that she herself decided not to help. Our numbers are still counted in hundreds because after four years the thousands who could give the EP a fair trial still cling to the hollow Liberal image: environmental to those who want to see it so, but careful not to offend those who will always be pro-growth and to hell with the environment when ever they have to choose. The voluntary silence of those prominent politicians who do claim to be members of the conservation movement becomes downright irresponsible when one considers the steady gains being made by the National Front, who also claim to have identified causes and remedies for our economic ills

The 1974 Liberal solution on "controlled growth" was a classic case of all things to all men. A clear zero growth resolution was specifically rejected. I would urge the disbanding of the Ecology Party if the Liberal Party did two things which it will never do:

- State that ecological considerations must always prevail — even over commercial ones, whenever these conflict.
- 2. Shout from the house tops the far-reaching implications of this answer to the *predicted* crisis.

We may not be given another four years to wait and see who is right Mrs. Elton.

Yours faithfully, *Clive Lord,* National Secretary of the Ecology Party, Batley, Yorks.

#### A Dilemma For the Values Party

Dear Sir,

Your editorial 'Ecology - The New Political Force' (The Ecologist Vol 6. No. 9) mentions appreciatively Beyond Tomorrow the manifesto of the New Zealand Values Party, This publication reveals the political dilemma of the, ecologist. For example, while deploring the very rapid population growth in New Zealand, The Values Party would nevertheless continue the various inducements to increase population i.e. child allowances for all, generous payments to mothers of illegitimate children, free schooling and medicine, and similar payments. This is implicit in the statement "we do not feel their should be financial disincentives to discourage large families". Any other policy would be political suicide.

The manifesto also says "New Zealand should welcome controlled numbers of Pacific Islanders". Polynesians already form a large proportion of the population, have above average families and give their support to the political party that most encourages large families and increased immigration of Polynesians.

Thus in this dilemma the Values Party's policy is at variance with its principles. The only alternative for the ecologist would be to support and endeavour to influence the major party whose policies are closest to what seems ecologically right. Neither course of action is satisfactory, but in the long term it seems unwise to compromise our principles.

A. de Villiers Aukland, New Zealand,

Poetry Wanted

#### Dear Sir.

I am in the process of compiling an anthology of poetry on the theme of Ecology and Conservation, with particular emphasis on the effects of the human race upon the environment.

Any poets interested in contributing should send a maximum of six poems (with S.A.E.) by September 30th 1977, to Tina Morris, 64, Meadowcroft Ave., Catterall, Preston, Lancs, PR3 1ZH.

Yours faithfully,

Tina Morris.

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#### **Planning for Starvation**

Dear Sir,

I fully support most of what you say in your Editorial (March 1977) I think that the continued erosion of farmland is a scandal. I was therefore surprised to find myself pilloried — even in such distinguished company as the Lords Zuckerman and Balogh — for not knowing that cabbages did not flourish on concrete.

In my book Can Britain Feed Itself? I say: "One thing which causes much concern is the steady decrease in the area of our agricultural land. While the total area of Britain remains the same, and while our population (and the number of mouths to feed) increases, some 50,000 acres. often the best farmland, disappear under concrete, bricks and mortar every year. Even more worrying is the fact that this area lost to farming seems to be increasing, and a figure as high as 80,000 acres is now quoted. Clearly if it goes on we will eventually have no farm land left. We must all hope that more effort will be made to locate industry on the hundreds of thousands of acres of derelict land around our industrial cities, and that more housing will be located to bring back life to the dead centres of so many towns."

This is what I said, not for the first time, two years ago. I am gratified that you have, at last, discovered the same facts, and come to the same conclusion.

Yours faithfully, Kenneth Mellanby, Wennington, Huntingdon.

Bath Water Threatened

#### Dear Sir.

I see from the papers that the Dept. of Energy, EEC, have given Dr. John Andrews of Bath University School of Chemistry, the sum of £9,000 to investigate gases and radioactive elements at Bath, with a view to making use of these as a source of energy supply.

Would it be possible for you to bring to the notice of these investigators the result of fiddling with the hot springs in New Zealand? Wairaki used to be a wonderful thermal district with natural hot water available to hundreds of little houses; public baths and small steaming streams overhung with green ferns. Greedy promoters came along and built a huge modern hotel, and drove a pipe down into the depths of the earth with the intention of tapping this supply of natural heat. By doing so they effectively destroyed the source, and Wairaki is no longer what its name suggests. Yours faithfully,

Violet E. Potter, Nately Scures, Hants.

#### **British Trust for**

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#### JUBILEE YEAR CONSERVERS NEEDED

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This work is part of the Easter and early Summer programme of conservation work organized by the National Conservation Corps. With the loss of farmland and wildlife habitat that has taken place over the last 25 years, countryside management has become an increasingly urgent priority. For the years past 18 volunteer "Conservers" in the Corps have undertaken much of this necessary practical work - on national and local nature reserves, in national and country parks, for the Forestry Commission and for private landowners. In 1976 over 22,000 "work days" were volunteered by the 4,000 members of the Corps at weekends and during their holidays. This year even more "Conservers" are needed to tackle the growing demand for conservation work and an invitation is extended to all young people to join the Corps during Jubilee Year and help restore the traditional British landscape by laying hedgerows along country lanes, clearing out village ponds, planting trees to replace diseased elms and helping to conserve habitat for rare species such as the Sand l izard

Membership in the National Conservation Corps is open to all aged between 16 and 70, with an annual subscription of £1.00. The Corps provides accommodation, food and equipment on all tasks, and volunteers just need to bring a sleeping bag and tough work clothes. and contribute 50p per day to offset food costs. All information and task programmes may be obtained from National Conservation Corps. Zoological Gardens, Regents Park, London NW1 4RY (tel: 01-722-7112/3).

The National Conservation Corps is organized by the British Trust for Conservation Volunteers, a registered charity established in 1970 which also promotes local conservation corps throughout Britain and publishes handbooks on practical conservation work.

Contact: Wendy Pettigrew, 01-722-7112 for further details.

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QUALITY OF LIFE. Country gentlemen; sincerely interested in the growth of countryside wood and leather workshops, and music and film centre, co-operative developments, offer excellent facilities now available with goodwill in beautiful corner of S.W. Scotland. Hopeful to find network of committed people with high energy and good faith. If this offer feels well and good and the tuning is right to do something, please freely write. M.M. Henderson, Curator of Gardens, Cardoness Castle, Gatehouse-of-Fleet, Galloway, Scotland.

HEDGEHOG EQUIPMENT offers a range of handcarding, spinning, and weaving equipment for experts and beginners. Also choice of fleeces, and luxury fibres. Exports welcomed, and trade terms offered. Send s.a.e. for details, or visit us at Forest Craft Centre, Upper Hartfield, East Sussex.

#### WHY NOT HAVE A HOLIDAY IN CORNWALL?

If you would like to have a holiday on an Ecological Smallholding we would welcome you in our cottage. We would prefer you to come as paying guests for bed and breakfast and evening meal, but if you would rather be self-catering we are prepared to discuss this, or any alternatives you have to suggest. Terms depend on what you want. Please contact Peter Bunyard, Associate Editor of The Ecologist, Lawellan Farm. Withiel Bodmin, Cornwall. Tel: Lanivet 205.

CONSERVATION SOCIETY OPEN NATIONAL CONFERENCE 23/24 April – Sheffield Polytechnic 10 a.m. – 4.30 p.m. each day

## THE END OF ECONOMIC GROWTH -WHAT NEXT?

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