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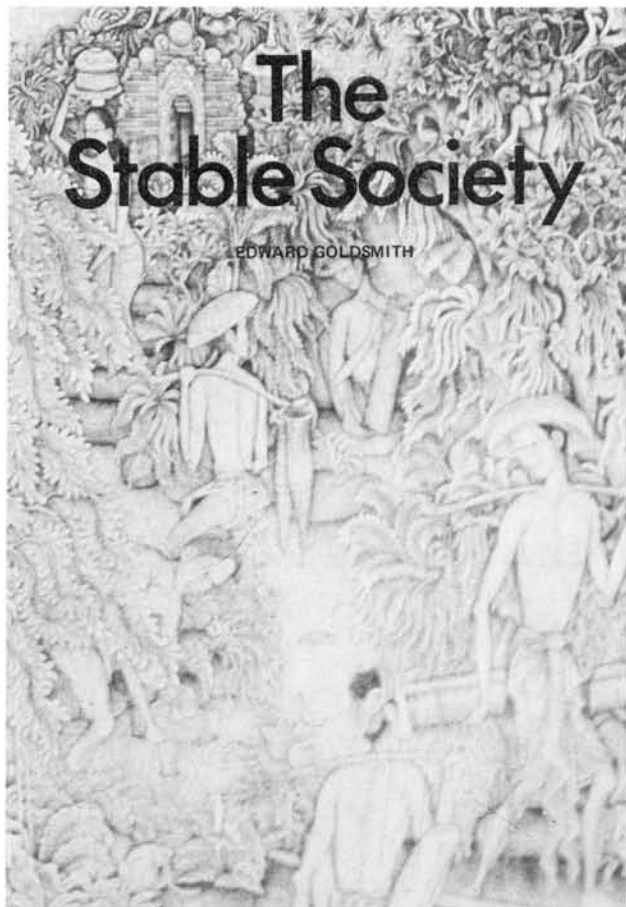
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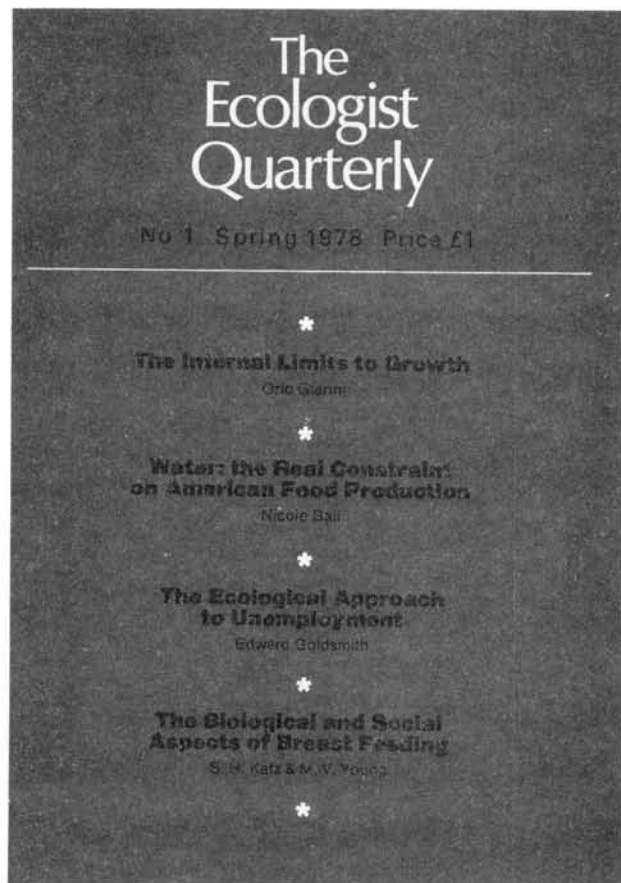
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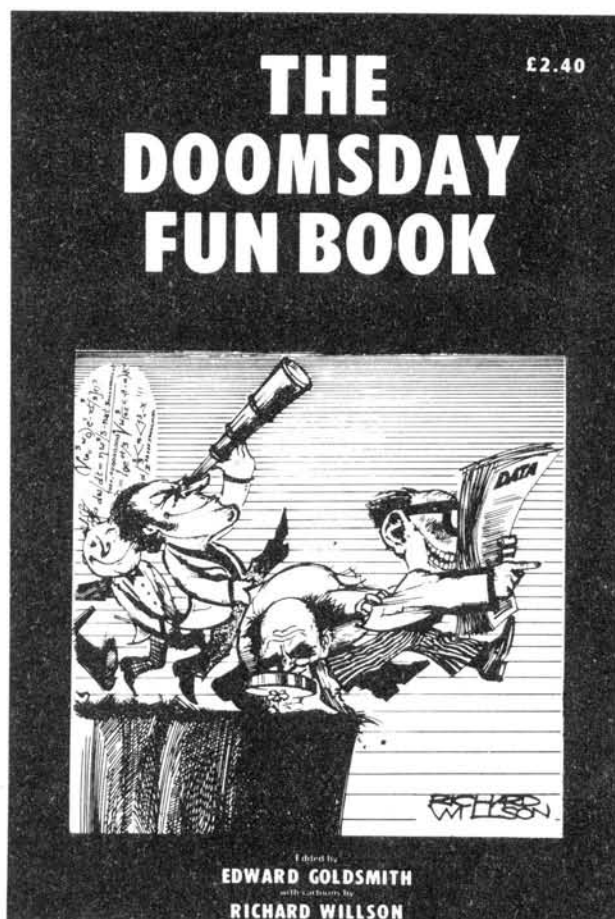
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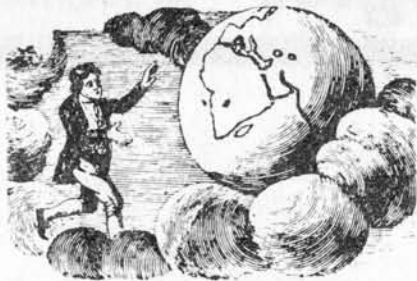
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"Old age is the most important and in some ways the most difficult of all the problems of Social Security"

The Beveridge Report

Old age is not a problem

Old age is not a problem. A problem, according to the dictionary, is a doubtful or difficult question . . . a thing hard to understand. Old age is neither doubtful nor is it difficult to understand. It is but the final stage of our progress from birth to death — it is the summit of the natural hierarchy of life from childhood to age; and it is this potentially the most equable hierarchy imaginable which has been undermined by the modern concept of old people as problem people. Veneration is the proper and historical attitude of society towards its elders and the loss of that veneration is one of the most shameful spin-offs of the Welfare State. No more telling proof is needed of our twisted view of old age than the fact that we can no longer call our elders *old*, but seek to hide their unmentionable condition behind the horrible euphemism of 'senior citizen'.

Old age, like infancy, puberty, parenthood and middle age has its attendant disadvantages; but arthritic joints, dicky hearts and dimming eyes are not problems, they are medical conditions. If there are now more old people than ever before living alone or in institutions it is because our social system is wrongly designed. If fewer households can now accommodate the older members of their own families in a harmonious way, it is a fault in the system, not a problem of old age. Mature people denied a useful role in the community are faced with an intolerable choice between becoming a burden to their children, living alone or being tidied away into an institution. Loneliness is indeed a problem, and an almost exclusively modern one. In the ideal state the extended family provides an unselfconscious insurance against the isolation of the old.

The real problem stems from the public attitude, fostered by an army of trained social workers, that equates old age with senility. That senility exists cannot be denied, for both loneliness and institutionalisation promote it, and the dignity that belongs to old age is destroyed by the habit of those in authority of treating all the old as though they were helpless children.

The urgent need today is to halt the frightening side effects of the Welfare State. Those old fashioned virtues, self reliance and independence, are being rapidly bred out as each succeeding generation grows up in a society that not only accepts, but increasingly takes for granted, that a state hand-out will be available for every difficulty, every failure and every reversal that it may meet, from the cradle to the grave. Such a society will be doubly handicapped when the system collapses and state support is simply not available. If we do not stop the drift towards total state-dependence our own children may indeed find their own old age an anguished problem.

The grand strategies for a post-industrial age, with decentralisation and small self-governing communities, will be of little avail if the citizens of the future can no longer find the means to use their release from bureaucracy. All the more reason then for pressing society to rediscover traditional values by recreating a place in the sun where wise old men may counsel those of fewer years and less experience, and wise old women may fulfil in many ways the role at present occupied by social workers, child guidance clinics, marriage counsellors and other manifestations of the Welfare State. We have never been in more need of the wisdom and experience of those who grew up at a time when honesty and independence were honoured above all other virtues.

Ruth Lumley-Smith



Photo: Old Age Concern

The Subsistence Ethic

A PEASANT VIEW OF SECURITY

James C. Scott

Peasant Societies are not organised to maximise production but to minimise risk. Their economic structure provides all their members with security without compromising social stability.

"There are districts in which the position of the rural population is that of a man standing permanently up to the neck in water, so that even a ripple is sufficient to drown him."

R.H. Tawney, *Land and Labour in China*.

Tawney was writing about China in 1931 but it would not stretch his graphic description to apply it to the peasantry of Upper Burma, Tonkin and Annam in Indochina, or East and Central Java in the early twentieth century. Here too, lilliputian plots, traditional techniques, the vagaries of the weather and the tribute in cash, labour and kind exacted by the state bought the spectre of hunger and death, and occasionally famine, to the gates of every village.

Such subsistence crises for most Southeast Asians have typically been on a smaller scale: local droughts or floods, epidemics that destroyed plough animals, winds or rain at harvest that beat down or spoiled much of the grain, or birds, rats or crabs that ravaged the crop. Often the shortage might be confined to a single family whose land was either too high and dry or too low and wet, whose working head fell ill at harvest time, whose children were too many for its small patch of land. Even if the crop was sufficient, the claims on it by outsiders — rent, taxes — might make it insufficient.

If the Great Depression left an indelible mark on the fears, values and habits of a whole generation of Americans, can we imagine the impact of periodic food crises on the fears, values and habits of rice farmers in monsoon Asia?

The fear of food shortages has in most precapitalist peasant societies given rise to what might appropriately be termed a 'subsistence ethic'. This ethic, which Southeast Asian peasants shared with their counterparts in nineteenth-century France, Russia and Italy, was a consequence of living so close to the margin. A bad crop would not only mean short rations: the price of eating might be the humiliation of an onerous dependence or the sale of some land or livestock which reduced the odds of achieving an adequate subsistence the following year. The peasant family's problem, put starkly, was to produce enough rice to feed the household, buy a few necessities, and meet the irreducible claims of outsiders. The amount of rice a family could produce was partly in the hands of fate, but the local

tradition of seed varieties, planting techniques, and timing was designed over centuries of trial and error to produce the most stable and reliable yield possible under the circumstances. These were the *technical arrangements* evolved by the peasantry to iron out the 'ripple that might drown a man'. Many *social arrangements*, patterns of reciprocity, forced generosity, communal land and work-sharing helped to even out the inevitable troughs in a family's resources which might otherwise have thrown them below subsistence. The proven value of these techniques and social patterns is perhaps what has given the peasants a Brechtian tenacity in the face of agronomists and social workers who come from the capital to improve them.

Living close to the subsistence margin and subject to the vagaries of weather and the claims of outsiders, the peasant household has little scope for the profit maximization calculus of traditional neoclassical economics. Typically, the peasant seeks to avoid the failure that will ruin him rather than attempting a big, but risky, killing. In decision-making parlance his behaviour is risk-averse: he minimises the subjective possibility of maximum loss.

It is this 'safety-first' principle which lies behind many of the technical, social and moral arrangements of a precapitalist agrarian order. The use of more than one seed variety, the European traditional farming on scattered strips, to mention only two, are classical techniques for avoiding undue risks often at the cost of a reduction in average return. Within the village context, a wide array of social arrangements typically operated to ensure a minimum income to inhabitants. The existence of communal land that was periodically redistributed or the commons in European villages functioned in this way. In addition, social pressures within the precapitalist village had a redistributive effect: rich peasants were expected to be charitable, to sponsor more lavish celebrations, to help out temporarily indigent kin and neighbours, to give generously to local shrines and temples. As Michael Lipton has noted, 'many superficially odd village practices make sense as disguised forms of insurance'.

It is all too easy, and a serious mistake, to romanticize these social arrangements. They are not radically egalitarian. Rather they imply only that all are entitled to a *living* out of the resources within the village, and that living is attained often at the cost of a loss of status and autonomy. They work, moreover, in large measure through the abrasive force of gossip and envy and the knowledge that the abandoned poor are likely to be a real and present danger to better-off villagers. These modest but critical redistributive mechanisms nonetheless do provide a minimum subsistence insurance for villagers. Polanyi claims that on the basis of historical and anthropological evidence such practices were nearly all universal in traditional society and served to mark it off from the modern market economy. He concludes, 'It is the absence of the threat of individual starvation which makes primitive society, in a sense, more human than market economy, and at the same time less economic.'

Although the desire for subsistence security grew out of the needs of cultivators — out of peasant economics — it was socially experienced as a pattern of moral

rights or expectations. Barrington Moore has captured the normative tone of these expectations: 'This experience (of sharing risks within the community) provides the soil out of which grow peasant mores and the moral standards by which they judge their own behaviour and that of others. The essence of these standards is a crude notion of equality, stressing the justice and necessity of a minimum of land (resources) for the performance of essential social tasks. These standards usually have some sort of religious sanction, and it is likely to be in their stress on these points that the religion of peasants differs from that of other social classes'. The violation of these standards could be expected to provoke resentment and resistance — not only because needs were unmet, but because rights were violated.

Two major transformations during the colonial period in Southeast Asia served to undermine radically the pre-existing social insurance patterns and to violate the moral economy of the subsistence ethic. These were first the impression of what Eric Wolf has called 'a particular cultural system, that of North Atlantic capitalism' and second, the related development of the modern state under a colonial aegis. The transformation of land and labour (that is nature and human work) into commodities for sale had the most profound impact. Control of land increasingly passed out of the hands of villagers; cultivators progressively lost free usufruct rights and became tenants or agrarian wage labourers; the value of what was produced was increasingly gauged by the fluctuations of an impersonal market. In a sense what was happening in Southeast Asia was nothing more than a parochial recapitulation of what Marx had observed in Europe. 'But on the other hand, these new freedmen became sellers of themselves only after they had been robbed of all their own means of production and of all the guarantees of existence afforded by the old feudal arrangements. And the history of this, their expropriation is written in the annals of mankind in letters of blood and fire'. On the land in Lower Burma and in the Mekong Delta these 'new freedmen' faced an increasingly implacable class of landowners whose claims on the harvest varied less with the needs of their tenants than with what the market would bear. What had been a worsening situation throughout the early twentieth century became, with the onset of the world depression, a zero-sum struggle based as much on coercion as on the market. Peasants resisted as best they could and, where circumstances permitted, they rebelled.

The problem for the peasantry during the capitalist transformation of the Third World, viewed from this perspective, is that of providing a *minimum income*. While a minimum income has solid physiological dimensions, we must not overlook its social and cultural implications. In order to be a fully functioning member of village society, a household needs a certain level of resources to discharge its necessary ceremonial and social obligations as well as to feed itself adequately and continue to cultivate. To fall below this level is not only to risk starvation, it is to suffer a profound loss of standing within the community and perhaps to fall into a permanent situation of dependence.

The precapitalist community was, in a sense, organ-

ised around this problem of the minimum income — organized to minimize the risk to which its members were exposed by virtue of its limited techniques and the caprice of nature. Traditional forms of patron client relationships, reciprocity and redistributive mechanisms may be seen from this perspective. While precapitalist society was singularly ill-equipped to provide for its members in the event of collective disaster, it did provide household social insurance against the 'normal' risks of agriculture through an elaborate system of social exchange.

The colonial period in Southeast Asia, and elsewhere for that matter, was marked by an almost total absence of any provision for the maintenance of a minimal income while, at the same time, the commercialization of the agrarian economy was steadily stripping away most of the traditional forms of social insurance. Far from shielding the peasantry against the fluctuations of the market, colonial regimes were likely to press even harder in a slump so as to maintain their own revenue. The result was something of a paradox. In the midst of a booming export economy, new fortunes for indigenous landlords, officeholders, moneylenders and, occasionally, rising average per capita income, there was also growing concern with rural indebtedness and poverty and an increasing tempo of peasant unrest. It was not unlike the discovery of pauperism in the midst of England's industrial revolution. The explanation for this paradox is to be sought in the new insecurities of subsistence income to which the poorer sector of the population was exposed. Although the average wage might be adequate, employment was highly uncertain; although the average price for peasant produce might be buoyant, they fluctuated dramatically; although taxes might be modest, they were a steady charge against a highly variable peasant income; although the export economy created new opportunities, it also concentrated the ownership of productive resources and eroded the levelling mechanisms of the older village economy.

The moral economy of the subsistence ethic can be clearly seen in the themes of peasant protest throughout this period. Two themes prevailed: first, claims on peasant incomes by landlords, moneylenders, or the state were never legitimate when they infringed on what was judged to be the minimal culturally defined subsistence level; and second, the *product* of the land should be distributed in such a way that all were guaranteed a subsistence niche. The appeal was in almost every case to the past — to traditional practices — and peasant revolts are best seen as defensive reactions. Such backward-looking intentions are by now a commonplace in the analysis of peasant movements. As Moore, citing Tawney, puts it, 'the peasant radical would be astonished to hear that he is undermining the foundations of society; he is merely trying to get back what has long been rightfully his.'

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What makes Kenny run?

Edward Goldsmith takes a critical look at Professor Mellanby's record

—Professor Kenneth Mellanby is a man of distinction, erudition and considerable personal charm. Because of his pioneering book, *Pesticides and Pollution*, his work as Director of Monks Wood Experimental Research Station and his position as editor of the journal *Environmental Pollution* he has a big reputation in the academic world and passes for an ardent environmentalist (see his profile, in *Vole*, No. 3). His pronouncements on environmental matters are taken very seriously by the Government, the press and the educated public; this is unfortunate, for in recent years, rather than make use of his position to further the ecological cause, he has used it to underplay the environmental problems caused by our more destructive agricultural practices and to overrate the dubious advantages to be derived from their application.

A Mass of Contradictions

Reading Professor Mellanby's pronouncements one always wonders whether he really means what he is saying. He is forever contradicting himself. Thus, on the subject of artificial fertilizers, he insists today that there is "no evidence that they are damaging to the soil." This is hard to reconcile with former statements: "There is no great fertility problem resulting from modern farming methods," he wrote in *Modern Farming and the Soil*, "soil structure is a different matter . . . some soils are now suffering from dangerously low levels of fertility and cannot be expected to sustain the farming systems which have been imposed upon them. A whole range of soils is suffering too from the effects of the passage of heavy machinery over them in insupportable conditions, this is often due to the adoption of tight cropping sequences . . . The problem is accentuated where drainage is inadequate."

The US National Academy of

Sciences confirms his fears. It estimates that the US has already lost one third of its top-soil. Barry Commoner has calculated that the organic content of mid-west soils has declined by fifty per cent during the last one hundred years. Data is available to show that the same trends are occurring in Canada, the Argentine and France, and there is no reason whatsoever to suppose that Britain is an exception.

Fertilizer Fanatic

Mellanby denies that there is any tendency for our land to need larger and larger amounts of fertilisers every year. This, he assures us, "is the bogey which has been used to frighten us." It's worth noting that in Britain inputs of nitrogen fertiliser have increased by eight hundred per cent since the war, achieving a mere thirty-five per cent increase in yields (in the case of wheat from 27 to 37 hundredweights per acre). To quote Lester Brown, America's best known authority on the world food problem, "crop yields increase predictably with each increment of chemical fertiliser, rapidly at first, then more slowly until they eventually level off . . . No crop is exempt from the law of diminishing returns." (*The 29th Day*.) Except of course British crops — if we are to believe Professor Mellanby.

A brief look at the changing relationship between world cereal output and fertiliser use shows all too clearly the reality of diminishing returns. Between 1934 and 1938, according to Lester Brown, "grain production averaged 651 million tons. From then until 1948-52, fertiliser consumption increased by only 4 million tons. After 1950, growth in the cultivated area slowed and fertiliser use increased by 13 million tons, while grain production increased by 130 million tons, each additional million tons of fertiliser increased the grain harvest by 10 million tons. During the early sixties,

the response per million tons of fertiliser used declined to 8.2 million tons: during the late sixties it fell further to 7.2 million tons. As of the early seventies, each additional million tons of fertiliser yielded only 5.8 million tons of grain."

In spite of this, Mellanby considers it possible "that before the year 2000, we will be able to increase our cereal yields as much again as we have done since 1945," (*Can Britain Feed Herself?*). In defiance of basic agricultural principles and all the empirical evidence, Mellanby actually seems to assume *increasing returns on fertiliser use*. Surely even Fisons wouldn't go so far?

Has he forgotten the constraints that are currently dogging British farmers?

- * Yields in Britain have not increased for over ten years, despite increasing fertiliser applications.
- * Our agricultural land is deteriorating not only because of erosion, but also because marginal land in hilly areas is constantly being brought into use to replace high quality land lost to urbanisation. Only 2.8 per cent of our arable land is now classified as first class (see 'Planning for Starvation', *The Ecologist*, March 1977).
- * The price of artificial fertiliser has quadrupled since 1973. With diminishing returns on capital as opposed simply to yields, a point must eventually be reached when it must become economic for farmers to aim for lower yields, the reduced revenue being more than compensated for by the lower costs (see Lockeretz, CBNS, Washington University).

High Priest of Modern Agriculture

Mellanby zealously defends modern intensive agriculture. Condescendingly, he castigates, for example, "the well-meaning people" who attack straw burning. "They don't know what they are talking about", he says, "for to bale and cart straw is far too much work." I suppose there is no point in returning organic matter to the soil when Fison's fertiliser is so easily available.

He clearly assumes that our capital-intensive agricultural system is here to stay. "I do not see," he writes in a letter to *The Times* (May 4th 1977), "how completely

arable farms in Britain can ever again employ large numbers of workers. Work is seasonal, and must be done quickly when crops ripen and when the soil can be worked. Farmers cannot afford to keep men in idleness or on uneconomic tasks like hedging and ditching."

Perhaps the writings of Pimental, Perelman and Gerald Leach have never reached the backwaters of Monks Wood. Their research on energy use in agriculture clearly demonstrates that modern capital-intensive agriculture cannot possibly be maintained in the era of energy and resource shortages which we are now entering. If we have succeeded in *maximising* per capita productivity, it is only at the cost of *minimising* energy and resource productivity. Since it is energy and resources that are in short supply, we shall soon have to move in the opposite direction by systematically replacing big machines by smaller ones and by human labour. The present plight of American farmers — most of whom are in a state of near bankruptcy — indicates that such a move is likely to occur much sooner than one thinks.

Mellanby supports equally strongly the uprooting of hedgerows. Britain, he admits, may have lost over 120 thousand miles of hedges in the last few decades. This may be a pity, he says, but it is necessary from a farming point of view. After all, a mile of hedgerows is the equivalent of an acre and a half of land. Cutting them down thus enabled us to gain 180,000 acres. In any case, he assures us, "in British conditions, there is little evidence that hedges have much economic value, and they certainly do not increase crop levels (by protection from the wind) as has been suggested for Germany and Russia." Once more he is asking us to believe that neither basic ecological principles nor all the information we have obtained from other parts of the world are of any relevance to Britain's agricultural problems. Is he not straining the credibility of even the most gullible among us?

He goes further. If we want farmers to keep hedges "which are totally uneconomic, we must be prepared to foot the bill" — imply-

ing that farmers (and presumably everybody else) has a right, even a duty, to behave in such a way as to maximise short-term economic benefits. If Professor Mellanby understood anything of basic ecological principles he would realise that short-term economic benefits can only be maximised by incurring all sorts of biological, social and ecological costs. This is perhaps the most fundamental message that ecologists have to communicate to economists and the world at large. Yet Mellanby rejects it.

Defender of the Pesticide

Mellanby seems particularly keen to underplay pollution by pesticides. "It is clear," he writes in *Pesticides, the Environment and the Balance of Nature*, "that pesticides can be pollutants, that they may cause environmental damage, and that they do cause widespread but *apparently harmless contamination*." In the same article he goes on: "Many workers have found traces of DDT and other organochlorines in rain and snow; in birds and other animals and in fish, at sites remote from those where pesticides have been deliberately applied. It is probable that this global contamination occurs because the chemicals are volatilised into the atmosphere and deposited with rain. At present the levels arising in this way *cannot be called pollution* for they are so low as to cause no detectable effects on living organisms."

The good professor should know that very low levels of pollutants, often very much lower than can be detected with available measuring equipment, can cause serious biological damage especially over a long period. According to Professor Bryce-Smith, government scientists in Britain cannot measure lead levels lower than 0.8 ppm, yet this pollutant appears to cause biological damage, in the long run, below this level. The same is true of radiation.

Dr. Sturgess of the Essex River Authority points to the damage done by a hormone weed killer in concentrations as low as one in a thousand million. "Present methods," he writes, "do not enable one to detect the presence of pollutants in this dilution, let alone trace them."

In any case, Professor Mellanby should know that the inability to

show the long-term effects of a particular pollutant does not mean that it is harmless. To "demonstrate" the harmlessness of a chemical is extremely difficult. The logistical problems involved in studying the chemical substances into which each pollutant can decay under different conditions, not to speak of all its possible synergic effects with the two or three million other chemicals that industrial man has introduced into his environment, are insuperable. The costs of the necessary tests are so high that they are rarely properly conducted. Dr. Saffiotti, of the National Cancer Institute, points out that only three thousand of these two to three million chemicals have actually been tested for carcinogenic effects, and of these a third have been shown to be carcinogenic in certain animals. Only a very small number, however, thirty in all, have been shown to be carcinogenic in humans. Yet this does not mean that they are safe. In our industrial society, one person in four dies of cancer, over half a million per year in the USA alone, and it is now generally agreed that about 90 per cent of cancer deaths are caused by chemicals in the food we eat, the water we drink and the air we breathe. *That between them, these chemicals are lethal is therefore painfully clear.* All we have not established is which are specifically carcinogenic.

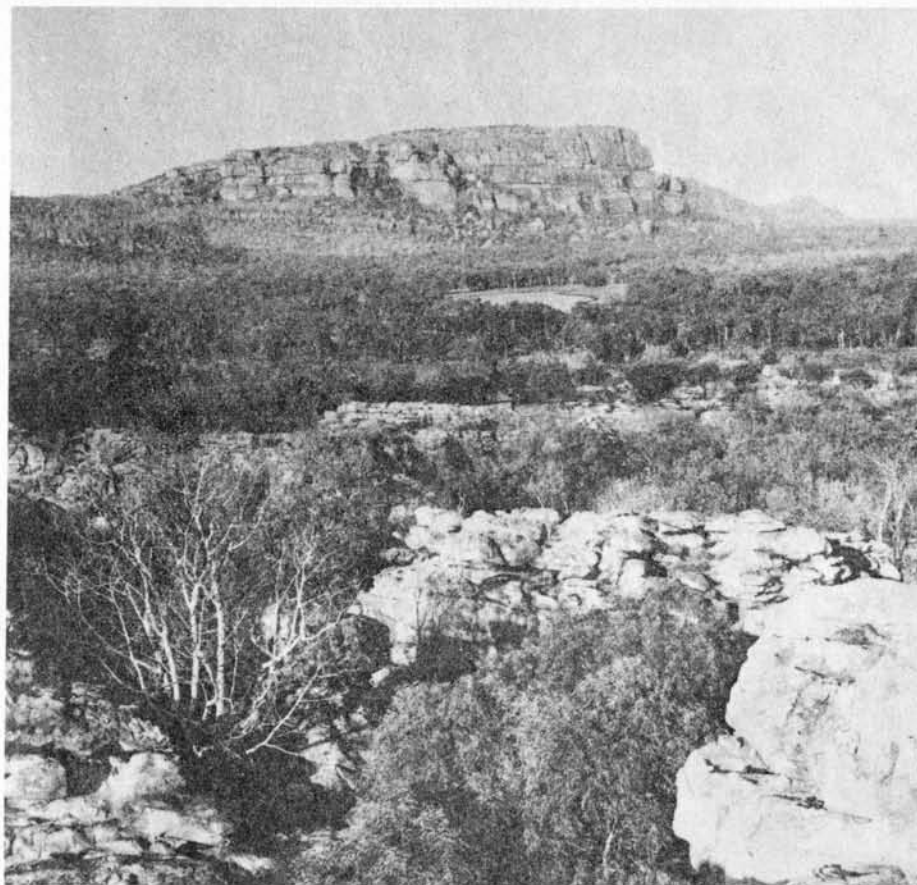
These questions do not, however, seem to worry Professor Mellanby. By implication he is against imposing constraints on polluters. Indeed he fears that there is "a distinct danger that in future new chemicals will not be developed rapidly enough to meet demand."

It would be interesting to know how he reconciles all this with the following passage taken from his speech at the First International Conference on The Environmental Future, in Helsinki in 1973. "The idea that a chemical is 'safe' until it has been proved dangerous must be avoided," he said "no new chemical particularly a persistent chemical should be allowed to be used at all widely until it has been shown to be safe."

If he underrates the dangers of pesticide pollution, he appears to go out of his way to overrate their



Kenny sets out to conserve the Kosciuszko National Park



Mellanby advocates grazing Australia's National Parks

Photo: Peter Springell

possible advantages. "The greatest increase in productivity, at the present time," he tells us "would come from efficient control of the pests and diseases of our crops and farm animals. It is estimated that even in Britain, where pest damage is much less than in the tropics, and in many parts of America, we lose no less than eighteen per cent of our agricultural produce. If this were saved, we could feed another ten million mouths. Much of this loss is unnecessary, for we have herbicides, fungicides and insecticides which could be used to effect a considerable degree of control. I think it is likely that we could eliminate at least half of the loss by existing means. It must be admitted that not everyone would agree. Some so-called 'Ecologists' have an emotional antipathy to the use of chemical pesticides, and for that matter to scientific progress of any kind."

Once more he is going against all the evidence. In the USA, in spite of thousands of millions of dollars spent on massive spraying programmes, pesticides have proved incapable of controlling the major pests affecting agriculture and forestry — the fire ant, the gypsy moth, the Douglas

Fir Tussock moth and the boll weevil, for example, are thriving as never before. What is more, resistance to most major pesticides is developing rapidly among hundreds of other pests. To quote Dr. Van Der Bosch, Chairman of the Division of Biological Control at the University of California at Berkeley, "A quarter of a century after the DDT breakthrough, there are more insect species of pest status than ever before, scores of major pests have become resistant to insecticides." The National Academy of Sciences points out that the proportion of the American harvest eaten by pests has actually increased in the last decades. This is also the conclusion of the Environmental Protection Agency: "American farmers thirty years ago used 2,265 tons of pesticides and lost seventeen per cent of their crops before harvest. Today farmers use twelve times more pesticides — yet the percentage of the crops lost before harvest has almost doubled." Nor is there any reason to suppose that the situation is any different in the UK, except, of course, that we do not have an EPA — only a DOE that is no more than a Ministry of Works in disguise.

Mellanby also scandalously overrates the value of DDT in controlling malaria. "Already," he writes, "many thousands, perhaps even millions of humans must have died of malaria because of the well-meaning campaign against DDT," (*The Future Prospects for Man*).

It is difficult to believe that Mellanby, who is supposed to be a biologist and an ecologist, does not realise that on purely theoretical grounds insects cannot be eradicated by waging chemical warfare against them. It is no coincidence that WHO's anti-malaria campaign is proving to have provided but a very short respite against this disease. To begin with the mosquitoes must eventually develop resistance to DDT or whatever pesticide is used. Thus in California according to the National Academy of Sciences, "Encephalitis transmitting mosquitoes have become resistant to virtually all insecticides used for killing larvae." Spraying against malaria also prevents reinfection and thereby reduces the natural protection people build up against this disease. This means that when the disease strikes again, which it must do, as spraying will not kill every individual mosquito, it will inevitably be very much more crippling. This has been evident for a very long time, as Taghi Farvar writes "... the resurgence of malaria after a temporary halt in its transmission can entail great risk for the population involved. For example, 150,000 people died in Ethiopia in 1962 when malaria caused by *Plasmodium falciparum* returned after a two year interruption. The disease had been essentially non-lethal prior to 1960 due to the natural immunity of the population. This kind of immunity exists in most chronically exposed populations as a defence mechanism, which is a response to a constant parasitic challenge. A year or two without the occurrence of reinfection is sufficient to destroy the immunity. Attempts at chemical eradication of the mosquitoes temporarily decreased the transmission of malaria but at the cost of the natural immunity of the populace."

Once we start spraying we simply have to continue, and if we ever lack the capital, the energy or any other

resources for so doing, then mortality will radically increase until such time as natural controls can build up again. For a combination of all these reasons malaria has recently staged a dramatic comeback and millions of people are now dying from it in India, Bangladesh and Pakistan, many of whom would have been only slightly affected were it not for our pesticide spraying programmes. In fact it is true to say that anti-malaria spraying has in the long run benefited pesticide manufacturers, bureaucrats and pesticide scientists at the expense of the indigenous populations in the countries where these programmes have been carried out.

According to Mellanby, opposition by environmentalists to the use of DDT has been a disaster, and has simply led to the use of very much more dangerous pesticides such as palathion — it does not occur to him that environmentalists — are equally opposed to the use of palathion. In fact his statement illustrates an essential point: environmentalists should not direct their attacks on a *specific* pesticide, but on *families* of pesticides, such as the chlorinated-hydrocarbons or the organophosphates — otherwise it is like fighting a multi-headed gorgon. Cut off one head and others that are even more monstrous instantly appear to replace it.

Mellanby's infatuation with DDT is only rivalled by his faith in paraquat. In an article in *Nature* (Volume 269, 27th October 1977) he advocates replacing ploughing by direct drilling and spraying with this incredibly toxic herbicide. "This" he assures us "will make the soil *healthier* and support a richer soil fauna. This is the basis of a *healthy* agriculture and a *healthy* countryside. We, the conservationists (incredibly, he regards himself as such), must now find how to encourage wildlife in this milieu." To understand the enormity of what he is saying we must realise that paraquat is so toxic that it suffices for a single drop to enter someone's mouth to assure his rapid and extremely painful demise. Yet Mellanby tries to persuade us that it must be sprayed in a routine manner, year after year, and that it can provide a milieu for our wild-

life and a basis for a healthy agriculture and a healthy countryside. His advocacy of the use of paraquat sometimes borders on the comical. Thus one of his arguments is that direct drilling and spraying with paraquat, must "save more fuel than is used in making the pound or so of chemical applied to the land." Perhaps so. But if he is so interested in saving energy why does he insist so vehemently on the maintenance of our capital-intensive agricultural system? Is he only interested in saving energy when to do so promotes in some way the interests of agri-business?

The Give-Away?

A clue to his paradoxical behaviour has recently been provided by his tour of Australia. This was paid for by the Association of Regional Parks and Countryside Commissions of Australia Inc. (ARPPCA) a front-organization for grazier interests.

The Association's research officer is Oliver Moriarty, a well known champion of graziers who are pressing for the opening up of Kosciusko National Park for grazing of sheep and cattle. Niel Bennell, its President, is a grazier and the owner of Tom Groggin station on the Upper Murray River, adjoining the Park.

Mellanby went all out to make sure that his sponsors got their money's worth. The preservation of wilderness in Australia, he told his audience was an "elitist" concept. . . People who wanted wilderness recreation should go to the desert. National Parks in Australia were based on an old-fashioned idea that had proved a failure in Europe. Extreme conservationist views were often counterproductive and resulted in hysteria and consequent overkill. He attacked the "obsession with wilderness" found among conservationists in Australia. The claimed value of wilderness areas, he said, apart from their conservation value, was just prejudice and if people wanted them they should raise their own money and buy them. "The Australian Forestry Commission" he declared had "developed the best types of conservation and nothing would be achieved by transferring large forest areas to national parks."

Particularly interesting is the

extent to which he was willing, as usual, to contradict himself in his efforts to satisfy his sponsors. One of the arguments he uses for justifying the grazing of national parks was that "millions of people in the world were dying of starvation," and "the capacity of the world to produce enough food would be injured by the short-sighted policy in Australia, which by including productive areas in National Parks, was reducing the world food production potential."

Of course, as Mellanby knows only too well, the hundreds of millions of people in the world who suffer from malnutrition cannot afford to eat meat of any kind let alone that derived from animals that might be allowed to graze in the Kosciusko National Park, which will only be eaten by the already overfed inhabitants of the rich industrialized countries.

On the contrary, it is by maintaining too large a livestock population that must be fed on cereals and fishmeal that would otherwise be available for human consumption, that we are fostering malnutrition and starvation in the Third World.

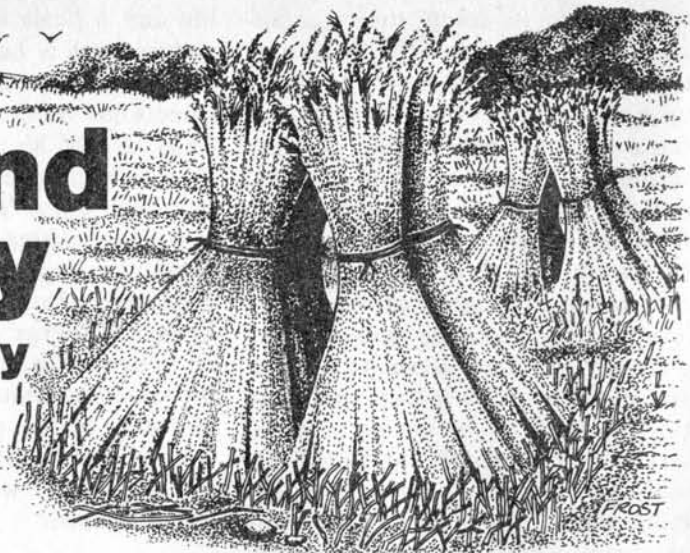
Mellanby recognises this. "We know," he wrote recently "that if all the world's food were distributed equitably and if *none were fed wastefully to livestock* there need be little hunger and no starvation for even twice the present world population." — though here he may be going too far.

If little can be gained by grazing Kosciusko National Parks, much can be lost. Only one to two per cent of NSW is still in a wilderness condition: why should society destroy these remnants for the benefit of a handful of people? Why too, one might ask, should an eminent scientist who calls himself an ecologist and a conservationist advocate that it should? Why too should such a person so fervently advocate the use of artificial fertilisers, the spraying of DDT, paraquat and other poisons on our crops, the uprooting of hedgerows and all the other practices associated with modern-intensive agriculture, all of which must so drastically violate basic ecological principles with which he must surely be conversant? What, in fact, makes Kenny run?

Reverence and responsibility

The need for good husbandry

Anthony Etté and Joanne Bower



The fact that twentieth century mankind inherited an environment from which it has been possible to produce immense quantities of food was largely due to the responsible husbandry of past communities. Where these had regard for long-term fertility of the soil and a balanced system of plants and livestock, with recycling of all wastes, their descendants were assured of a basis for living. Even where slash and burn techniques prevailed, time and nature restored abandoned areas, and nomadic tribes moving from place to place provided a rotational system which was the foundation of all successful farming until recent times. We have no reason to despise the settled agriculture of the earliest eras of pre-history: it was highly organised and indicated an understanding of environmental influences and cosmic forces which science is still investigating. As it became established it prepared the ground for the development of all other human activities.

There is a wealth of evidence to suggest that many of the ancient myths were designed to give ordinary people an awareness of life-giving forces and to sustain a close relationship with them. The moon is one of the celestial symbols, with its three phases — new, full and old — recalling the matriarch's three periods of maidenhood, maturity and decline. Mother Earth was similarly conceived as a triad — the maiden of the upper air, the nymph of earth and sea and the aged woman of the underworld. The myths introduced a magico-religious method of ensuring that man's sources of life — springs, fruits of

the earth, animals — were venerated and propitiated, with their individual life-cycles and man's inter-relationship with them, emphasised and made sacred. Many of these myths indicated the terrible destruction inevitably suffered by those who ignored the ancient precepts.

From the time when man began to free himself from hand-to-mouth existence and subsistence farming, there has been a need to remind him of his origins and his relationship and interdependence with all other forms of life. In Mesopotamia, cradle of civilization, a combination of favourable circumstances and the rich agricultural land of the alluvial plains meant that there was always sufficient food for man and beast, fowl and fish. This continued abundance created conditions for the emergence of more advanced communities. An urban culture developed, with classic examples of monumental architecture, arts and crafts becoming specialist industries, and the growth of trading classes. Labour was efficiently organised, the economy being in the hands of the kings and priesthood. But the land was held to be in divine ownership; without the Earth Goddess's procreative powers it was believed all life would cease. The king was her consort, a lesser, temporarily earth-bound god whose function was to ensure the productivity of the community. Religious ritual had its origins in the seasons, crops, animals, the continued fertility of the soil, the life-giving rain, the seasonal flooding of rivers: all were sacred.

So also with other people who lived close to nature the world over. A sense of responsibility and of

gratitude is discernible in the Maya people who performed rituals of thankfulness after slaying a beast for their use, asking pardon of the Lord of Life for killing the creature. 'Forgive, I have need' was the solicitation even when felling a tree.

Socially, as agriculturally, all life depends upon keeping the balance between giving and taking. To the bushman, dependent entirely upon his own knowledge and skills for a livelihood, waste was unthinkable; he knew that one could not take from nature without a return. Although his sole source of sweetness, apart from fruits and berries, was wild honey, he never took the whole of the bees' store, and rewarded the bird who had led him to the treasure. Every hair, every shred of skin, every bone of his prey was utilised, and he too performed ceremonies expressing gratitude after a killing.

Of the Greek myths perhaps that of Midas carries the most obvious message: the pursuit of riches before all else must lead to death, and the expiring king can only obtain release from his fatal gift by bathing in the source of the river — the origin of life. In *The Sacred Mushroom and the Cross* John Allegro tells us that the first meaning of the word 'sin' was the idea of seed running to waste. The seed of God was supremely holy, whether it appeared from heaven as rain, as sap in trees or as the spermal emission from animals or man. This much used religious word 'sin' has the basic meaning of *making ineffective, failing in one's object* the direct opposite of faith which is, at root, to *make effective or fruitful*.

God, as an act of grace, gives the seed of life. The Earth-Mother receives it and engenders food for man and beast who, sustained by it, reproduce themselves after their own kind. At death they return to the Earth thus nourishing the plants for future generations and the cycle of nature continues from season to season.

Although the coming of Christianity disposed of much of the veiled teaching of the ancients, among country people the old fertility rites continued largely unhindered, side by side with Christian festivals. Celebrations of Christmas and Easter still provide examples, in spite of the efforts of the clergy to free the Church from embarrassing pagan rites. These rituals were the foundation of good husbandry, defined by the Oxford Dictionary as "to manage thriftily, economise, cultivate". Although there have always been industrious farmers and lazy farmers, the fundamental principles of good husbandry informed the entire population and were never in doubt until the technological revolution hit the farms this century. The first advances in machinery were hailed as a deliverance from drudgery, but they brought in their wake a massive drift away from the land swelling the numbers that had already gone as a direct result of the industrial revolution. Now in the last quarter of the twentieth century more than ninety-eight per cent of the population in the UK lives away from the land, divorced from any involvement in the production of food.

The good husbandman gives place to the technologist, who is not concerned with thrift, economy or cultivation, in the sense that what is taken away from the earth must be replaced. Whereas in successful and sustainable systems, nothing is wasted, modern methods produce formidable quantities of potentially valuable material for which the farmer has no economic use. In agriculture animal manure, straw and other harvest residues are no longer reverently returned to the land that produced them. If they cost too much to deliver to an area where they may be used, or if they are too contaminated by residues of poison chemicals from pesticides and

drugs, they must be destroyed. The very productivity creates its own problems, with large surpluses which, again, are not economic to transport to the hungry, or which are artificially priced to satisfy the farmers who produced them. Mountains of superfluous food are expensively stored until a demand can be created; unwanted wastes pollute the rivers and the sea. There is not a form of life in the earth, the sky or the sea, that is not threatened by man's profligacy.

Mass production systems favour mono-culture which destroys the features of the landscape most necessary to wildlife. The animals and birds of the hedgerows are a part of the ecosystem that previously controlled the pests which man now seeks to control for himself by the use of chemicals. The good husbandman recognises the value of diversity. With a wealth of different cereal and vegetable strains, by inter-cropping and rotational farming he avoided the ravages of plant diseases that can now eradicate vast grainlands. So vulnerable is livestock production (it is no longer called husbandry) that we now try to rear animals by hysterectomy in completely sterile conditions, to found pathogen-free herds, which are, however, even more susceptible than others if any bacteria penetrate the strongholds in which they are enclosed. Not only the grain prairies, but the giant pig and poultry units of factory farms are an abomination of nature.

As we retreat from the age old principles of use and re-use, waste and pollution increase endlessly; people become increasingly unaware of their interdependence with nature and the country wisdom handed down from generation to generation by example and through folklore is lost. We know now that the end is in sight. Our profligate behaviour means not only that resources are running out, but that even if we find substitutes, we cannot safeguard our environment unless we can rekindle that reverence for the land and living things, that has been the natural heritage of man for thousands of years.

It is only very recently in the history of mankind that his fundamental relationship with the


natural world has been disturbed, with millions of people being cut off from the healing influences of the soil and its products and brought into vast urban conglomerates. Millions believed that this meant progress and made it their objective. Today a reverse movement is discernible, with city centres becoming deserted as their inhabitants reach out in a desperate effort to re-establish their contact with the rest of living creation. History and archaeology reveal examples of the collapse of civilizations when people have acquired too many barriers between themselves and the soil of which they are an extension. This does not suggest a return to wilderness. Nature should be regarded not as something to be preserved unchanged, nor as something to be dominated, but rather as a garden to be cultivated according to its potentialities.

Our greatest responsibility now is to see that future generations learn to be concerned with what people are and what they can give, rather than what they have and what they can get. This is totally opposed to the policy of governments (of any Party) but finds support in the world's great religions. A study of pagan beliefs shows that these are most often based on fundamental truths. If we can teach our children a respect and sense of gratitude towards our ancestors and link this with an acceptance of moral obligation towards posterity we shall achieve much. We stand at a point where we must make a positive decision either to allow some aspects of our technology to endanger the future of the entire planet, or, by our own free will and self-sacrifice, attempt to restore the intricate pattern of life which we have disrupted. To achieve this we need to recruit teachers, philosophers, zoologists, biologists and ecologists to re-awaken in the young a sense of wonder, humility and responsibility. The period of transition is bound to be painful; no re-birth can be without its stress, and this may provide the challenge needed by vigorous youth, in turning away from the world of the waste-makers and hidden persuaders to a new spiritual dimension.

Red Herrings in the Inner City

by John Elkington

What can the ecology movement offer to those confronting urban decay?



The city is dead. The outlanes of the huge elevated motorways are choked with refugees, their cars bursting with TV sets, domestic pets, hairdryers and electric blankets. Anyone familiar with science fiction will remember this scene instantly. The hero of the hour packs his or her car with fishing tackle and warm clothes, kills a cat or two to eat along the way or rifles the local store for non-perishables, has no thought of locking doors on leaving, mounts the central motorway reservation without thought for the Highway Code, and hares out of the city along the deserted *in* lane.

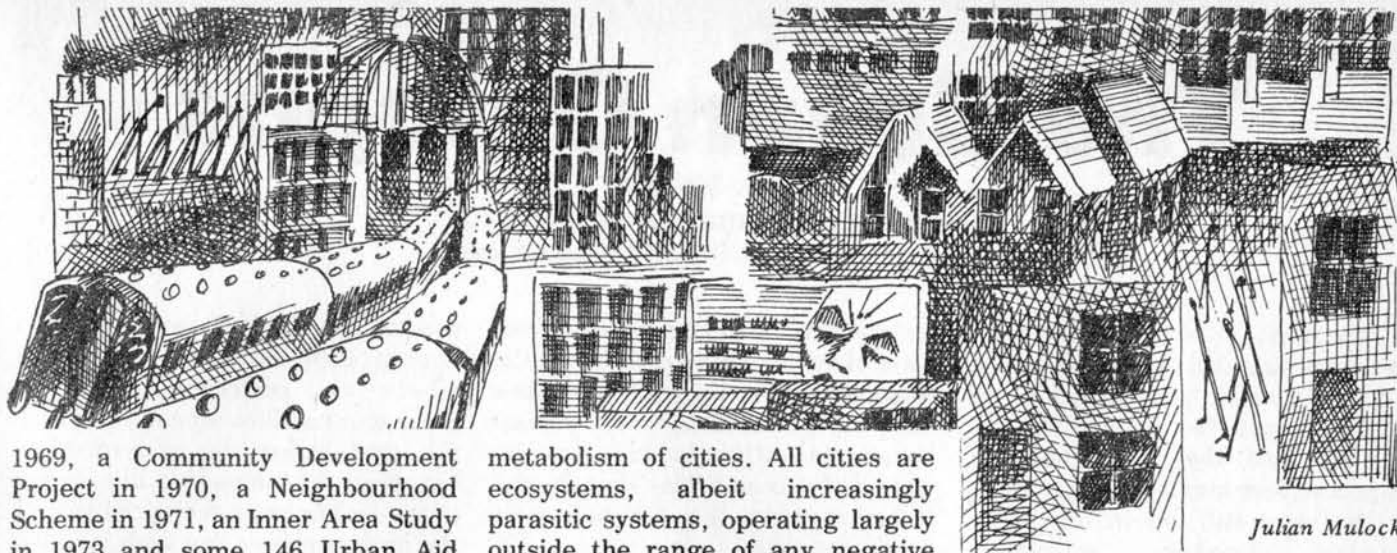
The city has always had its enemies. History is full of characters shaking the dust of this or that city from their feet. The so-called environmental revolution and the rise of the Ecology Movement have seen cities cast, once again, in the role of the Antichrist. To the ecologist's eye, cities bear the mark of Cain, having broken the cycle of nature — polluting the skies and dumping their sewage in the river. Just as crystals grow when immersed in a mineral-saturated mother liquor, so our cities, awash in cheap energy, have crystallized out over extensive urban regions.

Our buildings have come to depend on increasing inputs of energy to maintain the well-tempered environment. New York's World Trade Centre consumes enough electricity for a town of 100,000. Like dinosaurs lumbering into a coming age of mammals, our cities ignore the symptoms of their likely predicament. To one recent critic, they are machines "for generating problems of noise, carbon monoxide, logistics and ghettos." For Stafford Beer, they have "grown beyond viable limits, being technologically souped-up

beyond the threshold of physiological endurance, and perhaps ten per cent efficient in terms of their group purposes." Certainly many cities are overblown, but it would be a fairly hair-brained doctor who, confronted with a population infected with elephantiasis, decided that the human body was an intrinsically unworkable system.

Like ecosystems, cities display an often surprising degree of resilience. Push them down too hard and they'll go over — Sodom and Gomorrah went down and stayed down. But cities *can* take a surprising amount of punishment — even Hiroshima and Nagasaki are still with us. Of course that resilience depends on function. If the Bomb had destroyed the *need* for Hiroshima and Nagasaki, then they would have disappeared. Where cities have become functionally obsolete, the problems are often much harder to tackle than if they are destroyed by some natural or man-made disaster. Disaster mobilises, while decay debilitates. Decay is a vital process in any ecosystem, breaking up old patterns and releasing the nutrients needed to fuel the new. The problem facing our cities today is the very *scale* of urban decay.

We cannot afford to shrug off the stress signals coming from our cities. The diversion of resources to cope with the resulting social problems, though miserly to date, is already having unfortunate effects on the finances of rural counties. And while the study of inner city problems often seems one of the few remaining growth industries left to us, there is no hope of a miracle cure. Take Liverpool. Subjected to almost every remedy or palliative known to man, Liverpool had an Education Priority Area in



Julian Mulock

1969, a Community Development Project in 1970, a Neighbourhood Scheme in 1971, an Inner Area Study in 1973 and some 146 Urban Aid projects. Fear that the Irish Question might flare up in the city has ensured continued funding, at least at sufficient levels to keep Liverpool quiet, while the city itself continues to decline. Meanwhile, the authors of *Gilding the Ghetto*, drawing on their experience in the Community Development Projects, argue that to date attempts to "solve" inner city problems, tend to focus on personal inadequacies of inner city residents rather than on the larger structural changes occurring in society. The view that inner city problems are essentially *marginal* has permitted government agencies to treat the inner city as a technical, not a political, problem.

Government advisers looking at inner city problems see only what is obvious and on the surface; the inescapable signs of poverty, decaying houses, dirt and disease. Predictably they re-act by proposing massive injections of funds. By the end of 1975 over sixty-two million pounds had been spent through various agencies for urban aid. But pouring money into these poverty stricken areas has hardly scratched the surface of the real causes; it has not stopped the middle classes and the industries from moving out, it has not lowered the crime rate, it has not improved the conditions of the schools. The very reverse seems to be true; financial aid without a profound understanding of the social structure of an area, too often promotes the disintegration that it seeks to stem.

Inner city problems are red herrings insofar as they divert our attention from the distribution of power in society, and from the

metabolism of cities. All cities are ecosystems, albeit increasingly parasitic systems, operating largely outside the range of any negative feedback controls which might better relate their demands on land and other resources to the capacities of their host environments. And while there is a dawning recognition that urban ecology involves something more than watching poppies grow up through the pavements, we have yet to define what we mean by health, in an urban ecosystem. The evolution of any ecosystem, be it a tropical rainforest or a city, involves a progression from simplicity to complexity, from uniformity to diversity, from a low to a high number of species and symbioses, a decreasing rate of entropy, and an increasing rate of stability.

Health lies in adaptive stability, yet modern technology and planning all-too-often operate in the reverse direction to that of evolution. If one permits or encourages one of two different, self-reproducing organisms to multiply without controls in a given habitat, then the success of the favoured species becomes self-amplifying, leading to the competitive exclusion of the other — which may well have been a vital component of one's embryonic ecosystem. Precisely this process can be seen in the inner areas of many of our cities. For example, the London Borough of Wandsworth recently published an outstandingly honest report documenting the effects of council housing policies on local employment. Redevelopment in the borough has displaced some 250 firms over the last decade, of which only thirteen have been relocated. The report commented that "it was, of course, essential to clear the slums, and the factories

in those areas were, no doubt, in many cases cramped and unsafe. But the point is that housing was replaced and jobs were not." Where housing was the approved land-use, workshops were labelled a "non-conforming" use, and excluded. Environmental sensibilities wrought havoc with the urban ecosystem.

If the Ecology Movement cannot afford to ignore inner city problems, what has it to offer those confronting the realities of urban decay? While planner-bashing remains a popular blood-sport, rousing one's sympathies for a threatened and still necessary species, there is no lack of evidence that planners have poorly understood the nature of the systems which they have been trying to control. Simply stated, they have often seemed to be too concerned with environment and too little with ecology. To view the city as a system, subject to the same constraints as other systems, is to recast many issues, and throw a different light on many of its problems.

Indeed it may not be too long before the problems of the inner city start solving themselves, while city planners are left with the even more intractable problem of maintaining services in the *outer* areas of their realm.



The Urban Octopus

Elaine Morgan

**Inner city problems are not accidental:
they get worse as the city grows bigger**

If the great cities of the world were demonstrating that side by side with their continuing accumulation of material goods they were maintaining the lead they once held in respect of less tangible blessings — if they were still top in tolerance, equality, freedom, efficiency, security, urbanity, graciousness, confidence, optimism, and the quality of life, as some of them in their best days undoubtedly were, there might be some justification for complacency. Unfortunately, as the size of a conurbation increases, too many of these indices appear to move into reverse.

For quite a long time after the grit began to get into the works, the problems that arose were regarded as serious but incidental and soluble — always soluble. Traffic problems were a nuisance, but given wider streets, a ring road, a flyover, these frustrations could be eliminated and everything once again whizz along freely in a smooth and orderly fashion. There were pockets of deprivation and delinquency, but with a little effort and determination the slums could be cleared, the people would be given nice clean new housing, adequate schools, parks and playing fields, green belts, bathrooms, pedestrian precincts, and their children would grow up contented and useful citizens. There were juxtapositions of wealth and poverty which sometimes gave rise to envy and resentment, but the cities were growing richer and as time went by the standards of welfare and benefits to the needy could be improved; they would show their gratitude by greater loyalty and diligence and the inequalities would diminish.

These millennial prophecies never quite came to pass because the problems always kept one jump ahead of the solutions.

The two stock examples are traffic and the slums. Los Angeles has the most comprehensive, ingenious and

ambitious network of roads and free-ways of any city in the world. At the same time it is the city that gave birth to the wisecrack that anyone leaving his office in Los Angeles when it closes on Friday evening will be lucky to get to the coast before his licence runs out.

England has striven as actively and persistently as any country to eradicate the problem of urban slums for good and all. Yet in 1976 the Architectural Association reported on the results of ten years of multimillion-pound housing developments in Britain's big cities that these schemes 'have not merely done little to solve our housing crisis — they have in fact made it worse.'

No people are less inclined than New Yorkers to throw in the sponge and call any problem insoluble, and no one would accuse the *Wall Street Journal* of anti-urban bias, but a few years ago it stated:

One need only live in or near a major city like New York for a period of time to realise that the institution (taking the word in its wider meaning) of the sprawling metropolis is quite literally beyond human control, unable to provide a safe, let alone pleasant, environment for its helpless inhabitants.

Many people still doggedly maintain that the snarl-ups are temporary, that with patience and intelligence and above all with more wealth and more growth there is no reason why the thing cannot be made to run smoothly even if the urban area grows to five or ten times its present size. They urgently need to believe that, because all their forward planning is based on the assumption that such growth is acceptable, indeed desirable, and will continue. Their justification for believing it is that at previous stages problems have arisen and have always somehow been solved without restricting growth: therefore they always will be solved.

In some quarters the suspicion has been growing that the unfairnesses

and disappointments and repeated strokes of bad luck which hamper the efforts of underprivileged city areas to rehabilitate themselves cannot any longer be regarded as fortuitous, or blamed on the design of the buildings or the racial mix of the immigrants or any such simplistic scapegoat.

Professor David Harvey is one who believes that the real cause is not minor or accidental or eliminable: the cause is the city itself. Perfect justice and perfect equality nobody anywhere achieves because life itself is unfair. But there are built-in mechanisms in the complexities of metropolitan life which exert a multiplier effect on inequality, ensuring that to him that hath shall be given, and for anyone who loses his foothold and starts on a downward slope the city will grease the slide.

Professor Harvey has written a book, *Social Justice and the City*, entirely devoted to illustrating this thesis. He concludes: 'It appears that the "hidden mechanisms" of income distribution in a complex city system usually increase inequalities rather than reduce them', and that these effects 'become disproportionately important as the size of an urban system increases.'

If he is right, that statement packs as much unexploded dynamite as Louis Wirth's. Wirth was saying, *inter alia*, that crime is an integral element of urbanism: David Harvey is saying that poverty and inequity are integral elements of urbanism and grow worse as the city grows bigger.

Accidental Blemishes?

What we cannot reasonably assume (as most people did assume until this last decade) is that the rising incidence of crime, corruption, distrust and alienation are accidental blemishes that have somehow crept into the cities and can be eradicated by homilies in the Press or clean-up drives from City Hall.

They are not accidental, they are integral.

This is a depressing conclusion. Naturally, many of the most humane and positive thinkers in the field — especially those who were brought up in cities and loved them — strenuously resisted and searched eagerly for evidence to the contrary. Regularly over the years sociologists in various countries have raised cries of *Eureka!* and announced that they have found a little urban enclave, more often than not poor and densely over-crowded, where the environment and the economy are urban but the society retains a large number of 'folk' characteristics.

Boston in Massachussets is one happy hunting ground for such discoverers. Jane Jacobs in her book *The Death and Life of American Cities* came out strong for Boston North End; while Herbert Gans wrote his book *The Urban Villagers* about Boston West. Probably the best known among similar English studies is Michael Young and Peter Wilmott's *Family and Kinship in East London*. This was about Bethnal Green, which thereafter attracted so many sociologists eager to study its folksy lifestyle before it vanished that the native population was in some danger of being outnumbered by researchers. Similar phenomena have been reported from Delhi, Cairo, Mexico City and many other places.

In urban areas like these the 'When did you see your father?' count reveals that family ties remain strong, and extended family ties are kept alive. So are neighbouring, mutual supportiveness, mutual dropping in, and mutual criticism. The tribal consensus on the right way to behave is strong and specific and vented as loudly on your neighbours' children if they step out of line as on your own. The inhabitants tend to be less thing-oriented and more people-oriented than in other urban areas. If you question them in general terms about their neighbourhoods, their first answers are more likely to be about the society — 'people around here are very friendly' — than about any physical or economic aspect.

The common factors seem to be (1) that such areas consist of people



Anonymity and alienation — the plague of big cities

who arrived in the city in sizeable numbers at the same time and settled close together so that instead of merging into the urban melting pot they could continue to operate their own social patterns; (2) they were people who had some cohesive factor — religion, tribal or ethnic origin, language, colour — to keep them 'distinct and self-respecting long enough to get their own kind of pattern functioning in a new place; (3) they were left alone for a few generations to settle in.

In such cases, as with the Huguenot weavers in Bethnal Green, the Italians in Boston North End, the Russian Jews in Whitechapel, or the suburban enclaves in some African and Indian cities, they established something like a successful graft or transplant, which while drawing nourishment from the surrounding tissues of its new environment yet continues to obey the laws of its own nature.

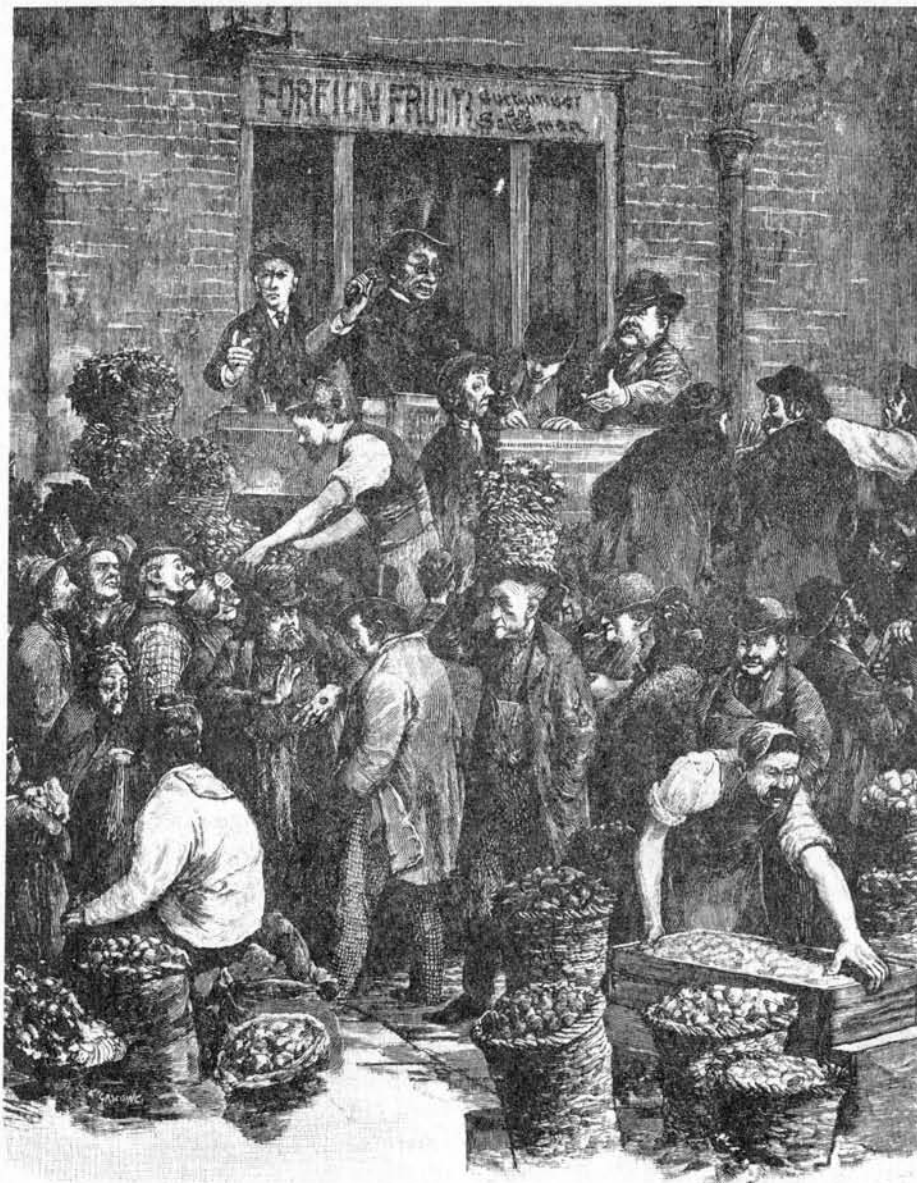
Some sociologists take the existence of urban villages as tending to disprove those who see social decay as integral to urbanisation. It seems far more likely that they are rather tough gobbets which the city is taking longer than usual to digest and process into its own likeness. For example, it was believed for quite a while that the social structure of the family life of Chinese American immigrants was so durable that the young men in the various Chinatowns would remain proof against the contagion of delinquency well into the foreseeable future. Unfortunately that future proved shorter than any of

the hopes or prophecies.

In the case of the longest established and therefore more centrally placed of the urban villages, the third proviso — that they be left alone — is precisely what the urban dynamic is incapable of fulfilling. Almost every day somewhere in the world one of these communities is being uprooted by the bulldozers and road makers and office-block builders of the growing cities and dispersed, or resettled among strangers in 'improved' accommodation with built-in broom cupboards or whatever. Every time, it raises a scream like a mandrake. But nobody can afford to listen and nobody can ever put Humpty Dumpty together again.

And yet if the snarl-ups in contemporary cities are not incidental but integral, then the search for palliatives is diverting too many of our best minds away from addressing themselves to the real question. It keeps their attention directed inwards towards their own metropolitan parish pumps as if the answer could be found there. It cannot. Beyond a certain point as a city grows in size and complexity, the initial advantages of urban living — convenience, freedom, tolerance, mobility, politeness — begin to go into reverse, while the disadvantages — noise, overcrowding, tension, hostility, neurosis, crime and fear — go on increasing.

Reprinted from *Falling Apart: The Rise and Decline of Urban Civilisation*. Elaine Morgan Souvenir Press, 1976, Price £3.00.



Covent Garden, 1883

Mary Evan's Picture Library

Teeming with Life

by Mike Franks

How to re-establish our shattered communities.

Why is it that planning is forever caught up with marginal issues and almost wilfully ignores the root causes of the problem? Gigantism, corporate greed, lack of accountability in government and the denial of local determination all lay waste to city life. Increasing legislation and negative controls deny the spontaneity of everyday

social relations, and sterile planning has reduced social systems to mathematical formulae. Nevertheless there are surprising enclaves of real stability in many city areas which still benefit from the initiatives of a wide range of people. Here one finds the prospect of wholeness and balance that comes from the conservation of variety, and it is from here that one's

models for revival can be taken. A face-to-face democracy, a humanistic technology and a decentralised community where the power of decision rises upward from the local level are all attainable if one regards the city as a domain to be released rather than as a place to be ruled.

For too long the machinery of urban development agencies has spent its time planning 'the rest' of the city, but never the heart, because unlike our predecessors in medieval cities and earlier, we have not understood that a church, a town square, a small theatre or even a pub can be the hub of city life. In this article I want to consider two areas that demonstrate what Leopold Kohr, in his tract *The City as Convivial Centre** calls 'nuclear seeding': Covent Garden before the Market was removed and modern planning failed to fill the vacuum and Clerkenwell where I have been involved in an experiment which aspires to husband a small area back towards its own equilibrium, through highly selective development rather than blanket control. In both examples the argument is that it is urban 'nuclei' that truly *plan* an area.

Defeat in the Garden

There never has been a place like Covent Garden. In fact Nicholas Pevsner has said that Covent Garden would be impossible anywhere else in the world. But the Market has now gone, and the rest is dying. In 1970 there was a massive popular non-violent uprising against the proposed Comprehensive Development Plan. After one of the longest Public Inquiries on record the plan was defeated. Unfortunately what appeared to be a great victory was merely a noisy skirmish. The war had in fact been lost a decade before when it was decided to remove the three markets, lock stock and barrel.

Markets everywhere contain the diversity, complexity, symbiosis, low entropy and high number of species that characterise stable systems. Covent Garden had this to a high degree. No space was wasted and between the dossers, students, nuns and un-selfconscious passers-by, no food or flowers were wasted either. In terms of recycling its own energy it was highly efficient. The

*TRACT 12, *The Gryphon Press*, 38 Prince Edward Rd. Lower Sussex.

sheer mix of independent-minded interdependent people and the variety of activity prevented any form of take-over invasion or the monopolisation of any part of the whole system. At least four separate but important city functions were carried out in this one small area. Each activity overlapped the next, and between them every hour of the day was fully taken up. In the mornings people walking to work threaded their way through the bustle of the Market. By lunchtime the Market had all but closed down, but the area was full again with people from studios, offices and shops all heading to and from the area's huge cross-section of eating and drinking places. By the time the office workers left for home the entertainment life was just beginning and in the early hours of the morning as the last of the night revellers were leaving, dawn deliveries of fruit and vegetables from the country were already rolling in, and the Market was once more underway. Amidst all the hustle and bustle were those thousands for whom the area was a permanent home. The eccentric overlapping of working hours — the intermingling of economic and social life so that the two were virtually inseparable — the sheer multiplicity of social relations, provided all the necessary resilience for adaptation to change. The area was protected by its own social cohesion, and the twenty-four hour working day allowed for a form of community policing that had little need of an outside force to keep the peace.

But when the Market which was its nucleus was removed, the whole started to disintegrate, and it is here that the futility of city planning reveals itself in all its majesty. Just as it was the functions of the markets in Covent Garden's central Piazza that gave the area its rationale, their absence now leaves the vacuum that is causing the rest of the area to collapse. Several million pounds have been spent on turning the Central Market Building into a preserved monument, but nothing has been settled about what to do with it, even though it has lain empty for over four years. The rest of Covent Garden, meanwhile is being heavily overplanned in the negative

regulatory fashion of the times.

Seeds in the City

As a place Clerkenwell is older than Covent Garden. Possibly pre-Saxon, it has certainly been growing and changing since the mid 12th century, when one of the early Norman families founded a nunnery and priory to the north and south of what is now Clerkenwell Green. Being within easy reach of the heart of the City but lying just outside its northern boundary, Clerkenwell became a suitable home for skilled men who wished to avoid the City's ordinances and the restrictive practices of the Guilds. Particularly after the Fire of London, with so much workspace burnt down, the area was colonised by small goldsmiths, silversmiths and fine metal workers. The craftsmen and traders were closely linked, 'outwork' was exchanged between workshops thus forging ties between neighbour and neighbour without domination of one by any other.

Clerkenwell's decline started in the eighteen eighties when the Swiss began to mass produce watches. The variety of skills was still there but trade was no longer booming.

Now, four or five generations later, apprenticeship is almost dead, the links between the residential and working communities, the tradition that son followed father into the business and the teaching of relevant recognised skills in the local schools have completely broken down. As with most other inner city areas, residential decline has been dramatic since the turn of the century and small business has been massacred by giantism. Since the last war the blight of crude land-use zoning and the destruction caused by massive high-rise housing schemes have laid waste to land and buildings in Clerkenwell.

It was against this background that in 1975 my colleagues and I started the Clerkenwell Workshops in two rock solid buildings that had previously been a school supplies depot. The concept of a large working community within one or two buildings fitted Kohr's 'nuclear' concept, and the Workshops were developed to be a microcosm of their area.

What happens within our buildings is inextricably linked to what goes on in the surrounding area. We



Clerkenwell, 1860

Mary Evan's Picture Library

have the City University on our eastern doorstep whence four post-graduates have made a study of trading connections both within the Workshops and with their neighbours in Clerkenwell and beyond. The results show an increasingly clear picture of what land economists call complementarity. We had no clear precedent when we opened so that everything was done by trial and error, but it has worked astonishingly well. We were fully let within eighteen months at a conversion cost which was less than the cost of demolishing the buildings. The cost of creating a job here has been ten times less than the government figure, and now over three hundred people with seventy different skills and a hundred and seventy different enterprises work in the hundred and twenty separate workshops. (See *The New Ecologist*, January 1978.) Tenants have modified their own spaces to suit themselves and there is a fine balance of self-contained privacy and general communality.

Tom Wooley, a founder member of the breakthrough architectural service group called *Support* describes our approach as "User development". This is the best and most appropriate description of what we are trying to achieve. Because freehold land in inner cities often belongs to absentee landlords, there is a long way to go before there can be strong and effective links between users of urban land and the space they occupy. Not that municipalisation will change matters if it substitutes a remote owner in the private sector for an anonymous professional buried in the Town Hall. As Fritz Schumacher puts it: "The direct relationship between a person and a piece of land is something so elementary that one would hesitate a long time before abolishing it. To adopt state ownership of land for the purposes of abolishing land speculation would be jumping out of the frying pan into the fire." Yet there is a need to give users a determining stake in their own environment. Practically, the task is not easy. In the Workshops, a sample of tenants were asked if they wanted to run the Workshops themselves. This brought a categorical 'No'. Our attempts to

share power and responsibility have not been generally successful. Nevertheless, there is a link between the individual tenant and the Workshops. It is still embryonic, but it has early signs of growing symbiosis. When the Workshops were threatened with a compulsory purchase order by the local authority, many tenants co-operated in preparing a carefully researched case to show why we should remain.

Both the Clerkenwell Workshops and Covent Garden as it was, demonstrate the multiple use of space where a community lives in a closely knit environment. Urban life is not secretly carried out behind closed doors. There is a finely tuned balance between private and public life, with a diversity of activities spilling out onto the pavement in a rich interaction, as shown at Covent Garden. In Clerkenwell too the links are extended beyond the Workshops, reviving some of the interdependence that was characteristic of the area in its hey-day. Both are examples of Leopold Kohr's "Planned heart".

Sadly there are very few signs that

the value of diversity as the key to city life has been recognised by the professionals. The mis-directed energies of the new inner city movement are looking at a new kind of comprehensiveness and seem to want more control over more elements. The alternative we must seek to promote is planning that develops skills in the conservation of variety, that gives expression to personal uniqueness and allows its citizens the chance to participate.

We have already seen the outcome of leaving the interpretation of urban beauty and the Aristotelean "good life" in the hands of an elite few. Because they are separated from the social relations of reality today's "value free" exercises in urban design can at best produce rationally organised space. It is the people whose knowledge of an area derives from belonging to it — the amateurs — who are often the best urban designers. We should give them back power and responsibility and release the city from the crude simplicity of pre-planned control.

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Nutrition by numbers

Ross Hume Hall

Until rather recently in our history, responsibility for nourishment was a private affair; people selected and prepared their own food. It was commonly assumed that because of the innate drive for survival in each one of us, nourishment would not be neglected. Nourishment planning, however, has now shifted to central planning authorities and the major authority is the food industry. Government regulatory agencies, ostensibly acting as surrogates for the public interest, provide guidelines for the industry.

All these guidelines do, however, is make visible, public policies that have already been decided and implemented by the food industry. The food industry, like any other business, *considers its economic balance-sheet paramount*. Until recently, food industry executives believed with good reason that nutrition did not interest the general public and consequently their policies toward development of a post-war food technology were cast solely in terms of their economic interests. Neither the new food technology nor the commercial approach to feeding people included any acknowledgement of the biological role of food.

Nourishment by Numbers

During the 1950s and 60s all the food regulatory agencies of western countries believed their major function was to prevent undeclared adulteration and to stop the food industry from poisoning consumers. They showed little interest in nutrition and only in the last few years, simultaneously with the public's awakened awareness, have they begun to declare their support for *nutritious, wholesome* food.

Government regulation of food is based on experimental science and so, in formulating new government policies with respect to nutrition it was only logical that these policies should be based on facts verifiable in a scientific laboratory. This seems like a sound objective basis on which to make policy, but it is important to realize the limits to any experimental science, and in particular such an undeveloped science as nutrition. There is no theory of human nutrition; there are general principles based on a long history of observation, but not detailed enough to reduce to discrete mathematical relationships which is the essence of scientific theory.

Lord Kelvin, the eminent nineteenth century British physicist once remarked that it wasn't science unless

it could be measured. His comment tended to dismiss a large part of biological science as non-science, a slight that biologists have been trying to rectify ever since by putting their sciences on a mathematical basis. But, when dealing with biological phenomena numbers can be quite insidious, and like the siren's song that lured Ulysses to the rocks, they can trap and destroy the unwary. The main problem with numbers is that, although they can be paraded through computers with mathematical precision, *they really have no meaning if they are not based on biological reality*.

Consider a room full of people engaged in multiple conversation. How would you reduce the complex sociological interaction, all the subtleties to mathematical formulae? About the best you could do would be to count the numbers of people, note their sex, age and a few other countable parameters — none of which would record the social complexities inherent in the situation. In short, *when a complex biological phenomenon is reduced to numbers much is lost, so much so that the numbers may have little significance*.

Nourishment is a very complex biological phenomenon in which one life form gives up its life and is converted into another life form. People eat food that at one time was either a living plant or animal and all its biological complexities resident in that living (ex) flesh are transformed into the unique complexities of the human consumer. Science has not had much success in defining precisely the nature of this phenomenon and except for an understanding of the principles, the details remain hazy. How then can we go about assigning numbers to something as nebulous as nourishment and should we even try? Might as well try to measure precisely the dimensions of a cumulus cloud.

Reduction of nourishment to numbers actually has had a long history. In 1813 Sir Humphrey Davy, the famous British chemist, observed: "If the organs of plants be submitted to chemical analysis, it is found that their most infinitive diversity of form depends upon different arrangements and combinations of a very few of the elements." Sir Humphrey was greatly impressed by the power of the then new techniques of analytical chemistry to reveal the innermost secrets of living matter. Life science subsequently developed in the nineteenth century using analytical chemistry as its basic tool and by the middle of

the century chemical analysis had shown that all living organisms consisted of fat, carbohydrates and protein. It seemed a reasonable conclusion to believe that nourishment represented a conversion of these basic substances of the eaten into the eater. Biochemical studies of this century have clearly shown the mechanism of how it happens, but, still this body of facts provides only a partial understanding of the phenomenon of nourishment. Indeed the more advanced studies now being carried out on body metabolism are revealing incredibly complex relationships between nutrients and cell viability.

By the 1940s, nutrition scientists, having identified fats, carbohydrates, proteins, sixteen vitamins, seventeen minerals, nine essential amino acids, concluded that this was about all that one needed to know. So convinced were they that they had completed a roster of nutrients that explained human nourishment that in 1946 Oxford University turned down a large sum of money it was offered to found a school of human nutrition. The authorities believed that in ten years there would no be problems left to solve.

A Mature Nutrition Idea

The 1940s represented a coming of age of public acceptance of nutrition scientists. In war-time Europe, under the guidance of nutritionists, occupied countries and beleaguered Britain adjusted their national diets to get the optimum nourishment from the food available. In fact, it has been concluded, that the British were never so properly nourished either before or since World War II. It thus seemed that what nutritionists knew worked on a national scale. It certainly did, but the food nutritionists urged on the people was essentially natural food — whole grain products, food with very little refined sugar and processed fats. What the nutritionists of that period were able to do was to recommend a more judicious balance of the available natural foods.

It was during the war (1940) that the Food and Nutrition Board within the National Academy of Sciences — National Research Council, Washington, was established. One of its first concerns was to define, in accordance with the latest information, the recommended dietary allowances (RDA) for some of the known dietary essentials of people of different ages. The first list of RDAs was published in 1943. Subsequently, seven revisions have been made, the latest being the 1974 list.

FAO and WHO have since followed suit together with the Canadian government which has published a Dietary Standard for Canada. All share a common assumption that "A dietary standard is a statement of the daily amounts of energy and essential nutrients considered adequate, on the basis of scientific data, to meet the physiological needs of practically all healthy persons in a population.

The Coming of the RDAs

The new government nutritional policy worked out beautifully for food manufacturers because it fitted into their already established technology of food fabrication. They began to list the analytical values of selected nutrients on their labels, impressively calculated in percentage RDAs. Government law required only

declaration of a short list of nine nutrients. If the product was intrinsically short of one item on the list it was easy to fortify with the absent member. Products such as Hostess Cup Cakes were now advertised for children as snack cakes with body-building vitamins and iron. The body-building vitamins consist of three of the B vitamins, all technically easy to add.

"Everything wrong with the American diet is rolled up in a Hostess Snack Cake or Pie," comments Dr. Joan Gussow of the Nutrition Division, Columbia Teacher's College. "They are high in calories, high in sugar, high in fat. Encouraging a child — or his mother — to think of them as good nutrition in a country where the major nutritional problems are obesity, tooth decay, diabetes and heart disease, is like teaching a four-year-old to smoke on the grounds that it will be good for his lungs."

It is quite apparent that the food industry was able to adapt the officially declared definition of what nourishment is to its own ends, without missing a step in its progressive exploitation of the new technology of chemical food processing. Moreover, the industry now had an official blessing from government for its nutrients and, most importantly, it picked up support from the established nutrition community. Prominent scientists and nutrition organizations, committed to a concept of human nourishment based on the RDAs found themselves, willing or not, supporting the contemporary industrial method of manufacturing food. This commitment meant that established nutrition spokesmen would not challenge the industry's policy of how to nourish the nation. And, further, it meant that whatever scientific research was done in the nutrition field, would be channelled into trying to make the RDA values more precise.

We can wonder at how the balancing of the short list of RDAs on product labels will ensure sound nourish-

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ment. Even if information about all the official RDAs (still only about one half the known nutrients) were made available, would that be sufficient? Dr. Briggs of the University of California, although in general favouring the FDA regulations on nutrition labelling, points out: "Many people are going to be misled into thinking that *good nutrition* is synonymous with eating a mixture of foods whose nutrients on the labels add up to 100 per cent of the U.S. RDAs. This in itself is far from being good nutrition." Dr. Briggs' own research shows that natural foods contain unidentified nutrients necessary for the growth and development of animals. And, further, these factors are removed in food refining. In Dr. Briggs' words: "though the need for humans of any of these unidentified nutrients is not established, they should be assumed to be needed by man unless proven otherwise." It is rather hard to set RDA values for substances unknown.

Nevertheless public education on nutrition is continually being channelled in favour of the RDA concept. General Mills in TV commercials for its breakfast cereal *Total* implies that *it is more nutritious than a natural cereal by virtue of the fact it contains 16 times more vitamins (a selected few)*. One could take this form of reasoning to its extreme and advertise a vitamin pill as being better than a natural cereal. But, is it more nutritious? This kind of illogical reasoning is being foisted on the public in TV ads as nutrition education. Carole Tucker Foreman, Assistant Secretary for Food and Consumer Services, USDA, has reacted strongly to this form of public education. She wrote: "We are being educated about food in this country. We are being educated in a high power, high budget way. The way we eat is no accident."

How two donuts and a glass of milk made good

Nutrition labelling and the RDA concept have become a bonanza for the vitamin manufacturers. Hoffman-La Roche, one of the largest, advertises extensively in the food trade journals that if food makers would just add a dab of vitamins, sales of their newly fortified products would shoot up. This aggressive pushing of vitamins by Roche found receptive ears in the Prestige Fritter Company, Cincinnati, Ohio. At a cost of one tenth of a cent per donut the company added six Roche vitamins, and hit the jackpot when their super donuts were approved by the U.S. Department of Agriculture for use in the school meal programme. Two super donuts and an eight oz. glass of milk, according to the USDA nutritionists, officially supplied one third of the child's nourishment for the day.

Paradoxically, although disavowing the principles of biology in its technical approach to food manufacture, the food industry relies heavily on human biology to cover up its nutritional blunders. Humans have remarkable powers for adapting to poor nourishment. There is however a price to pay in increased susceptibility to disease, debility and premature death. The way our fragmented society works, no association between these effects and the quality of food is made — another plus for the food planners. The overall result is that the plannees are at the disposal of the planners who are not really accountable for the health and well-

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being of their recipients or to any political process.

Scientific Setting of the RDAs

The trite phrase, "garbage in garbage out" applies to the RDAs as well as to computers. It is another way of saying that although numerical values *can be precisely handled mathematically, if the basis for assigning the number is shaky, interpretation of the numbers is just as shaky*. So, just how accurate are the RDAs? It is impossible to do precise long term experiments with humans, therefore the RDAs are arrived at through assembly of bits of fragmented evidence and educated deductions — a very subjective process which is one reason the values are frequently adjusted. For example, the 1974 (latest) edition of the NAS-NRC Recommended Dietary Allowances gives a value of 45 milligrams/day for vitamin C and 3 micrograms/day for vitamin B₁₂, compared to previous values of 60 and 5 respectively. The Canadian committee, incidentally believes the value for vitamin C should be 30 mg/day and the Russians have set a value of 75 mg/day.

In addition to human data, the committees may use animal data although the basis for comparison is more difficult. Laboratory rats, for example, consume about ten per cent of their own body weight in moist food every day, considerably more than a human, so a body weight basis is not a particularly useful comparison. On the other hand, one could calculate the amount of nutrient on the basis of 1,000 Kcal of food eaten. Dr. H.N. Munro, of MIT, the new chairman of the NAS-NRC committee that will make the next revision in the RDAs has stated that the energy basis may be used which opens the way to make direct comparisons. We don't have to wait until Dr. Munro's committee issues its new revision. Dr. Miles H. Robinson, Citizens for Health Information, Potomac, MD., and Dr. D.R. Davis, Clayton Foundation, University of Texas, have calculated the RDAs/1,000 Kcal of food for the rat and monkey from data set out in the NAS Handbook No. 10 which lists the nutritional requirements for laboratory animals and compares these values to those calculated for human values.

When plotted together, the RDA values for the human and rat, except for B₆, iron and calcium (which are about three-fold higher for the rat), are in the same ball park. The RDAs for the monkey are another story. The official RDA values for the monkey, for zinc, magnesium, calcium, pantothenic acid, biotin, riboflavin, folic acid, B₆, C, E and A are from three to ten times greater than those for humans. Drs. Robinson and Davis wondered why the values were set so much higher for the monkey and they suspected political motivation may have forced the human values lower than they should.

There is no Scientific Basis for Setting Exact RDAs

The scientific basis for setting the RDAs for humans is not exact and is open to political and economic persuasion. If this kind of subjective decision-making were confined to a laboratory exercise it would have no major impact, but it is not. It is decision-making that strikes at the heart of the quality of nutrition for an entire nation. Let us not make the mistake, however, of

believing that if the RDAs could be set precisely that all would be well with American nutrition *because the whole premise of the RDAs shatters when it runs into human biology*.

Human biology is an integrative process, everything happening at once, each process in perfect relation with all others. And, human nourishment is nature's way of tying human biology directly into the fundamental relationships of life. The adding machine premise of the RDAs is incapable of giving any hint of those relationships. Dr. Roger Williams, Clayton Foundation, University of Texas, Austin, constantly makes the point that all nutrients act as a team. Change the nutritive force of one member and the relationships between all the other nutrients change. These integrative relationships, the essence of human nourishment, remain impenetrable to the way contemporary nutrition science operates.

Institutionalized Feeding of a Nation

The success of the RDA concept among the planners becomes readily apparent when we place it against the trends in the food industry. The trend is eloquently described by Dr. A. Schmidt, then Commissioner of the FDA, who, speaking in 1975 said: "Forty per cent of all meals now eaten by Americans whether consumed in restaurants, fast food service stations, or at home, have been prepared outside the home; and the percentage is rapidly increasing. Assuming this trend continues, we predict that in ten years, 70 per cent of all meals will be eaten away from home or brought home ready to eat . . . Totally synthesized analogs will be commonplace."

Dr. Schmidt's prognosis becomes even more striking when we note the trend in the catering segment of the food industry. Mimi Sheraton, food editor of the *New York Times*, commented on a swank Chicago restaurant specializing in French cuisine she ate in. When she asked to visit the kitchen she was shown a small room equipped with a large freezer and a micro-wave oven. The "chef" sat in a chair, his feet up on the one small table. The fact is that most restaurant food is now being mass produced in centralized factories, pre-plated, frozen and shipped all over the country. It is not a case of preparing a meal in a traditional manner and then freezing it because that technically wouldn't work. Centralized processing of the instant delectable dishes served in restaurants — from McDonald's to pseudo French restaurants — can only be done by using the latest chemical fabrication techniques of food technology. And, if there is any nutritional value in this food, it will be specified according to the RDA concept.

The overall policy of the food industry is now becoming clear — it is the institutionalization of the feeding of a whole nation. The technology for doing this has been available for some time but in order to make the policy palatable, the public and its political leaders have to be persuaded that the food it receives is nutritious. *The RDA concept provides that rationale.*

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Trades Unions and Nuclear Power

Ireland • Germany • Australia

Until recently, there were few signs, if any, that the Irish trade union movement was giving much thought to the growing debate over nuclear power. The Unions seemed content to sit it out on the sidelines, and it was generally assumed that when they came to be counted, they would accept the Government's line that nuclear power means economic growth means more jobs. No anti-nuclear lobby had emerged in their ranks and the nuclear issue had not even been raised, let alone debated, at their annual conference.

Then early in February this year, came the bombshell. In a trenchant attack on nuclear power, John Carroll, Vice-President of the country's biggest Union, the Irish Transport and General Workers, warned the Government that by approving nuclear power they would be doing a grave disservice to the Irish people. "A decision to go nuclear," he told an audience at a seminar held in Trinity College, Dublin, "is not as simple as deciding to cut income tax or increase welfare benefits. It is a decision that would bear not only on the present population but on future generations who may well have to suffer the genetic and other adverse consequences of a decision, taken behind closed doors, by those with vested interests who claim for themselves the almost divine right to



other unions in Congress for a stand which, at the very least, questions the economic arguments for nuclear power, highlights its possible dangers for those working in, and near, a nuclear power station, and points to the job-creating potential of alternative energy sources and

ECOPOLITICS

conservation programmes," writes Brian Trench in *Hibernia*.

Carroll is not the first union leader to have come out against nuclear power — Arthur Scargill of the Yorkshire Mineworkers is a case in point. But whilst Scargill can be accused of having a vested interest in the demise of the nuclear industry, Carroll cannot. Indeed, his stand is further evidence that the old pattern of trade union opposition to nuclear power is changing. Increasingly, the most vociferous opponents are coming from unions that are outside the energy business, or, more significantly, from those that have a stake in maintaining the nuclear industry. Thus, French trade unionists, notably the CFDT, have for some time been drawing attention to the dangers of working in nuclear installations, and have kept one plant closed until they are satisfied with the safety measures. One of the American unions in the industry has been publicising accidents. Even in Britain, there have been some murmurs of discontent among workers at Windscale that 'the interests of national security' are being used to undermine their right to strike. "In general, it is trade unions without experience of nuclear power plants that look favourably on it: experience is a great teacher," says Robert

Blackith, author of *The Power that Corrupts*.

For the most part Carroll's attack concentrated on the argument, which the Irish Government clearly takes for granted, that nuclear power brings more jobs. "The capital sums that would be tied up in investing in nuclear plant would be more usefully employed in other areas of industrial activity," he said. "Substantial studies have been done that establish conclusively that if we had a mandatory programme of efficient home insulation, many jobs could be provided . . . for workers who at the moment are on the redundancy scrap heap."

"The solar industry is job intensive and can provide two and a half jobs for every job that the nuclear industry can provide and has the added advantage of providing work and opportunity at the local level for the development of the particular skills required, and would embrace workers other than those in the professional or technological areas. Of course, one of the reasons why there has not been, as yet, sufficient development of solar power is because the sun is not owned by any of the multi-nationals and they are not able to strap a measuring meter on it and charge the people of the world exorbitant prices for its use."

The Mafia and the Maverick

Everybody who attended a meeting of anti-nuclear groups from Bavaria, in March agreed that the German anti-nuclear movement is going through its deepest depression yet. General despondency has set in following the Social Democrats Party Conference which came down in favour of the Government's nuclear power programme. The SDP decision is the more demoralising because there had seemed a good chance that the voting would go the way of the anti-nuclear lobby. Throughout the months before the Conference, held late last year, resolutions had been streaming in from one regional branch after another, taking a critical view of nuclear power and calling for a three year moratorium on the Government's programme — if not its complete scrapping. Some local groups were even on record as calling for a shut-down of those plants already in operation. It appeared that the SDP, prodded by



John Carroll: ITGWU's Vice-President

determine for us, without consultation, our way and quality of life for generations to come."

Michael Mullen, General Secretary of the ITGWU, said that his Executive backed Carroll's grave reservations about the wisdom of going nuclear and they would be advising local officials — notably in Wexford, where there are proposals for a nuclear power station at Carnsore Point — to that effect. "It seems likely, too, that the ITGWU will seek the support of

the proliferation of anti-nuclear burgherinitiativen and the mounting wave of hostile demonstrations, had woken up to the growing public unease over nuclear power.

Why then the sudden change of heart in the SDP ranks? Ten days before the party congress, forty thousand trade unionists gathered in Dortmund for a pro-nuclear demonstration. Their spirits heightened by an unexpected day off work, a free lunch-packet, a handout of twenty marks for drinks and a free coach ride — all provided by their companies — they rapturously applauded an all-star trade union team who extolled the wonders of nuclear plants and threw the book at the 'selfish and irresponsible' Burgher-initiativen who stood in the way of their speedy completion.

Just how representative this 'spontaneous nuclear festival' really was of feeling inside the Trade Union movement was revealed a few weeks later in an article in *Der Spiegel*. It reported that:

* the trade union representative at Dortmund consisted entirely of workers and officials from Siemens, their subsidiary KWU (the German nuclear monopoly), MAN, Krupp, Mannesmann, Babcock (all heavy engineering firms), and the huge building contractors Holzmann, Hochtief and Heitkamp.

* the coup de théâtre had been carefully prepared and organised by a Munich PR agency, which beforehand had arranged hundreds of meetings and seminars on the threat to employment if nuclear plants are not built — and built soon.

Through this well-organised piece of propaganda, a tiny trade union tail has come to wag the government dog in a matter of critical national importance. That a small minority of trade union leaders, gracefully manipulated by their nuclear power bosses, could terrorize the leadership of the government party into riding roughshod over a large section of their membership, ramming an approval of the nuclear programme down their throats, is an eye-opening lesson in "industrial democracy".

One might have thought that an earlier commitment by the SDP to postpone any further nuclear planning and building of nuclear reactors until the problem of waste disposal (Entsorgung) was solved would have proved an embarrassing block to their new decision. Not a bit of it: rather than be forced to eat their words in public, they have resorted to the elegant solution of making up a new word to cover their tracks. Their new slogan is "Entsorgungsvorsorge" — a re-

markable piece of political semantics meaning "all the necessary steps have been taken to see to it that the problem of waste disposal can be solved some time in the future". What was once a conditional acceptance of nuclear power has been transformed into an unconditional go-ahead.

Trade Union opposition is beginning to recover, however, from its numbed state of shock at these shady events, and is rallying round the figure of Heinz Brandt, who was nearly expelled from his Metalworker's Union for speaking out against nuclear power in public. At a recent rally near Brokdorf, he uncompromisingly accused the trade unionists who sit on the boards of the power utilities of collusion with the 'nuclear mafia'. The word he coined to describe the finely spun web of mutual interests, *Der Atomfilz* (the nuclear network), has since entered into everyday parlance.

Last December, Heinz Brandt and his friends formed Trade Unionists against Nuclear Power, which is beginning to rally the demoralised trade union members all over Germany who have not swallowed the official line that 'Nuclear Power creates jobs'. The group publishes a newspaper in an attempt both to link all those who have doubts and reservations about nuclear power (but who cannot say so in public — the subject being taboo at routine trade union meetings) and to demolish the short-sighted case for nuclear power made by the Trade Union leadership. Undoubtedly Brandt has a hard fight ahead of him. The 'energy equals growth equals jobs' equation has been fed monotonously to the German worker for years. Terrified of unemployment, he clings to it with the force of despair.

Lothar Meyer

Uranium and the Unions

On the 24th May 1976 all trains in Australia were brought to a halt in a 24-hour national stoppage as a result of the Australian Railway Union's (ARU) policy against the mining of uranium. The strike started over the handling of sulphur destined for the Mary Kathleen uranium mine. The Federal Conference of the ARU had extended the ban which they had placed on the shipment of uranium products on 30th April to cover *all* products used in the treatment of uranium. They also included a clause which would bring strike action if any of their members were forced to handle any of these materials.

A yard foreman in Townsville, Queensland, had been directed to load sulphur required for the extraction of uranium; he refused and was stood down. His workmates walked off the job and the national leadership, joined by the Engine Drivers' Union, called a 24-hour national work stoppage. In many workplaces, members of other unions, not officially involved, joined in the walk out.

The Amalgamated Metal Workers' Union of Australia sees the nuclear industry as presenting an extreme threat to the health and freedom of world society. They state (Submission of the Victoria Branch): "Inevitably the nuclear industry is an integral part of the military-industrial complex in the USA and in Europe, a complex which promotes consumerism and growth at all costs, at the expense of freedom and the quality of environment at home, and at the expense of the masses of people in the Third World."

On the 27th July 1977, the Federal Council of the Transport Workers' Union had decided to recommend to its 66,000 members a virtual ban on the handling of uranium. The Federal Council decided on its anti-uranium policy on six grounds, including lack of safe waste disposal, increased opportunities for terrorists, increased risk of nuclear war and health hazards to miners. It also decided to refuse to export uranium to countries engaged in researching or manufacturing nuclear weapons, or breeder reactors.

The Federal Waterside Workers' Federation's policy has been to honour existing uranium contracts but the Melbourne branch of the WWF is taking a tougher line. Ted Bell, the branch secretary explained: "Until the whole question on the mining, handling and treatment of uranium is settled to the satisfaction of the Australian people, we will not load or unload, handle or stevedore any ships loading uranium or carrying uranium or materials for the mining of uranium."

Throughout June and July 1977, anti-uranium demonstrators were active in the Docks. On July 2nd, about 300 people turned up at Swanson Docks, Melbourne, to protest at the arrival of a West German container ship, *Columbus Australia*, carrying as part of her cargo Australian 'yellowcake' bound for the US. The yellowcake, from the Mary Kathleen mine in Queensland, had been loaded on to the ship at Brisbane. The Wharfies (dockworkers) decided that if the police took any action to move people away, they would black the ship.

The police then moved in on the women, children and men arresting over 30 people, including Ted Bell himself. The *Colombus* was blacked by each shift of workers after the police charge. The Melbourne Wharfies decided on July 4th 1977 to come out on a twenty-four hour strike as a protest against the violence of the police action. The Melbourne WWF voted to black and ban the *Colombus* and to refuse to handle any more uranium. The German ship sailed away the following Wednesday without picking up any more of its intended cargo from Melbourne — but with the yellowcake still on board. The loss to the ship's owners from the delay was estimated at some millions of dollars. The owners of the *Colombus* announced later, along with several other shipping lines, that they would not be carrying any more uranium out of Australia while the WWF ban remained.

The Australian unions are not alone in showing militancy and courage in these past months on the uranium issue. The Australian Labour Party, influenced by the moral stand taken by Deputy Leader Tom Uren, also recognised that the provision of Australian uranium to the world nuclear fuel cycle creates grave problems relevant to Australia's sovereignty, the environment, the economic welfare of the people and the rights and wellbeing of the Aboriginal people. At the Federal Party Conference in Perth last year, the Australian Labour Party stated that "it is imperative that no commitment of Australia's uranium deposits should be made until (a) reasonable time has elapsed for full public debate, (b) the problems of storage, disposal, proliferation, etc. have been solved."

The Australian Labour Party then declared a moratorium on uranium mining and treatment in Australia and stated in Perth that it will repudiate any commitment of a non-Labour Government to the mining, processing or export of Australia's uranium, and that it will not permit the mining, processing or export of uranium pursuant to agreements entered into contrary to ALP policy.

On August 28th 1977, Mr. Fraser, the prime Minister, announced his decision to go ahead with the mining and exporting of uranium. Within hours of the news breaking, thousands of peaceful anti-uranium demonstrators took to the streets in non-violent marches and sit-ins and in street-theatre enactments, stating that the Government's decision to export the radioactive element added to the risk of nuclear war and death and deformity of future generations. "Export Fraser — not uranium", the placards read. "There is already blood on the wharves of Sydney",



Unionists being initiated

Mary Evan's Picture Library

Mr. Bob Hawke, the head of the 1.57 million member Australian Council of Trade Unions, stated recently. "And more blood will be spilled on the streets unless Mr. Fraser calls for a referendum".

Mr. Fraser has told the House of Representatives that the Government would not be deterred from its uranium policy and ruled out a referendum. In Parliament he stated that Mr. Hawke and other trade union leaders and a violent minority were trying to create a confrontation between the Government and the union movement. Already Mr.

Fraser has tried to blame Australia's high inflation rate, increasing unemployment, and low production on so-called "left-wing union officials", and to recast the uranium issue as one of law and order. It is clear, however, that a very committed group has emerged in Australia, prepared to withstand the hazards of weather, police and lack of sleep so that the Fraser Government cannot close its eyes to the public opposition to nuclear power in general and the mining of uranium in particular.

Petra Kelly

ecology party

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Red for Danger

Environmental Policy in the Soviet Union



The Soviet Union is a land of superlatives. It covers sixteen per cent of the world's landmass, possesses twenty-five per cent of the world's timber resources and has the largest reserves of coal, iron-ore and, probably, oil; ten per cent of the world's rivers flow through it, and it contains the largest single body of freshwater on earth — Lake Baikal. The pollution of such an environment and the over-exploitation of such natural wealth have implications for the whole world.

As Marshall Goldman points out, in his book *The Spoils of Progress**, the potential for a constructive policy of conservation exists under the Soviet form of government. In theory, where society's welfare replaces profit as the motivating force of the economy, pollution should no longer be a problem. In reality, the reverse is more often the case. Since the inauguration of the Five-year Plan by Stalin, the Soviet government has insisted on rapid industrial expansion. The prestige of the Politburo has depended on increased productivity in every sphere, and on the construction of mammoth industrial and engineering projects — at the expense of the environment.

To a great extent, the administration is stifled within the confines of a planned economy, and impeded by excessive centralisation. Under a system of five year plans with specific production goals, the success of an administrator is measured by the extent to which he raises productivity. Little personal initiative is permitted at the local level, and the commands of 'Gosplan' must be fully implemented. Under such circumstances, it is hardly surprising that 'conservation' is low on the list of an adminis-

trator's priorities.

Legal problems are also serious. Every Soviet Republic has its laws for 'the protection of nature', but comprehensive as they may appear, their effectiveness is very limited. Derisory fines are levied for particularly serious violations, and these are usually paid out of the enterprise fund of the offending factory. Nor is it hard to understand why fines are ineffective when those responsible for imposing them are often the offenders themselves. Goldman, for instance, gives the example of the President of the Society for the Protection of Nature who was also a high-ranking official in the Ministry of Land Reclamation and Water Management, which is responsible for building dams, and is one of the country's major polluters. Such contradictions are characteristic of Soviet environmental policy.

As long as the Soviet Union seeks to emulate Western economies, she is bound to suffer the environmental disruption that industrialisation brings. In some spheres the sheer scale of Soviet enterprise creates pollution that surpasses anything in the West. Mining is one of many examples. For economic reasons, Soviet planners prefer open-pit mines. The massive surface coal mining complexes in the Donets and Kuznets Basins are witness to the environmental devastation that has been caused. Vast tracts of forest and agricultural land have been torn up, and the pollution of local streams and rivers has been drastic. Not that underground mines have a better environmental record. Slag from those in the Donets Basin covers an area of 25,000 hectares.

Forests too have suffered widespread abuse as a result of short-sighted planning and the dash for economic growth. Seen as obstacles to agricultural and industrial projects and a source of easy income,

they have been ruthlessly exploited. Although sixty-seven per cent of the timber cut in the USSR comes from its European part only eighteen per cent of its forests are located there, and deforestation has resulted in serious erosion. Such degradation does not make the Soviet Union unique, but it does highlight the failure of her planners to heed the example of Western economies in their pursuit of hollow material victories.

Perhaps the Soviet Union's most notorious contribution to global pollution lies in her efforts at 'water management'. Since the completion of the Moscow-Volga canal in 1937, successive Soviet Governments have embarked on a series of engineering showpieces designed to show the world that Russia's seas, lakes and rivers can be put to better use than Nature intended. Her waterways have been "rationalised" by the construction of canals, reservoirs and dams — usually for the dubious benefits of hydroelectricity and irrigation.

The fate of the Aral sea illustrates the effects of man's heavy handed surgery. The Aral is fed by two rivers, the Amu Darya and the Syr Darya, on which it depends for the maintenance of its water levels. It was decided that both rivers could be put to better use irrigating land: as a result, the level of the sea has fallen dramatically. In 1960, the Aral covered some sixty-six thousand square kilometres. By 1980, that area is expected to have fallen by two-thirds and it is probable that by the year 2000 the sea will have turned into a salt-marsh. The construction of hydroelectric dams on the Volga, and the diversion of its water for other purposes have led to similar results in the Caspian. Ports and fishing villages once located on its shores now find themselves as much as thirty miles away from the sea.

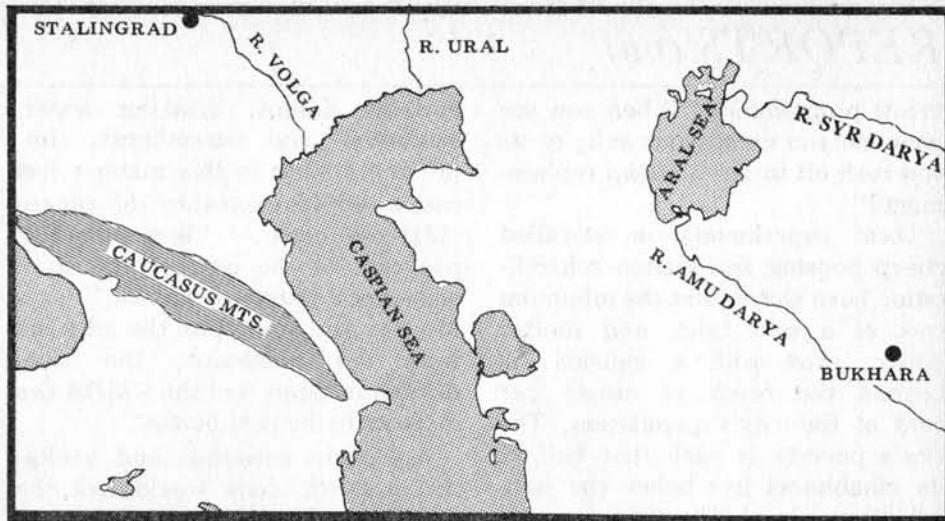
It is bad enough that the Soviet authorities can even *contemplate* allowing the Aral and Caspian Seas to dry up, but to make matters worse some Soviet economists actually believe this would be a good thing: the sea-waters would be used for 'productive' irrigation instead of for 'unproductive' fishing. The frightening aspect of Russia's dying seas is that no-one really knows what

* *The Spoils of Progress: Environmental Pollution in the USSR*. Marshall Goldman, M.I.T. 1972

the ecological consequences will be: widespread climatic change and sandstorms are likely, in addition to the obvious losses in marine life.

Almost more terrifying are some of the suggestions for rectifying the situation. Localised solutions include building a dam across the middle of the Caspian, so that the shallow Northern part of the sea could maintain a reasonable water-level, or supplementing the Caspian from the Black Sea, although the higher salinity of the latter's water would be very harmful to marine life.

The most famous 'solution' involves the re-routing of various Northern rivers to supplement the Seas with waters otherwise 'wastefully' discharged into the Arctic. One plan envisages the construction of a dam and storage reservoir at Tobolsk, where the Rivers Irtysh and Tobol converge before flowing into the Ob. Their waters, together with water from the Yenisei — transported along a 900 mile canal — would be forced southwards by twelve pumping stations, thereby causing the Tobol to flow backwards. Water would then flow along the Golovnoi Canal until it reached the Aral. Such an enterprise would, says Goldman, be equivalent "to raising the Missouri River and forcing it to flow backwards over the continental



divide so that it empties into the Pacific instead of the Gulf of Mexico." One British climatologist believes that, by depriving the Arctic Ocean of most of its supply of freshwater, the diversion of the rivers will cause large scale melting of the ice-cap. The result would be irreversible climatic change and disastrous floods.

For those who see the salvation of our industrial system, and its attendant ecological problems, in a planned economy, Russia's dismal environmental record may be something of an eye-opener. State ownership of the means of production may have certain ecological advantages (consumerism is less evident and there is more recycling of goods),

but unchecked by lobbies and pressure groups, Soviet planners have sacrificed the environment to the prestige of the party. More serious still, the planned economy has not saved Russia from the crises that are slowly strangling the economies of the Western World. In common with her capitalist rivals she is finding that industrialisation, urbanisation and economic growth are creating more problems than they can ever solve. Under such circumstances, state ownership of land, property and industry is somewhat irrelevant. It makes little sense, after all, to control the means of production if they are also the means of one's destruction.

The Livable slums of Calcutta



Darapara and Kultola Math are both large and sprawling slums in the heart of Calcutta city. There are three thousand more such areas that together provide shelter for over a third of the city's 8.3 million population. Their buildings are ramshackle and tumbledown, and their people ill-dressed and ill-fed. But whereas Darapara is filthy and suffers repeated outbreaks of

cholera and other gastro-intestinal diseases — you merely have to step off the main road into the slum precincts to be assaulted by the stench of a pile of garbage six feet high — Kultola Math is clean, with no slush, no flies and no cholera.

The Calcutta Metropolitan Development Authority has over the last six years improved environmental conditions in fifteen hundred

bustees (slums) like Kultola Math. It has replaced old latrines with new and sanitary ones, paved the lanes and provided drainage and clean chlorinated piped water. In the 1950s Calcutta was renowned as "the cholera capital of the world", averaging a thousand cholera deaths a year. Today it reports less than one every two weeks.

But despite this success, CMDA is a target of criticism. Its efforts to make the Calcutta slums livable appear, to the city's *bhadralok* (middle class) as against all known tenets of urban improvement. They had expected the CMDA to bulldoze the slums to the ground and set up imposing brick and concrete structures in their place. For the *bhadralok*, an improved slum is still a slum, an eyesore, an unwanted prick on their conscience.

"But what do you do?" asks M.S. Maitra, who looks after CMDA's improvement (notably *not* resettlement).

ment) programme. "When you are poor, do you mend your suit, or do you rush off to get a cheap replacement?"

Local experiments in so-called cheap housing and bustee rehabilitation have shown that the minimum cost of a new brick and mortar house, even with a subsidy, is beyond the reach of ninety per cent of the city's population. The city's poverty is such that half of its inhabitants live below the bare subsistence level. The slum provides these poor with shelter at a price they can afford.

Equally important, as rehabilitation efforts all over the world have shown, slum residents are not always keen on moving into resettlement areas — particularly into the impersonal multi-storey tenements that are provided for them in congested Calcutta. The Calcutta bustee, like any slum elsewhere, is a composite and organic social and economic system. The inhabitant is close to the land. He keeps some chickens and sometimes even a cow. In most cases, the bustee houses a variety of cottage and small-scale industries that provide sixty per cent of the city's working population with some kind of employment and livelihood. Most slums also have regional and religious identities of their own, providing a vital social anchor to the immigrant from the rural hinterland.

The slums are also close to where the jobs are. The site-and-service schemes for slum resettlement espoused by international agencies like the World Bank take the slum dwellers far out of the city, and settle them on unwanted land with little access to jobs. If ever public transport is made available, it costs more than their jobs pay them. Soon, despite these schemes the slum dweller returns to where he was — in a slum next to a wealthy part of the city where he can find some work and a dwelling within his means.

These hard facts of life have forced the CMDA to opt for an appropriate low cost alternative. Don't try to replace the slum; instead improve its infrastructure and make the place environmentally safe. That means pave the lanes, fill up the ponds that attract mosquitos, provide

garbage dumps, drinking water, sanitation and streetlights. Improving a slum in this manner has cost a very manageable 180 rupees (\$21) per head — "less than five per cent of the cost of the most economical strategy known," says Maitra. And so despite the criticism from the bhadralok, the slum dweller is happy and the CMDA can move on to the next bustee.

A modern sewerage and sanitation network alone would cost the city three thousand million rupees (\$350 million) — about US \$45 per head. The city's waterworks are over a hundred years old, and the sewerage network was laid at the turn of the century for a fifth of the present population. Maitra points out that even if the CMDA had the required money to build these systems, someone would have to pay to connect the sewers to the houses. Most people in the city would be unable to find the necessary funds. There is a law to compel house connections but "how many could you compel?"

The CMDA is, therefore, using simple appropriate technologies that both the city and the people of Calcutta can afford. One example is the successful Calcutta latrine. Developed by CMDA engineers, it primarily consists of a prefabricated reinforced concrete septic tank with a chlorination chamber, costing about 1900 rupees (\$220). Half the city's slums share about forty thousand of these latrines. But bearing in mind that communal latrines are invariably neglected, since no one takes the responsibility of maintaining them, the CMDA assigns each latrine to a small cluster of households.

Instead of wasting time and money on planning grandiose schemes, this department has used its resources and its skill to improve existing conditions without depriving its citizens of the great advantage of remaining where they want to be. Their success is a testimony to the wisdom of this approach, and could set an example to many development authorities.

T.N. Ninan

Reprinted from Earthscan

Ecological Feasibility

In the planning of economic development, specific investments are designed so as to pass an economic feasibility test and a financial feasibility test. All international development assistance banks as well as national development authorities require these tests. A project must be shown to produce greater benefits than costs, usually expressed as the benefit:cost ratio, and to be able to generate the revenues needed to amortize the monies loaned for its implementation. The technical feasibility must also be shown, and often a number of technical alternatives are considered, with the choice going to the most economically beneficial alternative. It is proposed here that an additional test of project soundness be employed, that of ecological feasibility.

The purpose of an ecological feasibility test would be to ensure the existence of and maintenance of ecological conditions necessary to the success of a project. An ecological feasibility analysis would be essential to any economic development project which exploits the living resources of the biosphere, or depends upon these for its success. Projects in fisheries, forestry, animal raising and farming are in this category. While the determination of the technical feasibility of such projects would seem by definition to include a consideration of the necessary ecological conditions, this is not always the case.

Ecological feasibility defined

Ecological feasibility is a condition in development in which those ecological processes or relationships exist which are necessary to obtain a given use or harvest, and which are not substituted or manipulated in development, either because of lack of know-how or because to do so would impair or destroy necessary ecological processes. A project would be ecologically feasible if the ecological processes necessary to its

success exist and can be assured to continue to exist. If not, the project would not be ecologically feasible. The consequences of pursuing an ecologically infeasible project would be failure to obtain the planned use or harvest, site degradation and/or loss of productivity of the resource on which the project depends.

Examples of necessary processes or relationships are symbiotic associations of nitrogen-fixing organisms and photosynthesizing plants, plant succession, pollination, prey-predator relationships, the biological decomposition and consumption of dead organic matter, and natural habitat conditions for species which are beneficial to an activity.

The compaction of soils by heavy machinery such that modulation of soyabean roots by nitrogen-fixing bacteria is inhibited is an example of loss of an ecological process necessary to obtain a harvest. The maintenance of grazing herds at densities which prevent natural grasslands from being invaded by thorny bushes or unpalatable weed species exemplifies ecologically feasible cattle raising. An ecologically feasible orchard development would safeguard bee populations needed for pollination, by avoiding pesticides use during periods when trees are in bloom.

The over-all purpose is to achieve sustainable development which respects and co-operates with the web of life, by recognising the dynamic relationships between organisms and their physical environment and by preserving the processes which join together the elements in the web of life.

Why is the test for ecological feasibility needed?

This test is needed for a number of important reasons, the foremost of which is the urgent need to build into development planning, measures that will reverse the alarming world trend of environmental deterioration, especially in mountainous and semi-arid regions between the tropics of Cancer and Capricorn. Equally urgent is the need to establish a normative and active way to incorporate ecological criteria and principles into all phases of development planning. It is proposed that

this test would meet these needs and in doing so would help developing countries in their search for environmentally sound ways of development.

While environmental impact assessments have been in general adopted by many nations as an integral part of new environmental

**The need to
incorporate ecological
criteria and principles
into all phases of
development planning
is urgent**

policies, the effectiveness of these assessments is limited. First the exercise is not necessarily integral to planning, rather it may be an "add on" which does not influence project design. Second, most nations have not yet determined what level of environmental quality and conservation is desired, or even what is the actual status of the environment at present. Consequently, a measuring stick is lacking for evaluating impacts which would be measured. Finally, environmental impact assessments consider the consequences of undertaking a project, and not the soundness of a project, which it is assumed would be established by natural resources and other surveys that treat the environmental "inputs".

The survey and evaluation of soils, forests, grasslands, and water resources may well include ecological thinking, however its dynamism may be lost in project analysis due to the bias towards developing a static "supply" function for comparison with the "demand" side of the equation. Also such surveys may contain a temperate zone bias owing to the fact that their origins are European or North American. For example in most classifications of agricultural soils, the highest ranking is assigned to flat, mechanizable soils, typical of the great corn and grain-growing regions of North America, while the lowest ranking goes to steep regions, suitable solely for forest growth. In the tropics the reverse may be found.

The steep slopes of volcanoes in Central America and Indonesia support plantations of rice, coffee, tea and vegetables, while the low lying flat soils in high rainfall areas are so infertile that farming is not economical. An explicit review of ecological conditions operative in projects at the feasibility level of investigation would serve to avoid the loss of important information.

Trends in development seem to be ignoring ecological conditions. World-wide there has been an understandable emphasis on greater and greater production. But an over-reliance on genetic manipulation, chemical control of pests, chemical nutrition, and mechanization has tended to eclipse the importance of natural processes which underlie the productivity of the biosphere. It is upon this productivity that the long term ecological feasibility of farming, fishing, forestry and animal raising depends. Especially in the developing world, it cannot be assumed that the management of resources productivity is going to be accomplished. The contrary seems to have been the case, and a special need is thereby posed in the development assistance and planning process. The conservation of ecological conditions necessary for sustainable development must be explicit in project goals. The ecological feasibility test can help accomplish this.

Development of the ecological feasibility concept

Considerable work will be needed to make this concept as useful to development planning and management as it promises to be. Examples and case studies must be compiled in order to develop an empirical base for further methodological elaboration. It would be useful to undertake a number of post audits of projects, to determine how this concept could have been used in project design and management. Several pilot planning efforts will be needed as well. A dialogue between applied ecologists, engineers, agronomists and other agricultural scientists, and economic development planners must begin, perhaps through workshops and seminars.

Peter Freeman



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REPORTS *cont.*

The SSRC looks at Alternative Technology

On February 27 the Social Science Research Council hosted its first meeting in a series dealing with the general theme of energy and society. Significantly, the first meeting concerned "unconventional" energy sources and solutions — much of which has very strong implications for social organisation, and re-organisation.

The meeting canvassed a wide range of opinions, easily sortable as Government, Big Energy (oil companies and the UK Atomic Energy lobby) and Soft Energy. It might be supposed that the first two groups would form a monolithic nuclear-coal-growth group, with the 'unconventionals' tacked on. But this was not the end-result of the day, despite an early paper to the meeting from Dr. F.J. Clarke, Research Director for Energy at Harwell, that merely reiterated the rather conventional 'wisdom' of massive growths in energy demand being met by coal, nuclear and perhaps even wave power.

This crack in the fantasy shell of a high energy scenario is much to the credit of Prof. Pearce of Aberdeen, and Michael Posner of the SSRC, who organised the meeting. By selecting a number of people who could cogently argue the case for conservation and renewable energy as a real and integrated solution to the energy 'crisis', the low credibility of the case for growth was revealed. On the *demand* side of the equation there needs to be little or no increase in supply of energy to provide exactly today's standards of consumption; and on the *supply* side the renewable energy sources, even in dull and damp Britain, can satisfy surprisingly large amounts of demand, well before 2000 — if enough is done right now, and for the next 20 years. To the extent that we can rapidly improve energy use per unit of output the actual cut in per capita consumption, to yield a large aggregate cut in national energy demand, would need only to be relatively small. Conversely if we have (or decide) to cut national

energy demand, but do little or nothing about improving industrial and social efficiency of energy use, there would indeed have to be a new austerity.

Such arguments as these, put forward by Dr. Alty (of the National Centre for AT), Amory Lovins, Peter Chapman of the Open University, myself, and others, imply many sequences of policy planning and operation that can easily be orchestrated into complex, fine-tuned programmes. They require however one initial pre-condition: that there is an acknowledgement that energy growth — especially in Britain — is neither necessary, desirable nor inevitable. Almost as importantly, the soft energy route requires some comprehension of socio-economic and cultural variables at work in the energy pie.

To give an example, we could radically cut the number of private cars in Britain — and hence the energy used to build, service, route, operate, control and dispose them — without in any way recycling the Middle Ages. Adopting a target of providing something like today's level of passenger miles, but in energy, environment and human health optimised ways, would call for massive growths in the use of village and community buses, the elimination of cars from city centres and drastically cutting rail fares, with the implication that perhaps five million cars could be taken off the roads before the late 1980s. The argument for community buses is simple: a Transit or Volkswagen minibus with 50 per cent occupancy delivers at least 100 passenger miles per gallon; but a conventional 41 seat rural bus, with an occupancy of perhaps 20 per cent delivers less than 70 pmpg, while needing more energy and money to build, service, replace and so on.

The bugbear, of course, is jobs — eliminated or disrupted in some mooted transition phase. But here the soft energy advocates are on stronger and stronger ground. At last a sizeable mass of information on job costs in conventional energy is becoming known, against which the advocates of soft energy and conservation can compare the implications of their own proposals and scenarios. And fundamentally there

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Man Traced 3.75 Million Years

WASHINGTON, Oct. 30 —

Dr. Mary Leakey has established a man to be 3.75 million years old. She found him wandering in a remote semi-arid area, 25 miles south of the Olduvai Gorge. He was thought to be much younger, but his unusual jaw and primitive teeth led Dr. Leakey to send him to Berkeley for dating purposes. All persons involved were astounded to find that he is nearly a million years older than first guessed. Regrettably, because of his unusual appearance and his penchant for stone tools, no co-eds could be persuaded to date him.

Peter Payack

is little reason to believe that there would or could be fewer jobs with soft energy, merely because so many of the key technologies — solar collectors, wind turbines, insulation, biomass energy — imply a range of capital intensities very much below that of today's energy.

The SSRC meeting received a large raft of such information from G. Michael Turner's paper on money costs of various future demand scenarios (including low growth and non-nuclear ones). This work, undertaken as consultancy for the Department of Energy, showed how very much cheaper district heat and coal is than nuclear energy: with district heat being costed at around £70 per kiloWatt against a now officially admitted cost of £750 per kW for nuclear power.

Following Dr. Alty's paper, the paper from Amory Lovins was something of a 'sentiment clincher', in that he made it abundantly clear we do *not* need energy growth — especially for a stabilising or declining population — to 'safeguard' current consumption levels. During Lovins' talk there was some attempt at 'challenging' what he said, particularly when he came to argue the costs — the real costs — of nuclear energy, by bringing in fuel cycle and capacity utilisation and other real world factors. Certainly the following discussion revealed a number of low, zero, or negative energy growth aficionados within the audience.

The meeting ended with the urbane Michael Posner calling for proposals to the SSRC on studies that will examine the social, economic, infrastructural and other implications for Britain of soft energy routes. This of course will require more fully-developed conservation and renewable energy scenarios for the future, a need that will be partly met by the work undertaken at Aberdeen University for the Department of Energy on energy scenarios for Britain to 2025.

In many ways there are grounds for optimism in that at least some State funding on energy research is now being directed to the socio-economic area, which for the soft energy systems is of much greater importance than basic science research.

Andrew MacKillop



Books

A Horror Travelogue

GLOBAL REACH:

The Power of the Multinational Corporations, R.J. Barnet and R.E. Muler. Simon and Schuster, USA 1974, \$4.95.

THE WEALTH OF SOME NATIONS M. Caldwell. Zed Press, UK 1977, £3.50.

Both of these books emphasise the inescapably parasitic relationship between underdevelopment and overdevelopment. The net outflow of capital, protein, minerals and energy (though this has been curtailed by OPEC) results in poverty, malnutrition and social-cultural corruption for the world's bottom 60 per cent. The chief agents of this, the multinationals, then provide a highly dubious and insecure 'wealth' to the Western nations. As both books stress, this wealth is dubious: overdevelopment brings poor diets, poorer levels of culture, and a raddled natural environment — an external and communal concomitant of abused bodies and cultures.

Global Reach is a horror travelogue of the global corporations pursuing their one goal of profit maximisation in the underdeveloped countries. But as the authors demonstrate, the creation of the 'Global Shopping Centre' and all it entails, in the necessary destruction of cultural diversity and individual taste, is now virtually unstoppable. It permits the existence of underdeveloped enclaves within Western nations — the 'grey' zones and 'fringes' where at last some people are kicking against the slide to oblivion — and it entrains a trivialised 'consumer boom' in the

heartlands of the developed nations. While the 'rich' may have plastic wrapped food, cheap clothes and cars by the million, the multinationals cannot provide basic housing, good and balanced food, and anything whatsoever in the way of personal and human development.

Thus the authors see the creation of a Western mirror-image of the underdeveloped nations, albeit at a high level of energy and resource waste. As Britain knows only too well, the use of 'export platforms' in the Third World, where the multinationals use cheap, non-unionised labour, is steadily cranking up the level of Western unemployment. Poverty comes home to roost, standards crumble, and as the authors say 'There are even meatless days in Winnetka'. For the USA the situation is especially piquant: its multinationals have set up worldwide industries against which US manufacturers cannot compete, so US exports are tending more and more towards agricultural and mineral commodities: the 'traditional' exports of underdeveloped nations.

The Wealth of Some Nations is a more generalised analysis of the development/underdevelopment syndrome. Malcolm Caldwell starts by questioning the carefully nurtured (and still used, by the National Front!) myth of innate Western superiority: "... the reason that Europe went to Asia, and not Asia to Europe, is that Asia was more self-sufficient, and had little need — and but scant desire — for the products of Europe". The self-righteous pillage of other peoples resources that occurred through the late 19th and early 20th centuries (directly), has helped rationalise a more indirect, but equally voracious resource grab today.

Caldwell quotes the 'Physiocrat' Francois Quesney to show how very far Western demands have outstripped needs: "Man in this world has only three original needs: (1) that of his subsistence; (2) that of his preservation; (3) that of the perpetuation of his species... and of these three the first is the only one which is imperative, indispensable and individual...". But

Western society has lost sight of this fundamental aspect of human existence. The application of energy to Western agriculture provided an abundance of food (aided of course by offloading tens of millions of people to the 'empty' continents) for 19th Century Europe, and produced surplus people to work the machines of industry. As Caldwell points out — although his statistics are somewhat erratic in places — the finite fossil fuel basis to this form of 'development' is ebbing away fast, posing the threat of catastrophic social breakdown and starvation. The Western nations, and Caldwell is right to single out Britain, must accept the inevitability of "a steady retreat from 1960s-style affluence". He goes on to give examples of nations that have crossed back from the side of disaster and starvation, Third World countries where a mass ideology of self-sufficiency from a primary agricultural base has saved their pork-fried rice: China, North Korea, and Kampuchea. And while the Western Press has nervously edged away from flirting with the extremely hard line Kampuchians, it is worth noting that around 1000 AD the Khmers did exactly the same thing — they forcibly abandoned an urban-centralised lifestyle, in order to get enough to eat.

Caldwell is optimistic that a "muckle transformation" can take place in the West, and bases this optimism on such factors as: a decline in world population growth rates; the 'back to the land' movement (by a few, rather rich, in the West); the similar movement of — he claims — 100,000 unemployed Italians; and his claim that even a nation like Britain can feed itself. He cites the fact that many tons more of cabbage and potatoes could be grown than of beef, pigs and sheep — omitting to say, of course, that these vegetables only contain about 2 per cent protein and are deficient in lysine, methionine and some other amino acids. He disdains any decentralised movement towards a decentrist goal, and probably rightly argues that the big push must come from the centre, with an appropriate mass ideology.

Neither book minces words in its conclusions: the growth of alterna-

tive systems in the future depends on radical change to politics, economics and society. To get from here to there a new global value system must arise, which helps entrain a massive and rapid change to a decentrist life model. Only by means of a new global ideology, based on respect for one another and our environments — and indeed springing from it — can there be any challenge to the multinationals, as they steadily gulp away the world's physical resources, while they erode the social and cultural bases for any change.

Claire Mulkeen

Garden Feasts

THE SELF-SUFFICIENT GARDENER. John Seymour, Faber £6.95. **EVERYTHING YOU SHOULD KNOW ABOUT FOOD.** Claire Loewenfeld, Faber Paperback £3.75. **THE GARDEN GROWS COOKBOOK.** Eva and Tony Lambert, Wildwood House, £2.95.

Written with all the country wisdom and natural philosophy we have come to expect from the doyen of self-sufficiency, and superlatively designed and illustrated, John Seymour's latest contribution to the literature of living off the land, is more than just another guide to organic gardening. Every aspect of the subject is examined and explained between the covers of this generous book; from clamping to cider making, from herbs to hens, from bees to bottling, from sowing to harvest — it's all there, and it whets the appetite. The diagrams showing exactly how to carry out every process are remarkable for their clarity and ease of interpretation; I have never seen better. As if this were not enough John Seymour introduces a new way of cultivating to make it possible for those with a very small patch to grow very high yields. Based on a technique derived from ancient Chinese practices, the author calls it the 'deep bed method' and explains how it may be used for all the fruit and vegetables you want. This is a book that no gardener — however experienced or however modest — should be without, and at today's prices, and compared with

many paperbacks, it is a bargain at £6.95. Go out and buy it — and buy a copy for your neighbour too if you don't want his chemicals leaching into your soil.

In *Everything you should know about Food* Claire Loewenfeld deals with the composition of food; the way in which the body makes use of the different nutrients and the law of natural balance by which it is produced.

The Garden Grows Cookbook, subtitled *An Ecological Guide to the Selection and Preparation of Food*, concentrates on what can be home-produced or locally grown. The recipes are largely vegetarian, are divided into seasons and are on the whole original, quirky and fun to try. A helpful book for those starting on the road to self-sufficiency.

Ruth Lumley-Smith

Where the Food is

WORLD FOOD RESOURCES, ACTUAL AND POTENTIAL by Michael Allaby. Applied Science Publishers Ltd. (1977). £15.00.

Most readers of *The Ecologist* will be aware of the problems of equating human populations and the available food resources as the world population reaches 6.5 billion over the next few decades. You will also be aware of the fact that a major part of the current population is undernourished in the face of vast grain reserves produced by the major developed countries. You may not, however, appreciate the complexity of the demographic, political and economic factors which promote and maintain this situation. Many books have been written on these topics but Michael Allaby's *World Food Resources* is one of the most useful recent analyses.

The book starts with a general scenario of changes in the distribution and abundance of world food reserves since the early 1970's as fertilizer costs quadrupled, world grain reserves declined and prices soared. Between 1971 and 1974 the cost of wheat rose 255%, rice 388%, maize 125% and soybean 273%. Some of the prices have subsequently fallen and others have levelled off but the inflationary trend in food prices continues to place impossible pressures on those



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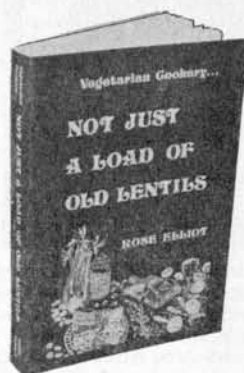
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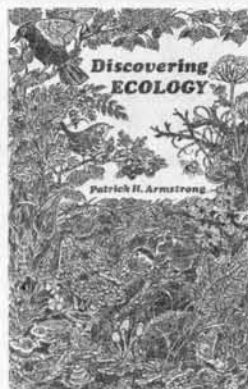
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countries whose populations desperately need a qualitatively and quantitatively better diet. On one hand the prognosis for many developing countries seems dire as their rapidly expanding populations and impoverished economies impose an enormous inertia on their ability to respond to natural disasters as well as technological innovations. In the developed countries, on the other hand, many subscribe to a philosophy of scientific infallibility: that all the world's food and energy problems can ultimately be solved by technology which can be transferred as aid to the developing countries. This might be more true in a world where the wealth necessary to develop modern farming techniques is more evenly spread both between and within countries. For example, the development of high-yield varieties of crops (as part of the Green Revolution) was expected to so transform the world grain reserves that the U.S.A. actually reduced the acreage of land under cultivation in anticipation of a depressed market. Ironically, the H.Y.V's in some cases actually intensified the plight of the pesticide/irrigation agricultural practice to manifest their potential. addition to being expensive as seed, require an advanced high fertilizer/pesticide/irrigation agricultural practice to manifest their potential. The rich land owners are able to provide these conditions, depressing the food market prices with their increased yields and forcing some of the poorer farmers out of business. Other advanced technologies implanted into the developing countries have also forced them into dependence upon the world trade for spares, chemicals and motor oils before their economies are ready for such competitive exposure and resulting in further economic depression. These and many other themes are explored in depth in subsequent chapters headed: Population and food demand, The Green Revolution, An inventory of the world, Hunters and farmers, Farms and factories, Joules and genes, The importance of climate and weather, Options for the future, The oceans as a food source, Employment, A new economic order? and Scenarios for tomorrow.

There is some repetition of material between chapters, which could be edited to the advantage of continuity, but since one is likely to use this book for reference purposes, they are self contained and valuable as a series of essays.

I have few criticisms. Allaby places some weight on the importance of The Corn Laws in the history of agricultural development in Britain but later states that "If The Corn Laws themselves had little effect, neither did their repeal". I am surprised, in view of his otherwise thorough coverage, that he did not consider the ecological problems associated with the high usage, for considerably increased food returns, of many pesticides in the tropics, such as DDT, which are banned from use in many developed countries. Finally, as a point of information, one frequently encounters the statement, as in this book, that populations which are expanding have pyramidal age structures which are based on high numbers of children in the early age classes. This is true but a population which suffers heavy neonate and child mortality could have the same age structure and show no growth, Zambia is a case in point where 50% of the population (in 1971) dies before the age of 4.

These criticisms and others of a more trivial nature, including the lack of standardization of units, point to this book being prepared rapidly for publication. In a text book one would be critical of this but in the case of *World Food Resources* it has resulted in a dynamic review of scientific and political developments up to late 1976. I may be wrong, but a longer time spent in preparation might have lost some of this book's immediate value.

Allaby concludes that if there is a solution to the world food problem it is not really susceptible to agricultural solutions and that the real problems are political, economic and social. Whether you agree with this view or not a mass of original data is presented for you to develop your own opinion. This is an important book for gaining a real insight into the world food situation and economic trends and deserves success.

Dr. J.M. Anderson

OTHER BOOKS RECEIVED

Discovering Ecology. Patrick H. Armstrong, Shire Publications 70p.

This paperback re-issue is an introduction to ecology for the layman. An informative and thought-provoking book recommended for those to whom the whole subject is still blurred.

Who needs inorganic fertilisers anyway? The Case for Biological Agriculture. R.D. Hodges, published by The International Institute of Biological Husbandry and distributed by H.D.R.A., Convent Lane, Bocking, Braintree, Essex, at 30p.

A concentrated and clearly written explanation of the case for organic farming: demonstrates the fallacy of the assumption of modern Western agriculturalists that chemical fertilisers are essential.

Goodbye to Flush Toilets. Ed. Carol Hupping Stoner, Rodale Press £3.95.

Absolutely all you'll want to know about alternative loos. Present systems take one valuable resource — pure water — and mix it with another potentially valuable resource — human wastes — to produce useless pollutants.

Ecology and Environmental Planning. John M. Edington & M. Ann Edington, Chapman and Hall £8.50.

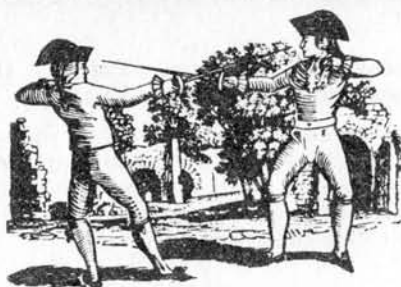
A useful introduction to the vital role that environmental assessment and ecological feasibility tests fulfil in future planning. Although it offers no radical solutions this book does point out how lamentably inadequate existing education of planners is.

Plant and Planet. Anthony Huxley, Pelican paperback £1.25.

Begins with a brief exposition of the process of evolution, follows with detailed accounts of all aspects of plant life and ends (and this is what will most engage ecological thinkers) with five chapters about the impact of man on the plant kingdom, from seaweeds to tropical rain forests. Beautifully written.

Going Solar. A Practical Guide to Solar Water Heating. J.C. McVeigh and D.C. Schumacher, Natural Energy Association 95p.

A guide intended to help the layman to understand the basic principles of solar water heating with guidelines to help him choose what's best for him. Includes lists of manufacturers and suppliers. Questions asked and answered.



Letters

Beaver On

Dear Sir,

Unfortunately, the 'Wildlife' article in your January/February issue, criticising our proposed project to reintroduce the beaver to Britain, contained a large number of errors and misleading statements.

1. A large part of the article was based on a quotation from Anton de Vos — but this was irrelevant since de Vos was talking about introducing exotic species, which is very different from our plan to reintroduce a native species (albeit one that has been extinct a long time).

2. It was said that previous attempts have been 'without success'. In fact, the only three previous attempts were not very serious: in all three cases, the animals used were North American beavers (*Castor canadensis*), not the correct European species (*Castor fiber*); and in two of the three, the beavers were kept in captivity.

3. It was suggested that what riverside vegetation beavers don't eat, they devastate in their search for material for their dams. Beavers eat the bark and leaves of deciduous trees, not the timber (plus a variety of aquatic plants). Very often, therefore, the same tree will serve both as food and construction material. Beavers are able to live in harmony with their environment! As a matter of interest, when beavers were reintroduced on the lower Inn River in Bavaria, it was found that each territory held from 50 to 100 times the number of trees that the beaver felled in one season.

4. It is unfortunate that you should have ignored the many highly successful beaver reintroduction programmes in Europe, and chosen instead to condemn our proposal on the curious grounds that it is anti-conservation. Conservation, as such, doesn't really come into it — except perhaps as a beneficial side-effect — and in any case, is not our main motive, which is to bring back an interesting and useful species, thereby enriching Britain's impoverished mammal fauna. Beavers help create conditions suitable for fish and waterfowl breeding, and play a part in preventing stream bed erosion and stabilising stream flow. The Canadian Government has called them 'Nature's great conservationists', and there is documentary evidence of the return of ospreys and otters (inter alia) following beaver re-stocking operations.

5. C.J. Smit and Dr. A. van Wijngaarden write in the Council of Europe's publication *Threatened Mammals of Europe*: 'Further artificial reintroduction in many places in the western part of its former range is still

desirable'.

6. Reference was made to the risks involved in bringing back the beaver. I prefer to call them 'possible disadvantages' — and I believe that such activities as tree-felling and dam-building are ones which we humans may be prepared to accept, in return for the advantages stemming from the presence of beavers.

7. It was stated that beavers produce two to eight young per year, but the true figure for *C. fiber* is one to three. And beavers do not necessarily breed every year, nor do all the young survive. The leading French authority, Dr. Bernard Richard, estimates that if we start with seven pairs, we might have twelve pairs in a decade — hardly a population explosion!

8. We have now started a detailed ecological study of the issues, drawing heavily on European experience. We are in consultation with various interested parties in this country, including the relevant Ministries.

9. Finally, I would like to emphasise that there is no danger at all of causing a problem we cannot solve, of having another coyote or mink on our conscience. The beaver is an extremely easy animal to catch: after all, our own ancestors managed to exterminate it some 700 years ago — as did many of our European neighbours, to the point where the species almost completely vanished.

Yours sincerely,
Nigel Sitwell
Editor *Wildlife*
London S.W.3.

Request for Information

Dear Sir,

I am at present engaged upon research into political aspects of ecology at the University of Wales, Aberystwyth.

I should be grateful if I could use your letter column to contact groups in Britain who see themselves operating from an environmental ecological footing. I should be very pleased if they could send me information about themselves and what they see as their political role and aims.

Yours faithfully,
J. Radcliffe,
38 Portland Street,
Aberystwyth,
Dyfed.

The Cold Flush

Dear Sir,

I read Mr. Humphries' article on water supply in the UK in your November issue (vol. 7 no. 9) with interest, but I fear he may have damaged his case by omitting some evidence. He quotes from the July 1977 White Paper but fails to mention paragraph 18. This says that although the industry has traditionally been demand-led, there are doubts about the wisdom of this and

"This area of policy is vital for determining the resources to be invested in the water industry, and the Government will look to the NWA to give it high priority."

Furthermore, no mention is made of the Department of the Environment's Model Water Bye-law, that requires the installation of dual flush WC cisterns in all new buildings as well as for all replacement cisterns in existing premises. Infringement of the Bye-law incurs a maximum fine of £400.

Having carped at the article so far, because there has been a greater change of attitude in the Industry than is implied, may I now seek to augment its case.

First, although most businesses are metered for water, the minimum charge is generally so high that it is seldom exceeded and there is therefore no incentive to save water.

Secondly, although I feel the Model Water Bye-law should have been mentioned, if only to show a development in the official attitude, in practical terms it will achieve little. New housing completions account for only about 1½% of the total housing in the country annually so, even if you double this to cover replacement cisterns, it is hardly a conservation breakthrough at 3% per annum.

Thirdly, Mr Humphries quotes that WC flushing accounts for 35% of all water used domestically; other trials have shown this to be 33% and 39%. My Company markets the NWC approved Econoflush valve which converts existing single flush cisterns to dual flush. In practice it is saving 30% of the water flushed, i.e. a 10% to 11.7% saving of all domestic water. We estimate that if the Wessex Water Authority, who only account for 1/40th of the water abstracted in England and Wales, were to convert all dwellings to dual flush cisterns, 3,288,000 gallons of water a day would be saved in their area alone. There would be even bigger savings in larger Authorities. The consequent saving in capital expenditure on reservoirs, as well as agricultural land, over the years are also significant. Whilst accepting that the Water Authorities have no legal right to enter houses and convert cisterns, we believe the vast majority of householders would allow them to do so if the advantages were properly explained to them.

Yours faithfully,

H D B Hawksley

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WIDE AGE RANGE COMMUNITY seeks replacements with capital. Huge house with communal facilities, private accommodation, mixed organic farming, crafts, AT. Personal details, SAE: Old Hall, East Bergholt, Colchester.

PREPARING FOR THE NEW AGE.

A rapidly deteriorating world situation calls for urgent response and action. Sincere persons are invited to contact: New Age Venture, 37, Ellwood Court, Ellwood Gardens, Garston, Watford, Hertfordshire.

CONFERENCES

Conference in the
St. Columba Hotel, Iona
Sept. 16th - 22nd

"God, Man and the New Age"

The Rev. Dr. Kenneth G. Cuming, Ingrid Lind, D.F.Astrol.S., and Mrs. Barbara Bunce, will be the speakers at this Conference. For application form and other details please write to: Mrs. E. Erdal, Meadowwells, Ladybank, Cupar, Fife, KY7 7UY.

HOLIDAYS AND COURSES

SOUTH-WEST OF FRANCE, NEAR THE PYRENEES. A large country house and vegetarian centre welcomes children from 10 to 18 in July for a holiday, students of yoga, pottery and weaving in Aug. and Sept., and students of French all the year round. Full details from: Le Chateau, Castagnede 31260, France. Tel: 90 54 08.

ALTERNATIVES. Short courses on Welsh Border: self-sufficiency, practicalities of leaving rat-race, alternative technology, alternative medicine, small-scale enterprises, alternative therapies, meditation, yoga, etc. Beautiful surroundings, wholefood meals. For details send SAE, Alternative Ways (E), Lower Hergest, Kington, Herefordshire. Kington 781.

COUNTRYCRAFT FOR ADULTS. Activity Holidays for unaccompanied youngsters Adventure Courses for schools. Sharing life on a smallholding, from dairy work to rock-climbing, kitemaking to spinning. High Trenchouse, Malham Moor, Settle, N. Yorks. Tel: 072-93-322.

SOIL ASSOCIATION ORGANIC HUSBANDRY COURSE

July 10 - 14 1978

at the N.E. Surrey College of Technology,
Reigate Road, Ewell, Surrey.

The course includes a simple scientific introduction to soil structure and plant nutrition, the practical application of organic methods on the farm, in the garden and in small scale husbandry and the homeopathic treatment of animals. It also includes a visit to an organic farm, or garden. Course fee of £27 covers tuition and meals.

Details and booking forms from:
THE SOIL ASSOCIATION,
Walnut Tree Manor, Haughley,
Stowmarket, Suffolk IP14 3RS.
S.A.E.; Please

BOOKS AND PUBLICATIONS

GOD IS OUR MOTHER. The Primordial Religion. A faith in tune with nature. Eternal truth against patriarchal urbanism/rationalism. Read **THE COMING AGE**, 35p from: 40 St. John Street, Oxford.

ORDER NOW. Publication June 1st. **THE ORGANIC POULTRYMAN**, by Matthew A. Thompson, with Foreword by Dr. David Sainsbury of Cambridge University. 32 photos and constructional drawings. Post free £2.00 (\$6 in USA) from: Shipton Poultry Farm, Bridport, Dorset (Tel: Burton Bradstock 327).

FOR SALE

UNIQUE 18 BEDROOM HIGHLAND HOTEL in craft village. 'Good Hotel Guide' recommended. Furniture and fittings for sale. 21 year lease nominal rent. Suit unconventional couple seeking life within interesting community in remote area. Phone 09693 496.

SITUATIONS VACANT

WE NEED URGENTLY: a **Smallholder** to develop and run our organic demonstration smallholding in relation to the philosophy at the Centre and the global agricultural situation. 5 years practical experience with at least one year thorough training essential together with enthusiasm and a good sense of humour.

A **Site Manager** to coordinate all work on site, organise groups of people, deal with firms and contribute to planning future projects at the Centre. Should be over 25 with a mature understanding of alternative technologies and provide enthusiastic practical and philosophical support.

A lively and enthusiastic **person** to look after our **Bookshop**, answer enquiries from visitors and handle all telephone calls.

A **Mechanical Engineer** with HNC or degree and at least 5 years broad experience, to work with two others. Sympathy with our aims essential.

Accommodation provided at the Centre for single people (unsuitable for small children) and modest salary. If you are seriously interested, write to Irene E. Galant at the Centre for Alternative Technology, Llwyngwern Quarry, Machynlleth, Powys, Wales. Machynlleth 2400 and enclose sae for reply and telephone number.

STAFF REQUIRED at Fachongle Isaf, Trefdraeth, Sir Benfro, Cymru/Wales.

1. Person to take charge of communal kitchen and housekeeping.
2. Person to set up and run an engineering workshop and forge for farm and alternative technology.
3. Stockperson.

Please reply to the Secretary, giving details of past experience and present occupation. Basic wage plus share of profits of developing educational farm. Basic accommodation provided.

SITUATIONS WANTED

FEMALE (34) seeks work in Smallholding/Wholefood Restaurant/some such. Anything considered. No particular qualifications but enjoy cooking, gardening, animals, crafts. Semi-vegetarian, member of FoE, Conservation groups, Amnesty. **SNAG:** Accommodation required (living in or close) for self and 6-year-old son. Box No. 127.

18-YEAR-OLD OUTDOOR GIRL seeks occupation **ABROAD** in **LABORATORY/FIELDWORK**. 'A' levels Chemistry, Physics, Zoology. Practical, responsible, drives. Lesley Phillips, 2 Fairways, Teddington, Middx. TW11 9PL.

RURAL EMPLOYMENT REQUIRED for two active 30-year-olds, married. Experience: animal husbandry, organic gardening, solar energy, joinery, teaching, writing, cooking, lecturing, Braille, French; clean pilot's licence and driving licences. £4,000 p.a., o.n.o. Box No. 126.

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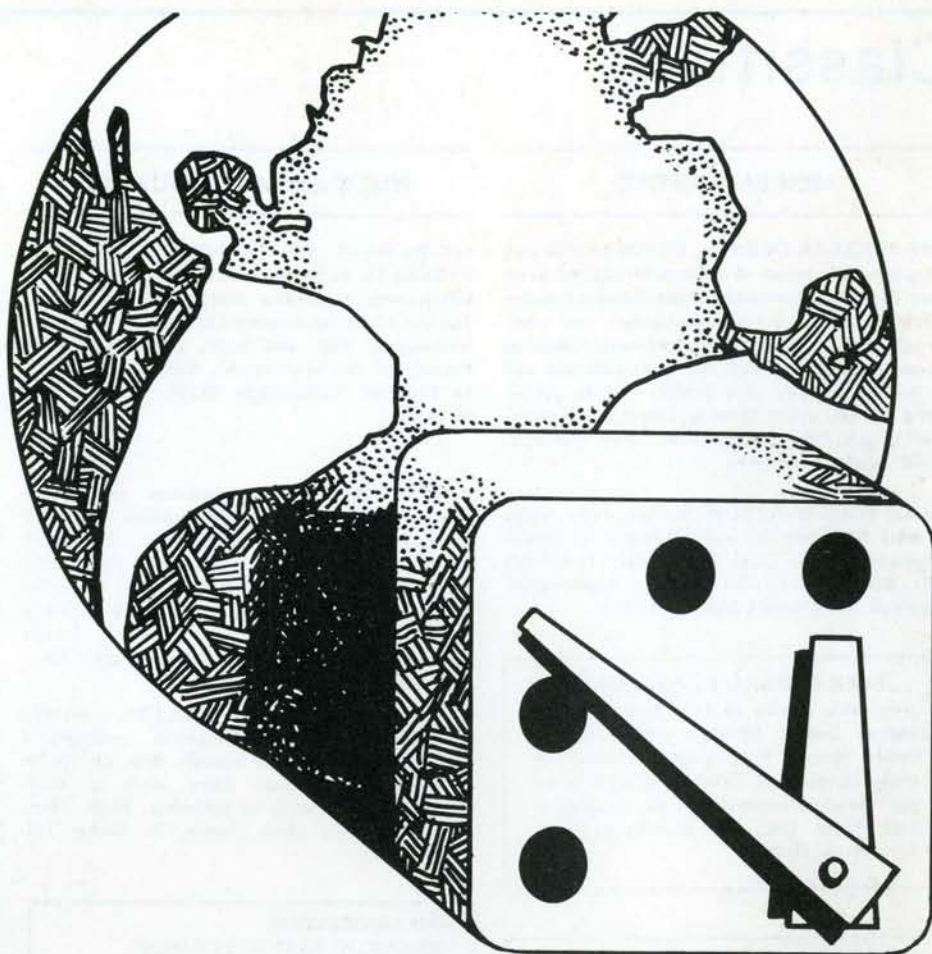
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