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Associate Editors: Robert Allen, Michael Allaby, Peter Bunyard, Brian Johnson, Jimoh Omo Fadaka, Andrew MacKillop, Robert Waller, Lawrence Hills, John Papworth, John Davoll, Richard Willson, John Milton (U.S.A.), Peter Freeman. (U.S.A.) Henryk Skolimowski (U.S.A.)

Advertisement Manager: Philip Hutchings

Advertisement enquiries to: Uphill, Urchfont, Devizes, Wilts. Tel: Chirton (038 084) 370.

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Guest Editorial

TOWARD A DYNAMIC BALANCE OF MAN AND NATURE

An address given at the I.U.C.N. Conference on Conservation for Decision Makers at the 12th Annual Assembly in Kinshasa, September 7th – 19th, 1975.

I doubt that many people here have an easy feeling about the future of mankind, or our ability to protect and maintain the networks of plant and animal life upon which the human future ultimately depends. Nor do I believe it likely that many of us believe that the hope for the future lies in more research, or in some new technological fix for the human dilemma. The research already done has produced truths which are generally ignored. We are reaching the end of technological fixes, each of which gives rise to new, and often more severe problems. It is time to get back to looking at the land, water, and life on which our future depends, and the way in which people interact with these elements.

Our attitudes toward the future of mankind and the human environment vary considerably with our point of view. Those of us in international organizations are likely to assume a globalist viewpoint. To a globalist, environmental and human problems often appear to be without solution, or their solution involves such massive inputs of money, energy, raw materials, education, and so forth, that any effort seems puny. But only a few environmental problems are really global in nature – and even they usually have solutions which can be applied rather easily at the local level. For example, if we are really threatening the stability of the ozone layer by using aerosol spray cans, it is a simple matter to give them up. They add virtually nothing to the quality of living for any individual, and those who manufacture them can make just as much money doing something else. Similarly, nobody is going to be much affected if the SST never flies again. The future of whales is a global problem, but its solution involves only a change in attitude of comparatively few people in a few countries – and some redeployment of economic effort.

Most conservation problems exist on particular pieces of ground, occupied or cared for by a particular group of people. Attempts to solve them at a global, or even national level often strike far from the mark, because they fail to take into account the attitudes or motivations of the people concerned. At the United Nations conferences in Bucharest and Rome we were presented with a global view of population and food problems. Globally it appears virtually catastrophic that a world population of 4 billion people is continuing to increase in the face of declining reserves of energy and minerals, and world food reserves that can be wiped out by the vagaries of weather and climate. Globally it appears vital that population growth be brought to a halt, quickly, by whatever means are feasible. This attitude seems either absurd or malevolent to somebody in Zambia or Zaire, where land and resources are relatively vast in relation to the numbers of people, although it may appear totally realistic to a person in Barbados or Bangladesh. It is also apparent to those who think about it that the addition of one person in the United States, which consumes inordinate amounts of energy and materials per capita, is far more likely to bring the world closer to crisis, than the addition of 20 new people in Tanzania. Similarly, food problems viewed globally are solved by massive transfers of wheat or rice from one place to another, and the establishment of world food banks. But the long-term solution to such problems probably lies in making each local community, each province and state, relatively self-sufficient in food – or at least capable of quickly attaining self-sufficiency if this be required. A Bengali who is dependent upon the uncertainties of weather in Kansas for his day-to-day survival is in a perilous condition indeed.

During the past few decades people have been encouraged to look to their nation's capital, or worse yet, to the United Nations, for solutions to problems that had always been considered, in the past, to be local affairs. But the tendency to depend upon the national government for decisions on the management of local resources inevitably creates delay, confusion, and often ends up with the wrong solution for each local community through trying to reach the right solution for all. *Thus providing water for a nation's population – as viewed from the top, can mean the need to build giant dams and canal systems, costing hundreds of millions of dollars, and taking many years. At the local level providing water may mean only developing*

some roof-top collectors, storage tanks, and giving some attention to the management of vegetation on the local hills and valleys. It might take a little money, some labour, and a few months of effort to improve the situation. But who will make that local effort if the responsibility lies with the government, and particularly if the government is likely to over-ride such a local initiative? Similarly, the provision of electricity, viewed from the top, may seem to require the installation of a massive, high-risk, nuclear plant, and an environmentally disruptive national grid of power lines. It could also mean, at the local level, the installation of a windmill, or a small stream diversion through an axial flow generator.

It is true that the simple local solution does not appear to work for the people in big cities. But there are questions we need ask about that also. Why are people crowding into big cities? Would it not make more sense to provide for them to move back to areas where they can look after themselves? Why do we build cities in such a way that their inhabitants are forced to become helpless dependents on agencies they cannot control? Since we must rebuild most cities anyway, why not build them to encourage in each neighbourhood the greatest degree of self-reliance, local initiative, and self-sufficiency?

If we attempt to conserve nature at a national level, we pass a great number of protective laws and hire people to enforce them. We establish a number of protected areas, and hire people to patrol and manage them. Decisions on protection, management, and administration are made by experts in the capital. Agencies come into existence with administrators who rarely have time to visit the field. We know the results, they are all around us. For each new protective law, we develop new specialists in the circumvention of that law, greater in number than the law enforcement agents. For each area in a national park or reserve, a larger area outside is degraded or made less productive. Or so it has seemed to go.

In some earlier papers I have promoted the idea that *human societies can be divided into two categories, with some in transition from one to the other. These are ecosystem people and biosphere people.*

Ecosystem people are those who depend almost entirely upon a local ecosystem, or a few closely related ecosystems. Virtually all of the foods they eat, or the materials they use, come from that ecosystem — although there will be some limited trade with other ecosystem groups. Because of their total dependence on a local system, developed usually over many generations, they live in balance with it. Without this balance they would destroy it, and cease to exist, since no other resources are available. The balance is assured by religious belief and social custom — everything is geared to the rhythms of nature — to phases of the moon, changes of seasons, flowering and fruiting of plants, movements and reproduction of animals. Such people have an intricate knowledge of their environment — the uses of plants for food, fibre, medicine. Every species, every thing, in their environment has some meaning or significance. Recent studies have shown that most such people did not live impoverished lives. Instead they tended to have adequate food, good health, abundant leisure — many of the features of the good life that others today strive for and rarely achieve. Once everybody on earth was in this category. Now only a few so-called “primitive” peoples, living more or less in isolation, survive.

Biosphere people are those who can draw on the resources of many ecosystems, or the entire biosphere, through networks of trade and communication. Their dependence on any one ecosystem is partial, since they can rely on others if any one fails. Drawing as they do on planetary resources they can bring great amounts of energy and materials to bear on any one ecosystem — they can devastate it, degrade it, totally destroy it and then move on. All of those who are now tied in to the global network of technological society are biosphere people. They are the people who preach conservation, but often do not practise it.

If we were to enquire when nature conservation in Africa was most effective, the answer would be “long before the words ‘nature conservation’ were ever spoken”. Nature conservation prevailed in Africa in the days before the agents of the biosphere societies first appeared — in other words before European technological society put in its appearance. In those days everybody lived in what we now call national parks and scarcely any species of animal or plant could be called threatened. Now the global conservationists and national administrators of the biosphere culture try desperately to protect species and to establish national parks in places where ecosystem people once lived. Effective conservation is at its lowest ebb. This is called progress. In the old Africa there were decision makers in the villages. Their decisions seemed to favour conservation. Now we try to influence national planners in the capital to achieve nature conservation. But the village decision maker still decides whether or not he will kill the last leopard in his stretch of country. Something is out of balance. Can the balance be restored?

We have lived too long with the idea that there is merit in bigness — an economy of scale that is important to efficiency. We suffer from the delusion that international or national organizations are best equipped to solve all conservation and development problems. It is a delusion. Aid poured in from the top with the idea that it will filter down and benefit poor people seldom filters very far. The filters are too fine, and scarcely anything drips through. Bigness creates dependency. Economies of scale lead to sociologies of economic helplessness. This should be increasingly obvious. The British economist E. F. Schumacher has written a book entitled *Small is Beautiful* and subtitled *Economics as if people mattered*. It should be required reading for decision makers, large or small. I think it is time we should be talking about “Development as if people mattered”. We might then begin to build a system from the ground up that was ecologically sustainable, that would continue to provide for humanity for all time to come.

Marc Dourojeanni has pointed out the trifling amount of tropical rainforest that has actually been

included in effective national parks or equivalent reserves — less than 2 per cent — probably not 1 per cent if we were to include only those reserves that really functioned in the way that they should. He has further noted that in Peru, if plans go through, we may see 10 per cent of the rainforest protected. In other words, at the culmination of an impressive national conservation effort, 90 per cent of the tropical rainforest is still left available for forms of use that will certainly create major modifications if not destroy it completely. If this does happen, what will be the fate of the islands of rainforest left in national parks. Will they be secure? It seems unlikely. Our host country, Zaire, has an impressive array of national parks. Those listed in the UN list cover over 7 million hectares. *But nobody can really believe that conservation can be effective if we have 10 per cent or less of the country in protected areas and the rest of the country is wide open to exploitation.* To be meaningful we must begin to restore conditions in which conservation will be a way of life for most people, where it will be a partner in development activities, where agriculturally productive land and natural areas are interspersed and the village forest is as important as the village field. In other words we need to restore some of the old partnership with nature that once existed throughout Africa. In the old days the partnership existed without people being aware of it. Now, with more people, we need a more conscious partnership. Some so-called “primitive” groups of people today still have it. We could all learn from them.

It is not suggested that any people be forced to live without the real benefits that technological advancement can bring: education, medical care, communications, transportation efficiency, and so on. It does mean, however, separating the gold from the dross — accepting the benefits while rejecting the energy and material wastage, the unnecessary consumption of scarce materials, all of the useless activities and societal patterns that end up with alienation of people and environmental impoverishment. What we really need is “conservation as if people mattered” and “development as if nature mattered.”

To get there from here I believe we must aim at selective decentralization. Authority to solve local problems should always be held at the local level. Development should be localized, at a human scale, and intended to solve human problems. This has been stressed in the paper by Omo-Fadaka, and I will not repeat it. Nothing should be done by the province that can be done better by the village. Nothing should be referred to the nation that can be solved by the province. Those most likely to be directly affected by development decisions should have the most active role in reaching those decisions. No development decision should be made without full exploration of its effects upon human society and the natural environment. This does not mean that the local, the small scale, should prevail in all activities. Transportation networks need national coordination. Copper mines, smelters, refineries will require massive inputs of energy and labour — they can't be supplied by a few wind generators. Equally, however, one does not need a gigawatt power plant to meet the energy needs of farms and villages. In fact supplying energy needs in such a way inevitably creates the feeling of alienation and dependence that results when one has no understanding or control over one's means for survival.

It is particularly worthwhile to consider the speeches and discussions of the energy session of this meeting, where Odum, Leach and Omo-Fadaka presented their papers. If we take this together with other recent statements, such as that of the IUCN energy task force — we see that the energy panaceas that were being advanced with confidence a decade ago are likely to be a lethal problem in themselves and no solution to any existing problem. Any nation that pursues the nuclear energy alternative not only increases the existing rate of fossil fuel depletion, but further opens the path to nuclear war, nuclear blackmail and sabotage, the high risk of nuclear-power-plant accident, and finally the impossible task of finding a secure means for disposal of nuclear wastes. *The nation that adopts the nuclear option helps to endanger the future of life on earth and almost guarantees the growing restriction of human freedom imposed by the need for increasing security measures. Furthermore, it is no answer to the energy problem, but may mitigate against finding long-term solutions.*

To those nations that wish to pursue the technological development alternative, apparently offered by the past behaviour of such countries as the United States, the answer is that there is *no way* such a pathway can lead to long-term economic development. The energy and materials wasting economy of the United States should be an example to the rest of the world of what *not* to do. *There is no possibility that it can go on for very much longer, without impoverishing the world.* All of the evidence from energy analysis, materials analysis — or most particularly from the increasing alienation of people from identification with government policy and practice show that present trends cannot and will not continue. Any country that hopes to follow this example is following a path to nowhere, from which the United States must find some way back.

The development pathways that hold promise are those that make most intelligent use of locally available renewable or inexhaustible energy resources — those based on the sun and the derivatives of solar power, wind, vegetation, wastes, hydropower and the like. Using these and basing development on local, conservation-oriented land-use practices, building from indigenous knowledge and skills each nation can find a way for improving the lot of its people — not just for a decade or two, but for the foreseeable future. Somehow the political decision makers at high levels of government and the economists who advise them must be made conscious of the need to find ecologically sustainable ways of life. That these in turn will be oriented toward nature conservation is inevitable. Unfortunately, I know no way short of serious catastrophe to

persuade many national decision makers of the need to shift away from short-term solutions. Politicians live for the short term. So I can only suggest that the local decision makers, the people themselves, hang on to whatever they can of their traditional ways and build slowly on them to achieve economic development at their own pace, and on their own terms. Faced with the arrogance and recklessness of governments of nation states, who prefer the glamour of jousting with one another in the international arenas of power to solving the problems in their own domains — this is not much hope. But it is all there is to offer for most of the world, when political leaders prefer fighter planes to manure spreaders.

Thus far I have not mentioned the word "life style" although I have been talking about the problem. However, if important decisions for the future must be made by individuals in their local communities — then the attitudes and ways of life of each individual become important. It is no use preaching pacifism if you work in a munitions factory. Is there any point in preaching conservation if you live in a style that wastes energy and materials and places excessive demands upon the world's living resources? Most of us, I fear, have grown up with the idea that conservation was the responsibility of governments, and that the duty of conservationists was to persuade governments to do the right thing. The idea that the first duty of a conservationist was to practise a conservation life-style only really became obvious when the ecological truth became known that the population crisis, the energy crisis and all other crises were interlinked and related to how each of us lived from day to day. In the 1960s a generation of young people grew up in the United States and in some other countries who began to accuse their elders of hypocrisy — because they preached peace while they waged war, and talked ecology while working for organisations that exploited the environment. Many of those I know simply refuse to work for agencies or companies that wage war, exploit the environment or threaten the future of the planet. They would rather go hungry. Often they do go hungry, but most can find non-exploitative ways of life.

I personally believe that conservation organisations and agencies have a particular responsibility to practise a conservation-oriented way of life. I do not want to point any fingers — but it would be interesting to know how many gallons of jet fuel were burned, how many trees were cut down, how many kilowatts of electricity burned to bring us all together here in Kinshasa? It would be interesting to know also whether we have influenced any decision makers as a result?

R. F. Dasmann.



"SELL ME YOUR PEACE, YOUR LAND, YOUR SOUL . . . AND ALL THIS MAY BE YOURS"

CHARMLESS ELITE :

an extract from *How to Avoid the Future*
(Secker & Warburg Ltd. 1975. £4.90).

by **Gordon Rattray Taylor.**

A modern technological society cannot function without a high degree of social cohesion. Such cohesion is destroyed when loss of confidence in government leads to frustration, fear and violence. In this extract from his latest book, Gordon Rattray Taylor points to many areas where popular disenchantment with the 'charmless elite' manifests itself, and suggests that in this climate of social disturbance governments may be preparing the way for dictatorship.

In order to avoid the future it is first necessary to take a good look at it. But while many people feel obscurely that it needs avoiding they prefer not to think about it if they can get out of doing so. As every psychiatrist knows, some people avoid problems by denying them, others by ignoring them. Neither is effective.

I believe one central problem has been largely neglected: the maintenance of social co-operation and cohesion. The problems of energy, of pollution, of famine and population growth, of inflation and so on, are serious enough. But at least they are well recognised and are being thought about. But if society itself does not run smoothly — if people withdraw their efforts, or smash and destroy, or terrorise one another — then our chances of solving the more obvious problems become minimal and the survival of society itself is thrown into doubt.

It hardly needs emphasising that cohesion is ebbing away. To be sure, the main body of citizens continues to co-operate and display a sense of social responsibility, but

the numbers of those who defy social regulations are rising sharply. In Italy, kidnapping has become almost routine. Bomb explosions occur at frequent intervals in Britain, France, Italy, Germany, Japan and elsewhere. Hijackings are no longer news. The rate of violent crime has doubled within a generation in several countries. Violence on the current scale has hardly been seen since the Renaissance. In the conditions of the past, it was perhaps understandable, but today, with higher living standards, education, social security, and police forces, it is far less easily comprehensible. The argument 'we have always had violence' does not hold water. And the violence takes on an ever more sinister character.

Apart from the stream of extraordinary and arresting forms of misbehaviour which the Press daily reports — from the crude mass rapes known as 'gang bangs' to subtly ingenious computer frauds — there is a mass of less serious anti-social behaviour, from shoplifting to motoring offences, which from very familiarity we have come to condone, but which shows, nevertheless, which way the wind is

blowing. More significant still, theft and violence now find their advocates. Philosophers write books glorifying violence, and burglary is justified on the grounds that property is theft. Not only defiance of authority but intolerance of free speech are openly advocated.

These phenomena represent quite evidently a major failure to integrate men into their society, to obtain acceptance for a social contract which prescribes duties as well as rights. We can also identify a disastrous failure of social co-operation in our massive industrial disputes, and in the obstinate refusal of those who ask for more money to adopt the improved technologies which could raise the living standards of everyone, themselves included.

While the individual seems less and less willing to play the game by the rules, the rule-book itself gets longer and longer. Central control creeps into more and more areas of life; the power of regulating one's own life slowly seeps away.

Precisely because people do not behave co-operatively laws are passed in an attempt to make them do so. The end of this process is totalitarianism.

Lost Legitimacy

In many countries, popular dissatisfaction with the system of government — as distinct from dissatisfaction with particular parties — seems to be coming to the boil. The desire of regional groups to break away and set up their own governments, and the rise of extremism are, in part, due to this. But confidence in the ability of governments to solve current problems has drained away

among the most sober citizens, quite aside from extremists.

As Professor Toynbee tells us, civilisations collapse when the elite loses its charm. Cynicism and doubt extend not only as regards competence but still more as regards aims. How far do we really endorse the decisions our elected representatives take on our behalf? The phrase which begins to appear in newspaper editorials is 'absence of social consent.' Where social consent is absent, there is a high probability that new leaders will appear with a programme which looks, at least at first sight, more in line with popular aims, and that a dramatic change of regime may occur. Perhaps we are living in the twilight of democracy.

Disenchanted Voters

Public opinion surveys show that, in several countries, voters think it does not matter which party is in power, and in Britain at least the proportion who think this way has been rising for a quarter of a century. In 1951 only 20 per cent of those questioned agreed with this proposition; in 1959, the proportion was 38 per cent; and in 1964, it had risen to 49 per cent. By 1966 it was over a half. A similar survey in Germany yielded comparable figures.

Recent polls explore this rejection of government in more detail. Thus Dr. Mark Abrams, director of the British Social Survey, asked a number of questions relating to people's satisfaction with life in general — such as health, housing, education, financial situation, friendship, family life — and found that the lowest level of satisfaction of all was registered in reply to the question: 'All things considered, how satisfied or dissatisfied are you with the level of democracy in Britain today?' Dissatisfaction was greatest among the young and among those whose education had continued until age 18 or later. And when this question was analysed into six components, the commonest complaints were that voters had too little influence on the way the country was run, and that it was difficult for people like themselves to understand what is going on in politics.¹

The rapidity with which this erosion of confidence is occurring is shown by a survey conducted in April 1974, by the Opinion Research Centre, in which the same questions were asked as in April 1973. The number saying that they had a great deal of confidence in Parliament declined from 31 per cent to 27 per cent — in other words three-quarters of the public have no great confidence in their leadership! Surely that is an amazing figure and justifies asking how long a country can continue on such a slim basis of confidence. Confidence in local government, moreover, was even lower, and fell down from 27 to 24 per cent, while confidence in the much-prized civil service declined from the unimpressive figure of 34 to the even less impressive figure of 29 per cent.

(Incidentally, it is worth noting that public confidence in trade-union leaders declined from 23 to a mere 11 per cent, which suggests that their entry into the political field may cause some backlash.)

Politicians themselves are beginning, at last, to become dimly aware of the contempt in which they have so long been held by much of the population, though it has taken a long time for the acid to penetrate 'their armour of complacency. Labour Minister Anthony Wedgwood Benn actually wrote a worried pamphlet about it for the Fabian Society in 1970, and by 1974 Home Secretary Roy Jenkins was complaining that 'the effective working of our democratic institutions is aggravated by a widespread cynicism with the processes of our political system.'

One consequence of this despair at Parliament's tackling the problems about which people feel deeply has been the growth of pressure groups. As Ben notes 'thousands of such pressure or action groups have come into existence: community associations, amenity groups, shop-steward movements, consumer societies, educational campaigns, organisations to help the old, the homeless, the sick, the poor or underdeveloped societies, militant communal organisations, student power, noise abatement societies, and so on.' He might perhaps have added:

conservation societies, birth control and abortion groups, women's lib and actual political pressure groups.

The 'New Tribalism'

In my youth it was a popular idea that the world was joining together into larger and larger units and that eventually, therefore, there would be a world state, with a world government, and peace would reign for evermore. Movements, of which Federal Union was perhaps the best known, were formed to promote this process.

Anyone looking round today could hardly fail to note the ever more rapid growth of just the opposite trend: the splitting of large units into smaller ones, and the subsequent further fission of these. Thus when India left the British Commonwealth, it split into two: India and Pakistan. Pakistan then divided, giving rise to Bangladesh. Nepal tried to split off but was forcible prevented. Similarly in Africa, the half-dozen great states of fifty years ago have fragmented into a memory-taxing welter of new principalities, many of which are now busy crushing dissident minorities — and in at least one case majorities: the Sanwi, the Ewe, the Ovambos. Biafra is still fresh in memory. In Ethiopia, the province of Eritrea is riven by civil war. The Somalis in the south are demanding independence. (Almost unnoticed, an Eritrean guerilla force, trained by Libya, did a million pounds worth of damage to Abyssinian copper mines.) In the Middle East, the Kurds are currently fighting for independence from Iraq.*

When we turn to Europe the picture is no different. In Britain, movements calling for self-government in Wales and Scotland are gaining strength. Eire of course has already left the Union, and Ulster seems on the brink. Cornwall is now beginning to raise its voice. In France, Bretons now place a B on the back of their cars to signify their desire for recognition as a cultural entity (and similarly in Languedoc), while when M. Messmer, as French Foreign Minister, visited Corsica in 1974, the crowds carried banners saying

* Since this was written the Kurds have been subdued.

'French out'. In Belgium, tensions have existed between the Flemings and the French-speaking population for centuries and show no signs of abating. Spanish Basques are fighting for their cultural identity. Canada faces the prospect of losing French-speaking Quebec. In Switzerland the Jura is demanding independence.

The basis of these movements is always awareness of the possession of a unique cultural identity. I can say from personal knowledge that the desire of the Scots or the Welsh for self-government is not based simply on the belief that a regional government would be more responsive to local wishes, but on pride in local uniqueness, which is seen to be threatened. This is why the use of Gaelic language is insisted on so strongly by Welsh, Scottish and Irish nationalists. The objections now being made to the growing number of English settling there also reflects a fear of their cultural impact. A similar fear is being voiced in the north of Scotland, as a result of the discovery of oil. Pride is also felt in other marks of community identity, such as special kinds of food or clothing (porridge and the kilt in Scotland) and cultural expressions, such as traditional songs and music (the bagpipes or the Welsh harp). It is important to understand that loss of communal identity is felt as a loss of personal identity: the man who tells an Englishman with pride 'I am a Scot' thereby asserts a measure of individuality. He is that much less a cipher in an increasingly anonymous world.

This psychological need explains much of the opposition to the wave of immigration which has hit some countries, such as Switzerland (where there are 1.6m foreigners in a population of 6.3m) and Britain. When in any local community, the cultural strangers exceed some ten per cent of the population, communal stress is felt. Since many of the British immigrants have been coloured, the reaction is often seen as colour prejudice, and no doubt this is sometimes a factor. However, in Switzerland, where the foreigners are largely Italian, or in Wales, where they are mainly English, colour is clearly not the explanation; neither can it explain, say, Corsican separatism or the struggles

of the Kurds.

I have little doubt that British hesitation to enter the European Common Market is mainly motivated by the feeling that national identity will be diminished (as indeed it has been already) and that decisions will be taken even further from the communities they affect by people with even less understanding of these deep-lying but poorly verbalised requirements.

Confidence in the ability of governments to solve current problems has drained away.

Secession is only feasible where the cultural group has clear geographic boundaries. The American blacks' demands for recognition of their cultural identity is a clear-cut example of what happens when one cultural group becomes dispersed in another. Another is the Jewish Diaspora. One can hardly doubt that if American blacks had happened to live in a single area with a clear-cut frontier, they would by now have demanded independence. It is not impossible that in the future there will be a demand for the establishment of all-black areas, echoing the demand of many whites to preserve their neighbourhoods as all-white. One might also prophesy that Hawaii, as a culturally unique sub-area, will one day hanker for independence.

In the past, emigration was a possibility for dissatisfied sub-groups thanks to the existence of fertile, unoccupied lands in America. Today that solution is more or less unavailable. Hence trouble brews.

The USA, which has always had a high immigration rate and whose cultural history is relatively short, has much more experience of cultural and social fragmentation, which is why social pathology, as expressed in crime rates, etc., is worse than in Europe. But this has the result that Americans, being used to cultural chaos, often find it hard to understand what the fuss is about — why Europe is so slow to unite,

for instance. These two not-quite-identical trends have been deprecatingly dubbed 'the new tribalism'. The term 'tribalism' implies, I take it, that they represent a return to a more primitive system, a swimming against the current, a kind of social Ludditism.

People's resistance to cultural break-up on the regional level is echoed by their resistance to the break-up of communities, where the preservation of group structure and local loyalties become the primary motive. It is an encouraging sign that ordinary people seem to be increasingly aware of the high social and personal cost of breaking up local communities and to be making active efforts to resist it. Strong opposition is now mounted to official plans to drive motorways through cities (the London ring-road scheme was a particularly crass instance) or to the placing of new airports in heavily settled areas. In France, the bitter local resistance to placing nuclear weapon silos on the Larzac plateau provides a perfect example.

Social cohesion is not something we can sacrifice blandly. If a man who is ill struggles to get back his health, we do not tell him that he is attempting to live in the past, to return to a golden age which has vanished, and enjoin him to resign himself to increasingly poor health as the price of progress. This misrepresents the issue. The key question is: can we actually hold an incoherent society together much longer by any means short of dictatorship?

A Guide to Governing

For a government to be 'legitimate' three conditions at least are necessary. As they don't seem very well understood, even by governments, I shall now enumerate them.

First, a leader must devote himself to helping people to fulfil *their* aims. (A leader, it has been cynically said, is a man who sees a crowd surging down a street and quickly puts himself at their head, crying 'Follow me'.) Our present leaders believe that the one and only objective is material prosperity. Right and Left are in full agreement on this and only differ about who is to get how much. 'You have never had it so good,' is how they

bid for our admiration. Now of course material prosperity is important and our material standard of living is something of which we are all aware. But there are other less clearly expressed but nevertheless powerful demands: for liberty, for dignity, for national pride, for a pleasant environment, for public safety and much else. It is precisely in these matters that our leaders fail. It is the attempt to give expression to these non-financial desires which accounts for the countless amenity societies and pressure groups which have sprung up, and for the complaint of lack of consultation which we saw in the opinion-poll replies.

Some left-wing politicians have tried to claim that such demands are a pretentious middle-class form of selfishness: this is an insult to the humanity of the poorer groups. Poverty may force you to put up with your house being filthied by the smoke from a chemical works or made intolerable by the noise of a motorway carried overhead, but it doesn't make it any more agreeable. And the wish to be consulted is uncorrelated with class.

Even less do governments seem to understand such obscurely stated aims as the wish people have to preserve their own culture. Blind to this feeling, or regarding it as an obsolete sentiment, governments constantly act so as to invade and crush local culture, imposing standardised patterns for everything from telephone boxes to old-age pensions.

This brings us to the second requirement of leaders: they must be competent. Mr. Heath fell for the same reason as President Allende: he failed to solve the immediate problems. Good intentions are not enough. But while a leader may fail because he fails to cope with a specific challenge, the continuing dissatisfaction with government reflects their failure to cope with the on-going problems of war, public order, environment and other matters I have discussed.

Third — and this is almost always overlooked — people want leaders they can admire and look up to, which means leaders who are not merely honest but selfless. General de Gaulle, for all his quirks, was respected because he undoubtedly

put France, and France's reputation, above all personal considerations. His own popularity, public honours, income were matters of little importance to him, as even his severest critics concede. Leaders are father-figures: they can be wilful, unfair, even arrogant, provided they are wholly devoted to their children's welfare; they must be brave and resolute; they can sometimes be petty if they are never mean.

But modern leaders, in addition, are under the mortal delusion that society consists simply of two groups: the electorate and the leadership — the masses and the elite. And that therefore their job is to engage in a dialogue of some kind with the masses. But, as we have seen, a cohesive society is organised into numerous overlapping groups, and decisions are dispersed and taken at many levels. As Patricia Elton Mayo has commented, our social problems are not a question of 'the ownership of wealth but rather a crisis in the theory and practice of government'.²

Whether they understand what they are doing or not governments are preparing for the establishment of totalitarianism

By centralising and imposing uniform practices, governments have not only undermined democracy and ensured their own loss of legitimacy; they have also destroyed social cohesion and made it increasingly difficult to govern. They have created ungovernability.

How have they got themselves into this unworkable position?

Firstly, governments have gradually taken on more and more power. It started when governments arrogated to themselves powers hitherto exercised by universities, guilds, abbots, manors, etc. At the time this was welcomed because it

seemed to free the emerging middle class from medieval restrictions. But the process has not stopped and now governments claim the right to legislate in every area of life — and the public accepts the claim, although it was never debated or agreed to. Thus the government takes it upon itself to manage the army and the postal service, once left to private initiative. The government runs education and levies taxes, once the prescriptive right of local bodies. And, another new development, it undertakes to function as the member of an international community.

As Drucker has pointed out, administrations now claim the right to withhold or censor information even in peacetime. They have the power, and use it to create and destroy profitability, to abolish or establish privileges, to seize property, and even to create it or annihilate it, as we see in the case of fishing rights, patents, satellite facilities and much else. Even when governments delegate decisions to local authorities, they do so on a provisional basis: the delegated power can be recalled at any time. (Hence the demand which is now beginning to be heard for the unqualified devolution of this excessive power from groups like the Basques and the Scots.)

Unfortunately governments have neither the time nor the skill — sometimes not even the wish — to wield so much power. 'No government functions adequately,' as Peter Drucker remarks, whether it be socialist, liberal, communist or democratic.³ All managements know that you must delegate if you are not to be swamped, but governments have no suitable bodies to delegate to, having emasculated local government and local organisations. (Technology, as we have seen, has contributed to this emasculation not only by destroying local communities but by creating constellations which have to be administered as single units — but which are already too large for an effective grass roots democracy.) It is this remorseless centralisation which makes the electorate feel helpless, ignored and out-of-touch,

This brings us to the second factor: the never-ending growth of bureaucracy. To an increasing ex-

tent decisions are being transferred from parliaments and senates, where there is at least a measure of public discussion, to 'faceless' bureaucrats whose decisions are seldom explained, much less discussed in public.

As the sociologist Weber, whose analysis is the fountainhead for thought on the subject, realised, bureaucracy is indestructible and ever-growing. A military *coup* may change the nominal masters, but the machine has a will of its own. No one knows how to reverse the trend. No one knows how to make bureaucracies efficient in terms of human welfare rather than mere economics.

In reality, efficiency is not the point. Dostoevsky put his finger on the spot when he said: 'And how do these wiseacres know that men want a normal or a virtuous choice? What has made them conceive that man wants a rationally advantageous choice? What man wants is simply *independent* choice, whatever that independence may cost and wherever it may lead.' That is what secession is about and what communes are about. And it is also something that socialist reformers do not understand.

While the social process slowly bogs down in a self-sufficient morass the ever more rapid pace of events imposes on these hypertrophied structures the need to respond far more rapidly than in the past. I am thinking here not of political crises but of social changes. For instance, Britain continued to build isolation hospitals for tuberculosis patients long after modern drugs had begun to wipe tuberculosis out. An administration which applies correction to trends which have already reversed themselves, as often happens in the economic area, only makes matters worse. Britain's vacillations of policy concerning nuclear power are a case in point. First, plans to build oil-burning power stations were cancelled, in the belief that nuclear energy would supply most of the power by the seventies, then, restored when it emerged that this was a pipe-dream, then cut back, when oil grew more costly.

The life of parliaments is short compared with the twenty years or more of most social changes. This

makes parliaments uninterested in changes which will only pay off electorally after their demise.

Backlash or Crypto-fascism?

Governments, whether my analysis is correct or not, are certainly undergoing a steady loss of legitimacy. Coupled with the growing alienation of many people from society as a whole, this haemorrhage is likely to prove fatal. A system which can produce a leader of such little integrity as Richard Nixon can hardly retain respect. Even if industrial obstruction does not force an immediate issue, it looks as if, long before the end of the century, the remaining democratic governments may find that their mandate has finally run out.

Even at a
crude material level
governments
show little ability
to identify
with popular feeling.

We have already discussed one possibility: that a period of industrial chaos may develop out of which an authoritarian leadership could emerge to restore order. However, if industrial chaos is avoided, we might also see dictatorship achieved legitimately, by the election of a strong leader, as happened in Germany, or — and this is the most probable — we may see a 'creeping authoritarianism' in which more and more central control is gradually introduced and more and more liberties eroded. While this would probably be backed by traditionally conservative and rightist feeling, the example of Sri Lanka (Ceylon) shows that it is not impossible to have a creeping authoritarianism of the left. A movement

of this kind usually starts by restricting the freedom of the media, and by close control of personal movement; the power to deprive rebellious individuals of employment is a major weapon in countries where the state is the sole or main employer.

However, history suggests that left-wing movements arise where a working class is oppressed, and right-wing movements where a middle class is threatened. Today, in most developed countries, it is the middle class which is under pressure, which suggests that the movement will generally be to the right. It is not only the financial squeezing which the middle class is suffering but the threatening of their entire value-system, now scathingly dismissed as 'bourgeois,' which suggests to some that they must soon make a last-ditch stand. This is certainly the case in the United States, where strong rightist groups exist and the left is weak. In the event of a serious economic recession, outbreaks of violence will rapidly become serious — the days of oil shortage are proof of that. Violence, as everyone knows, evokes a demand for the restoration of 'law and order.'

Professor Stanislaw Andreski, who has taught in the US and in Britain, has examined the outlook in his *Prospects of a Revolution in the USA*.⁴ He considers that a revolution, in the proper sense, is improbable. The students are too undisciplined to offer any serious threat, the blacks and underprivileged too disorganised and disunited. He concludes that the privileged class should have little difficulty in maintaining its dominant position, but he takes very seriously the prospect of a 'long slide into totalitarianism.' Of course, no political party in America is going to claim to be anything but democratic — the Weathermen and the John Birch society, poles apart in everything else, agree on being in favour of democracy.

The machinery of repression is ready to hand. Given a decision by the two main political parties to collaborate in an emergency, the existence of computer and other records, together with the co-ordination of the FBI, CIA, police, security guards and vigilante posses

organised by right-wing groups, would make it possible to impose control on the entire population. (John Brunner has imagined the details in *The Sheep Look Up*: curfew, surrender of all guns, seizure of food stocks, compulsory military service and so on.)

The computerisation of personal records has made the task of control vastly easier. Whereas Hitler had to go to devious lengths to identify those who had voted against him before he came to power, today the information collected in computer memory banks makes the task of supervision much simpler. (Britons protesting against census enquiries relating to their racial origins were assured that this information would never be misused. Apparently the possibility that a less nice government might one day come to power was not even considered by the Registrar-General.) As the computer security expert Peter Hamilton has noted, 'The greatest danger posed by people misusing computers is not intrusion into privacy, nor fraud, not industrial espionage, but subversion — the overthrow of democracy.'⁵

In America, 'the odds are that the social evils and disorders will grow until the strongest gang restores order on the basis of ruthless coercion,' says Andreski, 'Not forgetting what they have learned from the advertisers, they will, no doubt, invent for themselves a sublime-sounding name, like the New Democracy or the Revolution of Freedom, but, owing to the erosion of all ideals, the regime might resemble an enlarged Haiti with a vast corps of computerised Tonton Macoutes, rather than the doctrinaire totalitarianism of a Lenin or a Hitler.'

In France and Italy, while there are rightist groups, there is also a strong left, and democracy could fall off the fence on either side. Though Italy is the weaker economically, and will doubtless fall off first, France has a centralising tradition far stronger than Italy's, extending back to Napoleon, and might prove the pace-setter in such a movement.

Britain may be the exception, by combining crypto-fascism with a leftish ideology and industrial

dystrophy. There are a number of right-wing groups, some primarily anti-Semitic, some primarily anti-Communist (but not fascist, being for economic liberalism rather than the corporate state) yet others patriotic in a traditional way. Others, however, are frankly fascist and are linked with fascist and neo-Nazi groups abroad. Many of these groups are loggerheads: for instance, the World Anti-Communist League has been fighting against infiltration by anti-Semites and neo-Nazis. However, early in 1974, a number of rightist groups merged under the title The Independent Democratic Movement; behind this merger was Air Vice-Marshal Donald Bennett. But the leader capable of uniting

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these disparate gangs does not seem to have emerged and the £1m fighting fund which Bennett controls remains uncommitted.

Thus the right does not, in Britain, constitute a faction as does the left. Though business interests can exert pressure on the government, there is no block vote by which the politically neutral can be entrained; no machinery for the open definition of rightist policy and strategy, such as labour has long had.

The situation is very different in Italy, where the right is much more active than the left. In addition to the extreme right-wing party, the Italian Social Movement, which is represented in Parliament by 26 senators and 56 deputies, and gets 10 per cent of the votes, there are extreme groups like Ordine Nero which claim credit for many of the

recent bombings, including the train explosion near Bologna in which 12 people were killed. 'The Nazi flag did not die in Berlin back in 1945,' it announced afterwards. 'It still continues to live for a greater Italy, Fascist and Nazi.'

If the centre allies itself with the left, a protracted struggle seems probable, with rioting and street fighting as things go from bad to worse. The first street fighting is breaking out in Rome as I write.

Whether they understand what they are doing or not, governments are preparing the ground for the establishment of totalitarianism. As we have seen, the preconditions for totalitarianism are the existence of a 'mass' dominated by an 'elite'.* By redistributing wealth and income in the name of equality, by awakening local authority and by centralising power, by breaking up local communities in the name of slum-clearance or pushing through vast urban road schemes which split communities in half, by minimising class and cultural differences, governments, perhaps unwittingly, prepare the way for dictatorship.

Another of the tools of totalitarianism, as Hannah Arendt points out, is to create insecurity and uncertainty what to do. Governments contrive this by constantly altering the law, so that dispositions made one year prove inappropriate the next. Particularly objectionable is retrospective legislation, increasingly used in Britain. Governments tend to become increasingly authoritarian, overruling public opinion quite ruthlessly, as instanced by the introduction of 'comprehensive' schools in Britain, in the face of parental objections; or of 'bussing' in America.

Every society of which we have records has attempted to instill into the younger generation the sentiments necessary for social cohesion to be maintained. What worried Andreski (and worries me) is that for the first time in history we have, in the technological society, a system 'which has not only given up altogether the task of moral education, but actually employs vast resources and the

* See Kornhauser, William, *Politics of Mass Society*. Routledge and Keegan Paul London 1960.

means of persuasion of unprecedented power to destroy the customs, norms and ideals indispensable for its survival; and to implant fundamentally anti-social attitudes which are incompatible with any conceivable social order. 'It would be miraculous,' he concludes, 'if a social order which permits such massive anti-socialisation could fail to destroy itself.'

These are conclusions similar to my own, though I believe that it is Britain which will lead the way rather than the USA, both because its living standards are much more likely to suffer a decline than those of the US; because the destruction of 'intermediate structures' has gone further than in the States, where state and city managements are far stronger than county and city managements in Britain; and because the dominant elite in Britain, though less corrupt than in the US, is even less competent.

It is in conditions of social disturbance, then, that our less-than-competent governments will have to try to meet the external threats which will face them during the next twenty years.

Technosoc and the Metaproblem

Whichever line we pursue we seem to go round in circles. If we seek to meet the energy crisis by developing nuclear power we run into problems of heat pollution and radioactive waste disposal. We could grow more food if we had more energy. We could meet the oil shortage, to take a specific instance, by cultivating plants which could be distilled to give alcohol, which can substitute for petrol as a fuel — if it were not for the overriding need to grow plants for food. And so on.

When we find a group of problems such that solving one only intensifies another, we can infer the existence of an underlying problem: a metaproblem, a philosopher would call it. The emergent problems are only symptoms of a basic malfunction. The metaproblem in this case is, as we now begin to see increasingly clearly, the whole pattern of life associated with a technologically sophisticated society. We need a conveniently brief label for this life-style and I shall call it Technosoc.

Technosoc is the breeding ground

not simply of the physical problems of resource-exhaustion, pollution, etc., but *also* of the social problems of violence and decohesion. Even if it is possible, as some struthious optimists claim, to blunder on to ever greater material consumption by grinding up the entire surface of the planet to provide power and raw materials, it would *still* be necessary to abandon Technosoc for social reasons. Technosoc is blowing our society apart. That is the central message of this book.

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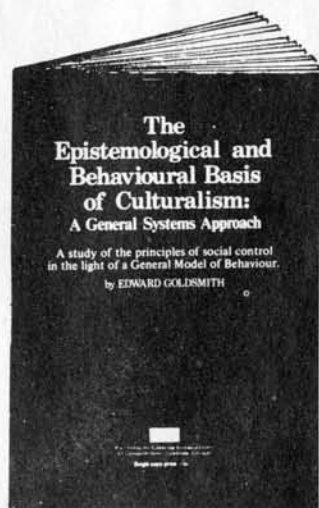
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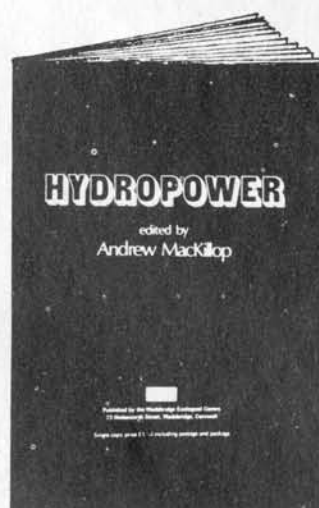
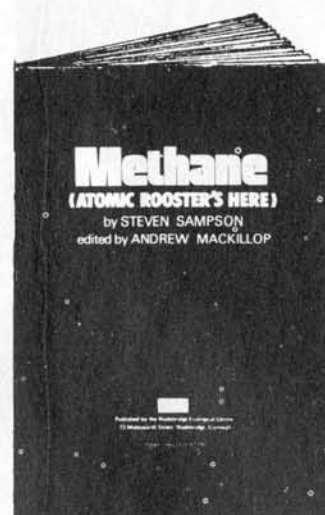
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The Family Basis of Social Structure

by Edward Goldsmith

What is Human Society? How is it held together? What enables it to act as a unit of behaviour? How is it controlled and hence how is its stability assured? The author tries to answer these questions by looking at human society, not as a unique phenomenon but as an instance of a more general principle: *a natural system*. He shows, above all, that the basis of human society is the family, and that an economic system that causes disruption of the family must lead to disintegration and chaos.

Governments throughout the world are failing dismally to solve the problems that confront them, and to control the societies which have elected them to office. There are many reasons: one however, is that we have grossly overestimated the powers of legislation to solve biological, social and ecological problems. Over a thousand years ago, King Canute demonstrated to his courtiers just what were the limits to legislation. He pointed out that the waves, like the other forces of nature, were indifferent to his exhortations, and that their movement could not be controlled by government edicts.

Among these forces of nature are those which determine the organisation of human and non-human societies. They obey a very precise set of laws just as do those which determine the organisation of all other natural systems. Over these laws, governments do hold sway. Hobbes said that one can only control Nature by obeying her laws. This is also the only way that governments can control those singular forces that hold together the complex societies into which man organises himself — forces, the nature of which, in spite of the voluminous literature on the subject, is generally ignored.

Unfortunately, with us, the study of societies is very much that of their institutions. If one society is more successful than another, we attribute its success to the specific institutions by which it is governed. If it fails, then the failure is automatically regarded as an institutional one. It does not occur to us *that it is the society itself that might be at fault* — that certain societies in fact, such as the industrial nation-states of today, have become uncontrollable regardless of the subtlety of their institutions or of the genius of those who manipulate them.

Our ignorance of social realities is also largely attributable to our tendency to concentrate on modern societies. The notion that the social experience of Paleolithic man, for instance, may be relevant to our own does not even appear to be considered, in spite of the fact that probably more than 95 per cent of all those men who have

ever lived did so during the Paleolithic period. The notion that science and technology exempt us from the laws which governed their behaviour is simply an act of faith — one which serves to rationalise systematic and even more radical violation of those laws by the industrial activities to which our society is committed.

If we overcome our presumption and examine the social life of Paleolithic, indeed of tribal man in general, we discover that underlying the impressive variety of cultural forms which still monopolises the attention of the great

ONE COMMON DENOMINATOR OF TRIBAL SOCIETIES IS THE RELATIVE ABSENCE AMONG THEM OF GOVERNMENTAL INSTITUTIONS

majority of our anthropologists, there are fundamental similarities.

One common denominator of tribal societies is the relative absence among them of governmental institutions. "It should be noted," Lowie writes on this subject,¹ "that the legislative function in most primitive countries seems strangely curtailed when compared with that exercised in the more complex civilisations. All the exigencies of normal social intercourse are covered by customary law, and the business of such governmental machinery as exists is rather to exact obedience to traditional usage than to create new precedents."

Indeed, in pre-agricultural societies, nothing can be found to correspond to our notion of government. There are no kings, presidents,

or even chiefs, no courts of law, prisons or police forces. The closest approximation to a political institution is the council of elders which occasionally gathers to discuss important issues. It is for this reason that such a society has often been referred to as a 'gerontocracy', or as government by the old men — a title that can be aptly applied to that of most stable societies. The only possible objection to the use of such a term is that the role of the elders is in fact simply to interpret the tribal traditions and customary laws which are handed down from generation to generation, any deviation from which is severely punished by the ancestral spirits. In a sense, therefore, such a society might easily be referred to as a 'necrocracy' — or as government by the dead.

A society of this sort usually displays a very high degree of order. The absence of formal institutions, rather than giving rise to the permissiveness that we would expect, is in fact associated with firm discipline and the strictest possible adherence to the tribal code of ethics. Behaviour which, in a disordered society, could only be exacted at the cost of brutal coercion, is with them assured via the agency of public opinion, the sanction of the elders, and the fear of incurring the displeasure of the ancestral spirits.² The great discipline displayed by traditional societies is the main theme of Fustel de Coulanges in his famous book, *La Cité Antique*.

In modern societies, the operation of the same principle is observable in a less perfect form. Where public opinion plays an important role, the need for autocratic government is correspondingly reduced. Conversely, in those disordered societies where public opinion plays but a small part, we find that the absence of the most authoritarian government linked to an all-pervasive and coercive bureaucracy inevitably leads to lawlessness and mob-rule.

In such circumstances the notion that effective democracy could be introduced by the simple expedient of adopting the correct institutions is a sad illusion, one, unfortunately, which we seem very reluctant to shed.

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The Society as a System

If we are convinced of the uniqueness of modern society we are even more convinced of the uniqueness of human society in general. The notion that the social experience of non-human animals is at all relevant to the understanding of the human one is regarded as totally outlandish. Any comparison between the two is held to be based on the vaguest of analogies only. It is not to science and technology this time that we appeal to justify this particular act of faith but to a host of undefined faculties 'soul', 'reason', 'intelligence' etc., whose possession is supposed to differentiate man as radically as possible from all other forms of life.

In reality, both human and non-human societies can be shown to be but specialised instances of something much more general, which it has become customary to refer to as a 'system' — or a 'natural system' to distinguish it from the system referred to by engineers.

A system is above all a unit of behaviour and the notion of a society as a system is difficult to reconcile with the modern liberal view of a society as but an assembly of people inhabiting the same geographical area and governed by the same institutions — the only view reconcilable with the values which underlie our individualist society.

Significantly, we have been equally blind to the fact that an 'ecosystem' also constitutes a unit of behaviour — in fact the very notion of an 'ecosystem' was unknown thirty years ago. The existence of the family, on the other hand, is clearly accepted, but its exact nature is poorly understood, while its importance is grossly underestimated. Many, in fact, continue to insist that it is but a

relic of our barbaric past or an institution peculiar to an outdated capitalist society.

Such people firmly believe that it is possible to dispense with the family altogether or that it can be advantageously replaced by a more up-to-date social grouping, one, which has been presumably designed by our 'expert' social scientists. This, of course, is a terrible illusion.

It is difficult to emphasise the implications of our refusal to face the fact that man is an integral part of larger systems such as the society, the ecosystem, and the family. It is very much like cells failing to 'realise' that they are part of a biological organism. In both cases it means that behaviour will tend only to satisfy individual ends and will not be subject to those constraints that will enable it to satisfy the requirements of the larger system whose very existence is dependent on the co-operation of its parts, and which, in such conditions, is condemned to inevitable disintegration. When this occurs in a biological organism, it is referred to as cancer. The cells cease to behave as its differentiated parts. They proliferate in a purely random manner, precisely as do the members of the family, in a modern industrial conurbation, and hence of the members of present-day society, and as do the parts of an ecosystem which has been devastated by its activities.

Let us now consider what are the main features of 'systems', more precisely what are those which we must take into account if we are to understand the nature and function of the family in the context of a general model of behaviour.

The first and most important principle is that they are goal-directed or directive.³ This must be so on the basis of basic theoretical principles, and is the only hypothesis reconcilable with the available empirical data. What is more, it can be shown that cultural behaviour, i.e. the behaviour of social systems is as directive as that of biological organisms.

The extraordinary similarity of cultural forms throughout the world and the fact that this cannot be the

result of cultural diffusion as originally thought by the early ethnographers also tends to confirm this principle. These forms can only have been developed as a result of cultural 'convergence' in the sense that systems with similar potentialities have tended to adapt in a similar way to similar environmental situations.

Stability

What is the goal? The answer is stability. This is not defined as a fixed point in space-time but a course or trajectory along which discontinuities, i.e. disequilibria and their corrections, are reduced to a minimum, and which thereby ensures survival taken in its narrowest sense. Human societies until recently satisfied this requirement.⁴ Their culturally determined goal was the maintenance of traditional norms, which were upheld by public opinion, the council of elders and the ancestral spirits. Stability is another word for continuity. It does not mean immobility as an immobile system would not be stable, since it could not adapt to a changing environment. The importance of this principle is that it provides an objective criterion for judging behavioural strategies including those exploited to control human societies. These need no longer be judged subjectively or arbitrarily, but 'scientifically' in accordance with what can be the only objective criterion: the extent to which they contribute towards stability.

Unfortunately, if one applies this criterion it is impossible to justify the principal features of the industrial way of life — indeed of the industrial society in general, which tends systematically in that direction which can only lead to increasing instability — hence to ever more serious discontinuities and eventual collapse.

Self Regulation

Stable systems must be self-regulating. They are maintained on the course by a control mechanism or 'cybernism' which, in all systems regardless of their level of organisation, functions on the same principle. Data are detected, interpreted and 'cybernised' to constitute a model of the relationship of the

system to its environment. In a social system this is usually referred to as a world-view or weltanschauung. The responses are mediated in terms of it, otherwise they would be random from the point of view of the larger system (made up of the system functioning within its environment) which would thereby be out of control.

The gene⁵ and the brain,⁶ however dissimilar they may appear to the outside observer, are functionally the same. They are both 'cybernisms' or control-mechanisms, as is a gene-pool and also that organisation of brains in which is organised the 'world-view' of a society.

This means that the relationship between a gene and the protein that it synthesises must be functionally that existing between any cybernism and the behavioural process that it mediates — such as a society's world-view and 'socio-synthesis'. In each case, information organised in a cybernismic medium is transduced into that of a behavioural one. In other words, instructions are translated into action.

This first involves classifying the environment very precisely in terms of that 'particular language or alphabet' in which the information in the model is formulated. In the case of 'socio-synthesis' it is terms of this alphabet, consisting of kinship terms, as we shall see, that can be classified: a) all the members of the family, b) by extension all those of the community, of the clan and all intermediary associations, c) the members of the pantheon, i.e. those members of the family, the community, the clan etc., who have died and become ancestors, d) the physical environment.

It is in this way and only in this way that *an individual can respond to his environment as a whole with a single integrated behaviour pattern based on a single integrated model of his total environment.* If different classifications are used our response to our environment can only consist of an unintegrated patchwork of expedients.

Generality

Behaviour proceeds from the general to the particular. In embryology this is referred to as Van Baer's second law. The earlier stages are the most important, as they will

colour all subsequent ones. This means that errors in the earlier parts of any behavioural process are of far more consequence than are those occurring in the later phases. This explains the tremendous importance of the family which provides the correct environment for the earlier phases of the ontogenetic process. Maternal deprivation in all animals requiring parental tutelage and hence needing to be brought up within the family environment must give rise to subsequent problems of social maladjustment.⁷ It is to family, and in particular maternal deprivation, associated with the disintegration of the family that we must attribute a great deal of the emotional instability, delinquency, crime and other social ills whose incidence is increasing throughout the industrial world.

Differentiation

The reason why the generalities colour the particularities is that development occurs by differentiation and that the particularities of any behavioural pattern have been designed, by the development process involved, to assure the more adaptive implementation of strategies previously assured in a more general way. Thus we pass from the amoeba whose single cell fulfils all those functions that are necessary to the maintenance of life, such as the seizing of prey, its digestion, the excretion of waste matter, respiration, reproduction, locomotion, etc., to the complex multi-cellular organism into which it eventually evolves, these same functions are fulfilled but in an increasingly more differentiated manner.

In other words, specialised mechanisms have developed which are increasingly well adapted to fulfilling functions which were previously fulfilled in a more general way, originally by a single cell. The same is also true, as we shall see, as the extended family evolves into a community.

Order

As soon as systems associate to form a larger system, they are subjected to a new set of constraints. These do not replace the others but supplement them. Constraints, in fact, accumulate as systems advance up the ladder of life, as they move from one level of organisation to

the next.

The actual strength of the constraints imposed upon a system (by itself) is a measure of its order or negative-entropy — which terms are used synonymously. Order is usually defined in terms of limitation of choice, or what is the same thing, the influence of the whole over the parts.

A family displays order, and can thereby exist as a unit of behaviour or a system because its members accept the constraints which membership of the family imposes on their behaviour. The acceptance of these constraints leads them to fulfil specific functions to the exclusion of others. They have thus become differentiated and hence inter-related parts of the social system. The greater the degree of differentiation the greater their dependence on the other members of the family for the fulfilment of complementary functions. In this way the influence of the whole over the parts is correspondingly increased as is its order or negative-entropy.

The Hierarchical Co-operation Principle

In an ordered system the parts co-operate with each other — their behaviour tends towards the same goal. Their behaviour, I shall refer to, as 'homeotelic' (from the Greek homeo = same, and telos = goal). When a system breaks down and its parts tend towards different goals their behaviour will be referred to as 'heterotelic' (from the Greek hetero = different). Why, one might ask, should the parts of a system co-operate, especially as this means accepting constraints on their behaviour? The answer is that by virtue of the Differentiation Principle they have been designed phylogenetically and ontogenetically to fulfil specific functions within a given environment (that constituted by the larger system of which they are the differentiated parts).

Since phylogeny and ontogeny are adaptive processes, it must follow that it is by fulfilling their appointed tasks that systems are best adjusted and that their needs are best satisfied (see the Optimum Environment Principle).

The operation of this principle at the level of the family is quite evident. A mother fulfils her normal

functions by behaving in a particular way towards her husband and children and thereby assuring the survival of the family because it is by behaving in this way that she best satisfies her basic physical and psychological needs. The Hierarchical Co-operation Principle can in fact be stated thus: *in an ordered system behaviour which satisfies the needs of the differentiated parts will also satisfy those of the whole*. As we shall see later, this is undoubtedly so in a traditional tribal society. It is no longer so, unfortunately, in a modern nation-state — hence the need for institutions or external controls to force people to behave contrary to their natural inclinations.

Succession

Another principle of development which emerges from such an approach can be referred to as the Sequential Principle or the Principle of Succession as it is known in ecology. All behavioural processes are arranged to form a sequence of steps. These steps must occur in the right order. If one step in the sequence does not occur, the sequence can proceed no further. In addition, the environmental situation to which they constitute adaptive responses, and to which each one is therefore linked, must also occur in exactly the right order.

Thus, if a given step does not occur at the 'right time', it will not occur at all, or at best imperfectly. Once more embryology furnishes us with a very clear illustration of this principle.

Discriminatory ability is low in an embryological system, where the womb constitutes a very highly ordered environment. In such a situation, environment 'A' triggers off reaction 'a', which in turn gives rise to a modified environment, 'B', which in turn triggers off specific reaction 'b', etc. It is evident that in these conditions any departure from the correct sequence of environmental situations and of behavioural reactions, will prevent the total process from occurring.

In general, the less discriminating the system concerned, the more specific will be the stimulus required to determine a given reaction.

Similarly, in the development of an ecosystem, or of the ecosphere

as a whole, the steps must occur in the right order. The biosphere cannot support carnivores until it has first given rise to herbivores, and the latter cannot possibly come into being unless the requisite vegetation has first appeared. Only a fixed sequence of events, from which but slight deviation can be tolerated, can account for the development of the highly complex biosphere of which we are part.

This partly explains why social maladjustments resulting from family maladjustments in early life, in particular maternal deprivation, are characteristically untreatable by medical or institutional means.

Continuity of Information

Systems must be looked at four-dimensionally. They exist in time as well as in space and their continuity can only be assured if the information transmitted from one generation to the next reflects the experience of the system as a whole, stretching as far back along its evolutionary history as the experience acquired during this period is relevant to the conditions of the day.

In this way a system is adapted to dealing with situations, whose nature and the probability of whose occurrence, can be predicted on the basis of the greatest possible experience and not just on that of the preceding generation. We know that this is true of genetic information. That is why it appears so non-plastic — and why some scientists even consider (wrongly) that it is not affected by environmental factors. It is not generally realised that it has until recently also been true of cultural information. Education has until recently consisted in instilling into youth the traditional wisdom accumulated over many generations and the worldview it provided was that which would lead to the development of that behaviour pattern which during this period proved most adaptive in the environmental conditions the society was submitted to.

If these environmental conditions are modified too radically, the model is unlikely to represent the new situation adequately. There must be inertia. In fact this inertia is adaptive, if the term is used in the

correct way.⁸ This must be so since to modify the model in such a way that it gives rise to a behaviour pattern which is totally new from the system's experience would mean transforming the system so that it bears ever less relationship to what it was in the past.

This would be self-defeating, since its continuity or stability, whose maintenance, as we have seen, is the overall goal of behaviour, would have thereby been destroyed. The system could not survive in any case on the basis of a behavioural pattern based on a model representing a short-term situation which, there is no reason to suppose might ever recur. This is an essential point which does not seem to have been taken into account by the advocates of industrialism and 'progress', who tend to be ignorant of the very principles of the organisation of information within natural systems and in particular of the yet-to-be-established field of social-cybernetics. Significantly, systems can only classify things in terms of the classifications that have proved useful in the interpretation of the environment they have so far been submitted to. Thus, the Tahitians,⁹ when they first saw horses, classified them as 'man-carrying pigs', since the pig was the only quadruped of which they had any experience. If a rhinoceros be put into a shoe-factory, the machines, the piles of shoes and all the other constituents of this new and strange environment could only be classified in a way that is relevant to its original environment. In our case, our industrial society is so far removed from that in which we evolved phylogenetically, that our situation is increasingly like that of the rhinoceros in the shoe-factory.

It may be useful to coin the term 'cognitive maladjustment' to refer to this situation — this is what Forrester¹⁰ refers to as the 'counter-intuitivity' of our social environment, which he wrongly attributes to its growing complexity.

The Optimum Environment

It must follow that one can only understand the behaviour of a system by examining it in that environment to which it has been

adapted phylogenetically and ontogenetically. To examine it in an artificial environment is only useful in order to understand the resulting behavioural aberrations, Zuckerman,¹¹ made this mistake, when he assumed that the baboons in the London Zoo which he studied, were typical baboons rather than very atypical ones living in the totally artificial conditions of captivity.

It is significant that for well over 90 per cent of man's tenancy of this planet he has earned his living by hunting and gathering, and his activities have been limited to the fulfilment of his normal ecological functions in his natural environment, i.e. he has until extremely recently behaved as a normal differentiated part of the biosphere. When we generalise about man, we should consequently be referring implicitly to 'man the hunter'¹². Man's experience as an industrialist is not more than two days in the life of a man of 70, in fact quite negligible, certainly far too short a sample on which to base any generalisations about the behaviour of man.

It must follow that sociologists who only study man in an urban setting of today are making exactly the same mistake that Zuckerman did when studying baboons in the London Zoo.

The Geneto-Cultural Continuum

The behaviour pattern of a natural system constitutes an integrated whole, not just an unrelated or random patchwork of expedients. We have seen above what its organisational principles are. This must be as true of the behaviour of a social system as of an organism. For this to be so, such behaviour must be based on a single organisation of information or model of a system's relationship to its environment. This has important implications which neither those involved in so-called natural sciences nor in social sciences, have been willing to face. The behaviour of an advanced mammal such as man is based on information formulated in a number of different media; notably the genetic and the cultural ones. This must also be true of the behaviour of societies which are composed of families and individuals. If

this information constitutes, in each case, a single organisation or model — which has come into being as a result of the normal developmental process (proceeding from the general to the particular by means of steps occurring in a specific sequence and by the process of differentiation) then genetic and cultural information must develop according to the same rules and *can only be studied in terms of the same single scientific discipline as must also be the associated behaviour pattern*. This of course makes nonsense of the distinction between the natural sciences and the social sciences, as it does of present-day reductionist scientific method, in terms of which it is impossible to understand complex systems, in particular the cultural behaviour of social systems.

Levels of Organisation

The notion of levels of organisation used by biologists, can be shown to be applicable to the development of societies. The principle is a simple one. Particular types of organisation can provide the basis of growth within certain limits. A point is eventually reached where further growth ceases to be possible for reasons of communication and control, in particular because the particular set of bonds exploited to ensure the cohesion of the system cannot be extended to hold together any more sub-systems. All bonds, whether they be those which hold together the nucleus of the atom, or a human society, *have limited extendability*. When the point is reached when further growth becomes impossible, the systems must join together to form a larger system, whose cohesion will be ensured by a new set of bonds, and whose control will be maintained by a new and more elaborate control mechanism. Thus, atoms cannot expand beyond a certain point. Eventually they join together to form a molecule and a new level of organisation has been reached. The same is true when molecules join together to form a cell; and when cells join together to form a multicellular organism. Undoubtedly, individual organisms such as an amoeba were originally capable of functioning on their own for the purposes of everyday behaviour. Sexual repro-

duction was a later development, and as soon as it occurred, a new level of organisation had been achieved; that of the family. To begin with, the family was of a temporary nature. It was only with the growing importance of cultural information — as the amount of information which had to be communicated from one generation to the next, via what we call the learning process, increased — that the family became more permanent.

This process coincided with the development of what Polk has termed 'retardation' — the slowing down of the developmental process so that it can become more highly differentiated in time. *This is more pronounced the more advanced the species, reaching its culmination point in man, for whom the family is undoubtedly the basic unit of social organisation — so much so, that if it is not present, no other social structures can possibly develop*. This is the main thesis of this paper, the rest of which will be devoted to showing why this must be so.

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The Second Part of this article will follow at a later date.

OAXACA'S SPIRALLING RACE FOR WATER

by Susan H. Lees



Since 300 B.C. farmers in the valley of Oaxaca have used hand dug wells and simple irrigation systems to ensure the supply of water critical to their crops. Today technology has overtaken them. Traditional methods have been replaced by huge dams and ever deepening wells; traditional crops have been replaced by cash-crops; traditional customs have given way to Government planning. The result is drought.

In the hot sunlight of the Valley of Oaxaca, in Mexico's southern highlands, a Zapotec farmer peers into the hand-dug well in the centre of his small plot of land. For several hours he has drawn up buckets of water and poured them over his pepper plants; now the well is dry, and he will have to wait until tomorrow to tend the last few rows — if they survive another day of desiccation in the heat.

Shading his eyes with his hand, the farmer looks across his plot to the fields of a neighbour who has drilled a deep well and bought a diesel-powered pump. Water flows wastefully in the furrows between his plants. The mechanized pump saves labour, but it lowers the water table more quickly, so that all the shallow wells in the area run dry within a few hours.

Hand irrigation of crops is a 3,000-year-old tradition in the valley of Oaxaca. This ancient method indirectly regulated the use of water and maintained a long-term balance between farmers and their resources. But new irrigation practices, which have yet to come under general social or legal controls

require a new kind of response, a different social order.

For nearly 10,000 years there has been continuous occupation in the Valley of Oaxaca. The archaeological sites at Monte Alban and Mitla are spectacular evidence of Oaxaca's leading role in the rise of Mesoamerica's ancient civilisation. Based on a highly productive agricultural system, the civilization that created these monuments owed its success to the fertility of the valley's alluvial plain, the diversity of its environmental subzones, and the variety of techniques that were used to exploit them.

Water was then, and still is, the Oaxacan farmers' single most critical resource. Rainfall averages twenty to thirty inches each year, most of it coming during June, July, and August. But from one year to the next, the amount of rain and where it falls is unpredictable. In some parts of the valley the evaporation rate is four times the rate of precipitation, and farmers must use a variety of irrigation methods, depending on the local topography, to increase the water supply and meet the needs of their crops.

The Valley of Oaxaca is a region

of contrasts. Steep, cool, and densely forested mountains surround the sixty-mile-long valley. But the narrow piedmont leading to the valley floor is barren and rocky, coming to life only in summer. For the most part, this zone is suitable only for growing maguey, a cactus from which alcoholic beverages and rope fibres are produced. Within this arid band, however, springs and streams, flowing throughout the years support lush vegetation on their banks.

The Atoyac River, which divides the length of the valley floor, is joined by its main tributary, the Salado River, at the centre of the valley. The two rivers give the valley the shape of a giant Y, with arms to the north-east, south, and south-east. Here, along the warm, wet valley floor, the rich alluvial soils grow a variety of crops during most of the year.

Farmers in this part of the valley have traditionally excavated ten-to-twenty-foot-deep wells in their fields from which they have drawn water by hand. Requiring intensive labour, this type of irrigation has been restricted to less than 10 per cent of the cultivated land. But as a means of providing cash crops, such as green peppers and garlic, it still has considerable economic importance. Farmers can grow up to three crops each year using this technique.

In piedmont areas far from springs and streams, farmers use floodwater from rainfall for irrigation. After a heavy rainstorm, simple stone and brush dams block the water running off the mountains and down the piedmont slopes so that it flows more gently over the fields, briefly covering them. This is a difficult and unreliable undertaking; a strong current could sweep away the dams or uproot the plants. After each storm a farmer must carefully control the flow of water to his fields so that his crops get enough water but not too much: overflowing will kill them.

Farmers who cultivate near piedmont streams are more fortunate because their water supply lasts longer and is not as unpredictable. Placed at strategic points along a stream bed, brush, concrete, and stone dams — similar to those used

for floodwater irrigation — channel the water through earthen canals to the fields. Where the ground is uneven, wood and stone aqueducts smooth out the canal bed.

The techniques of the canal system are quite simple, and farmers in the Valley of Oaxaca have been using them since 300 B.C. Their use can double or even quadruple crop yield, as they not only increase the water supply to the plants but also extend the growing season, permitting two crops to be planted in one year: one crop dependent partly on rainfall; the other, exclusively on canal irrigation.

Like their ancestors, Zapotec farmers today rely for subsistence primarily on corn, beans, and squash — plants well adapted to this arid climate. Although corn is the major crop in the valley, grown on 30 to 70 per cent of the arable land, a certain proportion of the land has always been devoted to small-scale, cash-crop production for sale at weekly regional markets. In the north-eastern arm of the valley, fruit and wheat were important cash crops. Flowers and vegetables remain important cash crops in the central and southern areas of the valley, while the drier south-eastern arm continues to specialize in maguey production.

The problem of seasonal water scarcity has been aggravated by the introduction of new cash crops, particularly alfalfa. With the recent growth of an urban market for milk products, farmers in the northern and central regions of the valley have found dairy farming a profitable source of income. To get the maximum amount of milk from their cows, dairy farmers prefer to stall feed their animals fresh alfalfa. This crop, now grown extensively for farm use and sale throughout the valley, has become Oaxaca's major irrigated cash crop. In some villages in the northern and central regions of the valley, nearly half the cultivated land is devoted to alfalfa.

Alfalfa may be profitable, but it requires a great deal of water: the more it is irrigated, the more it grows. Producing continuously for five to ten years, it needs water throughout the year. In the piedmont, alfalfa places heavy demands

on stream water for canal irrigation; on the valley floor, farmers have installed diesel pumps in their wells to tap the water table with greater intensity than traditional techniques allow.

Unprecedented demands are now being made on the valley's water resources. Nine-foot-deep wells in the alluvium, which are still tapped by hand, dry up after two to four hours of use per day. Pump-drawn wells generally tap water at deeper levels — twelve to forty feet deep — but the increasing scarcity of water at these levels is now forcing some farmers to dig wells as deep as 90 to 180 feet. This usually requires government technical and financial assistance since villagers cannot carry out such a project using traditional methods.

In the upper piedmont zone, villages, assisted by government agencies, have built concrete dams and reservoirs in order to more efficiently tap stream waters and guarantee adequate year-round supplies for both irrigation and domestic use. But the intensive use of this water decreases the amount available in lower piedmont and alluvial villages, which formerly received a sufficient amount. These lower villages rely increasingly on deeper wells and more powerful pumps.

Even on the valley floor, where the water table is the highest, intensive pumping at higher altitudes makes hand-drawn water unreliable, and farmers turn, as much through necessity as through choice, to newer, more expensive technology. At the same time, they reduce the availability of their essential resource — water.

Not only does alfalfa use a great deal of water but the method used to irrigate this crop is more wasteful, given the high evaporation rate, than the traditional hand-drawn technique. More water evaporates when it is spread on fields in furrows than when it is placed by hand only on the plants, not on the areas beside them. Storage dams, with extensive open water surfaces, also entail high water loss through evaporation. As a result, water shortages keep appearing despite investments in new irrigation technology.

Because of their shift to alfalfa,

Oaxacan farmers depend more and more on technical assistance from the federal government, which frequently aids in the construction of new reservoirs and deep wells. As the farmers' dependence on technology grows, their interest and participation in national political institutions increases and their traditional isolation from the outside world rapidly disintegrates.

Government technicians who come to a rural community to help modernize irrigation facilities also attempt to modernize the organization of the village's water administration. Traditionally, the use and maintenance of community canals and wells varied from village to village according to local custom. Now, communities must alter their customs to conform to government standards and elect water committees responsible to the governmental agency that helped to construct the irrigation device. The government has also intervened in the allocation of water for urbanization and industry. Communities have thus lost control over their own resources.

Along with a change in the relationship of rural communities to the outside world has come a shift in attitudes and values within the community. Until ten or fifteen years ago, the accumulation of material wealth received little emphasis. Prestige and respect could be attained only by fulfilling community obligations. Among the most important of these was the personal sponsorship of a fiesta in celebration of one of the saints whose image was kept in the village church.

The member of the community sponsoring such a celebration had to buy fireworks, food, liquor, and the services of musicians, which sometimes required years of advance planning and saving. To raise money to pay for a fiesta, the sponsor was expected to use not only the profits from his good harvests but also to borrow goods and money from his friends and neighbours. Such loans would be repaid at a later date, perhaps when the lenders sponsored their own fiestas.

The continual flow of small surpluses within communities and the frequent borrowing and lending helped to mitigate the risks of crop

failure in this uncertain environment. A farmer who had suffered a poor harvest always had some people in debt to him. And those who helped him did so with the realization that some day they, too, would have to seek help from a neighbour.

With this system of borrowing, lending, and ceremonial expenditure there was little left over to invest in agricultural improvements, such as new equipment or chemical fertilizers. Partially because of this system, farmers did not attempt to produce the largest possible crops every year. Realizing that part of their profits would be drained away through loans and debt repayment, farmers geared production toward their own immediate but limited needs.

They adjusted the amount of land and seed they planted to the amount of rainfall they expected, basing their estimate on the spring rains. In years expected to be dry, they planted more; in those expected to be wetter, they planted less. As a result, over the long run production remained fairly low and did not strain the environmental resources.

This traditional system depended for continuity on yet another factor: the isolation and relative autonomy of the local communities from the national governmental and economic institutions. Historically left to themselves, rural communities in an unpredictably varying environment devised social systems that spread the costs of community government and the risks of poverty. The result of this isolation and self-sufficiency was minimal participation in national and world markets, minimal aid on the part of the national government in developing agriculture, low production levels, and a low standard of living for Oaxacan farmers.

The days of isolation have now ended. Federal and state governments, with some community support, are pressing for change. Increased schooling affects every household. Better transportation methods bring new products to the valley and make easier the exportation of crops to urban markets. Cities have increased the demand for agricultural products, and technology offers the means of providing them.

In traditional communities the individual's sole path to prestige lay in ceremonial sponsorship, but new cash crops, markets, and technological inventions are providing other alternatives. Today young Oaxacan farmers look to increased crop yields as a means of raising their standard of living and, hence, their social status according to values outside the local community.

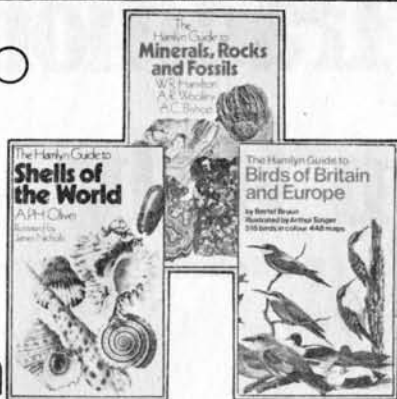
Once farmers began to base their prestige on material achievements, they intensify their use of local resources, particularly water. While traditional farmers decreased their acreage in good years because they could satisfy their needs with limited effort, the goal of today's farmers is not just to satisfy their needs but to maximise their profits. In the effort to fulfil these new goals, farmers avoid — and then abandon — the former ideals of community and religious obligation.

When traditional values are undermined, community institutions lose their effectiveness in maintaining ecological equilibrium. Traditional farming, with its limited use of sub-surface water, precluded overuse and, hence, scarcity of a vital resource. But now many farmers use all the water they have and thus contribute to conditions of scarcity for all.

In accepting the goals and the technology of the modernized world that surrounds them, Oaxacan farmers are burning their bridges behind them. They cannot reap the benefits of their new markets and cash crops without increasing their exploitation of ground and stream water. As they do so, the agricultural process becomes increasingly costly, in terms of both resources and technology. To pay for continued provision of water, as well as new technology, they are obliged to become increasingly dependent on the outside world. More and more, farmers must abandon their community traditions — traditions that for centuries had maintained a balance between them and their environment. Once the ancient balance is lost, they will have little choice other than to continue to change as they move rapidly toward an uncertain future.

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This Month's Authors

Professor R. F. Dasmann is Senior Ecologist at IUCN in Morges, Switzerland. He previously held many posts including Director of Environmental Studies at the Conservation Foundation, Washington. He has published over a hundred articles on wildlife and conservation and has written many books on the same subjects, among them: *Planet in Peril*, *Ecological Principles for Economic Development*, *The Conservation Alternative*, and four editions of *Environmental Conservation* from 1959 to 1976.

Gordon Rattray Taylor is Chief Scientific Adviser to B.B.C. Television, editor of the *Horizon* series and writer on the *Eye on Research* series. He has written twelve books of which *The Biological Time Bomb*, *Doomsday Book* and *Rethink* are well known to readers of *The Ecologist*.

Susan H. Lees teaches anthropology at Hunter College, New York City and is studying agricultural development policies in several Latin-American countries.

Mario Ferrari is an authority on Italian peasant farming. He writes a regular column in *La Nazione*, under the name of Agricola.

The Rural Tradition in Modern Italy

Can It Provide the Foundations of Italy's Post-Industrial Society?

by Mario Ferrari

Translated by Jean Liedloff.

Even when they move to the cities many Italians retain their family farms or save to acquire land. The strength of her rural tradition and the fact that so many of her people are directly concerned with the land, may considerably ease her transition to the post-industrial age.

Bound as they are to social and economic situations rooted in history, ecological problems must be approached with a long perspective; above all in Italy, where the environment is conditioned by more than two thousand years of agricultural activity. So Virgil's first eclogue is still relevant; Melibeus, whose little farm has been expropriated by the government, is received by Titirus who has succeeded in saving his fields thanks to the intervention of a VIP protector in Rome upon whom he heaps praise and gratitude; a situation viewed as enviable by Melibeus who has no powerful protectors.

Here we have, in a nutshell, all the elements which help one to understand the Italian ecological problem, and its possible solution.

The most recent statistics in Italy show that *there are three and a half million farms of which only about a hundred and fifty thousand are of more than fifty acres, but from data taken from land ratings it appears that there are more than four million landowners: which indicates a break-up into tiny holdings which would not be considered 'farms' by normal European standards. Now a property so fragmented is at the same time both strong and*

weak: strong on account of the number of persons interested in defending its prerogatives and for the influence that such a large number of proprietors exercise upon national policy: but weak economically in view of the poverty of the individual owners, once again by normal European standards, especially on the hilly or mountainous terrain which makes up four-fifths of the farm land in Italy. It must be borne in mind that agriculture in Italy did not arise from the cultivation of vast forests or potentially fertile grasslands as was the case in the Middle Ages in Continental Europe and even more so in North America and in Australia during the last century: Italian land, with the exception of the Padana Valley and a few other coastal plains, is in the main dry and infertile; a considerable amount of work was therefore required to reap the slimmest of crops, the more so since the scarcity of work animals, again the result of poverty, made it necessary to depend heavily upon human muscle power as a source of energy. The consequent abundant population relative to cultivated land favoured the rise of small but numerous urban centres within whose walls public activities of common interest became concentrated, and thereby the power. Thus arose the network of small pre-Roman city-states, which were joined by the new Roman colonies, which in turn having survived the fall of Rome, have lasted into our own time and are often still the provincial centres where state officials reside.

Thus the city serves the country and at the same time dominates it. In this situation, the ideal of

the average Italian, for two thousand years has been to live in a town and have land in the surrounding countryside which is worked by someone less wealthy than himself, in order to obtain from those lands, not so much a direct source of income, as a measure of respectability and prestige. Indeed the ownership of such land was a means of acquiring status that helped in obtaining power in the city which in turn increased the landowner's ability to dispense favours to his own peasants, earning in return their gratitude and respect.

Naturally we must not overvalue the idyllic aspects of this picture. Most Italians live in the country, on slender means, seeking, and if they have Titiro's luck, finding, the protection of some influential citizen. But to have a place in the city with property in the country, remains the dream of hundreds of generations of Italians. The effects of this custom were on the whole favourable. The fact that holding land served more to provide security and dignity than to earn riches, and the desire to pass on one's lands to one's descendants in perpetuity, conspired to put a premium on the conservation of the land and the maintenance of its ecological balance. Thus sloping land, so common in Italy, was patiently terraced so as to prevent soil erosion. The roots of the vines which lined each terrace and of the olive trees that grew among them, held the soil together quite apart from embellishing the landscape, and refreshing the air with the moisture given off by their foliage. Human excrement was painstakingly collected, not only from the estates, but also in the cities and used as



Sloping land was patiently terraced to prevent erosion.

fertiliser, so that, while the water-courses stayed clean, prolonged cultivation, far from exhausting the land, enriched it. The planting and cultivation of fruit trees was undertaken not so much for the immediate return but for the benefit of future generations. "Inserere, Dafne, pios, carpent tua poma nepotes," sang Virgil, who remains the greatest poet of this sort of rural culture. "Graft the pear trees so that your grandchildren may gather fruit." In this way, the ecological balance which was destroyed when the original flora and fauna was destroyed was partly at least restored with the creation of a man-made agriculture ecosystem which had many features in common with the natural one. Unfortunately forests and pasturelands were not cared for in the same way. These were considered to be there for exploitation. Indeed, the indifference, even the disdain for all that is wild or natural, not a product of patient human labour, is traditional in Italy, and the axe of the woodman and the coalman and the flocks of the wandering shepherd were trans-

forming Italy's uncultivated lands into deserts, when the present industrial revolution came to save them, not deliberately, but by making these activities uneconomical.

The industrial revolution in Italy was late, traumatic and probably superficial. Whoever counts Italy today among the great industrial powers is making the same mistake as those who thirty or forty years ago counted it among the great military powers. It is not possible to predict whether or not there will be a similar day of surrender for industry. Perhaps it can be avoided, at least for the duration of the present industrial society. But I believe it unlikely that the models for large-scale industrialised agriculture put forward by the Common Market will ever solve any problems in Italy. Indeed the structure and underlying philosophy of pre-capitalist agriculture (understood as a way of life and a corresponding set of values) as we have indicated, are too deep seated to be so rapidly uprooted, the more so, strangely enough, in the poorest agricultural areas.

This is explained by the fact that in the richest areas (the Padana Valley, Tuscany, etc.) the great estates were subject to a form of agrarian paleocapitalism, which was possible because of the low price of peasant labour. In the post-war years, the offer of high wages in the industrial cities has led to the movement of that labour away from the estates which has meant that they either had to be modernised or sold. 'Modernisation' is often proving to be economically, as well as ecologically, disastrous, especially in the hill areas where the olive groves and the vineyards are. Here, all the terracing has been swept aside usually with government subsidies.* Each year, with the torrential rains which usually occur in November, the soil will be washed down the slopes of the hills. Within a few decades, there will be nothing left of the new vineyards on the steepest slopes of Chianti but rain-

**There is no one to maintain them and machines cannot do it. Also tractors cannot work along the side of the slopes for risk of turning over. They must go up and down only — and for this to be possible the terracing must be removed.*

washed rocks and the last dying vines. The result is that the price of land has increased less in the traditionally profitable areas than in the poorer ones.

For these, which include most of Italy's agricultural land, the 'managerial' solution is quite unthinkable, and the efforts of the present government to transform the last miserable tenant farmers into modern managers is doomed to failure. We have seen that landowners have always counted on their non-agricultural activities for their sustenance rather than on the revenue from their lands. *When their lands fail to provide any return, the financial situation is not necessarily affected. However, they will not sell them* because of the sense of security and the prestige which even when abandoned they continue to confer on whomsoever keeps them. In this way, the poorer and more backward is the agriculture of an area, the less land is offered for sale, with a resulting rise in the price.

Let us now consider the rural environment through the eyes of those who have recently abandoned it, and who are not ex-tenants, but quite often small landowners and their sons who work the land themselves. We must try to understand them. Italian is perhaps the only language in which the word 'contadino' (peasant) can be used as an insult, and even this term was introduced to replace 'villano' (villein) which etymologically means only 'inhabitant of a village', when this latter lost every meaning except the derogatory one. The cities have extracted from the countryside not only its produce and its money, but also its people. These have provided much of the talent in the fields of politics, the administration, the professions, the church and the arts. To remain a contadino was therefore regarded as not to be capable of doing anything else, and the need to seek favour from the more fortunate was bitterly resented.

If this situation had not existed, there could never have been Italy's 'economic miracle', i.e. her industrial revolution. Indeed, when the contadino became a workman, it seemed to him that he had realised the dreams of his ancestors for millenia:

he had achieved the rank of citizen, provided the proof of not being a failure. In order to achieve and maintain this status, no price, at first, seemed too high. He accepted starvation wages, humiliating and dangerous working conditions. He abandoned his family, lodged in dreadful tenement buildings or suburban shantytowns. Then slowly with the development of industry, the wages rose. The housing improved and then became electrified. Domestic appliances became available, all symbols of his new position. By now the old humble despised 'villano' felt himself to be on a level of human dignity with the 'signori' of times gone by.

And, indeed, like the gentlemen of that bygone era, he now wished for himself the luxury of owning property, and first of all, naturally, a house. If he was a small farmer himself, he kept the land of his fathers with pride even if nothing grew there but brambles. If he were a tenant, the acquisition of a piece of land in his village was irrefutable proof of his social promotion and at the same time the best investment for the savings he had accumulated with much care and thrift.

Rapid and sketchy though it was, industrialisation in Italy did not entirely succeed in cutting the umbilical cord that joins the new Italian working man to the old rural environment from which he springs. All the efforts to reclaim

non-agricultural smallholdings, and to foster the spirit of mass production and consumption found unreasoning resistance, reflected in the tenacity with which the ideals of pre-capitalist society survive among the Italian people of today. Suffice it to say that in Italy there are about nine million house owners. Family savings continue to rise and have reached the incredible figure of nine thousand billion lire (six billion pounds sterling) and in the poorest areas abandoned land can cost in excess of a million lire per hectare (three hundred pounds an acre). Liberated from the humiliation and misery of the past, the Italian returns gladly to his old rural world with the spirit of the 'signore' of old who took his holidays on his estate. Even the poorest emigrant when he comes back on his holiday, is ready to pay astonishingly high prices for some traditional speciality which the depopulation of the land has made increasingly rare. Even in the choice of jobs, those are preferred which provide the best opportunity for ventures into the countryside. *Naturally, we are still a long way from a mass return to the land, but when it does happen, under the ashes will be found the embers which will spark off the new fires.*

The return cannot fail to occur, tragic and violent though it may be, in the wake of the collapse of the present economic system, or grad-



... they till their land for their own satisfaction and to supplement their diet with food not available in the market place.

ually and more positively, if it results from a transition to a new one. Thanks to the weakness of the present industrial structures and the soundness of the old rural substratum, Italy can allow herself a certain optimism.

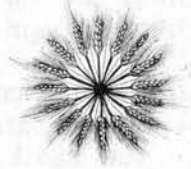
The old pride in independence from the market and in fact from the outside world for their survival is not entirely forgotten. We still recall the mountain folk boasting of "eating their own food and wearing their own hide." *We have hundreds of thousands of obstinate people who continue to live in their own villages, going to the cities only for their work and coming back in the evenings and holidays to till their land for their own satisfaction and to supplement their diet largely with foods not available in the market-place.* At key periods on the farm such as at sowing or

harvesting, factories impose a fine on absenteeism, sometimes a very considerable one.

To buy half a pig or a few 'quintales' of grapes in order to make one's own salami and wine at home according to the traditional methods are practices which are spreading more and more and which mark the increased rejection of the supermarket and its depersonalised products. The more leisure becomes available, the richer, the more varied and the more abundant must become the products obtainable from part-time farming. Little by little then, as the return to the land comes about, the old fabric of community life will be reconstituted perhaps at a higher economic level, enriched by the addition of people of a higher level of culture, who were formerly confined to the cities. Spontaneous art forms may well be

born, designed not to earn money but for the pleasure of those who indulge in them as creators and as purchasers. Present inflationary trends may well encourage the growth of self-sufficiency at the family and village level and so should the growing unemployment in our overcrowded and over-capitalised cities.

In this way what has survived of the old pre-industrial world can provide the foundations for the post-industrial society. Perhaps Carlo Levi was right when he wrote, "The future has an ancient heart."



Now that you are sitting comfortably, what will you have to eat?

When they erected that new housing estate
in your back garden
and ran a super efficient motorway
through your living room
and a couple of supermarkets
where your orchard used to be:
for the added amenities of fluoride water
and a shopping centre with bright lights
to liven your view

they didn't seem to have given much thought
to the fertile land they were destroying
or the water supply they were poisoning
or the plants they were stomping
or the air they were fouling

and when you innocently asked
where the food for all those people
was to be grown

the fat one at the head of the table
just sucked awhile on his greasy moustache
and said: "what do you think
we've built
the factories for?"

Tina Morris



Reports

SEEDS IN THE BANK

Whenever valleys are flooded to store water for thirsty cities, there is an outcry from conservationists at the loss of a unique habitat for rare wild flowers. If we exterminate the sundews, the marsh orchids and their still rarer colleagues, the genes that carry their inherited qualities will be lost forever like those of the dodo, the passenger pigeon of America and the marsupial tiger of Tasmania. Yet we are far more likely to need the genes that carry hardiness, disease resistance and flavour in the vanishing vegetables that are in far greater danger than any oryx or osprey.

Every gardener over forty is convinced that the varieties of his youth had a finer flavour than modern varieties bred for watery weight and the maximum crop, with the thickest skin for a long trip to the customer and a bright colour to shine through the polythene pre-package on the supermarket shelves. As an example, modern broccoli curds are snow white, whilst those of the 1930's were creamy yellow, but they were much harder than the French and Australian varieties that have replaced them. We are gambling on mild winters and if ever the threatened Ice Age begins to happen, we shall miss the old Knight's Protecting and Leamington that came safely through Dickensian winters with Thames ice thick enough for ox roasting.

Seeds differ from whooping cranes or Japanese white storks, in that they can be kept on ice in packets now for up to 200 years. The gene bank at Wakehurst Place near Haywards Heath, which is a branch of Kew, now has 1,800

½-lb packets safely stored, out of their target of 200,000 species of flowering plants from all countries, in the small cold store rooms, used by butchers' shops, which cost about £2,000 for one that holds 5,000 packets. They would like to have the finance to attempt to save seeds of the thousands of extra species that live in the rain forests of the world which may well have vanished in fifty years, but vegetable seeds are outside their field.

There is a rice library in the Philippines, one for maize in Mexico, another for macaroni wheats in Italy, a potato bank in Peru, and others for farm crops in West Germany and Russia. Yet though the British Government finances a Library of Industrial and Marine Bacteria in Aberdeen, a Library of Bacteria of interest to the dairy industry and another of yeasts, nowhere in the world is there one for the ordinary garden vegetables of any country, and these are vanishing in hundreds every year.

The original Cox's Orange Pippin tree, from a pip sown by Mr. Cox (a brewer of Slough) died about twenty years ago, after growing enough wood for grafting to spread his name wherever apples are eaten. Even though we destroy the orchards of England and replant with Golden Delicious, trees will live on in gardens for as long as seventy years so we can graft again. Vegetable seeds must be raised and the 'rogues' removed to keep them true almost every season, and onions and parsnips can be gone in two years, though the cabbage family live up to nine in ordinary packets in dry drawers, longer in the new foil packs.

Today no seedsman can afford to keep a variety in his catalogue that sells fewer than 5,000 packets, for the accountants are in command and it is no longer possible to keep a kind that the foreman likes or the boss's wife uses leaves from for floral decorations. Once they are out they are gone forever, replaced with what is NEW, that can be printed big and black in the catalogues and boosted with colour photographs and public relations, despite the fact that it may taste like a not too clean cork.

There cannot now be a specialist

seedsman growing the old-flavour kinds and selling these Goyas and Rembrandts of the kitchen garden to connoisseurs at prices that paid him, because of the EEC Regulations. Under the Plant Varieties and Seeds Act of 1964, as modified by the European Communities Act of 1972, no one may sell seed of a variety that is not on the National Register which was compiled by asking all seedsmen for lists. It is to the seedsman's interest to sell more of fewer varieties and most of newer ones that bring higher prices, so thousands of fine old kinds in Britain and Europe became liable to a fine of £100, which inflation has now increased to £400, on every packet sold. They may be *grown* but not bought or sold, and the kind of peasant, amateur gardener or allotment holder who saves his own seed of a kind he likes, is always an elderly man, and his seeds die with him, while his grandsons buy the latest and most widely advertised and tasteless varieties.

The Henry Doubleday Research Association of Bocking, Braintree, Essex, is perhaps the largest society of organic gardeners and farmers in Britain with well over 5,000 members. We are now trying to start an International Vegetable Seed Library for plant breeders and gardeners of all countries. This has the support of the University of Birmingham, and several other universities and plant breeding stations but though all the most knowledgeable and worthy authorities in this field consider the library an excellent idea, they feel it would be an even better one if someone else paid for it.

With one cold storeroom, the silica gel apparatus for drying the seeds to storage temperature, and a card index for records readable by computers, the library could start and run for the first three years on £30,000, which is less than the salary now demanded by one Concorde pilot. After that it would cost about as much as the annual subsidy on a small ballet company to run something of far greater importance to humanity than any photograph of the surface of Venus.

The idea began with a letter in *The Times*, one in *Nature* and another in the *Guardian*. It has

been on 'The World at One,' on 'Nationwide' and 'Pebblemill at One' and I had an article on it in the *Sunday Times*. Publicity is easy, but today there are few generous millionaires in an age of Capital Transfer Tax, and in the present economic situation, the Treasury which has 'lost' £4,900 million (*Observer* 16.11.75), is cutting down even on cancer research.

There is an important difference between the Donatello bronze and a vegetable seed library, for even if the Victoria and Albert Museum appeal for £175,000 fails, this Italian work of art will still be enjoyed by the American public and tourists. The masterpieces of the kitchen garden will be lost forever to the world for lack of enough money to keep even a minor painting in a British art gallery.

The publicity however has revealed another aspect of the problem of vanishing vegetables. There are thousands of gardeners clamouring to grow the vegetables of the past and the Henry Doubleday Research Association, with hardly any money available, is being driven towards

starting not so much a seed bank for the plant breeders and research stations of the world, as a kitchen garden equivalent to the Alpine Garden Society's library that distributes rock plant seeds. This will be possible, but difficult.

Rock plants are mainly species, and stay true from seed without crossing, and the dozen packets members are entitled to are small enough to post for 6½p. Peas and beans are bulky and need space to grow in while kales and all the cabbage tribe can cross with flowering brussels sprouts in neighbouring gardens. The ideal solution would be for a seedsman to grow the salvaged varieties, remove the 'rogues' or throwbacks and crosses, and return the multiplied seed, but this would break the law, for though he could be given the stock, he could not sell it back to the Association to distribute among members. It is illegal for any seedsman in an EEC country to sell these censored seeds, and the only way round seems to be to grow them in the USA, in Turkey or even in Poland or Rumania, for Communists can be better gardeners

than civil servants.

The Association is a registered charity, and it might well be possible for its members to grow seeds to donate to charity, and sell in aid of its funds or any other charity. Then those who joined the vegetable equivalent to Mudies Lending Library would pledge themselves not to sell the 'library seeds' and avoid breaking the law. This would keep the vegetable in cultivation until an Official International Library could be organised, which could well take five years of meetings and negotiations.

Whatever the disadvantages of the Association 'taking the law into its own hands,' it is engaged in a rescue operation as urgent as saving the animals marooned on shrinking islands by the waters rising behind the Kariba Dam. The old vegetables are going out all over Europe and once the genes are gone they cannot be restored.

Lawrence D. Hills

Conservation for Decision Makers—

A Report on the IUCN Conference
in Zaire.

At the invitation of President Mobutu Sese Seko of the Republic of Zaire, the International Union for the Conservation of Nature and Natural Resources (IUCN), held its 12th General Assembly Conference and the 13th Technical Meeting in Kinshasa from 7-19 September.

The Conference and Technical Meeting, which was attended by 300 delegates representing Governmental and non-Governmental organisations throughout the world, representatives of some United Nations Specialised Agencies, and most of the members of the Diplomatic Corps in Kinshasa was opened by President Mobutu Sese Seko. After welcoming the delegates, the President devoted most of his opening address to outlining the development policy and strategies Zaire intends to pursue from now on.

He said that Zaire, like all countries would like to develop, but not by adopting foreign ideologies or

imitating the development patterns of the highly industrialised countries. Zaire would develop in accordance with her cultural and indigenous conditions, and develop and adopt development patterns suited to these conditions. President Mobutu Sese Seko said that Zaire is facing two problems:

Firstly to protect that part of her natural environment which is still undisturbed and:

Secondly to reintroduce stability to that part of the environment that has been despoiled.

His main concern was not so much to establish who or what countries are responsible for the problems facing Zaire, but to find the right solutions to them. To that end he outlined a series of 'Transition Strategies' that he hopes will help to solve the country's problems, and will lead to a juster and more stable society.

Does Zaire need a development

ideology? President Mobutu Sese Seko was quite explicit: "... here in Zaire we reject borrowed ideologies, whether they be of the left, or of the right, because all of them are founded on sheer materialism. Instead we have chosen a philosophy of humanist action-authenticity. Authenticity is the philosophy which links man to nature, which reconciles him with his past, which makes him respect his origins, and which perpetuates the glory of his ancestors. To be authentic is to be one's self, that is to say natural, or rather, to be close to nature. One cannot stay one's self if one is not in contact with nature. Always within the framework of our authenticity, we respect nature because it is our ancestral heritage. This is why we wish to guard it jealously."

Underlying the President's speech is a rejection of the principal values of industrialism as it has been practised and pursued up till now by the highly industrialised countries. He made it quite clear that his Government is not against industry as such, but against the process of industrialisation. He said it is possi-

ble to set up useful, clean and cheap industries, and this is what the Government of Zaire is doing. The notion of development itself is not questioned, but the form of development envisaged is largely subject to the constraints that must be placed on human activities to satisfy basic social and ecological requirements.

The President emphasised the point that the highly industrialised countries which have been held up as models of development are afflicted with many crises — growth crisis, food crisis, energy crisis, monetary crisis, institutionalised crisis and so on. These, he said, are the crises of industrial civilization, and industrial societies in their present form cannot last much longer; they are disintegrating very fast and things cannot be the same again. President Mobutu Sese Seko declared: "Very soon, wealth will not be measured in a few factories pouring out black fumes, but in an unspoilt environment. We, who have been colonized were taught that the civilization of our former masters was the best one. And, unfortunately, many industrialising countries take it as a model although in the industrialised countries, man behaves not as an ally of nature, but as her opponent. He has confused development and proliferation; he has put himself in the position of conqueror or colonizer of his own country."

He pointed out that even such a noble science as economics has been diverted from its original objective which is thrift. Economists speak of nothing but over-production and consumption, which are waste rather than economy in the strict sense of the word. He admitted that although an industrial society leads to material benefits, "it also leads to the failure of mankind. For it impoverishes an irreplaceable asset — nature."

President Mobutu Sese Seko said that Zaire does not want to turn into a Western society if this means the constant pursuit of materialistic goals and the social divisions produced by the accumulation of wealth. To this end he declared: "The jungle of liberal capitalism in Zaire is finished. Every citizen in this world must defend his heritage, the area in which he lives, against those modern savages, the killers

of nature who do not hesitate to slaughter her to swell their wallets. In economies based on profits, one prefers to poison a man and build a hospital nearby to cure him; one prefers to build a polluting factory and a depolluting one next door." He told the delegates that they were in a country whose ambition is to maintain cleanliness, quietness, and greenness. The President stated that the natural resources of Zaire belong to the nation as a whole, and not to individuals who may exploit them. The President declared: "We have become the owners of our land, because for us the land is a sacred trust. The land does not belong to individuals, but to the nation. This is why in Zaire the soil and sub-soil are state property, exclusive and inalienable. This earth of ours is precious because it is not infinite, but limited. We must love it, cherish it, and protect it, for the good of our children, and our grandchildren."

Zaire, he told the delegates, does not want to turn into a country where the capital city swells up like an infected gland, attracting to itself man-power which cannot be employed. Emphasis will be on development based on traditional rural culture. The highest priority will be given to agriculture "not only because it allows us to feed our people, but also because agricultural resources are renewable. This is why our flag is green; it reminds us that our wealth is not — as some would think — red metal, that is to say copper, but the carpet of greenery which covers the surface of our country."

Within the framework of land use planning, the Government's objective is to create where necessary, small urban centres on a human scale. Three approaches to natural environmental planning have been established. According to the President, these are:

- (1) Natural nature which will be left undisturbed.
- (2) Adapted nature with rural land use integrated with the natural environment.
- (3) Nature worked on and improved in the urban centres.

"Each time an area is laid out in stones or concrete, the Government will lay out at the same time twice

that area in greenery. Planning will no longer be a matter for urban planners alone, but also for landscape planners."

Finally President Mobutu Sese Seko said that the problems the world has to solve today are the most crucial that mankind has ever had to face. For it is not only the welfare of mankind that is at stake, but its very survival. He welcomed the theme of the Conference, 'Conservation for Decision Makers,' for it demonstrated how fully the International Union for the Conservation of Nature and Natural Resources (IUCN) is aware of the problem, and shows that it is trying to find positive solutions.

But how is change to be brought about within the established political machinery of society? Pundits may agree on a theoretical course of action for legislative and social reform, but their deliberations are meaningless without the support of those affected. And whilst democracy implies decision-making by the people, it is within the ranks of the establishment that co-operation has first to be established. This is political reality. Indeed conservation of nature is really, and above all, a political matter. As the President himself pointed out. "It is not scientists, technicians, voluntary agencies, or individuals of goodwill who alone will solve this problem, because only the political leaders have the power to take major decisions. It is, therefore, vital and urgent to tackle this problem at the highest level."

He called on IUCN to help draw up a 'Charter of Nature' which once and for all will shake those who do not yet understand that the longer we wait, the more difficult, prolonged, and costly it will be to find solutions. The President ended his address by saying that "insofar as Zaire is concerned, we are ready to help you succeed in your noble mission. If we were asked to be a pilgrim for environmental protection, this we would be willing to be."

Jimoh Omo-Fadaka

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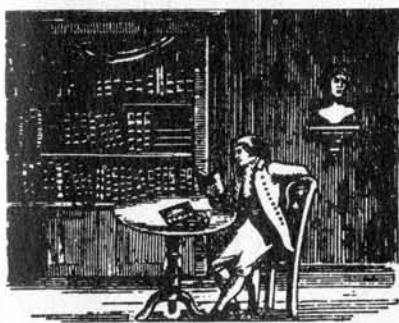
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LIVING ON THE SUN by Godfrey Boyle. Calder & Boyars. £4.50. Paperback £1.95.

METHANE, ITDG Publications (no price indicated).

Since 1973 energy has replaced environment as the vogue subject, but rather than emphasise its importance, this tends to mask it. Which is more than a pity, since underneath the media bombardment genuine life and death issues are becoming unravelled, and plain to see by those who choose to search sufficiently for them. As an introduction to the large-scale energy possibilities for Britain, Peter Chapman's book would be hard to beat. With admirable clarity — though perhaps with a little too much use of faintly academic graphs — he sketches Britain's energy options. Most devastatingly, he shows convincingly that the North Sea Bubble might well only supply enough energy to postpone the present 'crisis' for 25 years, even then assuming that a full-blown nuclear power programme is developed, paid for, and stamped into the genetic, as well as physical, environment. There are immediate questions: is it Britain's oil? Or Scotland's or the EEC's? Are energy use patterns so monstrously ponderous that decades are needed to dent a growth pattern by a few per cent? It is as well to remember, despite the smooth talk of planners, that we live in an age of discontinuities. In France, during the *événements*

of 1968, for example, energy use plummeted, as did road deaths. During Britain's three-day week 'crisis' energy use was trimmed by more than 25 per cent. To some extent Chapman, in his first chapter, tries to sketch (in a rather defensive way) what a low-energy and ecologically oriented society would be like. In a word: surviving. In the sense that all societies before the industrial-urban epoch did that, and did not have to contemplate their own collapse through multiple resource exhaustion, we do truly live in an exciting age.

Godfrey Boyle, the irrepressible founder of *Undercurrents* magazine, is not advocating some sci-fi migration to the very hottest seat, but is looking very carefully at the critical subject of using renewable energy sources. Inevitably, there has to be a socio-political dimension, since physical decentralisation of people and land ownership and use are key subjects. Wisely, he avoids the phoney rhetoric needed to defend the equally absurd notion that we should maintain city population densities through ploughing sidewalks, farming goldfish in recycled belisha beacon tanks, and harvesting methane from single turds thoughtfully provided by eco-guerillas. More imagination and thought and action is needed, especially in a country so critically over-populated as Britain. Here of course there should be an attack from the SNP and Plaid Cymru. As they would point out, their countries are far less dense than England, which has around 45 million people crammed into less than 30 million acres — truly Bangladesh-style overpopulation, and the most obvious, least remarked cause of England's devastated natural environment. Tragically, Britain's politicians seem unable to grasp that the Third World is less and less willing to exchange critically needed food, minerals or energy for a smart new Cortina or nuclear reactor, and that concreting over Britain's living resources, and crowding people in cities to make these 20th century equivalents of the Victorians' beads and telephone is not the recipe for survival, let alone stability.

It is quite obvious that we need information on the new survivalist

technologies, and ITDG's informative booklet provides plenty on the subject of the apparently alchemical transformation of organic wastes into fuel. Despite its small size the booklet has plenty of long equations and drawings of apparatus that might superficially be abstracted from a design programme for nuclear power. ITDG of course is a respected organisation, to the extent that it actually receives some Government support, since it is ostensibly concerned with providing the chaps in developing, tropical nations with what is good for them, courtesy of the British companies that make it, and sop up the development aid. As a result the material has plenty of high-technology trappings, just to show that it couldn't be done without a computer. Which is curious, because an Indian research group, Gobar Gas Institute, is the acknowledged world leader in the practical use of methane technology. With all due respect to ITDG, one working plant must be worth a thousand pages of equations, especially if that plant is in a high-latitude critically underdeveloped nation called Britain.

Andrew MacKillop

History Discontinuous

IN THE HUMAN INTEREST, by Lester R. Brown. W. W. Norton & Co. Inc., New York. (no price indicated).

"Many economists consider ecology a subdiscipline of economics, when in reality the converse may be more accurate." Thus Lester R. Brown sums up his message to the World Population Conference at Bucharest in words familiar to anyone who has followed the population - resources - environment debate. Mr. Brown is best known for his studies of the world food situation, but in this book he expands his thesis to show the inter-relatedness of many of the problems that face us. He links them, because this is a book for Bucharest, to the need to stabilise populations and his book is sub-titled "A strategy to stabilise world population."

He shows, for example, how extending mineral reserves by

moving to inferior ore grades is bound to be limited by the energy costs incurred, and how the growth in world trading in food has done little to reduce the frequency of scale of famine, but has enabled the rich to export their famine to the poor. He deals briefly, but thoroughly, with the Green Revolution. "In sum," he says, "it does not represent a solution to the food problem; rather, it has been a means of buying time, perhaps an additional fifteen years, during which some way might be found to apply the brakes to population growth." This is almost exactly what Norman Borlaug said in the speech he made on accepting his Nobel Prize.

The message, of course, is that the problem is a human one, not susceptible to technological solutions. Plant breeders, mining engineers and scientists and technologists of all kinds may help, but in the end it is patterns of consumption that must change, and the lifestyles they support. In the case of food, the rich must eat less than the poor may have enough, but here his strategy is geared more to the American than the European situation. He advocates the use of soya and other bean or vegetable protein as a supplement to the protein derived from meat. Soya does not grow well in Britain, and it would make little sense to import it for human consumption on a large scale, especially since it is probable that we eat far more protein than we need. He suggests that we eat more pork and chicken, because these animals convert grain into meat more efficiently than do cattle. Again, this is true in America where most beef is fed grain in feedlots, but not true in Britain, where most beef is fed grass on land that cannot grow arable crops. The point is well made, nevertheless and when thinking of food he reminds us that the fifteen years the Green Revolution might have bought us have been reduced by one-third by bad weather and shortages of capital and resources.

While altering patterns of consumption we must take steps — and big ones — to stabilise world populations. Can we do this? He believes we can and it is here that

he is most optimistic. He points out that no matter what they may say in public, most countries do have policies on contraception and abortion that will help restrict population growth. In all the developed countries and several developing countries, rates of growth are declining. It seems that the demographic transition is associated with the reduction of gross disparities of income and social justice, together with raised standards of education, rather than with a simple increase in income. So it is possible that world population may be stabilised at around six thousand million.

In The Human Interest is important because it is much more than just another doom book. It takes the familiar theme of the population-resources-environment nexus and develops it to show not only that hope may be permitted, but that it is practicable. The rate of population growth can be stabilised and probably will be, given sufficient determination and political courage. On the cover of the book Mr. Brown is quoted as saying: "We may be on the verge of one of the great discontinuities of human history." In this book he suggests ways in which the disruptions caused by rapid change may be minimised.

Michael Allaby

Organic Wisdom

FERTILITY WITHOUT FERTILISERS £1.00. COMFREY REPORT £1.00. COMFREY THE HERBAL HEALER 50p. SAVE YOUR OWN SEEDS 50p. All by Lawrence D. Hills. Published and Distributed by Henry Doubleday Research Association. Bocking, Braintree, Essex.

There is no doubt about the quality of the booklets written by Lawrence Hills, who is dedicated to the dissemination of knowledge and understanding of organic farming and gardening. *Fertility without Fertilisers* is the latest and, to date, the most ambitious of HDRA publications. This completely re-written version of his earlier (1963) booklet of the same name, includes new material garnered from many sources. It begins

with a general explanation of fertilisers, the differences between the organic and the inorganic and a summary of the facts behind the urgent need for us to keep our land fertile without recourse to depleted stocks of fossil fertilisers. Mr. Hills is never dull, and his book is full of nuggets of information that one feels an immediate urge to read out loud to anyone within earshot. Did you know, for example, that a tall birch tree can lift ninety gallons of water, in the process of transpiration, in a single hot sunny day?

In the second chapter every aspect of compost making is covered; this must surely be one of the most comprehensive short works on the subject, and it is so engagingly written that even the laziest or most reluctant gardener might be moved to go out and have a bash at it. Following chapters deal with leaf mould, peat and manure; municipal compost and sewage sludge; green manure and pest and weed control crops. Particularly interesting among these latter is *Tagetes minuta* which is effective as a smotherer of ground elder, convulvulus and couch grass, and as a controller of potato eelworm. There is an important section on mineral deficiencies in plants, full of detailed information to which we shall turn frequently to learn more about the symptoms of disease which have puzzled us.

There is a chapter on comfrey as 'instant compost' and the whole subject of this astonishing plant is more fully investigated in *Comfrey Report*. Lawrence Hills' earlier books on comfrey are out of print and the new booklet contains a selection from previous reports as well as much that is new. It deals with the history, analysis, stock-food potential and fertiliser value of comfrey; the medical aspects are modestly covered in *Comfrey the Herbal Healer*.

Finally a typically practical and timely booklet *Save Your Own Seeds* is full of wisdom and down to earth facts. Copies should be snapped up by all home vegetable growers. Today saving our own seed may be a money-saving hobby, tomorrow, when the glossy catalogues and the familiar seed packets have gone, it will be a lifeline to self sufficiency in our gardens.

RL-S



Letters

The Growth Ethic

Dear Mr. Goldsmith,
Your article "The Fall of the Roman Empire" in the July issue of *The Ecologist* I read with interest. I can't agree, however, that a state welfare system is necessarily pernicious.

Given the present population — and most of our ills stem from a surplus of the species *Homo sapiens* — how can everyone be usefully employed? And if not usefully employed are they to starve? The work ethic is part and parcel of the growth economy.

Is it not preferable for a person to be receiving some sort of social welfare payment than to be turning out, for example, motor cars?

And, anyway, what is the point of living if one spends most of one's life working? What's wrong with just living — occupying one's time as one chooses?

Having recently retired from a job that was both interesting and demanding I have no hesitation in saying that retirement can be both enjoyable and rewarding.

What I should like to see introduced is a guaranteed Minimum Income for everyone — sufficient for basic needs of food, clothing and shelter. If a person was satisfied with that, O.K.; if not then he would work to earn extra.

Wages would be only a fraction of what they are today and prices would fall accordingly. It would then be realistic for a woman to get the same pay as a man. Now, a woman, single or married, gets the same pay as a man who is responsible for providing for a wife and family. Crazy!

If a sufficient number of people were not willing to do the essential jobs then a roster system would have to be introduced.

And don't ask, "Where is the money coming from?" Money is a man-made device and anything that is physically possible and desirable *must* be made financially possible.

Yours sincerely,
S. H. Allen,
Malvern, Australia.

CRUELTY REPORT UNFOUNDED

Following the publication of a letter, in *The Ecologist* Vol. 5. No. 9 November 1975, concerning cruelty in slaughterhouse procedure, we have received a copy of the report of The Environmental Health Committee of Salisbury Council. This Committee looked in to the allegations made in *The News of the World* (August 3rd 1975) upon which the letter we published was based, and found the charges unfounded. The report exonerates all employees of the abattoir concerned, and finds the charge that animals were slaughtered without prior stunning to have been unjustified.

The Ecologist therefore wishes to apologise to those employed at the abattoir and to the National Farmers' Union and FMC (Meat) Ltd. both of which organisations were mentioned in the letter.

The N.F.U. does not own or operate slaughterhouses. The N.F.U. Development Trust owns 40.9 per cent of the ordinary shares of FMC Ltd., but at the time of the allegations did not 'largely control' the activities of FMC Ltd. Control of FMC Ltd. came with a series of boardroom changes at the A.G.M. some months after the alleged offences.

If any of our readers would like a copy of the Press Statement issued by Salisbury District Council on the findings of the Committee, we will gladly forward one on receipt of a s.a.e.

No Time to Stop Controls

Dear Sir,

I was surprised to read that Population Stabilisation is to close down on the basis of one year's decline in the population of England and Wales. Surely this is the time to redouble our efforts, to publicise last year's achievement and ensure the trend continues. In their own report (*Decline or Fall — a Case for a Decrease in Britain's Numbers*, published August 1974), Population Stabilisation say 'if it' (the government) 'does not act now and leaves

the introduction of an effective population policy until the birth rate again begins to increase . . . the country will be faced with a much more difficult task of trying to reverse a trend.' In the same report, they say . . . 'there may be an absolute decrease in the population in the next year. Population Stabilisation welcomes this trend but we are anxious to point out the dangers of thinking that this means Britain's population problem has been solved.'

I suggest that Population Stabilisation read their own report and reverse their decision to close down. The population problem is a long term one and efforts must continue on all fronts until some *real* results are seen, i.e. our population falls to the self-sufficient level of about 30 million.

Yours faithfully,
Andrew Simmonds, B.A., M.Sc.,
Norwich.

The Ecology of Diet

Dear Sir,

While agreeing wholly with Michael Allaby that the strongest arguments in favour of vegetarianism are moral, I hope I may refute two incorrect assertions in his review of *Food for a Future*. My book does not argue that primitive man ate no flesh, nor that meat eating is invariably harmful (if by that Mr. Allaby means harmful to the point of producing diagnosable conditions of disease). I quite clearly showed that many primitive men did eat flesh, but I pointed out that there was no evidence that *all* of them did so. As to the health aspect, I quoted copiously from the highest orthodox medical sources who have over many years stated categorically which diseases are caused or exacerbated by the consumption of flesh and animal products.

Mr. Allaby's review puts into my mouth other views and slantings which can only be corrected by an attentive reading of my book. *Food for a Future* is the first commercially published presentation of the full argument for a vegetarian/vegan diet, and its facts were checked and double-checked by highly qualified specialists. Its strong ecological theme made me hopeful of more careful attention

than perhaps Mr. Allaby's wishful thinking has allowed him to give to it. While of course no panacea, vegetarianism is now widely seen to be so much part and parcel of that reorientation you advocate in your editorial, that it is disappointing that your paper is not taking the lead in proving the ecological priority of a humane diet.

Yours faithfully,

Jon Wynne-Tyson,
Fontwell, Sussex.

Areas in Need of Special Care

Dear Sir,

We are very concerned that the present system of designations of various National Parks, Sites of Special Scientific Interest etc; etc; do not afford anything like adequate protection for these areas. There are some areas which are particularly important ecologically, and they should be given absolute protection from every sort of disturbance.

This has been recognised at least to some extent, by the Sandford Committee on the National Parks, but unfortunately they were not unanimous in their recommendations and of course a number of these areas will fall outside the Parks and, indeed perhaps lie in totally undesignated places.

It seems that a White Paper will soon be published based on the Sandford Committee Report and we would like to see these special areas catered for in any new law.

We therefore propose to produce a list of such areas and we would welcome suggestions from readers, of locations which need such stringent protection.

John Ottway,
Pool Friends of the Earth,
13 Torbay Road, Parkstone, Poole,
Dorset.

Friends of the Earth

Save the Whale Campaign

Members of FOE pursuing their Campaign to ban the import of all whale products now have the support of some sixty members of Parliament, and have succeeded in having parliamentary questions raised in the house several times. Mr. Edward Bishop, Minister of Agriculture Fisheries and Food, however remains unmoved. Pressed for his reasons for refusing the total ban which alone can contribute to the ultimate survival of those species not already lost, he maintained that in his opinion the sperm whale is not in danger, and secondly that no satisfactory substitute for sperm oil has been found. Neither of these answers can be substantiated by the facts.

By allowing the trade in sperm whale oil the Government is itself contributing to the threat of exterminating the sperm whale through implicitly endorsing catch quotas above the supportable limit. The risk is considerable. Scientific opinion allows that there may be errors of as much as 50 per cent in the calculation of existing populations and appropriate quotas. The international institutions for the control of whaling are inadequate in scope and ineffective in the exercise of their authority.

So far as the substitutes for sperm oil are concerned, FOE offered the Minister, as a Christmas gift, a sample of sperm oil substitute which he refused. Evidently his contention that no satisfactory substitutes exist was not to be undermined in this way, and he is clearly unwilling to put it to the test. That substitutes can be found has been demonstrated, but so long as no ban on the import of sperm oil is foreseen the industries still using the product will not be forced to research and develop alternatives. The leather industry is the worst offender, particularly the glove makers, who are least willing to forego the use of this traditional method of rendering their material soft and supple.

FOE believe that in time the ban must come in to force but *in time* may not be soon enough. Action is needed now. A firm commitment, by the Minister, to bring in a law prohibiting the import of all whale products by a specific date, would force the glove-making industry, like the lubricants industry which has already started to phase out the use of sperm oil on a voluntary basis, to develop the substitutes available from petroleum, cod oil and, eventually, from the jojoba bean of California.

All who are concerned with the future of the whale populations of the world can help to build up pressure on the Government by lobbying their MPs and by refusing to buy soft leather gloves (not chamois, which is not treated with sperm oil) until the industry changes its own policy. That such pressure brings results is demonstrated by the fact that no whale meat can now be imported for use in pet foods.

The U.S.A. and more recently New Zealand Government have, in the interests of conservation, taken unilateral action to prohibit the trade in all whale products. The British Government must not be allowed to lag so far behind, in the name of the British public, in environmental conscience and practice.

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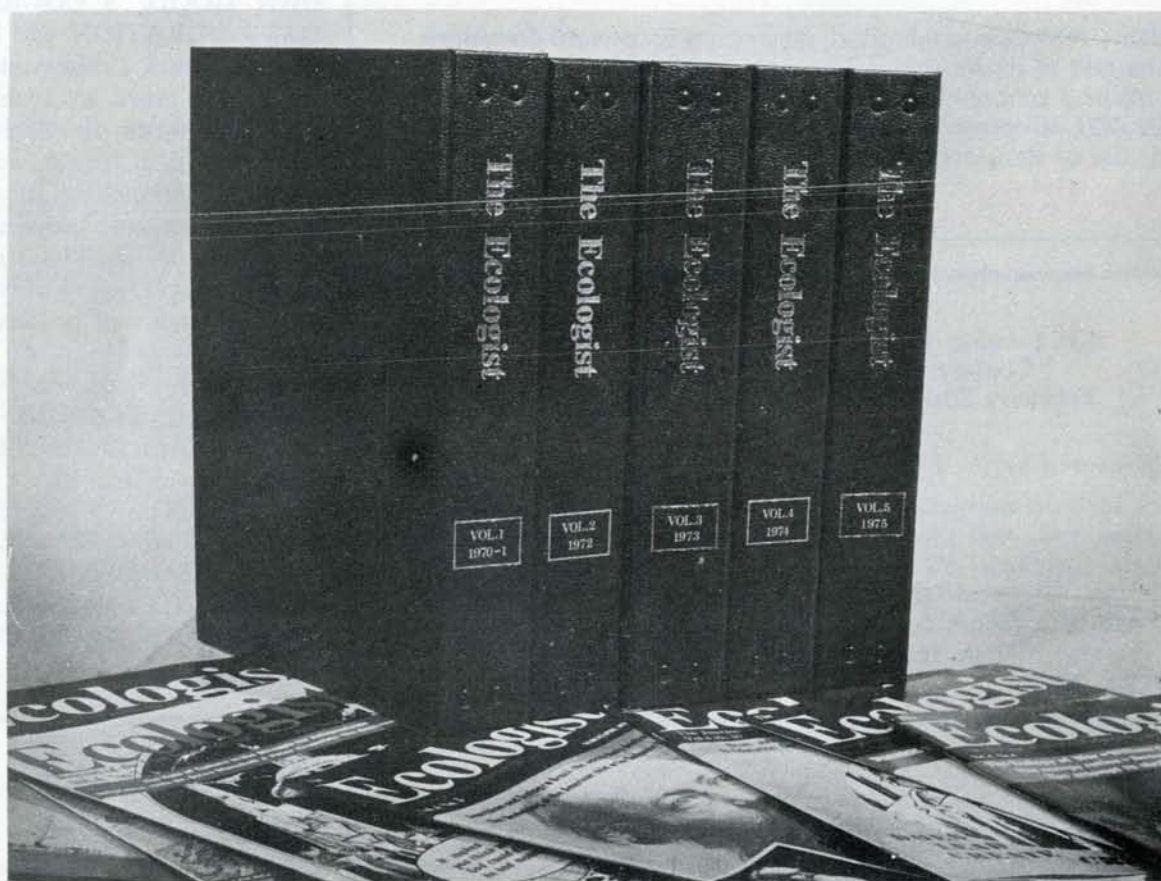
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