

The

# Ecologist

Journal of the Post Industrial Age

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ENVIRONMENTAL CONSERVATION  
OR COUNTRYSIDE COSMETICS?

MARXISM VERSUS ECOLOGY

BREAD AND HEALTH

**SIENA: An Ideal City**  
**by Nicholas Hildyard**





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## Editorial

# ECOLOGY.

## The New Political Force

The extraordinary success of the Central Party in Sweden, which obtained 80 seats in the September election, and the nomination of its leader Mr. Thorbjörn Fälldin as Prime Minister of a new coalition government, is difficult to explain in terms of current political wisdom. The reason for its success appears to be its opposition to nuclear power installations. Yet, in Britain, simply to propose such a policy, compromising economic growth and reducing employment, would, in the eyes of most politicians be to commit political suicide.

Why then should anyone vote for a political party that does so? Before I try to answer this question I must point out that the Swedish phenomenon is by no means an isolated event but is part of a general trend that is clearly discernible in all the industrial nations of the West. This trend has simply progressed further in Sweden than elsewhere. Indeed the reaction against nuclear power has set in with a vengeance, and in many industrial countries, it is taking a political form.

In Germany in 1974, in Wyhl in Baden-Wurtenburg, 20,000 people sat in for almost a year to prevent work on a projected nuclear power station. In France, at Malville on the Rhone, a similar number have recently staged a sit-in though they were dispersed with considerable brutality by armed French police units. At Cattenom on the Moselle, the same scenario has been repeated. The French Government, which plans to build as many as fifty nuclear power stations dotted along the French coast, in its efforts to achieve independence from imported oil, is meeting opposition everywhere, and this opposition is getting stronger and more determined. It looks increasingly as though only totalitarian methods will enable the Government to implement its nuclear power programme.

Opposition to the building of nuclear installations, by citizen groups, has also been powerful in the United States and has contributed to the cancellation of a significant number of such projects. This has also been the case in Spain where, according to *Nucleonics Weekly*: "At least six reactors have been suspended to stem deepening opposition to nuclear energy, by community groups." In the U.K. the opposition on a more modest scale, has been led by Friends of the Earth which has co-operated in particular with a local environmental

group called Half Life, to oppose the extension of facilities for nuclear reprocessing at Windscale in Cumbria. Earlier this year a special train was chartered to take several hundred demonstrators to Windscale for a confrontation with British Nuclear Fuels.

To overcome all this growing opposition is going to be costly. Already for other reasons, the price of putting up nuclear power stations has increased dramatically. For instance in the U.S. in 1967, according to Denis Hayes of The Worldwatch Institute of Massachusetts\*, the price of a kilowatt of installed capacity was about one hundred dollars. By 1972 it had risen to three hundred dollars; today it stands at about eight hundred dollars and is expected to reach 1130 dollars by 1985.

To anyone who takes the trouble to make the necessary calculation, it appears extremely unlikely that even the most prosperous countries will be able to afford their nuclear power programmes.

But what is the alternative? How are we to power our expanding industrial society? The answer is that *there is no alternative*. Oil, in the next decades will become increasingly expensive and ever less available — by the end of the century there will be very little left at all. To increase coal production on a sufficient scale for it to become the principal source of energy would, among other things, involve causing so much environmental disruption (in the U.S. for instance, it would mean strip-mining vast areas of Montana and Arkansas etc.) that it would encounter as much opposition as building nuclear power stations. Besides all countries do not have coal.

Solar collectors, windmills, water wheels, tidal mills etc: can be of use locally but are unlikely to make any significant contribution to the energy requirements of an expanding world industry in the next decades.

In other words: *No nuclear power — no industrial society*. This sounds like the most convincing argument of all for a massive nuclear power programme — but not in the eyes of its many opponents — and this brings us to one of the most important reasons for the opposition to nuclear power: — *the nuclear power station has become the symbol of the industrial way of life* — and it is against this that a vast number of people, especially young people, are now reacting.

This reaction has taken many forms. The most



significant, however, is the appearance of new ecologically-orientated political parties that are committed to the abandonment of economic growth as the goal of economic policy, and its replacement by the achievement of a steady-state society.

One such party is *Ecologie et Survie* in Alsace. It put up one candidate for the French Legislative Elections in 1973, at Mulhouse, and obtained a little over one per cent of the votes cast, just as René Dumont did, shortly before, when he contested the Presidential election. At the beginning of this year the party contested the Cantonal elections fielding nine candidates in the Haut Rhin and one in the Bas Rhin, and obtained an average of 10 per cent of the votes.

In Britain, the Ecology Party was formed several years ago, under the name 'People'. It first contested the February 1974 Parliamentary Election, putting up six candidates and obtaining an average of 1.3 per cent of the votes in the constituencies where they were standing. In the October 1974 election they only succeeded in putting up two candidates, mainly for want of funds, but in the local elections this year two members of the Ecology party were returned; one, John Luck, at Rye won a seat on the Rother District Council and their Campaign Secretary, John Davenport gained a seat on the Kempsey Worcestershire Parish Council. The new Chairman of the party, Jonathan Tyler, a lecturer at Birmingham University, is standing at the Walsall by-election on November 4th for the seat vacated by John Stonehouse.

In New Zealand the Values Party, with a programme very similar to that of *Ecologie et Survie* has now contested two general elections. It obtained about two per cent of the vote in the first, and at the last, in November 1975, obtained as much as six per cent of the total vote, thereby becoming the third biggest party in New Zealand. Ecological parties have also been formed in Australia (the Australia Party) and Tasmania (the United Tasmania Party).

Particularly impressive is the great similarity in the political programmes these various parties have drawn up. So much so, in fact, that they are all beginning to work together, the United Tasmania Party has already changed its name to the Values Party of Tasmania and the Australia Party is thinking of becoming the Values Party of Australia, while our own Ecology party is seriously considering adopting the New Zealand Values Party's superb manifesto 'Beyond Tomorrow'. What is more, a World Conference of ecologically orientated no-growth political parties is being organised for next year, which should set in motion more co-operation and more support.

Clearly the reason for the similarity in their party programmes is that they reflect the same basic ideology. The rationale for this ideology is briefly that industrial society is not only unsustainable, but it is not worth sustaining. The industrial way of life is squalid, mediocre and unfulfilling. Progress is an illusion.

It is not a new philosophy. Indeed it is basically that of Kropotkin, Tolstoy, William Morris and Mahatma Gandhi. The difference is that when these great teachers lived — either at the dawn of the industrial era or during its euphoric heyday, the vast mass of the

people was totally blinded by the miracles of science, the wonders of technology and the might and opulence of industrial civilisation, and to suggest, as they did, that these benefits were largely illusory and that their costs, in the long term, would prove quite insupportable, could only fall on the deafest of ears. To oppose industrialism was indeed purposefully to swim against the flow of a mighty river. Today, however, the flow of that river has been reversed. Disillusionment has set in against the benefits of industrialism while the cost of obtaining them, in terms of biological, social and ecological disruption, is only too plain. Indeed it is no longer political suicide to oppose nuclear programmes, not even, in fact, to oppose the industrialisation process itself, even though we have for so long been led to identify it with 'progress'.

Present political ideologies have worn a little thin. In this country the Conservatives and Socialists may make different noises, but once in power their behaviour is very similar. The reason is that their basic ideology is also the same. Implicit is the belief that the world is imperfect and that by means of science, technology and industry we can improve it, and create an earthly paradise from which all the problems that have afflicted man, during the course of his long tenancy of this planet, such as poverty, unemployment, homelessness, disease, ignorance and even war, will be eliminated once and for all.

All political parties, including the Communists are committed to moving towards this earthly paradise (that is what they mean by progress) regardless of the consequences that this might have on our health, on the fabric of our society, on our physical environment and in general on the quality of our lives. It is because they are committed to it, and because in conditions that are ever less favourable only one basic course of action appears to favour its achievement that their options have become so limited.

The Ecology Movement is the only one that rejects the philosophy of industrialism; and is thereby virtually free to apply a *really different policy*, the need for which must be increasingly apparent with the growing ineffectiveness of current ones to solve our worsening problems.

What is more, it is the only policy that, among other things, is not dependent for its succession:

- the use of increasing quantities of energy and non-renewable resources, that will be ever less available to us -
- the associated generation of increasing quantities of pollutants, which our environment is ever less capable of absorbing -
- ever more massive and ever less feasible Government expenditure to maintain, in ever less propitious conditions, the already crumbling infrastructure of our industrial society.

On these grounds alone, it is the only policy that begins to face up to world realities — to provide us with temporary insulation from which, is still the only policy of our major political parties.

Edward Goldsmith

\*See: Nuclear Power: The Fifth Horseman. Worldwatch Institute Papers No. 6. Obtainable from The Ecologist, 73 Molesworth Street, Wadebridge, Cornwall. Price £1.00. Post free.



# Bread and Health

by Ross H. Hall

In the last few years the general public has become aware of the effects of technology. One response to this awareness has been the creation of citizen's groups to assess, to question and even to block innovations and new technologies. The technologies that the public have reacted to have been visible ones — a new dam, a motorway, a pesticide. However there are also numerous *hidden* technologies about which the general public is ill informed. Their influence on our health and the future of society can be more profound than any motorway. In this extract from *\*Food for Nought: The Decline in Nutrition* Ross Hall shows how the public demand for a soft white 'refined' loaf has turned the staff of life into an imitation full of chemical additives and devoid of nutritional value.

TO ENJOY THIS LOAF AT ITS BEST EAT WITHIN 2 DAYS AFTER PURCHASE. STORE IN A COOL PLACE PARTICULARLY IN WARM WEATHER. WE GUARANTEE THAT THIS LOAF IS OF FIRST CLASS QUALITY WHEN IT LEAVES OUR BAKERY. SHOULD IT FAIL TO GIVE SATISFACTION YOUR SUPPLIER IS AUTHORISED TO REPLACE IT.

\*Harper and Row. 1974.



## Mechanization of Breadmaking

The nineteenth century Industrial Revolution was a mechanical revolution — a revolution in engineering practices combined with a revolution in methods for the organisation of effort and knowledge, all with a single goal of producing more. The physical sciences developed rapidly during this period, and the new knowledge supported and indeed contributed to the rapid advances in engineering technology. The nineteenth century also saw the founding of life-oriented sciences, biology, biochemistry, microbiology in their modern forms; but the major impact on society of the new knowledge arising from the life sciences was to come later, in the twentieth century. The nineteenth century's legacy of mechanization on contemporary food processing remains, not only in all its technical forms but also in the goals a mechanical society espoused. We can gain considerable insight into the nature of contemporary food processing by examining the process of mechanization and the changes in attitudes that accompanied the process.

Mechanization of food production was inseparable from all other processes of nineteenth century industrialization. Movement of people from the land to industrial towns, for example, could come about only with the availability of food that could be easily transported, stored, and marketed. Bread became the mainstay of the poorer working classes who tended the machines, and it is not surprising that the mechanization of flour milling and breadmaking should have occurred early in the Industrial Revolution. One of the earliest assembly lines was set up by the British Admiralty in 1833 for manufacturing ship's biscuits. The three phases of modern mass breadmaking — mixing, rolling, and moulding — were combined into a single production line. From this point on, the technology of mechanical breadmaking rapidly evolved, and by the middle of the century automatic ovens, mechanical kneaders, and other inventions were in operation. By the early 1900s, the equipment used today in automated bread factories had been invented.

## Mechanized Flour Mills

The mechanization of bread-

making was matched by equally revolutionary changes in flour milling. The rotary grindstone became obsolete when the original technique of pounding grain was re-introduced in the form of crushing and tearing the grain between sets of rollers. This technique appeared first in Hungary in 1839, and by 1890 the new technology had evolved (in Great Britain and North America) into the completely automated flour mill of today. The new technology efficiently excluded the bran and germ, leaving the starchy endosperm in the form of a highly refined white flour.

The standard diet of the nineteenth century British working classes became white bread, butter, jam and tea. The deterioration in physical condition and general health of the British masses became particularly noticeable at the time of the Boer War (1899). The physical size and health of a large percentage of the recruits were substantially less than that of the British youth recruited into the army during the Napoleonic wars 100 years earlier.

## European Resistance to Mechanical Bread

Although the modern technique of flour milling has been accepted by Europeans and North Americans, the continental Europeans have not been able to bring themselves to accept the mechanical bread produced by the large automated bread factories. Baking is still the prerogative of the small bakery, and the result is variety in quality and taste. In North America, on the other hand, automated breadmaking has been perfected, and factories capable of producing 250,000 identical loaves a day are now operating in Canada and the United States.

## Flour as a Raw Material for Chemical Technology

Since Roman times bakers had noted that storing flour for a few months has two effects: the flour becomes whiter, and its baking qualities improve (maturing). We now know that on exposure to air the natural yellow pigments are oxidized to colourless products and the protein molecules undergo changes, although these changes are not completely understood. The pigments such as carotene, if left in

the flour, will be converted to vitamin A in the human. The thiol groups in the protein undergo oxidation and the whole protein lattice becomes more rigid. Additional oxidative reactions also occur with the oil and starch molecules.

From the point of view of the bakers these effects are highly desirable, but storage time increases manufacturing costs. At the turn of the century the millers discovered that all these effects could be achieved instantly by oxidation with either nitrogen trichloride (agene) or chlorine gas, which by this time, were produced in quantity by the chemical industry. The technique was deceptively simple. The bleaching gas was blown into the flour as it descended the final chute into its sacks.

## Chemical Oxidizers Do More Harm Than Bleach

Chlorine gas not only bleaches and matures the flour, but it reacts with other molecules in the flour — in fact many chlorinated lipid compounds remain, such as dichlorostearic acid. The toxicity of these unnatural lipids was tested by feeding them to four generations of rats. They were not toxic according to the criteria used. The investigators studied the toxicity of the chlorinated lipids alone rather than testing the chlorinated flour in spite of the experience with agene. Agene (nitrogen trichloride) was used in enormous quantities for 41 years before any significant toxicology was done. Finally, in 1946, Sir Edward Mellanby fed agene-treated flour to dogs and noted that the dogs developed hysteria. The use of agene was discontinued, but bleaching and maturing of flour with chlorine, chlorine dioxide, and other chemicals continues.

The industry is interested in two effects, bleaching and stiffening. They care not the least that this shotgun chemistry affects the complex molecules of flour in many ways. Only a few facts are known about the other effects because science has not thought it important to investigate these effects in any detail. As well as bleaching and maturing the flour, nitrogen trichloride reacts with the methionine residues of the protein to form methionine sulphoximine. This compound causes nervous



seizures similar to epilepsy. Chlorine and chlorine dioxide produce the same effects (bleaching and maturing) as exposure of flour to air for several months. Chlorine destroys a major portion of vitamin E present, and also oxidizes methionine residues in the protein, forming methionine sulfoxide. In spite of this evidence of multiple chemical effects in the flour, the authorities have not felt compelled to investigate the effects on humans of eating treated flour, though several tests have been done on rats.

Not all chemical oxidizers both bleach and mature. Nitrogen dioxide and benzoyl peroxide simply bleach. Potassium bromate, potassium iodate, and azocarbonamide do not bleach but do mature the flour. All these chemical agents are used regularly in North America. There seems to be little information on what these agents do to the flour other than change its properties to conform with the criteria of the bakers. Not all countries are as lenient towards unevaluated processes; Germany banned the use of chemical oxidizing agents in 1958.

### Objectives of the Nineteenth Century Miller

The nineteenth century miller wanted to obtain a consistent product that had good storage qualities. The Ancient Romans and Greeks do not seem to have separated the processes of milling and baking, but nineteenth century technology split the two processes into separate temporal events. In other words, the product of the milling industry did not have to be used immediately by the baker, thus easing pressure on distribution and allowing for more leisurely planning. While this may have made some sense in the nineteenth century, the sophisticated planning and scheduling methods of current technology obviate the need for time separation. The milling industry of today still cites the nineteenth century objective of extended storage time as the principal reason for refining flour to the extent it does. Flour is obviously refined for several reasons, but the reason cited above illustrates the anomaly of an unchanging objective in the face of a changing technology and, more important, a changing society.

The germ of the wheat contains

oils, consequently whole-wheat flour tends to go rancid when stored (the oils oxidize to give acids which produce the characteristic rancid odour). The germ and aleurone layers also contain a major portion of the food value of the wheat, and whole-wheat flour will attract bugs and rodents looking for a nutritious food supply. The technical problem was thus clear to the nineteenth century miller — he would extend shelf life and reduce infestation of stored flour at the same time by completely eliminating the germ and aleurone components through mechanical milling. Mechanization of breadmaking placed a high premium on uniformity of products at every stage, so that mechanical processes of milling and automated breadmaking were constantly adjusted and refined to meet these objectives.

One can't absolve the millers of the nineteenth century for defining the problem in this manner just because they knew nothing of vitamins and essential fatty acids. After all, the ancient Romans had realised there was a nutritional difference between white bread and black. Moreover, in the 1820s the French physiologist, François Magendie, reported that dogs fed on coarse dark bread lived for a long time in good health but declined and died in less than two months when fed on bread made from refined white flour. His experiments were recorded in the British Medical Journal, *The Lancet* of March 11, 1826: "A dog, fed on fine white bread and water, both at discretion, does not live beyond the 50th day. A dog fed on the coarse bread of the military, lives and keeps his health."

### The Change in Attitude Toward Chemical Technology

Because the essence of modern technology is integration, the treatment of milling and baking as separate activities is impossible. For the remainder of this paper, therefore, I will treat milling and baking as one entity.

The milling-baking industry may have initially viewed the application of chemical technology to their processes as a means of supporting and refining established techniques. Since World War II,

however, this industry has begun to view chemical technology in a very different manner. This change of attitude represents a fundamental break with tradition. For 5000 years man had to mechanically pound and manipulate wheat molecules from the outside. He now has the potential to chemically manipulate and reorganise the molecules from the inside. This break with tradition symbolizes the second stage of the Industrial Revolution. It represents the transformation from the mechanical to the molecular, and parallels the social transformation of society into what Marshall McLuhan calls the electric age.

When Henry Ford invented the car, he shaped it in the form of a carriage — the horseless carriage — and for many years, although people may have recognized his invention as an improvement, they saw it as an extension of a horse-based technology. The population only gradually became aware that the new technology broke sharply with the past, offering enormous potential for change. Since human nature resists change, particularly if the change is an abrupt visual one, the form of the horse-drawn carriage persisted in automobile design for many years. In much the same manner, the breadmaking industry has adopted a new technologic approach to making a food, but packages it in the old familiar form of a loaf of bread.

At this stage in the transition of food manufacturing to a molecular orientation, it would be more correct to say that chemical technology, not chemical science, is being applied. Chemical science is here defined as theoretical knowledge and understanding of what is happening to the molecules and an ability to predict molecular behaviour. Certainly the chemists have no idea what their technology does to wheat molecules. Chemical technology, on the other hand, is the application of some technique or process — theoretical knowledge of the process is not essential — the objective merely being that the process works. The criteria of whether the process works adequately are based solely on a nonscientific or nontechnical objective. Thus the effect of chlorine dioxide on wheat molecules is only vaguely known, but its effects on



colour and dough-conditioning are readily apparent, and in the opinion of the industry, the public clamours for this improved bread.

### Cultivating the Public Taste

The effects of adding ethoxylated mono- and diglycerides to bread dough at a level of about 0.25 per cent are described in the authoritative text, *Wheat Chemistry and Technology*\* under these criteria: Functional improvements in loaf volume — very good; firmness inhibition — little effect; physical form — plastic solid; comments — principal effect appears to be on loaf volume, improves dough handling and tolerance to processing variables. No mention is made of any effect of this additive on the other substances in bread, on its contribution, positive or negative, to the nutritional qualities of the loaf, or the effect of eating approximately ¼ gm a day of ethoxylated monoglycerides (based on an average consumption in the U.S. of 90lb per capita per year of white bread and rolls). These other effects are incidental to the stated objectives; therefore the technologists ignore them.

The baking industry retains a strong bias toward the visual. The appearance of the bread, its image of freshness, is all-important to the industry. In fact, staleness — or the delay of staleness — seems to be the main preoccupation of contemporary bakers. The industry withdraws from the market virtually all bread that is more than 2 days old. Stale bread returns average 8 per cent of production. *Wheat Chemistry and Technology* defines staling in the following way: "The crumb firms and becomes more opaque, the water-absorbing capacity of the crumb is reduced, the proportion of soluble starch in the crumb is reduced, enzyme susceptibility of the starch decreases . . ."

### Soft is Good

Baking technology attacks the staling problem by trying to maintain

the texture and appearance of freshly baked bread. To accomplish this end they add surfactants such as mono- and diglycerides; in the industry these ingredients are called softeners. The chemical softener enters the starch granules and complexes with amylose. The formation of these complexes deters the migration of the amylose to the water phase outside the granule where it sets up a rigid matrix, thereby contributing to the firmness of the bread. Precisely what all this means in terms of food value is not known, because the baking industry has chosen to symbolise nutrition, wholesomeness, eating-pleasure, etc., by the criteria of softness and whiteness.

The term softness, as does the word white, evokes positive responses and seems to symbolise pleasant experiences in people's lives. People like to gain sensory information by touch. In today's hard merchandizing world, the opportunity to squeeze the goods is rare; when one has the opportunity, a sense of gratitude is bound to result. However, whatever the psychic reasons, this property is the one the baking industry and its technology push. Dr. Simon Jackel, Director of Research and Development, Quality Bakers of America Cooperative, Inc., in speaking of hydrated bread softeners, comments that although in the 1960s bakers found that the softeners didn't work well, they are now finding them desirable for improving mixing and dispersion in conventional production. Dr. Jackel reports that the technology is rapidly improving in this area and that the 1970s should see the emergence of new and improved ingredients. For example, an enzyme obtained from bacteria that hydrolyzes starch is added to the dough. It survives baking and its activity contributes to the maintenance of softness.

### No-Time Bread

Bakers have long considered the initial bulk fermentation of bread dough as a time of mellowing, a time for the wheat and yeast molecules to adjust and interact with each other under the gentle persuasion of natural fermentation. Even in some highly mechanized bakeries the process is allowed to continue

from 4 to 7 hours. But bakery technologists reasoned that if a small amount of oxidizing agent stiffens protein molecules a little, more chemical oxidizer should stiffen the molecules even more. Indeed, the addition of 75 parts per million of potassium bromate and potassium iodate to the unleavened dough makes the molecules so stiff that the dough can be placed in a powerful beater and whipped into shape. In effect, the beater whips air into the dough giving a "risen" product in only 2 minutes. Hence the name of the process: *no-time*.

According to the promoters, bread baked from this dough is similar in appearance and crumb texture to that produced by the slower natural process of fermentation. In addition, their taste panels could not distinguish between the aroma and flavour of the accelerated bread and conventional bread. Whether anyone can distinguish subtleties in taste between one plastic bread and another is hard to judge. As Giedion observes, the public has already been conditioned to accept, even to demand, plastic sweetish-tasting products.

### The New Chemical Technology

The no-time process was developed in the 1950s in Great Britain; however, in spite of its time-saving advantages, the process has been slow to penetrate the North American industry. Professor John Johnson of Kansas State University does not agree with the promoters taste panel test, and attributes slow acceptance to the lack of good flavour in the baked products. He feels that if one could somehow inject the freshly baked taste that the product lacks, it would be able to meet the established criteria of what the baking industry considers quality. With this ideal in mind, Johnson and his colleague, Carlos Sanchez, have invented a new flavour process. By studying normal doughs before and after fermentation, these researchers discovered that certain amino acids and organic acids are released because of the activity of the living yeast. By making up a synthetic mixture of these acids and adding it to the non-fermented dough they claim that the finished loaf has the flavour of a

\* J.G. Ponte: *Bread, Wheat Chemistry and Technology*. Edited by Y. Pomeranz. St. Paul American Association of Cereal Chemists. 1971.

conventionally fermented and baked loaf.

## Engineered Bread in Ma and Pa Bakeries

To the consumer, the baking industry presents a mixture of family bakeries and giant commercial operations. In point of fact, they are all part of a gigantic food service system. It makes little difference whether you buy the product from a family baker or from a supermarket chain; the same basic engineering has gone into the product.

A recent trend is for large factories to carry the preparation of baked goods through to the final stage. Dough is frozen and shipped to the family or local baker where it is baked to provide that freshly made image. This concept of producing bakery products is being aggressively promoted.

In this discussion of baking technology I have emphasized bread. Modern bakeries produce dozens of products, for one effect of the new technology is to increase the variety of product forms. Ernest Hueter, President of Interstate Brands Corporation, the fourth largest commercial baking company in the United States, sees his company's future growth market in the area of snack foods. He noted that by 1975 nearly one-half of the population of the United States would be under 25 years of age — the snack generation.

## Unknowing Participation

The general public has had no opportunity to voice an opinion about the changes that have occurred in the baking industry over the past few decades. It is not even aware that a major technical revolution is under way. Individuals and activist groups may organize in vehement protest against the introduction of new products or the location of new building projects that they feel will substantially reduce the quality of life. The protesters' awareness is aroused because these projects or proposed technologies are either visible or are sufficiently tangible to be discussed (for example, supersonic transport). These public actions demonstrate that people want to participate in decisions on the disposition of new technologies

**TABLE 1.**  
**Typical**  
**Formula for**  
**Commercial**  
**White Bread**

The formula was supplied by Maple Leaf Mills, Ltd., Toronto, Canada (personal communication).

\*The most commonly used yeast food has the composition shown.

†The enzyme-active soy flour preparation is a mixture of pregelatinized cornstarch and enzyme-active soy flour.

Ingredients	Quantity	
	Lb	Oz
Enriched all-purpose flour	100	
Yeast	1.5–2.5	
Enzyme-active soy flour preparation	1	
Salt	2	
Sugar	3	
Lard	2–3	
Skim Milk powder	2	5
Mono- and diglycerides		3–4
Calcium propionate		
Additives (percent):		
Carrier: wheat starch	0.0230	
Bleach: benzoyl peroxide	0.0066	
Enrichment: niacin	0.0030	
Enrichment: iron	0.0027	
Free-flowing agent: tricalcium phosphate	0.0016	
Maturing agent: potassium bromate	0.0011	
Enrichment: thiamine mononitrate	0.0004	
Enrichment: riboflavin	0.0003	
Free-flowing agent: magnesium carbonate	0.00006	
Total additives (percent)	0.03876	
Yeast food*		4–8
Composition (percent):		
White flour	40.0	
Salt	25.0	
Calcium sulphate	25.0	
Ammonium chloride	9.7	
Potassium bromate	0.3	

and projects but are unable to do so until the new technology can be identified. The new technologies in the food field remain invisible to the general public, yet will probably have a far greater effect on the quality of their life than the construction of a new super highway or similar public project.

The general public may be only vaguely aware of what is happening, but the food engineers are even less aware of the effects of the changes they are helping to implement. Their insensitivity to these effects is typical of professionals immersed in their work: they are too close to it, too involved to understand or care about the changes. Moreover, government agencies designed to guard the safety and wholesomeness of the nation's food, because they are equally involved in the industry, do not comprehend the effects of a transformed technology. It took more than 40 years to decide that agene was an undesirable agent for the rapid maturing of the flour. This particular case was a relatively straightforward toxicological problem; is there anyone who is now prepared to start examining the diverse effects of chemical manipulation of wheat molecules?

## Multi-Toxicity

The effects of a transformed food technology will undoubtedly reach into every facet of our life style, but further elaboration on this point would be speculative. I will, how-

ever, amplify the above point that food professionals are insensitive to the effects of the new food technology, by discussing one question: what is known about the toxicity of manufactured bread?

Let us examine the additives shown in Table 1 more closely. Although dough contains minerals and sugar adequate for the growth of yeast, bakers have long employed a supplemental diet to promote what they consider a smooth fermentation. Note that the yeast food contains potassium bromate, which has nothing to do with the nutrition of yeast, but is added only to stiffen the protein molecules (even though they were already stiffened back in the flour mill). The enzyme-active soy flour provides lipoxidase that serves to bleach the flour, affects the dough-mixing properties, and affects bread flavour. The mono- and diglycerides (discussed above) are added to retard staling. The calcium propionate is added to stop the growth of moulds. Excluding the enrichment factors, the flour has already been treated at the mill with benzoyl peroxide to whiten it and with potassium bromate to mature it (stiffen the molecules).

The commonly used public justification for adding chemicals to bread is that they are necessary to prolong the shelf life and ensure freshness. Only one of the many chemicals added to this particular white bread could be said to retard spoilage — calcium propionate. All the others



play no such role and are added solely to facilitate manufacturing. The 3 vitamins added do not enrich the flour, they merely restore partially the massive vitamin loss that occurs during manufacturing.

### **The Whole Is Not the Sum of the Parts**

One would expect that the government regulatory agencies have carefully evaluated the toxicity of each of these ingredients; let us assume that each ingredient has at least been evaluated separately, and that the toxicity has been found to be at levels well above those used in baked goods.

The fallacy in relying on this form of testing is a result of several causes: first, government toxicologists consider each ingredient as a pure substance and test each separately. Second, the testers emphasize acute toxicity — whether the test animals die within a short time. Longer-term toxicity, such as a cancer-producing effect, is much harder to assess and may not be vigorously carried out. Third, the toxicologists do not adequately assess the effects of the added chemicals on the flour and other ingredients. In other words, what is the toxicity, over a period of many years, of eating the bread modified by these ingredients? The toxicologists avoid the question because it is too difficult to answer using their traditional approach to toxicology (testing pure substances, one at a time, in healthy animals). So food engineers can rightly say there is no evidence that fabricated bread produced harmful effects in humans.

If it were a simple question of assessing the mixture of chemical additives, one might suggest that the 12 or so different chemicals used in a particular formulation be mixed together and then tested. The government agencies do not follow this procedure, because for each chemical listed in a formulation there are several alternative chemicals. The Food and Drug Administration (U.S.A.) and Health Protection Branch (Canada) permit almost 30 different chemicals to be added to flour or bread, and each manufacturer selects those chemicals best suited to his particular purpose. It is his choice, and his only.

### **Eat Chemical Bread at Your Own Risk**

Baking technology has advanced rapidly in the last few decades, but the ability to assess even its most immediate effects has remained static. Part of the problem is that the scientists who carry out the toxicologic testing do so in sterile isolation. They view toxicology as a specialized branch of science, and they confine themselves to using long-established techniques.

The question should not be whether pure potassium bromate from a bottle on the laboratory shelf is poisonous to rats. A more appropriate question is what is the effect on humans, year after year, who eat bread made from dough treated with this and a dozen or so other chemicals. The scientists charged with assessing the safety of food will never be able to assess the health effects of the new baking technology if they do not first come to understand the technology itself. In the meantime, chemical technology manipulates food products any way it chooses, unrestrained by the watchful eye of any regulatory body capable of monitoring its activities.

### **Efforts to Restore Life to the "Staff of Life"**

In our account of breadmaking I have said little about the nutritional qualities of bread, because in all its history, nutrition has played practically no role in decisions of how to proceed. Questions of nutrition have risen in more modern times, and the particular questions asked and how they are answered tells us much about the sensitivity of nutrition science to what is happening in the world of food technology.

Because their agricultural system cannot produce enough to sustain them completely, the British have been particularly sensitive to wartime interruptions of overseas food supplies. Thus at the beginning of World War II one might have expected the British to be receptive to the new knowledge in nutritional science since that science had advanced to the point where it could advise the best use of available food resources to obtain maximum food

value. The British did so eventually, but not before scientific principles (in reality, common sense) had collided head-on with established business practice.

"Genuine wholemeal . . . gives a heavy, coarse loaf which even the keenest food cranks do not greatly relish . . ." Sir Joseph Lockwood said.

The British have a long history of milling highly refined flour and baking white bread. Their bakers were never as skilled in making bread from whole-wheat flour as the continental bakers. At the beginning of World War II, British bread was made from 70 per cent extraction flour which means that the flour represents 70 per cent dry weight of the original wheat. Whole-wheat flour, for example, is called 100 per cent extraction. During milling the bran and wheat germ are progressively removed so that by the time the extraction number drops to 70 nothing but the starchy endosperm is left. The lower the extraction number the lower the content of vitamins and minerals because they are located mainly in the bran and germ.

Vitamins had been discovered 25 years earlier in England, and the British Ministry of Food was quite aware of their disappearance from white flour. Anxious to restore some of the original food value to flour, they proposed that at least one of the excluded vitamins — B<sup>1</sup> (thiamine) — be restored. The authoritative British medical journal *The Lancet* endorsed the idea. Several nutritionists felt that the preferred course was to return to whole-wheat flour, but were unable to present a strong scientific argument as to why whole-wheat flour was best. The Medical Research Council suggested a compromise — 85 per cent extraction.

Thus the battle between white bread and whole-wheat bread was joined; it erupted full force in newspapers, trade journals, and medical journals. *The Lancet* retreated slightly from its original position that thiamine-fortified white flour was adequate. This retreat brought much dismay to the millers, who were not the least bit interested in changing their ways, primarily because of their large investments in machinery and marketing methods.

A nutritionist, Professor H. Chick of the Division of Nutrition, Lister Institute, Cambridge, decided that there had been enough talk and that it was time to do an experiment. She fed one group of rats white flour enriched only with thiamine and another group whole-wheat. Her conclusion: the enriched flour was decidedly inferior. These results caused the editors of *The Lancet* to declare their concern that the inferiority of white flour could not be relieved by vitamin B<sub>1</sub>; other factors — the nature of which are not certain — needed to be considered. The editors then recommended whole-wheat flour as the proper road to better health and greater food economy.

The government changed its attitude a bit and suggested that millers go to 85 per cent extraction. However, they left a loophole, because millers were permitted to take 70 per cent extraction flour and mix it with bran to make the "equivalent" of 85 per cent extraction. The controversy between nutritionists, government officials, and the millers continued at a high pitch until 1942, when His Majesty's Government announced that production of white flour would cease and henceforth only flour of 85 per cent extraction would be manufactured. Professor Lepkowski, commenting on the announcement, says that although this may sound like a victory for nutritional science, in actual fact it was more the result of the critical shipping situation that existed for Britain. After World War II the British milling industry promptly returned to the 70 per cent extraction flour.

The competition for shipping space did not move the industry magnates, and their opinion was expressed in an editorial: "Some measure of disapproval might be expressed if nine-tenths of the people of this country were deprived of the white bread they like. It is a delicate matter to ignore the wishes of the majority; only a dictator can do it and dictators are not now universally popular."

One of the undercurrents in this particular controversy was the image that bread did not constitute a major portion of the diet; therefore any nutritional deficiencies could be made up from other sources. The

average daily intake of bread in Britain at the beginning of World War II was ½lb per capita. The merits of refined bread and whole-wheat bread were debated by middle-class people whose personal diets were probably reasonably varied and sophisticated. Their diets and those of the middle-class in general contained no more than ¼lb of bread per day. The poorer class on the other hand, ate as much as 1½lb. of bread a day, while eating very little in the way of milk, cheese, eggs, fruit and vegetables.

#### Vitamin "Enrichment" of American White Bread

The British controversy over the nutritional value of bread had its parallel in the United States. The U.S. never went as far as recommending whole-wheat flour, but it did advocate vitamin supplementation of white flour. This policy and the attitudes it engendered continue to the present day. American nutritionists of the 1940s were also aware of experiments that demonstrated that rats grew better on a diet of whole-wheat flour bread than on a diet of white (70% extraction) flour bread. They, too,

suggested that some improvement could be made by adding vitamin B<sub>1</sub> (thiamine).

An outspoken critic of this suggestion was W.H. Sebrell, who stated the argument that goes back to Sylvester Graham and perhaps to even earlier times: "Finally, to me it does seem a little ridiculous to take a natural foodstuff in which the vitamins and minerals have been placed by nature, submit this foodstuff to a refining process which removes them, and then add them back to the refined product at an increased cost". However, Sebrell reversed his opinion shortly thereafter and actually supported the "enrichment" of white flour. The Council on Foods and Nutrition of the American Medical Association accepted the so-called enriched white flour because, in their opinion, thiamine seemed to be the one component which makes whole-wheat most significant to the modern diet. This view is still held.

Dr. S.S. Jackel, of Quality Bakers of America Co-operative, writes that in his opinion the presence of selected B<sub>1</sub> vitamins and iron in enriched bread and rolls, because these foods are widely eaten, has virtually eliminated vitamin B-



Bakers' servants summoning householders to take their dough to the bakchouse when the oven was hot.



deficiency diseases from America.

The Council recognized other important factors which they called "plus values", but it assumed that these factors would be furnished by the remainder of the diet. In other words, by World War II most professional nutritionists had stopped considering bread as a significant factor in the average middle-class diet, although they did apparently realize that the diets of many poor people might not furnish these so-called plus values. They did emphasize the high nutritional qualities of whole-wheat and recommended the manufacture of wheats of higher extraction. But this was only a recommendation, and according to Dr. S. Lepkovsky, the Council straddled the whole issue, failing to give the country leadership when it was needed. In May, 1941, the National Nutritional Conference for Defense met in Washington to discuss national nutritional problems created by the war emergency, and "enriched" white flour was accepted without discussion.

The Council on Foods and Nutrition was sympathetic to the objectives of the commercial bread manufacturers, and in the absence of clearly defined scientific reasons, could not see any reason for disturbing an established technology. Nor did they encourage scientific enquiry. *Nutrition Reviews* comments: "It is a curious fact that the enrichment of white flour and white bread was promulgated with little direct experimental evidence to demonstrate the value of such a proposal for the human being."

### Progress in Enrichment

Even today, nutritional science has failed to provide any guidance on how to judge the value of white bread in the contemporary diet. The best we can do is to compare enriched white bread with whole-wheat bread, using the old fashioned method of classifying their components, as if a loaf were a balloon filled with a jumble of unrelated items.

White bread enriched with thiamine, riboflavin, niacin, iron and sometimes calcium has been marketed for 30 years. At present, the question of enrichment is being re-examined, but a measure of the progress in nutritional science is

conveyed by the fact that the conclusion is to slightly raise the levels of the above additives. The only new factor that seems to have been introduced is a medical one. Dermatologists have opposed the increased level of iron because a tiny proportion of the male population cannot eliminate excess iron from their bodies (hemochromatosis). (In Canada and the U.S. enriched flour must contain 13-16.5 milligrams of iron per pound; the new level approved in the U.S. is 40 milligrams per pound of flour).

Apart from medical considerations, the addition of extra iron presents some technical problems that baking technologist Dr. Jackel outlines. The preferred form of iron is ferrous sulphate, but this material stimulates rancidity of flour during long-term storage. The answer to this problem is to add the iron at the bakery, but the regulatory agencies insist that the iron be added at the big flour mills where its addition can be monitored, rather than in thousands of individual bakeries. Some flour mills have solved the problem of rancidity during long-term storage by using another form of iron — ground up iron filings. But the miller's solution becomes the baker's problem since the filings clog up his equipment and the heavy iron distributes unevenly in the dough. Finally, there does not seem to be much information about whether iron filings are absorbed by the human gut.

The history of enriched flour illustrates the nature of a set of highly interlocking forces — the vested interests of the milling and baking industry the eating habits of the public, the image of bread as an important dietary factor, the ignorance of nutrition science — all whirling about creating a vortex of power, a vortex that resists all attempts at change. Only in the face of national disaster during World War II could the British budge the vortex of power sufficiently to modify the loaf.

### The Vitamin View of Nutrition

The attitudes of the professional nutritionists toward enrichment stem directly from their view of what constitutes nutrition. The discovery of vitamins was only 25 years old when the decision was taken in

World War II to add vitamins to a foodstuff. During this 25-year period some of the best minds in biologic science studied vitamins; the science of nutrition was the study of vitamins. Nutrition scientists were undoubtedly delighted with the public recognition of their vitamin view of nutrition through its practical expression of enriching devitalized flour. Public recognition could only reinforce their own opinion of the importance of the view that vitamins make the difference between bad and good nutrition, and that low quality food can be raised to high quality status by adding synthetic vitamins. Their view — has not changed — any subsequent scientific work has been designed to substantiate the accepted view. One result has been the strengthening of this view into yet another powerful force that shapes the character of the world of food technology.

It is useless to try to persuade the American people to eat foods that are nutritionally good for them, say the U.S. Department of Agriculture. Instead, nutrition should be engineered into foods that the public likes. Frankfurters could be beefed up with protein and candy could be enriched with vitamins and minerals — the official term is "nutrification". No scientific investigation has been made or is likely to be made in the near future as to the effects of such engineering on the health of the population. The idea of nutrification is technically feasible, and food engineers backed by the established interests, will proceed with it. If there should be any questioning of the effects of this trend, they can point to the old vitamin paradigm conceived when food engineering was almost nonexistent, and say that nutrition science supports the direction of their technology.

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# HOW AN IDEAL

by Nicholas Hildyard

Our major cities are on the verge of Nemesis. In some cases it is probably too late to avoid disaster — New York seems destined to go the same way as Knossos and Rome. But unless events prove totally cataclysmic, we can be certain that any future society will need cities; in line with current trends of deurbanisation and decentralisation they will be smaller and there will be fewer of them — but they will be there. It is equally certain, however, that if we run them on the same basis as we run today's cities that they will not survive. The question that confronts us is simple; how do we make them work?

What makes a successful city? Is it simply a question of architectural design? Of providing more open spaces? Or alternatively more markets, narrow streets and cafes? Is it a question of bringing back the old fashioned 'two up-two down' or what? The answer is that it is probably not exclusively any of these things. Indeed, some of them may actually contribute to the failure of our cities; open spaces, for example, do not generate community, but anonymity. There is no face-to-face contact. No, if we are to recreate a sustainable city, the solution must go deeper than this. We must reconstitute the conditions under which a city can give rise to a society — rather than a collection of individuals, thrown together because they

happen to live in the same geographical area. Let us look at a city that actually works — and see what lessons there are to be learnt.

## Siena — An Ideal City

Siena is one such city. It is an ideal city. Its crime rate is the lowest for any Western city of a comparable size. Delinquency, drug-addiction and street violence are virtually unknown. Class is not pitted against class, nor old against young. There is no anomie and no alienation.

What makes Siena so unique? Why is it so capable of satisfying the social and psychological needs of its inhabitants? Why does Siena show such remarkable stability? Ultimately we shall see that it is because of its social organisation. Because it is virtually a tribal city.

## The Importance of the Contrada

There are few cities in Europe that do not have their administrative districts. London has its boroughs, and Paris its arrondissements. But whilst Siena has its contrade, or wards, they differ markedly from their counterparts elsewhere. In the truest sense, they may be con-

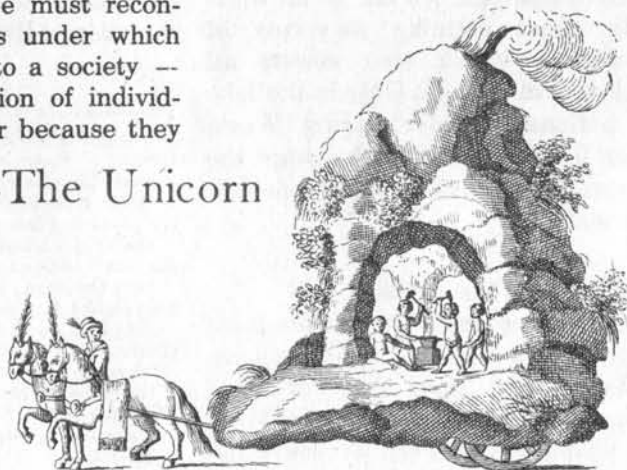
sidered independent city states. They are autonomous socio-political units. They have their own flags; their own seats of government; their own constitutions; their own territorial boundaries; their own discrete identities; their own churches; their own hymns; and their own patron saints. They also have their own names — official sobriquets — and enmities. With regard to the latter, for instance, Chiocciola, the Snail, feuds with Tartula, the Turtle; Brucco, the Caterpillar with Giraffa, the Giraffe; and so on. This is the world of Romeo and Juliet writ large.

It is impossible to understand Siena without first understanding what the contrada means to the individual citizen of Siena. For them, they are not distant, if special, beaureaucratic machines; membership does not imply simply the right to receive voting cards, and to be an Italian citizen. It means partaking in a special relationship. It means an active involvement in the contrada's social and political life. It means a particular outlook. And it means a sense of 'belonging'. For the Sienese, the contrada is a 'piccolo patria' — and it is treated with the utmost patriotic fervour and chauvinism.

## Social Relations are Structured

Each contrada is united externally and internally by a network of bonds. In both cases, its social relations are structured. It is crucial to realise the implications of this — for it is a major difference between the social organisation of Siena and that of industrial cities. In the latter, relationships do not fall in a fixed pattern — they are random. It is impossible to predict *who* Joe Bloggs will mix with, or how he will *behave* towards Joe Smith. It is true

LIOCORNO-The Unicorn





# CITY WORKS

that his relationships with his employer, with his parents or with his friends will have a special character, and a *certain* structure. But when we look at the whole network of his relationships, or beyond to the wider network of all relationships within an industrial society, there is no predictable pattern. There is no overall structure. Critically, *it is only through having a definite structure that a society can be assured of acting as a society — and not as a mass of fragmented and unrelated individuals. It is only through structure that the whole can exercise control over the parts. This is, after all, the definition of order.*

## Internal Structure of the Contrada

Consider the internal bonds of the contrada. The only form of status difference that counts for anything is that of age. As such there is a hierarchy. But this hierarchy is not socially divisive. Indeed, class — the most divisive of all forms of hierarchy — although an important factor in the wider life of Siena has no part to play in the internal structure of the contrada. Divisive class interests are subordinated to the unifying force of the contrada. The distribution of roles and statuses is such that maximum solidarity, and internal egalitarianism, are generated. Dundes gives a good illustration of this: 'rich and poor, left wing and right wing, nobleman and plebeian, all are bound up in the commonality of the contrada spirit . . . The democracy of the contrada is stressed by nearly everybody . . . Working men are proud to use the familiar 'tu' form instead of the more respectful and formal 'lei' when speaking to a patrician member of their contrada<sup>1</sup>

The sense of solidarity within

each contrada is astonishing. Contradaioi are acutely aware of how they are knit together, of their need for each other, and of the necessity for mutual support. Where a contradaioi is in need of financial assistance, the contrada will club together to help him. Remarkably, it is seldom necessary for him to make any formal request. The officers of the contrada consider it a matter of personal pride that they should be well abreast of the ordinary and extraordinary events in their contradiolis lives. They take a personal — not just official — interest in their members from the moment they are born. They *know* when a birth has taken place. They make certain that a flag is sent to be flown from the window of the newborn's house so as to officially claim it for the contrada.

## Structure of External Relations

Internally then, roles create unity. They dictate a general pattern of behaviour between contradaioi. Externally, however, social relations are structured to produce the opposite effect: discrimination. Each contrada acts as a discrete and strictly bounded group. The relations between them serve to reinforce

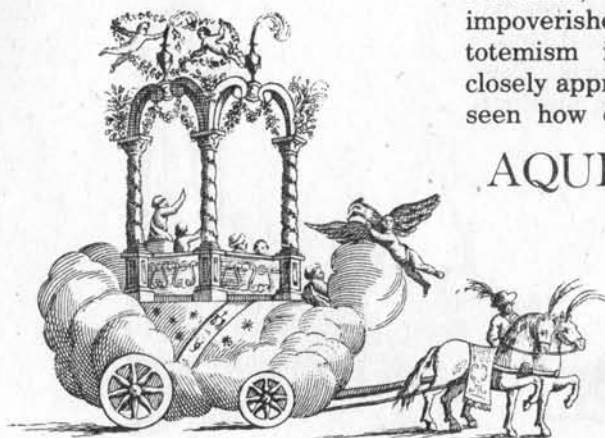
their boundaries, and re-emphasise their differences and their identity. Nowhere is this more apparent than in the Palio — the horse race for which Siena is justly famous. It is a race that creates intense rivalry. There is no contrada that is not defined by another as either an ally, a neutral, or an enemy. This is the terminology of warfare — and in many ways, the Palio is a type of war. A ritual war. For it is by competing, that the contrada rekindles its own sense of identity.

## World View Supporting These Relationships

The oppositions and rivalries created by these social relations are carried on into the Siennese world view. *It functions to maintain, reproduce and reinforce the structure of society. For world views are not epiphenomena. They are not, so to speak, just an ideological topping to the society cake. They are an integral part of society. They provide its structure with a sense of absolute reality. They explain it, justify it, define it — and even sometimes mystify it.*

Consider, for instance, Siena's totemic system. It may not be as sophisticated as anything found in Australia; it is certainly more impoverished in its symbols. Yet, totemism it is — or something closely approximating to it. We have seen how each contrada is named

AQUILA-The Eagle



after an animal, mythical or otherwise. What results is a system of classification which distinguishes one contrada from another, and imparts to each a recognisable identity. The symbols act as more than emblems — although there is a strong element of the emblematic in them. They not only communicate the differences between the contrada, they also communicate their similarities. It is as if they form a code, whose message once unravelled reads; one contrada is to another as one animal species is to the next — unique at one level, and united at another. The contrade are not so different that they cannot act together, nor yet so similar that they can act as one body. They are only as different as the animal species they use as their symbols; they are opposed and yet united.<sup>2</sup>

If this speciation of the contrade serves to differentiate them, it also serves to differentiate their members. The latter stress that each contrada has its own special personality, and that each is unlike any other. They insist that there are definite personality differences between the various contrada, and some even contend that there are physical differences. The people of Giraffa are thought to have longer necks. Those of the Eagle are disparagingly associated through their contrada colours with excrement. Those of the Goose with intestines — the local abattoir being in their area. At every level the individuality and uniqueness of the contrada is stressed: songs, sobriquets and topographical features are picked out and used to distinguish one contrada from another, one contradioli from the next. They discriminate between the groups in Siena. They emphasise group boundaries, stress internal solidarity, and the mutual interdependence of contradaiolis. They are making explicit their member-

ship of a unique and separate community.

### Socialisation

It is not world view alone that ensures that the overall pattern of social relationships are maintained. Perhaps, one singularly crucial factor is that membership of the contrada is determined by birth. It is this that permits the proper socialisation of the child to take place. To us, socialisation is something rather abhorrent. It suggests indoctrination, and suppression of individual character. *But it is only by virtue of socialisation that the child's behaviour conforms to a stable pattern — and can thus be recruited to support the structure of his society.*

From birth, the Sienese are immersed in a particular way of life — a way of looking at their world — constructed around their contrada. Children play games in which contrada rivalries and divisions are acted out. Mothers use the totems of their enemy contrada as bogey men, and recite lullabies in which the constant theme is the distinguishing features of each contrada. Contrada rivalries are a common subject of early socialisation. To quote Dundes: "A giraffa mother was observed spoon-feeding her baby. 'One for Mama, one for Daddy, and one for Giraffa,' was recited to induce the baby to accept the spoon. Then she said, 'This is for Bruco' (the enemy contrada). But as the baby opened its mouth she withdrew the spoon".<sup>3</sup>

Children are constantly made aware of their social organisation, and of the strength of their groups. Their world becomes the

world of the contrada. It is reflected in most of the ideas and actions of adult Sienese. There is everywhere a constant consistent tendency for them to interpret their environment in terms of their contrada. There are few natural objects that are not translated into its language. A Drago man, for instance, is said to have watched the first traffic lights installed in Siena. After a long pause, he exclaimed. 'Bravo! I love you! You too are of the Dragon.' (The shifts of the traffic lights are the same as those of the Dragon contrada.) So also there is a pear, known locally as Chiocciola (Snail); its colours when ripe are those of the Chicciola contrada. This immersion in the contrada functions quite clearly to strengthen its boundaries, its identity, and its members' commitment.

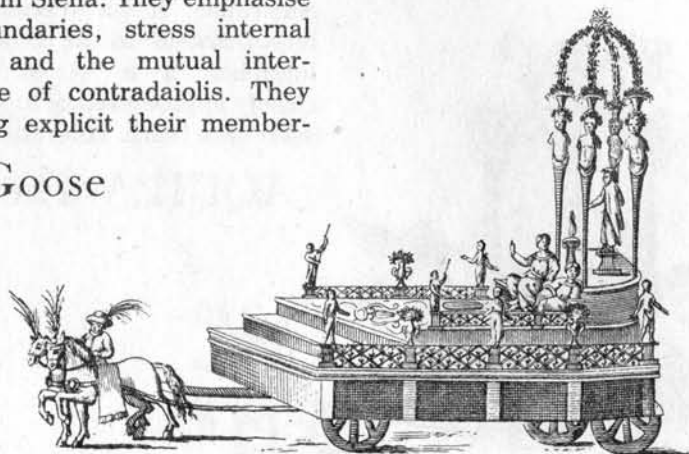
### Ascription of Status

If membership by birth ensures that proper socialisation can occur, it also entails that the major statuses and roles in Siena will be ascribed. They will be of a fixed character. They will not be negotiable by the individual throughout his lifetime. Again, this contributes to the maintenance of structure. It enables each Sienese to predict how one contradaiolis will behave to another, to his fellows, to the old, to the young, to noblemen of his own contrada, and those of others. The way he behaves is to a large extent laid out for him. He does not have to find his own feet, so to speak; society places them for him. He is enmeshed in a criss-cross of bonds. He is linked to his fellow contradaiolis. He has a direct link to the divine through his contrada's Saint. He has a precise cognitive map for assessing his relations to others; he is bound to his fellow Sienese through membership of political parties, Trade Unions, work, marriage and friendship.

### Dismantling of Status

To us the idea of ascribed status is anathema. It is considered reactionary. It goes against the one value we hold to be sacred: namely the unique value of the individual. Any hint of social conditioning makes us feel extremely uneasy. Ours is a social

## OCA-Goose





environment in which visible rules and classifications have been weakened. It is one in which prescribed statuses have been dismantled. No longer is it the case that institutionalised classifications keep individuals apart, regulating their behaviour to one another, and limiting the options open to them. Male and female spheres are no longer strictly separated. Children no longer find that their relations with their parents are well defined in advance. Roles are fluid. Statuses are negotiated.

### Anomie and Uncertainty

It all seems very free, and very liberal. The individual has at last wrested himself from irrational and oppressive taboos. We should, however, be wary of such a conclusion. There is quite simply a limit to the extent to which social boundaries and conventions can be broken down. Beyond a certain point, which has probably already been reached, the price we pay for our naivety is increased uncertainty, increased anonymity and increased instability. To quote Mary Douglas 'As insulation decreases, the organising principles of society become increasingly obscure . . . As statuses themselves become challenged, each world view that partly enforces a status pattern becomes challengeable . . . There will be increasing scope for scepticism about metaphysical principles and their fit to experience . . . The same atmosphere will foster tolerance, for the grounds of intolerance are eroded and the power to suppress a contrary view is weakened. Individual variation will be tolerated, no longer a symbol of threatened classification. Eccentricity may flourish. Moral and social deviance can barely be defined.<sup>4</sup> Devoid of ascribed status there is no background against which to measure the individual. Unless he stands out by his own effort, he is doomed to melt into the obscurity of the masses. This is the society in which alienation flourishes.

The process has advanced so far that our social relations are barely sustainable. The values we hold may be inherently noble, but the social relations on which they are built cannot produce a valid, sustainable society.

### What Type of Status System Is Sustainable?

This may seem like a call to the rigid social distinctions of the Victorians — to the age when the rich man remained in his castle and the poor man at his gate. It is not intended to be so. For whilst Victorian society was relatively more sustainable than our own, in that its social relations were systematized, it did not prove stable in the long term. Its fault was simple: its status differences were based not on natural processes (such as ageing) but on wealth. This was the root of their instability. They were subject to the inherent contradictions of the forces of the market. And above all, they often precluded the active participation of all in the running of their social unit.

### The Development of Patria

Not so with Siena. Provided one has been born into a contrada, no differences of wealth prevent one from partaking in its life and government. As we have already seen, class is irrelevant in the context of the contrada. Rich and poor, artisan and farmer, old and young, all are involved in the life of the community. No-one is excluded from their local social unit, or from the associations that link them. Power thus rests firmly in the hands of those whom administrative decisions most affect — the people.

This is not simply a question of democratic representation — of having the right to vote. It is a question of direct and personal involvement. The *contrada* know their officials. The great majority go to their general assemblies. In their clubroom, they discuss what

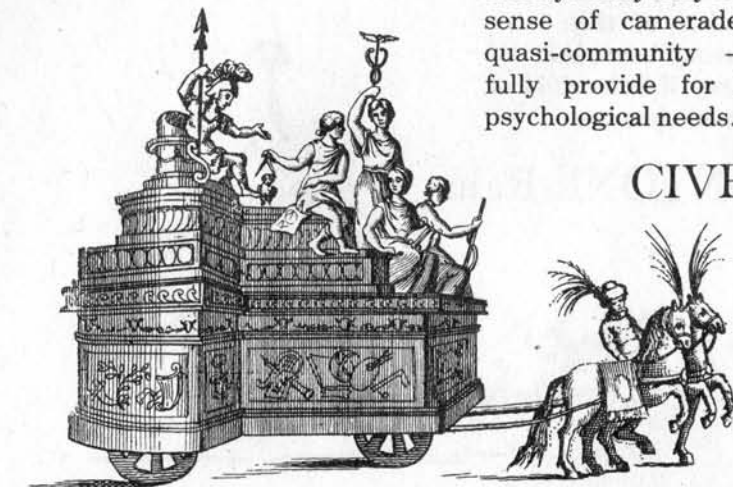
decisions should be taken, and *know what it is within their power to have them implemented.*

In Durkheim's terminology, the *contradas* thus form 'intermediate associations'. Stressing the importance of these, and the crucial role they play in the maintenance of society, he wrote: 'A nation can be maintained only if, between the State and the individual, there are a whole series of secondary groups near enough to the individual to attract them strongly in their sphere of action and drag them in this way to the general torrent of social life.'<sup>5</sup> It is through participation in these intermediate associations that the individual feels 'a part' of his community. So too the society becomes a true and valid democracy. As Zimmern puts it: 'Democracy is meaningless unless it involves the serious and steady co-operation of large numbers of citizens in the actual work of government. Whereas with us, the few do the work of the many, [in a democratic society] the many do it themselves.'<sup>6</sup>

### Effects of Withdrawal of Participation

Wherever this direct involvement of the individual in the life of his social and political unit has been disrupted, the effect is always the same. The individual loses the roots of his identity, and the community ceases to function except in name. It is not sufficient that he belongs to associations (such as social clubs) that unite him horizontally to his fellows. For without his participation in his basic unit, they are in a sense left stranded: they are in limbo. They have no structured relationship to the other parts that make up society. They may supply him with a sense of camaraderie — with a quasi-community — they cannot fully provide for his social and psychological needs. His responsibil-

CIVETIA-Owl



ities, and the power to govern his destiny, gradually become taken over by the central government. This is a frightening condition of society. The community ceases to function effectively. It becomes a pale shadow of itself — a surrogate, and an often ineffective one at that. The State is too monolithic for the individual to feel any special relationship towards it. The individual has nothing to 'love' — no patria. Without the delegation of authority and power, the whole is deprived of its control over its parts — and the parts are deprived of a sense of belonging.

### Relationship towards Ones Contrada

The direct involvement of the Sienese, on the other hand, in the workings of their city has not simply given them the luxury of true democracy. It has produced a very special relationship between them, their contradas, and Siena itself. At times, this relationship may seem to us to border on the irrational. Let us look at a few examples.

Take their attitude towards their contrada's symbol. They draw comfort from it. They feel protective towards it. It is an almost sacred relationship. There are several recorded instances of men from Drago (the Dragon) refusing to accept honorary medals because they depicted St. George killing their totem. There is an anecdote which tells of a man from Giraffa who visited Rome with an organised tour group. He spent his whole day in the zoo. On his return to Siena, his friends asked what he had seen. He replied that he hadn't seen much — but that it did not matter because he had been with his 'Big Giraffe'. Similarly, they talk not of being a member of their contrada, but of having been born of its symbol; they say 'I am a child of Goose', or Drago or whatever.

This may seem to us to be absurd peasant simplicity. It is not. It is only comprehensible if we understand that to a contradaio, his totem is his contrada. To neglect it or treat it with disrespect would be as obnoxious to him as flying in the face of his contrada.

Through this relationship to the contrada there is generated adoration for the city of Siena itself. As one writer put it for the Medieval period: 'out of the various loyalties bound up with [the contrada], and communicated to the blood and marrow through ancient habit was to be created a higher loyalty, attaching to the newborn commune of Siena. Only as that loyalty, called patriotism, in our day should grow and flourish could the city generate the civic spirit, upon the health and vigour of which depended its greatness.'<sup>7</sup> The evidence for this civic spirit in modern Siena is everywhere present. The one song that is common to all contrade praises its beauty:

'In the Piazza del Campo,  
There verbenas grow.  
Long live our Siena!  
the most beautiful of cities.

Long live our square  
The tower and the chapel  
Long live Siena the  
most beautiful of Cities.

It may be a trivial example, but it is an indication of the regard in which they hold Siena. Aesthetic charm has a great deal to do with it; one cannot imagine the people of Nuneaton being so enthusiastic about their high rise flats. But above all *there is this depth of feeling*

*because Siena is a society, a community.*

### The Palio: A Cathartic Outlet

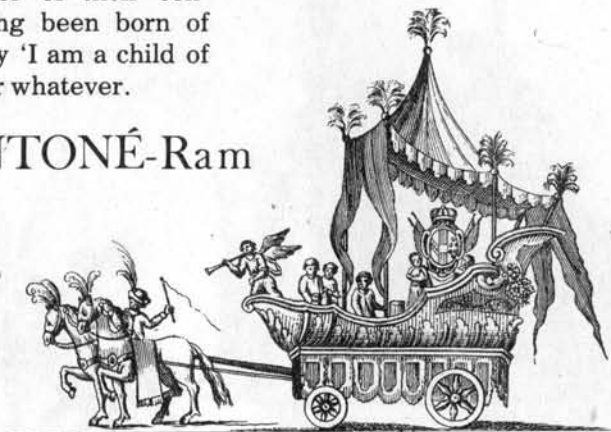
Having structured social relations, and directly involving the individual in his community, are not of course the only reasons why Siena works. There is a further one. The Palio. Its success is closely linked to the others — but it has a function and a rationale of its own. *It provides the Sienese with an outlet for their aggression.* This is the illuminating interpretation given to it by Goldsmith<sup>8</sup> and it is one that is certainly endorsed if we look at the historical form of the Palio. Originally, it was one of many types of games that were played to mark the end of religious festivals. They were all, in their own way, mimic battles. And they all had a cathartic effect. Consider for example the first fights known as pugna. Two groups of combatants fought in Siena's principal square — the object being to force the other side to leave. The fights were extremely fierce. At the end however all participants formed a circle and danced. Their aggression had been channelled to produce ultimate unity. So also with the Palio; during the race, the contrade form quite distinct groups. Afterwards, the winners entertain the whole of Siena in their contrada club room. Divisions are momentarily forgotten.

### Why is It so Effective?

The Palio is a ritual of aggression. But then so are football matches — indeed the similarities between the two are extremely striking. In both, the rival groups have songs, which disparage their opponents and encourage their own team to greater efforts. In both there is undoubted enthusiasm. But the Palio is far more effective. Only rarely is there any violence or hooliganism. More often than not, fights when they occur are, as Dundee puts it, 'symbolic fights with words, symbol and song.' Thus members of the winning contrada may send a bottle of castor oil to their enemy contrada. The suggestion is that they should take a purge. The Palio is a highly efficient outlet for emotion. A football match is not.

The crucial difference between the two is that the Palio is a com-

## VAL MONTONÉ-Ram





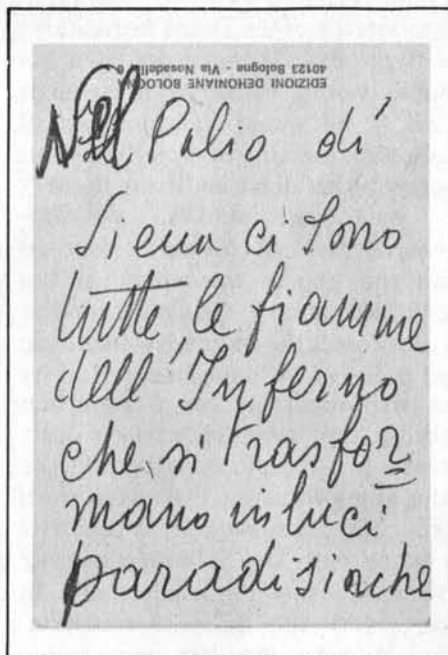
munity event, and involves a way of life that lasts not for one day, but for a whole year — if not a lifetime. Following one's contrada is not a teenage obsession; it involves all the Sienese. On the day of the Palio, virtually everybody in Siena comes to the Piazza del Campo. Only the sick and infirm remain behind. The streets are empty. The behaviour of the crowd is thus modified, the enthusiasm of the young is tempered by that of the old. The young behave as part of the community. We are back to the structure of social relations.

### The Palio as the Contrada Worshiping Itself

The Palio means so much more to the Sienese than a football match. In the Palio each contrada worships itself.<sup>10</sup> Everything is directed towards ensuring its success, in making explicit its boundaries. Take for example the moral values explicit in the running of the race. Jockeys are allowed to whip each other. They jump off when the going gets too rough. Contrade make agreements with each other to, for example, impede the horse of an enemy. These 'partiti' amount to little less than bribes. If any enemy contrada wins, one's own is considered to have lost — even if it did not race. An unmounted horse can come first. These are not the ethics of the Jockey Club. They all seem unsporting and unfair. They are not designed to protect the individual. They are designed to ensure the success of the group. They are group values. In the Palio the group comes first. The individual is unimportant.

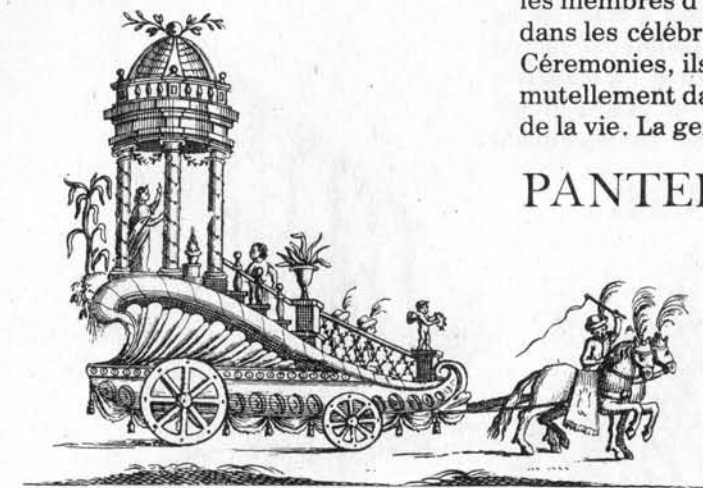
Consider also the enthusiasm and allegiance the Sienese show towards their contrada during the Palio. The losers will actually receive money for partiti services rendered. Their reaction, however, is precisely the opposite of a punter on Derby Day. They weep at the *disgrace* of having lost. The winners on the other hand, who must pay a small fortune for the pleasure of victory, cavort through the streets in a state of delirious excitement.

The contrada is in fact given an almost sacred status. Norms which are otherwise rigorously observed are broken to express its solidarity. The everyday rules classifying the sacred and the profane are juggled.



The contradaïoli do not have to keep silence in their church; they cheer when their horse is blessed. Not only would bringing a horse into a church be considered deeply offensive under normal circumstances, but allowing it to defecate would be considered an abomination. In the days of the Palio it is considered a good omen. In blessing the horse the Sienese are blessing their contrada. Nothing short of murder must be allowed to get in the way of its success. It becomes sacred.

It is a way of life which entails far more devotion than any football match. It is the community's greatest rite. No wonder that it proves such a powerful catharsis. As Don Vittorio, the priest of the Baptistery put it, *'In the Palio, all the flames of Hell are transformed into the lights of Paradise'*<sup>11</sup>. There can be no more eloquent testimony to its success.



### The Tribal City

Siena has many features that make it unique. Its size, the fact that it has never been industrialised. That it was an independent city state. That it is aesthetically charming. That it has a stirring past. All of these are critical to its success as a city. They also make comparison difficult. But if we look at cities before the onset of industrialism, we find they had a common feature. They were tribal. Their social organisation was similar in form and structure to that of Siena. It was only when these tribal principles were abandoned by liberal reformers, or broke down under the stress of internal contradictions, that anything approaching the chaos of modern cities occurred.

Consider, for example, the organisation of ancient Athens in the sixth century B.C. Its major division was into four tribes. Their members were united by real or fictitious ties of blood and generally resided in the same area. Below these were the brotherhoods — sacrificial societies with their own sets of gods. Finally, there were the parishes; semi-autonomous groups whose councils dealt with matters of public concern, and administered the business submitted to them by the central government, such as the providing of men and money for the Athenian fleet. In Rome we find an almost identical organisation; three tribes, subdivided into gens, which functioned as autonomous, religious, administrative and jural units. Of the strength of the bonds uniting their members, Fustel de Coulanges wrote:

'Rien n'est plus étroitement lié que les membres d'une gens. Unis dans les célébrations des mêmes Cérémonies, ils s'aident mutuellement dans tous les besoins de la vie. La gens entière repend

PANTERA-Panther

de la dette d'un de ses membres; elle rachète le prisonnier; elle paye l'amende du condamné. Si l'un des siens devient magistrat, elle se cotise pour payer les dépenses qu'entraîne toute magistrature'<sup>12</sup>.

Other examples of this type of organisation abound; Teotuhican and Uruk were both divided into clans and lineages<sup>13</sup>. So also, modern Monrovia, the capital of Liberia, which is little more than a collection of semi-autonomous tribal villages<sup>14</sup>. Indeed, so consistent and so noticeable is this tendency for cities of the past to have been divided along the lines of a tribe, that Fustel de Coulanges, Max Weber and others have argued that cities were initially no more than tribal groups brought together by fraternisation.

The combined strains of economic stratification and wealth broke down this familial form of organisation. A depressed urban proletariat formed, excluded from political participation on the grounds of insufficient wealth. But the subsequent re-organisation made use of the same tribal principles exhibited earlier. In Athens, Cleithenes abolished the old tribal divisions based on consanguinity, and in their place established 'new tribes' on a territorial basis — 'for Athens could not conceive of itself without tribes. He gave each a religious status, calling them after well-known heroes — the names being selected by the Delphic oracle. In place of the parishes, he set up the Demes, which formed the local unit of administration throughout the great period of Athenian history. To ensure that 'when a man spoke and thought of his people he should think of his demes, Cleithenes made the name of a man's Deme serve as his surname. He also made

membership of the Deme hereditary; 'a demesman living away from his people would count as a resident alien — he would have no part of the public affairs of the deme but merely be set down as 'living there'<sup>15</sup>. A strikingly similar development occurred in Medieval Europe with the popolo movement of the early 13th century. Originally formed to counteract the extensive economic and political influence exercised by the patriarchal families of the urban nobility, they eventually usurped the latter's power, and re-organised the cities along the same lines as modern Siena. The same revolution occurred in Rome with the Tribunes gaining power for the Plebeians; and in Sparta with the Ephorite rebellion. In each case the city was transformed from a confederation of families to a confederation of territorial associations. The strict tribal organisation, based on family and lineage, was replaced by a quasi-tribal, quasi-familial one. The bonds that cemented the latter were of the same form and structure as those that cemented the former. *They were tribal.*

#### Conclusion: How Relevant is Siena?

The implication throughout this article is if future cities are to work they must be organised along the same lines as Siena. How pragmatic is this suggestion? Is it really sensible to talk of tribal cities in the modern age? In the case of London, probably not. It is simply too large. But with rural towns such as Gloucester or Hereford, there is a real possibility of recreating the conditions under which they can be sustainable as societies.

There is no doubt that it would

entail radical changes in our way of life. But if we are to have a sustainable society, then these are not just preferable; they are essential.

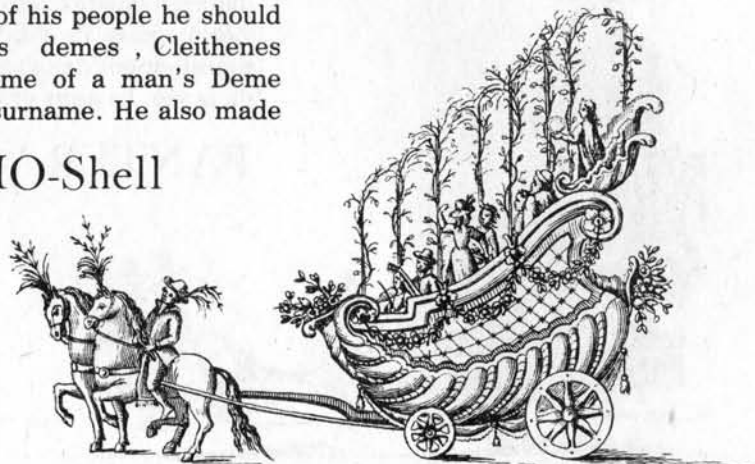
The only form of society we know to be sustainable is a tribal one. It is the one to which we have been adapted. It provides the optimum human environment; the most stable, the most capable of satisfying our social and psychological needs. *Above all, it is the only organisation that can give a structure to society; the only structure compatible with stability.* At the base of any tribal society lies the family — probably the most important of all its component parts. Above it, there is a larger group — the village or commune. Of the latter's significance, we would do well to remember the words of De Toqueville: 'Ce sont les hommes qui ont fait les royaumes, mais la commune semble sortir de la main de Dieu'<sup>16</sup>. Indeed, like the family, it is a natural group. Together they have co-evolved to create the best framework for Man's needs and aspirations.

If to regain such tribalism means the demise of capitalism, then so be it. If it means the return to seemingly irrational taboos, then so be it. These are the preconditions which will enable us to achieve our ultimate goal: the restructuring of societies on a tribal model. The case of Siena shows how by doing so we may solve most of the apparently intractable ills that plague the amorphous cities of the Western World.

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NICCHIO-Shell







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# Marxism Versus Ecology

by Colin Fry

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**The world view of industrialism underlies Marxism quite as much as it does our brand of Liberal capitalism. Both identify progress with urbanisation, industrialism and the centralisation of political power; precisely those trends that must be reversed if we are to achieve a satisfying and sustainable society.**

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Marx was an urban chauvinist. The ecological consequences of this fact have not yet been fully appreciated.

The classic text of Marxist urban chauvinism is to be found in the first paper of *The Communist Manifesto*, 'Bourgeois and Proletarians'.

"The bourgeoisie has subjected the country to the rule of the towns. It has created enormous cities, has greatly increased the urban population as compared with the rural, and has thus rescued a considerable part of the population from the idiocy of rural life."<sup>1</sup>

This creation of urban conglomerations by the bourgeoisie is interpreted by Marx as making the country "dependent on the towns." (Ibid)

At the end of the *Manifesto*, Marx outlines ten revolutionary objectives. These objectives are characterised by two dominant features: an emphasis on industrialisation, and a ruthless centralisation

of political power. Among these objectives we find the following:

"9. Combination of agriculture with manufacturing industries; gradual abolition of the distinction between town and country, by a more equable distribution of the population over the country."<sup>2</sup>

The way in which this ninth objective has been approached by every Marxist government yet to come into existence has been more or less the same. It has involved the collectivisation of agriculture — which in practice means the application of industrial methods to the production of food. Although the results of collectivised systems, notably in the USSR, have been inferior to the results of Western industrialised agriculture in terms of quantitative productivity, the essential principles involved in Marxist collectivised farming are not fundamentally different from those involved in the intensive farming systems characteristic of large-scale agriculture in Western

'capitalist' countries. In Britain, the contracting of an annual vegetable crop to a large cannery or frozen-food manufacturer effectively involves the combination of agriculture with manufacturing industries. Thus the objectives of Marxist agriculture are essentially identical with the objectives of commercialist agriculture.

Both Marxist administrators and frozen-food manufacturers regard the countryside in the same way: as an exploitable source of wealth. This attitude is endemic in Marxism because it was endemic in Marx's personal psychology. He was a townsman, with no understanding of, or sympathy for, rural life. As we have seen, he regarded the countryside as dependent on the town (which is in fact a reversal of the true situation: the town is completely dependent on the food which is grown and caught by countrymen); and this state of affairs was, in his view, on the whole a good thing. Rural life, he explicitly stated, was



characterised by "idiocy".

His description of the subjection of the countryside to the cities by the bourgeoisie is intended to illustrate an upward movement in terms of historical progress. It was a beneficial development, Marx thought.

Kamenka brings out this element in Marxist theory, and in Marx's personal psychology, very well:

"Man's relation with 'nature' for Marx is always dialectical; man shapes it as it shapes him; there is no understanding one without the other. For Marx nothing that enters into relationship with man remains simply non-human. This is why the motive forces in the Marxian conception of history are characteristically human products — inventions and the class struggle, not rivers, mountains, trees or fields, which to Marx are nothing until they become objects of human intentions and purposes."<sup>3</sup>

As I have noted, this aspect of Marxist psychology — which we may describe as urban chauvinism, anti-ruralism, or technological aggression — passed into the practical attitudes of Marxist activists and determined their attitude towards the eco-systems of their natural environments when they gained political power. It is an attitude which went in harmony with the Victorian faith in Progress, and with the equally Victorian belief that industrialisation could never be anything but good. Thus, Marxism became the most completely Victorian philosophy, and by the same token the most completely Victorian of all political systems — which it still remains.

We find this anti-rural attitude institutionalised in the Programme of the Communist Party in Russia:

"The chasm between town and country is at all times one of the main causes of the backwardness of the rural districts, both as regards farming methods and as regards mental culture. But, in a profoundly critical epoch like the present, this cleavage involves for town and country alike the imminent danger of absolute ruin. The Russian Communist Party therefore regards the putting an end to this separation as one of the fundamental tasks of communist constructive policy."<sup>4</sup>

One long-term consequence of this attitude, which has involved the laying down of agricultural policy from a centralised directorate in the USSR, and the organisation of the collective farms' labour force in "brigades" on a military pattern, has been the development of the "farm city". This involves an attempt to organise rural life on what is essentially an urban pattern.

The belief that it is not only in the power of the human race to change Nature, but that this is its historical calling, was shared and emphatically asserted by Lenin. Without a trace of irony he claimed that with the change in the relations of production between human beings and the abolition of the exploitation of man by man, human nature itself would change in a surprising way.

Labour, the effort of work, according to Lenin, would cease to be a burden and the emancipated man would develop on urge to work, similar to hunger, thirst and sexual desire.

Mainly being concerned with the political reorganisation of the vast country which fell into his power in 1917, Lenin had hardly any time to interfere with the forces of nature in Russia. After the nationalisation of the large estates, Soviet agriculture became in the years of the New Economic Policy 1921-1928 a peasant subsistence economy, producing some surplus for the commodity market. Agriculture rapidly recovered from the depredations of the Revolution and War Communism, whereas industrial development continued to lag behind. Under Stalin, beginning in 1928, this situation was reversed.

At the cost of about six million lives, a great depletion of horse and cattle stocks, and a reduction in productivity, a new system of land tenure was introduced — the collective farm system, to which the Russian peasantry was opposed from the beginning and to which it is still opposed today.

Under this system, the factor of natural acquisitiveness in agricultural economics was completely eliminated, and replaced by a threat of starvation should the individual peasants not comply with the bureaucratic instructions which rained down on them from State and Party. One of the consequences was

a considerable reduction of the agricultural population — from 80 per cent of the total population before the Revolution to under 50 per cent — but not all of this population went to the towns to take up industrial work. Millions of peasants who had resisted enforced collectivisation (which on paper was always called 'voluntary') were deported to distant parts of Asiatic Russia as banished persons with restricted possibility of movement, and many more went to the concentration camps where they were used as labourers.

The enormous decrease in the rural population in the Thirties was due to this mass deportation and to the acute famine of 1932-3, which resulted from the collectivisation campaigns and which struck many parts of the Soviet Union, predominantly the Ukraine.

On many of the collective farms in Stalin's time hardly any appreciable payment in kind or money was handed out to collective farm members, and the real basis for the subsistence of a peasant family was the tiny private plot adjoining the peasant's hut, together with the cow which he had been allowed to keep.

After the war, Khrushchev tried to improve agricultural productivity by merging smaller collective farms into larger units and creating "agro-towns". The "agro-town" project was eventually abandoned because of the cost, and the merging of collectives into larger units had no appreciable results.

When Khrushchev became the leader of the Soviet Union in 1953, he believed he had discovered a new expedient to increase agricultural production: the cultivation of maize on an unprecedented scale. Maize was therefore sown all over the USSR, whether the land was suitable for it or not. Some of the best wheat-producing lands in the Kuban and Stavropol regions were forced to grow maize despite protests from local officials. Maize was also required to be sown in the North, right up to the Arctic circle, in regions where it could not possibly ripen. Khrushchev thought this did not matter and that the unripe maize should be silaged and fed to animals.

While he ardently promoted the cultivation of maize, and later legumosa, he equally ardently dis-

couraged the cultivation of oats, kale and fodder beet. These latter crops could, of course, be used by the peasantry to supplement their meagre diet, while silage is unfit for human consumption.

A further large-scale attempt to reform the collective farm system was Khrushchev's campaign for the recovery of the fallow and virgin lands in Southern Siberia. Large numbers of allegedly voluntary workers were sent there with heavy machinery, and indeed the first two years of the newly recovered arable lands yielded appreciably good crops. The technology of the enterprise was however badly planned, in spite of warnings by American agronomists who remembered the gruesome experience of their own Dust Bowl.

Deep-ploughing destroyed the thin layer of agriculturally valuable soil. After a snowless and extremely cold winter, the remaining usable parts of the soil were blown away and since then it is doubtful whether the enterprise of farming in those regions is economically justifiable.

Yet the Soviet Government sticks to the collective farm system for political reasons, remembering the fear of the Communist leaders in the late Twenties that a new class of property-owning and independently-thinking farmers might be formed. As long as the collective system continues to be enforced, this vast country, which was once a major exporter of every kind of agricultural produce, will be forced to continue importing large quantities of food.<sup>5</sup>

The results of American agriculture in terms of quantitative production have been "better" than those of the USSR, not because of any fundamental difference of attitude towards land, but partly because of the USA's more favourable climate, and partly because of the greater use of intensive farming methods and mechanisation, coupled with the profit incentive.

All Marxist countries are, in fact, attempting to move their agricultural production systems in a direction which would culminate in American-style productivity. This even applies to a country like China, where at present great use is being made of so-called "labour-intensive" farming methods and "intermediate technology". The strictly inter-



mediate nature of such methods is clearly shown in a recent *New Society* article by Jack Gray.<sup>6</sup>

Gary outlines the "intermediate" methods being employed in China, drawing a contrast between Maoist and Stalinist collectivisation techniques. The difference in technique, however, is purely tactical. The strategic objective of Maoist agricultural policy is exactly the same as the objective of Soviet policy.

"Locally, the mechanisation of agriculture takes place step by step with a gradually increasing labour scarcity. Meanwhile, rural industrialisation develops: farm tools and simple farm machinery are manufactured, and there is increasingly mechanised processing of crops. Mao Tse-Tung expects this spiral of local economic development to continue until the countryside has been fully industrialised, and the difference between town and country has been eliminated."

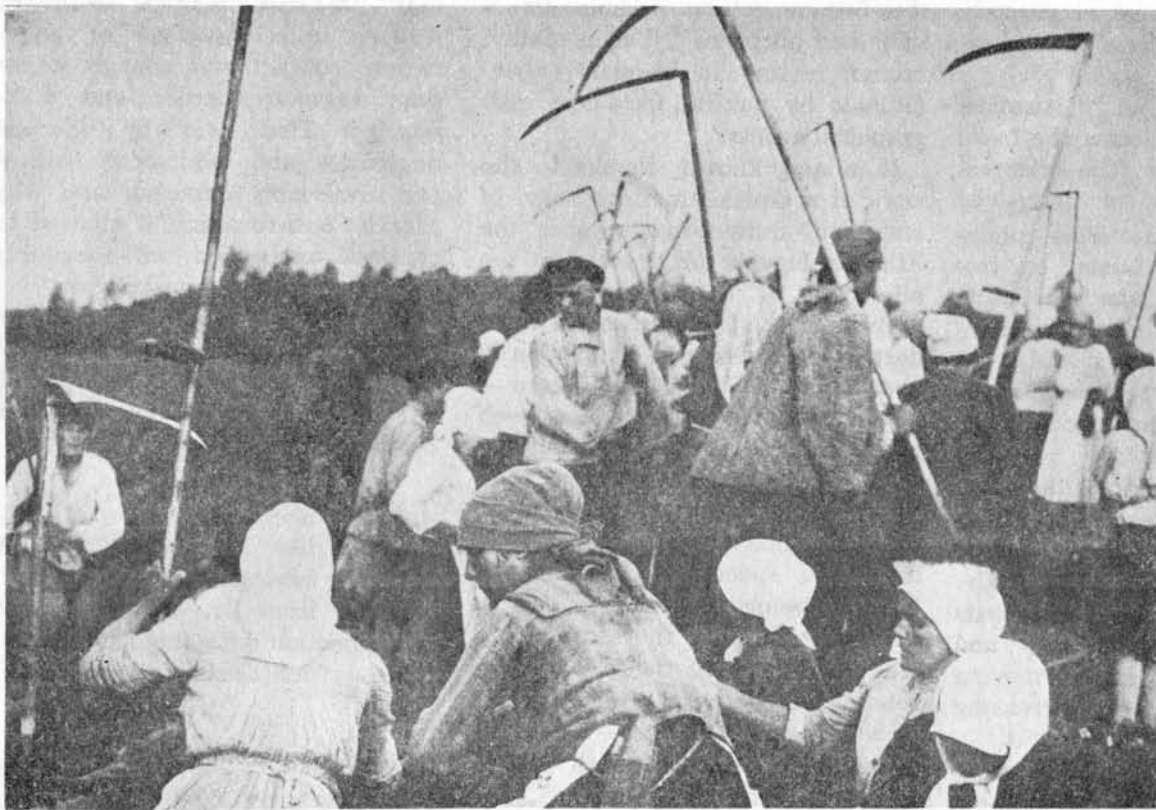
Indeed, the Chinese are even more ruthlessly single-minded about

this process than the Russians, as the scandal of China's bird population indicates. Much publicity has been given to the fact that when birds were designated as farm pests by the central directorate in China, the whole population co-operated in the virtually total destruction of birds throughout the country. In practice, the populace was unable to kill quite every bird in quite every part of China; but the Chinese came close to that, and the skies of China became unnaturally silent.

The disturbing aspect of this is that the story is usually told as an example of the *good* side of Chinese communism. It is regarded as a marvellous example of social co-operation — whereas in fact it is one of the greatest ecological crimes in history. It is the perfect expression of hostility towards the environment which, as we have seen, characterised Marx himself and appears to be endemic in Marxist psychology generally.

A recent example of this psychological attitude arose during a discussion about fox-hunting on the





Harvesting in  
Russia,  
October 1923.

*Radio Times,  
Hulton Picture  
Library.*

BBC radio programme *Any Questions?* During the debate, the Conservative MP Sally Oppenheim expressed doubt about the humanness of alternative methods of eliminating foxes — which, she said, everyone agreed were pests needing to be destroyed.

Patrick Hutber, defending fox-hunting, said that if hunting stopped there would very quickly be no foxes left in England outside the suburban fringes, where at present the arthritic urban mutation of the fox exists by scavenging dustbins. This would happen, he said, because the farmers knew where the foxes were and, if hunting stopped, they would promptly go out and exterminate them by trapping, gassing and shooting. Foxes would soon become extinct.

Lord Soper, the Christian Socialist, an opponent of fox-hunting, responded immediately by taking Hutber's observation as a sufficient answer to Sally Oppenheim's question. He implied that, since the absence of hunting would lead to the extermination of the fox, this was another argument for the abolition of hunting.

A large fund of anti-ruralism, which we might perhaps better describe as anti-naturalism, evidently

exists in the human psyche, forming a predisposition towards the Marxist attitude. This anti-natural attitude is fundamentally a death wish, as the subjection of the countryside to the towns in practice involves the progressive defertilisation of formerly productive agricultural land, increasingly rapid dislocation of the ecosphere and pollution of the food-chain, and ultimately — if carried to its logical conclusion — the death of all life on the surface of the planet, with the possible exception of bacteria.

Edward Goldsmith has charted the decline of the Roman Empire in relation to the ecostructure of the Roman world, and has shown conclusively that the combination of political centralisation, massive urban growth and intensive farming results in soil exhaustion and ecological catastrophe.<sup>7</sup> The Roman Empire did not manage to destroy life throughout the planet, because fortunately the communications and

transport systems of its day were limited, and were in fact unable to surmount a geopolitical delimitation falling well short of integral global totality.

Modernly however, as H.J. Mackinder pointed out as long ago as 1919<sup>8</sup>, the world has become a closed system.\* The refinements in travel and communications technology that have been made since Mackinder's time have further consolidated the closing of the system, and we are now locked into a global structure based on ecological exploitation which is rapidly generating pollution and waste matter at an exponentially increasing rate.

In this process, capitalism and communism have combined. In fact, Marxist politics is the most acute and virulent form of capitalism. To describe it as "communism" is a terminological confusion. We should speak of "Marxist capitalism".

Left and Right are merely two of the same movement — a movement

\* *The earth has, of course, always been a closed system in terms of the biosphere. Mackinder is speaking in terms of political and cultural history, however, and is quite content to call attention to the fact that the planet only became a unicultural closed political system after the Industrial Revolution [though the first steps in this direction were taken by the great navigators of the fifteenth century]. Politically and culturally, for example, America and Australia both remained isolated for centuries, if not millennia. Both are now deeply embroiled in the global uniculture.*

which may be most accurately described as Industrial Progressivism.

The philosophy of Dialectical Materialism, which forms the basis of Marxism, gives the clearest systematic account of industrial progressivist beliefs. This philosophical system is based on two foundations which are symbiotically linked: the dialectical interpretation of history, and the materialist principle, which was introduced into Hegel's Dialectic by Marx and Engels.

In order to demonstrate the truth of Dialectical Materialism, it is necessary to show two things: 1) that history moves dialectically, with self-contained historical periods opposing one another radically; and 2) that matter is constantly moving towards a condition of increasing perfection.

For the first of these two theses to be proven, radical discontinuity between opposed historical periods must be shown. In fact, as Goldsmith demonstrates, if we take the Roman and Medieval periods as thesis and antithesis, we can actually find all kinds of continuities between them, and these continuities are radical. For example, the distinctive political structure of the Medieval period is said to be feudalism. When we examine the roots of feudalism, we find that it originated in a piece of Roman Imperial centralist legislation. Many other continuities can be found. Radical discontinuity cannot be proven, and the dialectical interpretation of history cannot be maintained.<sup>9</sup>

As far as the condition of matter is concerned, Georgescu-Roegen<sup>10</sup> has shown that, according to the Second Law of Thermodynamics, matter actually behaves in exactly the opposite manner to that which would be necessary for Dialectical Materialism to be true. In other words, far from moving towards perfection, matter is constantly being dissipated and tending towards an ultimate condition of high entropy, which will not result in the heat death of the universe, as was originally supposed, but in material chaos.

Marx's view of history is strongly coloured by his anti-naturalism. As Kamenka says, to Marx the brute facts of nature — rivers, mountains, trees and fields — "are nothing until

they become objects of human intentions and purposes". Yet in reality, human history is frequently conditioned by natural facts and geographical events.

It is now known, thanks to the work of a Greek-American team of undersea archaeologists, that the Atlantis legend originated in the aftermath of a gigantic volcanic eruption in the Mediterranean which destroyed the Minoan civilisation of ancient Crete. The island of Thera — now Santorini — literally blew itself apart in an explosion considerably greater than that of Krakatoa. And Thera was an important centre of the Minoan culture.<sup>11</sup> This is perhaps the most spectacular instance of history being determined by a natural event, but there are many other instances of the close inter-relationship between the categories of Nature and History — an inter-relationship in which each affects and is affected by the other.

As geopolitical events affect human history, so also human events affect the environment and cause or at least exacerbate geographical disasters — which then have unforeseen political consequences in their turn as the chickens come home to roost. The Oklahoma Dust Bowl is one example of desertification resulting from soil erosion caused by unwise farming practices, which in turn generated large-scale political consequences — in this case the flight of the "Okies" to California, and their impact on the general political situation in the USA.

The extent to which human actions affect the environment, often adversely, cannot realistically be held to support the Marxist view of Nature as mere raw material awaiting exploitation and domination by man. Man-made or man-aggravated natural catastrophes show the dangers of taking such an attitude; and the impact of wide-ranging developments in the ecosphere on special political situations (e.g. the southward movement of the Sahara and its effect in triggering the Ethiopian revolution) demonstrate how glaringly inadequate is the dialectical approach for an understanding of man's relationship to the natural world.

Writing in *The Times Higher Educational Supplement*, Ivor Crewe has very clearly and correctly said

that "Marxist political sociology focuses upon relations of domination, conflict and change rather than harmony, order and stability."<sup>12</sup> That is why Marxist dogmatics and ecological realism are irrevocably opposed; and why Marxist anti-ruralism, if allowed to continue unchecked, will inevitably result in planetary catastrophe.

In criticising Marxism, I am not criticising socialism. It is not necessary to be a "democratic centralist" in order to believe in human brotherhood and co-operation.

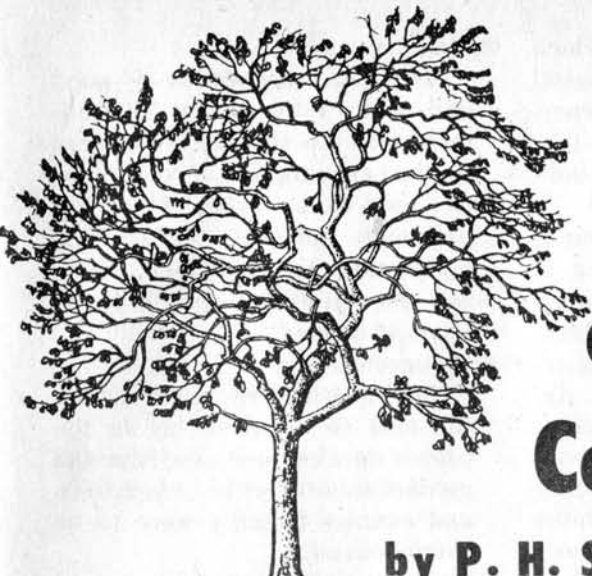
#### Acknowledgements

I would like to acknowledge the valuable advice and help which I received from Dr. George Katkov in connection with that part of this article which deals with the Soviet Union.

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2. *Op. cit.*, p. 105.
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4. "Programme of the Communist Party of Russia," in N. Bukharin and E. Preobrazhensky: *The ABC of Communism*, trans. Paul; Penguin edn., Harmondsworth 1969, p. 451.
5. In view of the recent publicity which has been given to the USSR's massive imports of grain to find a Soviet propagandist writing in 1953: "The grain problem has been solved definitely and finally in the Soviet Union." (E.S. Karnaoukhova: "The Abolition of the Antithesis between Town and Countryside in the USSR," in *VOKS Bulletin* No. 5(82), September-October 1953, p. 17.) The same article gives statistical details which are probably reliable about the mechanisation and centralisation of Soviet agriculture, thus: "Today agriculture in the USSR is conducted on a large scale and is well equipped with machinery. Instead of the millions of small peasant farms of the 'twenties, the USSR now has 97,000 big collective farms, serviced by 8,939 machine and tractor stations. In 1952, machine and tractor stations did 75 per cent of the basic field work in collective farms. Practically all the ploughing, 80 per cent of the sowing, 70 per cent of the grain harvesting, and more than 65 per cent of the beet harvesting was mechanised. Before the war, machine and tractor stations did 90 kinds of work in collective farms, in 1950 they did 170." (*Ibid.*)
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11. See James W. Mayor: *Voyage to Atlantis*; London 1969.
12. Ivor Crewe: "Boo, hurrah, a surfeit of Marx," in *THES*, No. 232 (April 2, 1976), p. 5.





# Environmental Conservation or Countryside Cosmetics?

by P. H. Selman

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**Planners are now accustomed to considering the views of ecologists in developments affecting the countryside, despite the lack of relevant planning legislation. However, official attitudes tend to confuse resource management with the preservation of amenity. This shallow treatment of ecology is reinforced by the incompatibility between the dynamic nature of biosystems and the static representations of planning proposals.**

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Environmental protection, ecology and natural resource management are all presently regarded as matters in which planners should rightly intervene. At the same time, however, it is generally recognised that the control of biotic resources is only tenuously linked to planning control. Critics of town and country planners would argue that they should not be encouraged to participate in fields excluded from their auspices by the General Development Order<sup>1</sup> for fear that they might meddle amateurishly through lack of training or experience.

A fair justification for seeking to extend a greater degree of control to the countryside can nevertheless be made out. First, planners command a uniquely good position from which to take an overview of the cumulative results of piecemeal developments, and to weigh up the relative merits of competing claims upon rural resources. Second, in the most general sense, planners control "activities" which take place in "habitats": this is of considerable importance for wildlife conservation, especially in regard to the shift of emphasis from species preservation to habitat protection.

Despite the inclusion of "environ-

mental impacts" on the planner's checklist, however, it would be untrue to suggest that these have been accorded any degree of equality with socio-economic issues in the development process. If any likelihood does indeed exist that we are exploiting our renewable resources beyond the point of recovery, there is very little official recognition of the fact, or of its attendant dangers.

The contention here is that planners espoused the cause of the ecologist far too lightly, without giving sufficient attention to the implications of what they were taking on. The more respectable environmental arguments coincided conveniently with the degree of deferred gratification which a middle-class planning fraternity could afford itself. This measure of enlightened concern was, however, only sufficient to ensure that "ecology" was tacked onto the planner's long list of interests, so that some thought could officially be given to the continued despoliation of the face of the earth. The fact that ecology could radically alter the whole basis and direction of social and economic planning was hardly considered.

In this way, ecology and resource management became the new terms

which described the traditional concern for the preservation of a visually pleasant countryside; they became equated with the pervasive but shallow concept of amenity, enabling this to be expressed in a new and impressive technical jargon. As David Smith<sup>2</sup> has commented about the amenity concept, however:

"... no such idea, however subtle, could hold together a set of activities that extend beyond the control of land use and the provision of physical infrastructures to a wider concern for the social and economic welfare of the urban community through non-physical and even non-spatial policies."

Similarly, if "ecology" is equated with rural "amenity", it will remain on the fringe of planning interest, and inferior to social welfare and economic growth, rather than providing an overall context for the development of urban systems.

## *The Restricted Scope of Resource Planning*

There appears to be a wide gulf between even the relatively conservative opinions expressed at the United Nations Conference on the Human Environment<sup>3</sup>, and official dogmas as they work out in practice.

Although ecology is readily upheld as being a subject worthy of general attention, it has failed to capture the imagination of the politicians and professionals who govern land use policy. Even the more limited objective of containing the loss of agricultural land has failed if we are to believe the preliminary findings of the Second Land Utilisation Survey.<sup>4</sup>

Perhaps the most basic objective of planning is to ensure the wise use of limited resources; similarly, if we look at conservation, we find that it is a philosophy directed at the manner and timing of resource use. Such closely related aims would suggest that planning and conservation should go hand in hand. The fact that they do not can largely be explained by two observations. First, the statutory planning system is inherently too static in its nature (even after the introduction of structure planning) to readily accommodate the essentially dynamic behaviour of biosystems; and second, the science of ecology has been subjugated by the planner to conform to his concept of amenity, accompanied as it inevitably is by a well-established preservation ethic.

The planner has two principal tools with which to direct the manner and timing of resource use — development plans and development control. Although in their updated versions development plans are less static than the 1947 breed, they still effectively treat land resources as fixed and invariant attributes — only economic and social factors are treated in a dynamic manner, and these only to a limited extent. In development control, the principal criterion for granting planning permission in outline is that of the zoning on the development plan (or in local plans, the policy statement, which in practice will probably prove to be little removed from a colour on a map), thereby perpetuating its fundamentally static nature. In the granting of detailed planning permission the most significant *planning* consideration (as opposed to highway and drainage conditions and so forth) which can be brought to bear on rural matters is amenity. Similarly, tree preservation orders — the planner's main means of control over any specific natural resource — must have amenity as their sole criterion. Thus, "amenity"

becomes the heading under which the whole panoply of ecological matters, which may have repercussions on our most vital life-support systems, must be subsumed.

In this manner, the essential nature of the planning process is well suited to the "timeless" image of a serene and unchanging countryside, and is abetted in its superficial treatment of resource dynamics by countryside legislation. Consequently, ecology cannot conformably be integrated with traditional planning practice: it must merely be grafted onto the periphery and remain a secondary issue and, to many planners, even a frivolous one.

At the same time, ecological arguments have generally failed to be accorded a politically respectable pedigree, and are widely considered to be at variance with perceived social welfare objectives. The more far-reaching environmental strategies — although not necessarily more radical than ambitious programmes of welfare redistribution — have lacked the same degree of public acceptance. To understand why, it is necessary to take a brief look at the growth of the environmental movement.

#### *The Historical Basis of Amenity Preservation*

Countryside conservation has always been associated in Britain with the supposed benefits of environmental health, pleasantness and civic beauty. In the 17th and 18th centuries, when enlightened foresters and landscape architects first rallied to its defence, the countryside was largely looked upon as a recreation ground for the better-off. The later impulse, which sprang in particular from middle-class repulsion of the worst excesses of the Industrial Revolution, formed part of a more widespread reaction to barbarian establishment attitudes towards culture, economics, social responsibility and the environment. However, as Smith<sup>2</sup> has observed, this led to a view which

"... simultaneously feared and scorned the effects of urbanisation yet all too obviously benefited from its economic and social advantages."

Such an ambivalent attitude was hardly likely to lead to a pene-

trating diagnosis:

"The spatial separation of good and bad in the urban environment and the obvious differences in the appearance of the inner city and outer suburb made it extremely easy for the increasingly influential middle-classes to see the problems primarily in physical terms."

And consequently,

"The Victorian city believed that the clue to salvation lay in the proper development of sylvan and genteel suburbs within which town and country benefits were to be evenly mixed."

The inevitable outcome was a cosmetic approach to conservation, emphasising the visual amenity of the countryside and playing down its role as a productive but sensitive resource based on photosynthetic growth. Although there was a superficial concern for nature, it showed as little regard for the underlying ecological implications as did vague philanthropy for deep-rooted social problems.

It could be argued that the present "official" concern for the environment is little more than a direct continuation of this. Consider, for instance, the aims of the 1967 Countryside (Scotland) Act<sup>5</sup> as expressed in its long title:

"An act to make provision for the better enjoyment of the Scottish countryside ...",

and again in section 66:

"... every Minister, government department and public body shall have regard to the desirability of conserving the natural beauty and amenity of the countryside."

Why has this amenity, consumer-oriented approach been perpetuated at government level, and not been supplanted by a widely accepted, rigorous political analysis, as has occurred in sociology and economics? The answer is obvious: we also all too obviously benefit from the economic and social advantages of despoiling the environment — at least in the short-term. Any bureaucratic response to environmental lobbying will consequently be in the form of an enlightened and philanthropic reaction to our own barbarian values in economics, and the solution will be a cosmetic one — plant a few trees and forget about the fundamental issues.



### *Making Ecology a Popular Issue*

If, by the introduction of ecology into planning, we mean simply the provision of a new jargon in which to dress up well-worn amenity arguments, it is easy to understand why ecology has been reduced to an esoteric, socially divisive and politically unpopular issue. If ecological information is to be thus misused, it becomes clear why environmental matters have been submerged in the development process: it is not that the ecological case is inherently weak, but rather that planners have not yet put forward that case with sufficient seriousness.

In order to improve our present performance, therefore, we must first overcome the basic difficulty of translating ecological information into the planning process. The governmental approach to environmental conservation must change its emphasis from the preservation of amenity to the retention of maximum biological diversity and the rational evaluation and use of natural resources; planning must adapt to a longer-term and less superficial perspective of biotic resources, and even be prepared to let ecologic principles determine the framework of statutory plans.

However, if the ecologist's arguments are to carry political weight, he must be able to demonstrate, using the policies contained in development plans as his evidence, that our present activities are producing an environment which will

ultimately become too squalid and unproductive to provide a decent standard of living. Likewise, economists will only be convinced if it can be shown that the conservation of genetical variety represents economically rational behaviour. It has, for instance, been stated by Barkley and Seckler<sup>6</sup> that:

"... the basic source of error in income accounts is their failure to reflect the changing values of non-market goods. The benefits of growth are apparent, the costs of growth are insidious."

#### *Conclusion*

Ecology appears to have been grafted onto the periphery of planning, to a large extent simply permitting the well-worn concept of amenity to be couched in a more scientific jargon.

The existence of this amenity bias is a major obstacle in the establishment of a truly effective approach to resource conservation, for many well-intentioned politicians and professionals genuinely remain under the impression that our environment is adequately served by present administrative provisions. It is not generally accepted that, despite the reform of planning law and practice, despite the addition of executive and advisory functions to the Nature Conservancy Council, despite the creation of a Department of the Environment, we have as yet only scratched the surface of the deep-rooted environmental problems which face us.

It is thus the joint onus upon planners and ecologists to persuade politicians that the current approach to resource planning is an oblique and superficial one. Admittedly, the need for the replacement of amenity criteria by ecological principles will be difficult for those responsible to accept, for the consequences may at first appear to have adverse effects upon our economic and social prosperity. Nevertheless, the necessary evidence to counter this view does exist, and politicians are now becoming increasingly adept at convincing the public of the need to make short-term sacrifices in order to secure long-term benefits. If planners are to protect the environment in other than a purely cosmetic fashion, it must become an accepted fact that, in the long term, our economic and social welfare will be directly dependent upon the general condition of the natural environment.

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# Notebook

## What The People Really Want

Overwhelmingly a nation of happy people, devoted to rural living and disenchanted with the supposed benefits of an industrial economy — guess who. The Burmese, perhaps? or the Tongans? or the Nepalese? No, the *British*, according to a Gallup survey conducted recently. Surrounded by prophecies of doom from politicians and economists, with our so-called standard of living dropping fast and the international value of our currency dropping faster, 92 per cent of Britons questioned proclaimed themselves very or fairly happy. (The corresponding figure for Indians, who really *have* got problems, was a mere 37 per cent.)

As for industrialisation, the nation which started it all is apparently going to be the first to get out at the other end. 76 per cent of us have no desire for industrial expansion; so with any luck the exhortations to pull our socks up and get the Gross National Product soaring again will fall upon deaf ears. We'd rather be leaning on a gate watching the grass grow — 79 per cent of British people would prefer to live in the country, rather than in big cities. All of which casts a bizarre light on the claims of government to represent the people. The fuss about our decaying inner cities, for instance: let them decay, it seems hardly anyone wants them anyway. As for industries in difficulty, let them die a natural death, and resettle the workers in the country where they wanted to live all along. Their labour on the land will make us self-sufficient in food, and then we can afford to snap our fingers at the International Monetary Fund. Impractical, idealist day-dreams? Well, the practical realists have had it all their own way for a very long time, and even on their own terms they haven't made a conspicuous success of things.

## A Hazardous Job

Time was when the farm labourer's life was threatened mainly by such routine hazards as falling off haystacks and being gored by bulls. Today, on some farms, it's hardly safe to move until you've pulled on your gas-mask and protective clothing. Widespread and sometimes severe illnesses are being caused, according to the National Union of Agricultural and Allied Workers, by the use of pesticides classified as safe under government regulations. A spokesman for the Union gave one example of a man in Kent who was covered in blisters after using a particular combination of chemicals: subsequently he suffered from depression, and six months later developed a severe kidney complaint. Doctors refused to believe that the disease could have been caused by the chemicals.

This case, and many others, are said to have resulted from the use of substances known as adjuvants, which are mixed with pesticides to speed their action. According to the Union, even the manufacturers admit that they do not know the risks involved in mixing chemicals in this way. And Dr. Charles Clutterbuck, an authority

on agricultural chemicals, states in *Land Worker*, the Union's magazine, that poisoning is widespread but goes largely unrecorded, because doctors are seldom capable of recognizing the symptoms.

A totally different risk to farm workers has been investigated recently in the United States. The routine feeding of antibiotics to farm animals, to speed their growth and prevent disease, causes an increase in antibiotic-resistant bacteria in the intestines of the animals treated (see Joanne Bower: the Farm Drugs Scandal *The Ecologist* August 1970 and Do We Need a Minister of Nutrition? June 1975). This is not very surprising and has been known for years. What has only recently been proved is that a significant proportion of resistant bacteria also develop in workers in contact with the animals. The researchers, from the Tufts University School of Medicine in Massachusetts, were unable to discover whether the resistance arose from contact with the antibiotic itself, or by direct infection from the livestock, in this case chickens. The bacteria involved, *Escherichia coli*, are not normally harmful; but it is known that resistance can be transferred to other species that do cause serious disease. Moreover, although only one antibiotic was being used, the bacteria also acquired resistance to several other common antibiotics, a phenomenon which has been encountered by other researchers. The indictment against the indiscriminate use of antibiotics was probably lengthy enough without this new item: but as far as farm workers are concerned, these findings add one more known risk to a job already riskier than most.

## A Man-made Cancer

Last month I suggested that the proposed Genetic Manipulation Advisory Group was unlikely to prove an adequate safeguard against the sort of risk involved in modern genetic experiments. I have since had brought to my notice an example of the dangers I had in mind. Two American biologists, writing in *Science* (Vol. 193, p. 272), have given a warning that a new type of virus has recently been produced which may be capable of causing malignant tumours in human beings.

The evidence is not yet conclusive (presumably it will not be, until someone is actually shown to have contracted cancer through the agency of this virus): but it is highly suggestive. The virus in question seems to have arisen as a result of the co-cultivation of carcinogenic viruses specific to mice and baboons. The "hybrid" virus is much less limited in its choice of host, and has been shown to produce tumours in dogs, monkeys and chimpanzees. Since the chimpanzees are much more closely related to us than they are to monkeys or dogs there seems to be a strong possibility they are not; and perhaps even if they are the virus will never escape to prove it. But it would be ironic if the



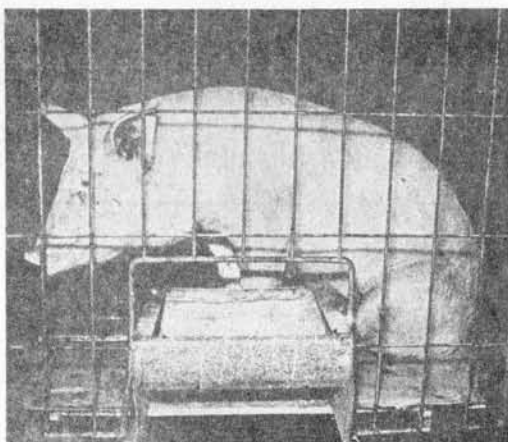
most dramatic result of research into causes of cancer were to be the releasing into the world of an entirely new form of that disease.

### How Healthy are British Pigs?

Factory farmers generally claim, among other things, that the "controlled environment" they provide ensures that their animals are healthier than those provided with old-fashioned fresh air and sunshine. Since in their view a healthy animal must be a happy animal, they conclude that their methods cannot be described as cruel. As far as pigs are concerned, a recent news item provides all the disproof one could wish for. It reports some comments made by a veterinary surgeon, Mr. Thomas Vallely, at a national conference of pig producers. Disease, it seems, is costing pig farmers £100 million a year, which sounds like an awful lot of sick pigs; and no great improvement is in sight. "I sometimes wonder," said the astute Mr. Vallely, "if the modern pig is a little more susceptible than its predecessor". He went on to suggest some reasons. Large herds concentrated in buildings are more exposed to disease (these experts really earn their money don't they?); reductions in the agricultural labour force, strange to relate, "lead to people not looking at herds so often"; and sows tend to be killed off younger, though older ones would carry less disease and have greater resistance.

No doubt science will come up with the answer to these little problems: the most elaborate solution so far is the production by Caesarian operation of germ-free piglets who have to be reared in buildings as sterile as operating theatres. (The snag here is that after three years or so germs manage to sneak back in, killing an entire batch of the totally non-resistant pigs.) But I heard the other day of a *really* revolutionary concept in pig-keeping — it seems that in the New Forest pigs are being used to clear up this years bumper crop of acorns. You never know, the idea might catch on!

Nicholas Gould



SUPPORT COMPASSION  
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These pigs are kept in individual cages from weaning to slaughter without exercise, daylight or the company of their own kind: solitary confinement for life. At present in spite of recommendations made by the Council

of Europe in 1971, there is no law against this indefensible practice. Please support COMPASSION IN WORLD FARMING (General Secretary Peter H. Roberts) Lyndum House, Petersfield, Hants.

## This Month's Authors

### Ross H. Hall

is a graduate of Cambridge (Mass). He has had extensive experience in cancer research and the biology of growth and development. He is an Associate Editor of *Plant Physiology* and has conducted a research programme at McMaster University to assess the effects of contemporary technology on the quality of nutrition and the resultant effects on health and wellbeing. In 1974 he published *Food for Nought — The Decline in Nutrition* (Harper and Row).

### Nicholas Hildyard

graduated this year from London University with a degree in Anthropology and is currently working as a freelance journalist.

### Colin Fry

was a professional newspaperman until 1971 when he became a mature student at Manchester University. He graduated in 1974 with a BA in religious studies and has now completed two years research in the psychology of Religion. He is now Information Officer for The Ecology Party. He has published poems, articles and science fiction stories.

### Paul Selman

is a lecturer in Ecology and Landscape in the Planning Dept. of the Glasgow School of Art. He has had articles published on the involvement of Planning authorities in wildlife conservation. The future of the countryside is his chief concern.



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## Books

### Pandora's Barrel

**ENERGY AND FOOD PRODUCTION**  
by Gerald Leach. IPC Science & Technology Press. £5.50.

This short, densely packed book is about the fossil-fuel energy spent to provide the Western world with the energy of life — food. There are only 46 pages of text, the rest is appendices; the text is an interpretation of the appendices which may be used by the reader to support his own speculations. Obviously it is invaluable to have all the statistics relating to energy and food production on one's bookshelf, and surprising to discover how much work has been done in this field.

What is the special value of an energy analysis? It is both more holistic and less abstract than economic analysis. An energy analysis must begin at the beginning of the chain — how much energy is required to produce energy, for example, whereas economics is only concerned with costs and prices in relation to the instant market; it seems to have no reliable mechanism for taking into account the depletion of resources, apparently on the assumption that if the economic incentive is great enough, resources will always be found. In immediate market terms our food-energy crisis in the West is not grave. But if we undertake a global energy survey — remembering that only one per cent or less of the energy used on an industrial farm is human or animal — the scene changes radically. If the whole world followed the Western example 40 per cent of the global fuel

consumption would be spent on food production. However much fossil-fuel energy there may be potentially in the world it is in the hands of a few nations. How will they agree to release it to the rest of the world? Here is the evident source of a world civil war unless the nations without fossil-fuel energy discover how to utilise the flow of solar energy more efficiently and convert organic compounds into energy — manure into methane gas etc. — and grow energy crops. The ideal formula for the future seems to be to aim at the maximum quality production from the minimum of land with the smallest energy input. The energy analysis of food production dramatically exposes the extent to which we depend upon the barrel of oil for our dinner: so that the cost and availability of oil is a major factor in the price of food.

But that is not all; energy analysis reveals how turning energy into the Golden Calf has unbalanced the fabric of social life. In all industries, as energy input has increased, employment has declined. The statistics quoted by Leach spell this out for us. Between 1965 and 1970 the energy required as a substitute for labour rose by 70 MGJ (10<sup>6</sup>GJ) while full-time labour fell by 112,000 man-year. In other words roughly one and a half million tons of oil equivalent has been substituted for that amount of labour.

At what point will high-energy technology force up the price of food higher than alternative husbandry could provide it? Similar questions are being raised in other industries. One of the striking things that Leach has revealed is that agriculture is in the same bracket as the heavy industries so far as capital invested per man employed is concerned. Like the chemical industries, for example, it continues to try and increase production and profit by shedding labour. In the process both industries erode their environment and create as many social problems as they 'solve' immediate economic ones.

The most fascinating part of Leach's book compares different types of farming in energy terms. Readers of *The Ecologist* will know all about the hunter-gatherers' leisurely lives; the pre-industrial farmers have high energy ratios

which means that no one has to work hard for his food — though pre-industrial farming has done great damage to forests. These low labour requirements are a direct consequence, Leach says, of the high energy ratios.

How then is this enormous advantage frittered away? In two ways, Leach demonstrates: by too much animal production and by the post-farm handling of food. Ninety-eight per cent of our land is devoted to animal production, which seems incredible. Animals account for 60 per cent of the protein and 40 per cent of the energy in our food. This brings the labour productivity per man down to 50-170 MJ per man-hour on many farms, according to how much emphasis is on animal production. If most of our farms were mixed, with a small animal unit we could be self-sufficient in food and have some meat in our diet. The second source of low efficiency — post-farm — uses ten per cent more energy than is used to grow food on the farm. The whole food system reduces the productivity per person employed to 35 MJ man-hours which is in the same range as the best pre-industrial farming.

"Looking at the entire food system" says Leach, "words almost fail . . . It is quite clearly not a viable system for all people for all time. Copied on a global scale it would demand prodigious quantities of energy." In fact, as mentioned, it would demand 2185 million tons of oil equivalent, 40 per cent of global consumption.

It is true that the amount of energy consumed on the farm itself is comparatively small — 3 per cent of the total national energy usage — compared to other users, and this argument is used by the agricultural industry to justify continuing with business as usual. But Leach shows that our farming is not as efficient in energy use as it appears superficially. Between 1900 and 1972 nitrogen inputs rose eightfold and potash and phosphate combined some thirtyfold, while crop yields merely doubled, if that. Wheat yields rose 93 per cent. The output, not the yields per acre, doubled with animal products. Since the area of farmland increased by 28 per cent in that period and feed imports also substantially increased, a realistic

figure for the overall increase of yields of animal products would be something like 50 per cent. "Setting this against the soaring energy inputs for fertilisers there has been a remarkable case of diminishing returns." Even so, while oil was cheap, it was a good bargain, for the oil equivalent of fertiliser used is only one per cent of U.K. primary energy consumption. It is the cost in relation to fertiliser use that is going to be the deciding factor. Cost may compel us all to relate fertiliser use to the nutritive value of the food produced.

To sum up: When, in the future, the historian considers the wastefulness of the whole industrial system, including the food system, he may declare that oil at 1.5 dollars a barrel undermined Western society, as gold did the Spaniards, slavery the Southern states of America, and military and administrative loot the Roman Empire. All these apparent advantages were substitutes for the citizens' labour, endeavour, and craft skill; they were all dwindling resources and they all corrupted the body politic and the character of the citizens before they ran out. The barrel of oil has been a Pandora's box that has brought immediate prosperity at the cost of long-term catastrophe: it joins the slave and the gold ingot as the symbols of human folly.

Robert Waller

### Age Old Wisdom

**FARMING ORGANICALLY.** Edited Sam Mayall. Soil Association. 30p.

This booklet is a masterpiece of commonsense and compression, conveying a great deal of very practical information of a sort useful to and acceptable by professional farmers, making suggestions as to how they can change their farming methods from 'inorganic' to 'organic'. The meaning of the words *inorganic* and *organic* in this context is very clearly defined and the eight principles of Organic Husbandry laid down on page two could not be bettered.

Sam Mayall is an example of a triumphantly successful organic farmer. Without having spent a penny on fertilizers, pesticides, herbicides or fungicides in the last twenty years or more, he still manages to grow well over the national average of every crop that he attempts and this includes some six hundred acres of wheat a year. He is a living refutation of the allegation on the part of many of our advisory service officials that yields must be lower on organic farms than on inorganic ones, and also of a cherished belief of the writer of this review that successful organic farms must be small ones. Mr. Mayall's farm is a very large one, and highly mechanized. Careful instructions are given in this book for the making of compost with machinery and little labour. Mr. Mayall himself, though, makes his compost by the time-honoured method of putting vegetable matter through the guts of, and under the feet of, animals. He has a very large herd of milking cows and a very large herd of pigs, and he freely admits that without their manure he would get nowhere near the yields that he does get. In fact, in the conclusion to this booklet, there is the following: "The practical farming policy advocated by the Soil Association in this booklet is no new philosophy. It is age-old wisdom, the experience of generations of farmers working as closely with nature as possible, now supported and explained by advances in soil biology and taking advantage of modern machinery."

What will happen to such large farms as Mayall's if power ever does become much more expensive than it is now remains to be seen. Certainly when this happens men and women will have to be got back on to the land. Meanwhile Mr. Mayall, and several large organic farmers like him, have shown the way to adapt sound organic methods of husbandry to conditions obtaining in their time, when economic forces have put a premium on large units and minimal labour force. This booklet is very practical, very informative, and it would certainly be impossible to cram more information about this complex subject into sixteen pages.

John Seymour

### The Challenge of Diversity

**ENVIRONMENTAL CONSERVATION**, by Raymond F. Dasmann. John Wiley, £5.50.

Since the first edition of *Environmental Conservation* was published in 1959, it has become something of a standard textbook of human ecology. This new edition retains the original virtues, but adds new ones — it is a textbook still, and a good one, but a textbook with a message. The change is a significant one. Seventeen years ago ecology could still be treated, by and large, as an academic discipline with precise frontiers. Today it has become — what? A way of life, a world-view, a surrogate religion. It is scarcely possible any longer for a writer on ecological topics to be objective. Raymond Dasmann, the senior ecologist with the International Union for the Conservation of Nature, is a writer whose academic credentials are beyond dispute: but he sees clearly that it is now no part of a scientist's job to be uncommitted. Detachment is a luxury we can no longer afford.

This is not to say that we are obliged to be strident or simplistic. Dasmann's tone is gentle, sober, reasoned: he sees that there are no easy answers. On alternative energy sources, for example, he writes: "None of them is a panacea, but we should cease to look for panaceas. Simple answers to complex problems always create new problems." And again, in a chapter on Forestry: "The human mind is ill at ease with problems which present too many variables, and we have traditionally preferred to simplify things down to 'manageable proportions'. Yet the greatest challenge to environmental management and conservation is the challenge of diversity . . . Simplification sets in motion all the forces of instability examined in this book."

*Diversity*, indeed, is one of the keynotes of *Environmental Conservation* — the diversity of species, ecosystems, and the human cultures which developed to fit into those ecosystems. One of the tragedies of our present situation, for Dasmann, is the way in which "ecosystem



people" in harmony with particular specialised environments are being displaced by "biosphere people". The latter, living within a *global* technological and economic structure, feel free to override the natural controls in any one ecosystem in a way which would be unthinkable to people totally dependent on that system. Yet the security which we biosphere people enjoy is inevitably only temporary. Talk of the *complexity* of the modern world is the reverse of the truth: our civilization is unstable not because it is complex, but because it is simple. In Dasmann's view, maintaining a wide variety of human cultures (including the Western post-industrial sort as well as the surviving primitive ones) may be "a way of insuring that the human race will continue to survive". We cannot become primitive again; but we can and must recapture the "close and intricate relationship between culture and nature" which characterizes most primitive societies. It certainly won't be easy: but it is encouraging that a man as knowledgeable and level-headed as Raymond Dasmann believes it may be possible.

Nicholas Gould.

### Diets Galore

DIET REVOLUTION: FOOD REFORM, YOUR QUESTIONS ANSWERED, by Jill Wordsworth. Gollancz £3.95.

It is not true that there are as many nutritional theories as there are nutritionists. There are very many more theories than that. You can see them on the shelves of any bookshop, but if you want to feel the fully concentrated effect you must go into a healthfood shop and see them crowding around the cash register, imploring you to try this diet or that. What you will not find there is a book by an orthodox, qualified nutritionist.

Does this mean the 'reform' books are all nonsense, frivolous attempts to satisfy a neurotic urge to seek immortality in a pill or a spoon of someone's elixir? Some are; the slimmer the volume the more likely it is to be junk. Yet the history

of our knowledge of nutrition is littered untidily with cranky theories that turned out to be correct. Liver salts, for example, were meant for "inner cleanliness" in the days when constipation was believed to lead to poisoning because substances retained in the gut had time to penetrate the gut wall and enter the bloodstream. A little more information caused the theory to be discarded, but today's doctors are less certain — perhaps after all waste products can cross the wall.

At all events the food reformers are in the mainstream of a tradition that can be traced back at least to the reformers of the last century. Then, as now, their fears about the food we eat fall largely into one or two categories: poison or deficiency.

Jill Wordsworth has attempted the daunting task of summarising all the principal theories about nutrition and diet, the orthodox and the unorthodox, of presenting them fairly and without opting obviously for any one, and of redressing the injuries caused by unfair or uninformed criticism. The really remarkable thing is that she succeeds. She even produces tables of the main problem areas about which most workers are agreed — sugar, dietary fats, salt and so forth — together with the theories about them and the names of those persons connected with the theories. Later she lists, also in tabular form, the healthfood answer to a range of dietary deficiencies and to such poisons as additives, antibiotics used in livestock husbandry and alcohol.

Of course, it is easy to sneer. Health hydros, for example, can look absurd, not to say decadent, and they are expensive. But do you know what it costs to run such an establishment? Did you know that slimming is a by-product of the hydro's main purpose, which is to heal by nature cure techniques which have been developed over many years of painstaking research?

The book begins with a general summary of the healthfood-food reform movement and introduces some of the better-known names and concepts. Then Ms. Wordsworth summarises, very broadly, current orthodox views of nutrition. She follows this with a chapter about the conflicting theories and those who

support them and goes on to discuss the history and views of the organic farming movement and its views of the relationship between cultural techniques and human health. These seem less outrageous today than they did ten years ago. There follows a chapter on the "diseases of civilisation", which leads smoothly into a more detailed discussion first of deficiencies and then of poisons and finally of the healthfood responses. For those who want to know more Ms. Wordsworth includes a list of eighty-odd books, articles and reports she read in her own researches.

The book is well written and entertaining. It will find its way into bookshops and public libraries, but its real place is in the healthfood shops, just in front of all the other books to which it is a guide. I know of no other book that explains so simply and so briefly the main theories of nutrition or the aims and philosophy of the movement that seeks to reform our eating habits.

Michael Allaby

### Our Threatened Woods

TREES AND WOODLAND IN THE BRITISH LANDSCAPE, by Oliver Rackham. Dent, £4.95.

Most of us are aware nowadays that such "natural" features of the landscape as woods, moorland, hedgerows, ponds or downland are not really natural at all; they are the end-product of thousands of years of interaction between man and his environment. In a sense, therefore, they are historical relics (indeed, at least one *hedge* has already been officially classified as an Ancient Monument). *Trees and Woodland in the British Landscape* is one of Dent's *Archaeology in the Field* series, which makes its historical bias clear at the outset: as far as Dr. Rackham is concerned, every wood more than a few centuries old is an archaeological site. Not just an archaeological site: this author is a professional botanist, with a keen eye for the subtle variations of plant communities. The book is perhaps the most noteworthy yet to appear in a comparatively new discipline, which

Dr. Rackham describes as "historical ecology". Both botanists and historians should find that it enables them to view an old subject from a new angle; and those who already have an interest in both fields will have the happy experience of seeing two separate images merge to form a three-dimensional whole.

The details of the story can barely be touched on in a review. The general picture is of a tradition of woodland management based mainly on coppicing, which probably developed as early as Neolithic times, and has fallen into catastrophic decline only within living memory. At its height, from the 13th century to the 18th, this system enabled the woodlands of Britain to meet an amazing variety of needs — timber for buildings and ships, smaller wood for everything from shafts to spoons, acorns and leaves for animal fodder, charcoal to fuel industries like iron and glass making, brushwood for the domestic hearth and oven, oak-bark for the tanning industry. A wood in the Middle Ages fulfilled the roles of a mine, a farm and a factory rolled into one.

Moreover, this extraordinary versatility was achieved by working with, not against, nature. These woods were not *planted*, in the manner of modern forestry: they were *managed*. The process was one of husbanding a natural resource, not growing a crop. Consequently a great variety of tree species would occur in a single wood: and this fact was turned to advantage, for each tree had its proper uses. There is something beautifully satisfying about the self-sufficiency and continuity of the whole system.

Ecologically, those woods which survive from the pre-forestry period are of enormous value. Most of them, though managed for hundreds or thousands of years, are the direct lineal descendants of the primeval forest, and still retain most of its plant species. (The process of coppicing, with its continual cycle of felling and regrowth, provided variations of shade to meet the requirements of every type of plant, and thus encouraged, rather than suppressing, variety.) In the present century, most such woods have been preserved merely to provide cover for pheasants. Pressures against

them are building up. The forester, the farmer, the developer wage war on them with bulldozer, chainsaw and poison spray. Dr. Rackham ends his book with a moving plea for a change of attitude. He touches on the fact that "the best deterrent to waste is a revival of use": this is an argument which could be developed further — anyone who has recently bought bean poles, chestnut stakes or wattle fencing will find it hard to believe that properly managed coppice does not pay. Leaving that aside, greater public understanding of the history and nature of ancient woodlands is surely a prerequisite for their preservation: and this fascinating book should do much to further that understanding.

Nicholas Gould.

### Happy Birthday Resurgence

IS TIME RUNNING OUT? The Best of Resurgence. Selected by Michael North with introduction by Satish Kumar.

On the occasion of its tenth birthday *Resurgence* has published an anthology of reprints from the first ten years of its life. Starting with John Papworth's "Statement of Intent" written for Vol. 1 No. 1 in May 1966, the selection covers the ten years fairly evenly, and regular contributors such as Schumacher, Leopold Kohr, and Geoffrey Ashe are all represented, as also are the various familiar aspects of the "Alternative Society": pollution, nutrition, economics, decentralisation etc., but emphasis is also placed on the need of the west to learn from India's philosophers of non-violence.

It is noticeable, for better or worse, how little the message of *Resurgence* has changed over the last decade. The articles written in 1966/7 are almost identical in content and intent to those written in 1974/5, the only real difference being in the references to historical events such as the Biafran War. However there have been changes in the world in the last decade: in the mid-sixties the message of *Resurgence* and of other organs of similar opinion were considered by a majority to be outlandish, cranky and doom-laden. After all in the sixties optimism was still the predominant mood, progress was thoroughly

acceptable and "Growth" was still the order of the day. Governments thought they knew where they were leading us and by and large they were supported by the people. During the ten years since then, technological advances reflecting these values, the Americans landing on the moon, and the first flight of Concorde, to name but two, have occurred, but there has been a much more significant change: in the popular consciousness. This change is reflected in the fact that the most recent contributions to *Resurgence* seem now to be almost "establishment". In other words the views of *Resurgence* which seemed outlandish and cranky in the sixties are now much more widely accepted, and, at least in some cases, are being put into practice. Geoffrey Ashe, in "The Creeping Revolution", describes this latter point well.

However although the "Alternative Society" is seen by more and more people to be a sensible and attractive route to possible survival, the last ten years have also been a gloomy pointer to the inevitability of the predicted catastrophe: the fact is that "Time IS Running Out", and that the ideals of self-sufficiency and decentralisation are in practical terms only open to a very few individuals. Many may now accept in theory the rightness of the "vision" of *Resurgence*, but that is a bitter pill when one contemplates the practical effects of this truth, and the fact that there is little if anything that can be done to save us.

Despite these gloomy predictions it is salutary to have put before us a collection of articles such as this where great minds like Schumacher's, and incisive comment like that of Geoffrey Ashe are mingled with the ancient wisdom of India from Jayaprakash Narayan. It is one of the attractive features of *Resurgence* that it is positive in the face of disaster, that it does *not* limit itself to telling us where we have gone (irretrievably) wrong, but also concerns itself with the good in humankind, and the possibility of a life which is liberated from the mental as well as the physical pollution of our age.

Many Happy Returns, *Resurgence*?

Sarah Gabriel





## Letters

### Have you got a Pea-tree?

Dear Sir,

It has recently been stated that the Siberian Pea Tree, *Caragana aborescens*, can yield up to 17 tons an acre of its two-inch long pods containing pea-like seeds that are excellent poultry food. This figure has probably been arrived at by multiplying the yield of a single tree by the 5-600 that would go on an acre, but even then the weight of good food from this drought-resisting, deep-rooting tree is fantastic. If we can take advantage of this to give British gardeners a 15-20 foot high tree with clusters of about four yellow, pea-type florets in May, which will fix its own nitrogen, triumph over drought, and give a fall of poultry food pods about September, it would be of value in all temperate climates.

Has any reader got a Siberian Pea Tree that has flowered and podded lavishly for a number of years? If we can find this super seed setter, it could be propagated from cuttings and become a "Cox" of Caraganas, standing out among the many small and shrubby specimens that are a favourite hedge in Sweden, where Privet and Lonicera are broken by snow which filters safely through the thorny branches of this hardy Siberian species.

We would be very glad to hear from any reader who has this tree and can spare us seeds for analysis, and wood for cuttings next spring, in the interests of temperate and sub-tropical food production.

Yours faithfully,

Lawrence D. Hills,

Henry Doubleday Research Association, Bocking, Braintree, Essex.

### Aid, dependence, or self-sufficiency?

Dear Sir,

May I comment on the large, mostly hostile response to 'Aid — the Arch-Enemy', my contribution to May's *Ecologist*?

Your associate editor Jimoh Omo Fadaka claims that he disagrees completely with my ('stupid') views and then argues that aid exploits the receiving countries by giving them inappropriate technologies, that aid is neo-colonialist and makes the rich richer, the poor poorer, that Third World countries should be self-sufficient, that aid has become 'the cure that kills', and that 'more people are hungry, sick, shelterless, and illiterate today than when the U.N. was first set up'. In short your associate editor is militantly anti-aid and convinced that the only way for the Third World to overcome poverty is for it to lessen its dependence on the developed world. I agree. My article said just that; we're both anti-aid and for very much the same reasons.

I would ignore Jimoh's remarks about colonialism — since I realise that such swipes remain almost obligatory for Third World writers — were it not for Mrs. Davis and other correspondents who also delve into history and come up with the theory that, in effect, the wages of guilt is aid. Yet if aid destroys (as Jimoh admits), then providing aid can only add to the burden of guilt, supposing that the guilt itself genuinely exists. But isn't guilt here both irrelevant and unhistorical? Irrelevant because it is our duty to do what is right now irrespective of what happened years ago . . . unhistorical because the imperial swine — let's call them — who exploited their lustful way (to put it mildly) across the globe, were every bit as exploitative towards their own inferior classes at home. By today's standards, that is, not by their own. It is naive and valueless to judge the colonial years by the moral values of the post-colonial era. Jimoh's fore-fathers, for example, may have sold slaves to mine (we're a Liverpool family) but neither of us has any right to blame the other.

Daily events around the world

suggest that human beastliness is evenly divided between black and white, rich and poor, communist, fascist, capitalist, 'one-party democratic', etc., etc.

Your Oxford Correspondent compares my arguments with those which were used against taxing the rich in 19th century England. Well, maybe, but is Victorian Britain a reliable model for today's three worlds, and was it not the organised efforts of the poor themselves, rather than aid (tax) from the rich which lifted our lower classes in the century and a half after Peterloo?

I agree with those who point out that some aid-givers have dubious political motives, attach unacceptable strings, and generally make a good thing out of aid. These seem to me further anti-aid arguments.

The efforts of people like Mrs. Davis to help remote villages to be independent and self-sufficient are splendid, but they are quite the opposite of normal aid. Sooner or later they will come into conflict with the aims of the development-mad central government, but meanwhile they are a good thing. Pity India has rejected Gandhi . . .

May I end by pleading guilty to journalistic licence? I never argued — as some have unfairly accused — that pot-bellied babes should be killed off so that I could have more to eat, indeed I said that developed countries like the UK would certainly starve (deservedly so) unless they changed their policies, but I did use deliberately emotive language about the overpopulation threat. Of course I don't want people to starve, I want everyone to be well fed. But aid leads to starvation — Jimoh's right, it's the cure that kills.

Yours faithfully,  
Victor Gordon,  
Woodbridge, Suffolk.

P.S. Some correspondents lament how little we spend on aid. The latest White Paper on Public Expenditure (Cmd 6393) forecasts £1,200 million being spent on 'overseas aid and other overseas services'. One point two billion! Ho hum. It's not as if it's our own money.

# Alternative Society Autumn Programme

ALTERNATIVE SOCIETY  
AUTUMN PROGRAMME —  
Lower Shaw Farmhouse, Shaw,  
Swindon.

## 1 Land, November 5 - 7

A working week-end about the problems of land ownership and the various initiatives which have been taken to settle people on the land. The purpose of the week-end will be to consider whether Alternative Society could promote a pilot project in this field.

Organisations participating include the government sponsored Land Settlement Association, the Bridge Trust (a company formed for group purchase of farms), and the Land Trust Movement, which is largely an initiative of landowners.

## 2 Towards a Political Alternative, November 19-21

The purpose of this week-end is to help people to find a new sense of direction in politics. It is a hard thinking week-end for those who have experience of politics and consider political activity potentially important.

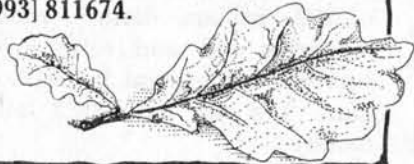
Anyone who considers he has a significant contribution to make should contact Stan Windass for further information.

## 3 Education, December 10 - 12.

A study week-end based on the Alternative Society Working Paper on Education.

The first of a series of study week-ends on the topics covered by the Working Papers (Housing, Government, Money, Energy, Industry & Employment, Agriculture, Health, Education, Land and Transport.) Papers are available from Alternative Society for 60p each (including postage) or £5 for the series of 10.

Alternative Society, 9 Morton Avenue, Kidlington, Oxford.  
Telephone: Woodstock [Std. 0993] 811674.



## Friends of the Earth

### NUCLEAR PROSPECTS

A comment on the Individual, the State and Nuclear Power.

Michael Flood and Robin Gore-White

Published in Association with The Council for the Protection of Rural England and The National Council for Civil Liberties.

This most recent booklet from FoE deals with some future social and political implications of nuclear power in Britain.

It does not concern itself with technical questions of safety, waste-storage or alternative energy sources, but poses such questions as: How could a Government avoid thefts of plutonium? What security measures might prove necessary and what effect will such measures have on civil liberties?

Issues considered in detail include the systematic official surveillance of electricity industry employees and anti-nuclear critics; escalating loss of Parliamentary control over the nuclear programme; proliferation of private armed police forces, and steady increases in the number of valued coastal sites required for nuclear development.

Available Price £1.00 inc. postage from: FoE,  
9 Poland St., London W1V 3DG.

### FOOD CO-OPS

How to Save Money by Getting Together and Buying in Bulk.

Colin Hines.

Buying in bulk means bigger discounts. Individual families cannot afford to buy regularly in bulk and in any case would not be able to store large quantities of food. By sharing their buying with other members of the co-op these problems can be overcome.

Friends of the Earth believes that food co-ops will not only help individuals to reduce their food bills but will also help society to make better use of food and land.

By highlighting the price advantages of cereals and fresh produce, co-ops could encourage a dietary shift away from too much meat, dairy produce and energy intensive, processed and highly packaged foods.

Available, Price 60p plus 9p postage, from FoE,  
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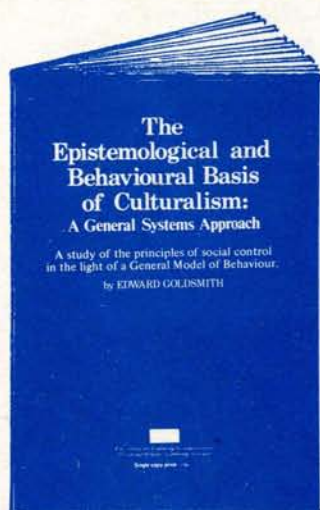
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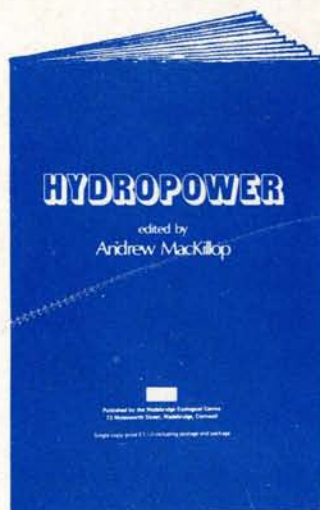
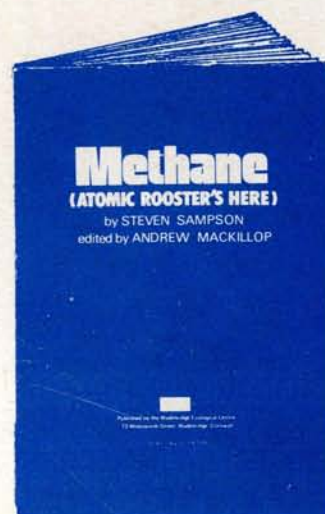
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