

THE CAMPAIGN FOR REAL FARMING

A people's takeover of the
world's food supply chain

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CONTENTS

1: Do we really need to change things?	2
2: Farming that's designed to feed people: Enlightened Agriculture	5
3: "The Future Belongs to the Gourmet"	9
4: A model farm	10
5: Enlightened Agriculture in the world at large	14
6: The Agrarian Renaissance	17
7: And so to market	18
8: An economy fit for people	19
9: Good science, bad science, and the Age of Biology	25
10: The Campaign for Real Farming	29
References	32

I: DO WE REALLY NEED TO CHANGE THINGS?

If we look at the issues from first principles, we can see that there are ways forward. But they are not, absolutely not, the ways that are now proposed from on high.

The world is facing what is fashionably called “the triple crunch”: the collapse of world banking; “peak oil” – which has various meanings but in practice means that the demand for oil is beginning to exceed the possible supply, and will do so until there is no more left; and – the biggie – global warming. The disturbance caused by any of these disasters could lead to world war and of course, oil wars have been waging for the better part of a century. Yet we should add to this list. Shortage of fresh water could lead to world war even before oil does. Several key minerals are being inexorably dissipated of which the most significant is phosphorus, one of the three mega-nutrients of crop plants (the P in NPK). Soil worldwide is being eroded or polluted, largely by salt water dragged from below by insouciant irrigation. The oceans are in dire trouble because of warming, pollution, over-fishing, and the destruction of fish nurseries, including mangroves and coral reefs. The wholesale loss of forest and the mass extinction of our fellow creatures aren’t just matters of aesthetics or even of morality. They threaten the stability of the entire ecosystem. If things seem to be holding reasonably together it is only because the Earth is big and more resilient than we have a right to expect and it takes quite a long time to wreck it entirely even with our best efforts. But we are getting there. On a point of detail, the present collapse of the honeybee (and bumble bee) is not only awful in its own right (not least, on a strictly practical note,

because bees pollinate almost all of the non-cereal crops) but is surely symptomatic of a more general implosion: the miner’s canary.

Worse, though, is that the world’s politicians don’t know what to do about all this and when they are told what’s needed they say the solutions are “unrealistic”, because they don’t fit into their ideologies and formulae. In the immediate term they are focused on the world’s economy, which is all they even begin to understand (although recent events show that their understanding even of this is shaky too). The British government’s solution for getting us out of financial trouble is to spend more – which in general must exacerbate the world’s greater problems. Thus even governments acknowledge that emissions from motor cars increase global warming but, like the pedlar in Aladdin, Britain’s government is currently offering people £2000 to change their old cars for new to “boost the economy” (which means to increase “GDP” (gross domestic product) which has become the standard measure of “economic growth” which modern governments somewhat astonishingly equate with human wellbeing). Gordon Brown evidently believes that the laws of physics will be suspended while he sorts out the cash. Experience suggests that they will not. While governments fiddle with the accounts, entropy and global warming will continue to take their toll. Yet all we are promised is more of the same.

Even without the “triple” (or the hydra-headed) “crunch”, however – even if the Earth itself was healthy – humanity would still be in a terrible state. Of a world population of 6.7 billion, the UN estimates that one billion are chronically undernourished, poised to slump into famine. Another one billion eat too much, or too much of the wrong things. The resulting obesity is for the most part just a sign of worse – heart disease, stroke, a list of diet-related cancers, and diabetes. At the present rate of increase the world population of diabetics would exceed the total population of the present-day United States by about 2030. Overall, this means that about one third of humanity is very badly served indeed by the present food system. For good measure – which is a separate line of thought, although related – an estimated one billion people now live in urban slums. Even without the economic collapse, there is absolutely no chance of solving these human problems. I have wandered around the slums of Mumbai (but then of course could return to my nice cool hotel) and it was absolutely obvious that almost all the people there are doomed to live their entire life on the streets, which means they will die on the streets, probably sooner rather than later – and so will their children, and a lot more people besides, who are now living in villages. Over all the world, the rich grow richer and the poor grow poorer. The powers that be claim many a success for their strategies and methods – there are

many more billionaires now than ever before! – but the policies of the past few centuries and particularly of the past few decades are also the prime cause of all the current misery. Yet the status quo has become the dogma, and all we are promised is more of the same.

Meanwhile, of course, human numbers are rising. By 2050, the UN demographers tell us, the world population will reach about 9.5 billion. In principle it is harder to feed and house 9.5 billion, than 6.7 billion. The powers that be are on the case, of course, and gravely promise to double the world's food supply by 2050 – by more of the same methods that at present are failing us so badly. But although rising numbers are of course a problem this is not the fundamental issue. The fundamental issues are the economy and the morality that lies behind the economy. For the present economy is all about consumption and material “growth” and is designed above all to be “competitive”. Competitiveness is billed as its prime virtue. Yet as Olympic commentators constantly remind us, in competitions there are losers as well as winners. The world economy seems more or less designed to leave one third of humanity out in the cold, however many or few there are. If the world population was reduced to two billion, there would still be a bottom third, and they would be in trouble.

All this is tragic of course but it is also absurd. The world really doesn't have to be like this. If we actually cared that our fellow human beings and most of our fellow species are suffering so badly, and the world is falling apart, we could do something about it. It is

possible even at this eleventh hour to devise a *modus operandi* - technical, economic, and social - that really would enable all of us to live well, and for our descendants to thrive in peace and fulfilment for many thousands or millions of years to come.

But to achieve this, we cannot simply stick to the economic and political dogmas of the past few decades, or the scientific dogmas that prop it all up, or the crude morality of to-the-death competitiveness. We have to go back to first principles and start all over again. And “we” means “we”: all of us. Because the present powers-that-be simply do not understand the issues we, humanity at large, have to take matters into our own hands.

The Campaign for Real Farming promises a lot. It claims that it is technically possible to feed everyone well and forever without wrecking the rest of the world – if we think again from first principles. It asserts that this is a good thing to do – that this is far more important than any economic dogma, or the ambitions of any particular political party. It is founded in the belief (which I claim derives from good Darwinian theory) that most human beings are intelligent and benign – that we are moral beings – and that our collective genius far outstrips the wheezes foisted on us from above. Our problem is our lack of faith – in ourselves and our fellow human beings; that, and a certain complaisance, which makes it all too easy for us to leave our affairs, including our lives and our children's lives, to people who are perceived to be in authority, even when those authorities have so obviously lost the plot.

Of course, all the current issues within the multifarious crunch are real and serious. We have allowed our lives to be run on cash – in Britain even our houses are seen principally as collateral; assets that we can borrow against – so that the collapse of cash seems to mean the collapse of life as we know it. The world now runs on oil – America's big cities and their endless suburbs would be junk, useless masonry, without power to get around and to run the elevators; and so the loss of oil, to some at least, looks very like Armageddon. Global warming is real and could make nonsense of all our aspirations. The rise and rise of human numbers seem to suggest that the predictions of Thomas Malthus, from the end of the 18th century and the start of the 19th, are coming true. He foresaw that sooner or later and probably sooner, human numbers were bound to exceed the food supply.

But if we keep a cool head, and look at the issues from first principles, we can see that there are ways forward. But they are not, absolutely not, the ways that are now proposed from on high.

Let's start by identifying the most fundamental issue of all – which is, I suggest, to feed humanity: to provide everyone on this Earth with enough to eat, now and forever. That surely is a good end in itself, and it affects everything else. Just get that right, and the rest at least becomes more manageable, and certainly more tolerable.

And this is where the good news lies – which is the basis of this whole campaign. For the same United Nations demographers who tell us that the

world's population will reach 9.5 billion by 2050 also tell us that numbers should stabilize at that time. This means that the population will rise to 9.5 billion and then stop rising. If the demographic curve continues on its present course, numbers should stay high for several centuries and then start to come down – not because of wars and famines (which do not depress population for long) but because that is the way demography works. The human population will not inexorably grow until the world bursts at the seams. It will rise to a very high level, and then stop. This is the best news the world as a whole has had since human beings began farming on a scale that was big enough to show up in the archaeological records, apparently around 10,000 years ago. It means that the task of feeding the world's most voracious species is, in truth, finite. In principle, Malthus was wrong.

Why should this be so? The statistics show that although human numbers are continuing to rise rapidly in absolute terms, the percentage rate of increase has been going down steadily for the past half century or so. By 2050, on present trends, the percentage average rise will fall to zero – which means that numbers will no longer increase.

If each couple – which in effect means each female – averages only two children between them, then the total population is bound to stabilize: the parents die, and are replaced by the same number. In practice, if people have fewer than about 2.3 children per couple then numbers will stabilize, since the odd 0.3 do not breed (for whatever reason). Many people worldwide now are choosing to have fewer

children – just one or two – and as contraception becomes more available, it becomes easier to keep the family small. Furthermore, the reasons that people choose to have fewer children are all benign. For it seems that people become very “pro-natal” when infant mortality is high, or they feel insecure – no pensions for their old age – or when women are obliged to stay at home and have no status except as mothers. Better child health, social security, and justice and freedom for women reduce the urge to procreate – and all are desirable ends in themselves. Contrariwise, the measures that are sometimes mooted as antidotes to rising numbers – high death rates brought about by disease, famine, and war – are all counterproductive, as well as being horrible. The more that people's children die, the more they give birth. Populations bounce back after war. Stability in people's lives is what brings stability in population. (It is wrong, too, on a point of detail, to blame the Catholics and other pro-natalist groups for rising numbers. Religious doctrines are relevant, but absolutely not the prime cause).

Keeping cool heads we can simply ask, “Is it possible to feed a world population of 9.5 billion by 2050, and to go on doing so for several centuries after that?” After that, if we leave the soil in good heart, the problems should become steadily easier as numbers go down.

The answer is a resounding “Yes”. The trick is to see the overall task as one of biology: to think of humanity as a biological species, and the Earth as our habitat, and then see whether the one can fit into the other. Do that, and

the problem of feeding people, which might be seen as the most fundamental problem of humanity, almost begins to look straightforward. This is why I called one of my recent books, *Feeding People is Easy* – a mild exaggeration, but only mild.

But to make this come true we have to dig deep – because we have first to unravel all the nonsense, the dogma and ideology and vested interest, that have left us in our present pass. We need good technique and the right technologies. We need good science – science focused on the problems, and not on catering to the status quo. Overall, we need an economy that makes it possible to do the things that need doing – and not one which, as at present, can make it well nigh impossible to do anything sensible. But also, equally, we need simple morality. The Buddha spoke of compassion and Jesus spoke of love and the prophet Mohammed spoke of hospitality and courtesy (and had a special word for animals: “Fear Allah when you treat the animals, take care of them, keep them in good health whether you ride on them or are raising them for meat.”) Adam Smith, who was a moral philosopher before he was an economist, spoke of “natural sympathy”. Or to borrow a phrase from Clark Gable's Rhett Butler in *Gone with the Wind*, we need to give a damn. We cannot, as now, leave the market to define morality; simply assume that whatever people will pay for, must be good, and what they will pay most for, must be the best.

Then, just to repeat, we need to do it all ourselves. Governments can be useful and probably are even necessary; and ideally, perhaps, we would establish a democracy with a democratically

elected and answerable government that really does understand the problems, and is on the side of the people and of the world as a whole, and did use its powers for the common good. But at present we don't have that, and there is no point in pretending that we do. So if we, human beings, ordinary

Joes, want seriously to survive, and our children to survive, and other people's children, and other species, then we have to take our affairs into our own hands. Hence this campaign.

So -- is it really possible to feed 6.7 billion people well, or indeed 9.5 billion? How?

The trick in essence is quite simple. Just design agriculture expressly to feed people, according to the obvious and bedrock principles of biology. I call this "Enlightened Agriculture".

2: FARMING THAT'S DESIGNED TO FEED PEOPLE - ENLIGHTENED AGRICULTURE

The whole system, maximally diverse and designed to be self-sustaining, is an exercise in polyculture and permaculture. Enlightened Agriculture is nothing more than simple, applied ecology.

Quite simply, Enlightened Agriculture is farming that is designed expressly to feed people without injustice, without cruelty, and without wrecking the rest of the world. It is rooted in the idea that if we want agriculture to be both productive and resilient – able to produce enough, in ever-changing conditions – then we need to emulate nature. Nature, after all, has been continuously productive through 3.8 billion years of extraordinary upheaval.

So what's the trick? In general, nature is self-renewing – it taps in to renewable energy which mainly (though not quite exclusively) is solar energy, and re-cycles all the non-renewable inputs: carbon, nitrogen, phosphorus, water, and all the rest. It manages all this with enviable efficiency because it is so diverse – millions of different species (we don't know how many) acting in rivalry but also more importantly in concert; and it is because the system is so diverse that it is also so resilient. No one disaster can destroy everything – there have always been survivors

through all the mass extinctions – and over time, all the creatures within the system, and the ecosystems as a whole, evolve and adapt. If conditions change, then – if given time -- the whole system can change direction to suit. Animals and plants are the most conspicuous members of Earthly ecosystems (although by no means the most numerous or diverse) and the relationship between them is synergistic. Plants convert solar energy and minerals into carbohydrates, proteins, and the rest; and by eating the plants, and each other, animals help to keep everything cycling.

Farming that emulates nature does the same. It derives its inputs from renewables; it wastes nothing; it is maximally diverse – the more diverse, the greater the resilience and flexibility; and it balances plants (crops) against animals (livestock).

In nature, plants far outweigh animals – and enlightened farmers should seek the same balance. The main focus should be on arable – staple crops such

as cereals grown on the field scale; and on horticulture – crops of all kinds grown on the garden scale. The main function of livestock is to complement the crops and they should be fitted in as and when. The specialist herbivores among them -- mainly but not exclusively cattle and sheep – should be raised primarily on grass or browse (the leaves and branches of trees and bushes), growing in places that are not easy to cultivate for crops; and the omnivores – pigs and poultry – should feed on surpluses and leftovers. Both the herbivores and the omnivores are brought on to the arable fields to dig them up, provide a break from crops, and add fertility. On traditional farms animals have often been kept primarily as fertilizers and cultivators, rather than for their meat and milk.

Nowadays we can add refinements. Martin Wolfe of the Organic Research Centre (of whom much more later) argues that all farming should be conceived as an exercise in agroforestry – and at Wakelyns Farm in Suffolk he has

shown a very neat way of doing this; growing a variety of valuable trees in neat rows with benefit to other crops and especially to livestock. Aquaculture also has a big part to play (and fish are livestock too).

The whole farming system, maximally diverse, becomes an exercise in “polyculture”. Since as far as is practically possible it is also designed to be self-sustaining it is also an exercise in “permaculture”.

That’s it. Obvious. Nothing more than simple, applied ecology. Kenneth Mellanby argued in his seminal book of 1977, *Can Britain Feed Itself?*, that if British farmers farmed like this we could indeed feed ourselves. A conference in Oxford in 2008 – again entitled “Can Britain Feed Itself?” – concluded that with our modern crops and know-how we could feed ourselves easily, if we set out expressly to do so. So could most countries. So, therefore, could the world as a whole. Now and forever. The present problems are brought about by farming that is not designed to feed people, but simply to make money – which is a quite different ambition, requiring a quite different approach. GM is sold to us these days as the saviour of humankind, appearing like the US cavalry in the fifth reel to pull us all back from the brink. But in truth, we merely need to structure our farms properly.

One very important detail: Does “enlightened” necessarily mean “organic”?

Farming does not have to be strictly “organic” to qualify as “enlightened” – but organic farming should be the

default position. That is: organic methods are adopted unless and until there is some very good reason for doing something else. For most practical purposes, organic certification for example with Britain’s Soil Association can reasonably be seen as the gold standard. But the issue is not straightforward: there are cons as well as pros.

On the down side, it seems inevitable that at least in the short and medium term, yields from organic farms are liable to be lower than with industrial methods. The main reason is clear to see in cereal growing. With industrial, “conventional” methods, it is possible to produce high yields of cereals on the same ground year after year. Many modern fields have now been growing cereals continuously for decades. With organic arable farming rotations are essential; and although the years without cereals are productive too, they rarely produce the amount of nutrient that cereal does. But as things are, cereals are humanity’s principal staples. Wheat, rice, and maize – the three major cereals – provide humanity as a whole with half of all our food energy, and two thirds of our protein. It does not seem desirable to be so dependent on so few crops but for the time being it is the case. As we have seen, the main cause of hunger is not lack of yield but a host of political, legal, and economic factors which often make it impossible for people to grow or to access the food that they need. But yield certainly matters. The loss of a third or so to rotations cannot be taken lightly.

To be sure, top yields from organic fields can be as high as from industrial. But to achieve this, the inputs have to be comparably high. If nitrogen is

not derived from artificial fertilizer, produced in factories, then it has to come either from clover (or some such) or from manure. Clover is excellent of course – but in general clover is grown as part of a rotation, which means that the field must be taken out of production. If the nitrogen comes from manure, we have to ask where the animals are kept that provide the manure. If they feed on the surrounding grassland as is generally the case then we have to acknowledge that the footprint of the organic farm is much bigger than it seems – since it includes nutrients taken from the surrounding landscape. Some texts advise organic farmers to apply seaweed to their fields – which can be very good for the fields but presumably plays havoc with the ecology of the local beaches. Crustaceans and goodness knows what feed on the stranded seaweed and seabirds feed on the crustaceans and we disturb these systems at their peril (and, in the end, at our own peril). If the animals that provide the manure are being fed on soya or some such grown overseas, then we are in whole new ballpark. In essence the footprint of the farm becomes global (just as it tends to be in industrial farming).

On the other hand, as Martin Wolfe is wont to observe, when it comes to organic farming “We ain’t seen nothing yet!” Billions have been spent on agricultural research this past few decades and centuries but only a minute fraction has been apportioned to organic farming. The lion’s share and the lioness’s too has gone to produce agrochemicals, and to breeding crops and livestock that will grow maximally when plied with and protected by those

chemicals. The intention, in short, has been to turn all of agriculture into an offshoot of industrial chemistry – the farm conceived as factory: and the new zeal for genetic engineering is an extension of that endeavour. Organic farming is an exercise in applied ecology – conceptually far more subtle and in practice more difficult. It's organic farming, rather than the industrial kind, that could really benefit from seriously good research. This has already been demonstrated to some extent – but with even a tenth of the resources now spent on agro-chemistry the advances would surely be far greater.

Yet the downsides of industrial farming are even more obvious. Too much industrial chemistry has caused many a disaster, ecological and directly human, and continues to do so. In Britain and the United States in the late 1950s and into the 1960s and beyond many birds of prey were all but wiped out by excessive inputs of organochlorine pesticides, of which the best known was and is DDT. In India today, several species of vulture, which once were common, are on the brink of extinction because the corpses of cattle that they prey upon are laced with diclofenac, an anti-inflammatory drug much used in human medicine which is also fed to some cattle to reduce stress. Diclofenac accumulating in the vultures' bodies wrecks their kidneys. Today in much of the world we see a serious decline in honey bees – and almost beyond doubt, the huge and hugely complex cocktail of pesticides and other agrochemicals that they take on board every day in their search for pollen and nectar is a contributing cause, and may be the principal cause. Most other insects are clearly suffering too and although we

may sometimes be glad that they are gone if we notice them at all, this matters, for all kinds of reasons. Legislation controls the over-use of agro-chemicals to some extent – DDT has been curbed and many birds of prey have now recovered – but the bees and the vultures show that this battle can never be won. Against the legislation and in practice far more powerful is the culture of “farming by numbers”: applying chemicals prophylactically, not to curb actual infection but to pre-empt any possibility of it happening, all done routinely according to the calendar rather than the conditions, on the instruction of the chemical manufacturer. This is easy and cheap (if you do it on a large enough scale) but it is also extremely dangerous in the short term and could well prove fatal in the longer term.

At least equally bad – and probably worse – is that farmers worldwide have become more and more dependent on the big chemical and seed companies, and on the (generally foreign) governments that encourage those companies. On the practical level, this makes it harder and harder for farmers worldwide to change direction. The world as a whole becomes increasingly locked in to the status quo – and yet, as we have seen, the status quo is not good, and promises worse. On the broader front, agriculture worldwide becomes more and more uniform as more and more farmers are obliged to adopt the new industrial methods, *faute de mieux*. The chances of escape are further reduced as the spread of uniformity destroys the traditional land-races – the myriads of local varieties – and the wild crop relatives, that once provided flexibility and the means to further improvement. Genetic engineering is no substitute for

this loss of diversity, and no seriously competent scientist would suppose that it could be. Politically, the increasing reliance on big commercial companies and their governmental partners is a disaster. The resulting industrialization of world agriculture is seen to be “development” but in truth it is the exact opposite. Development ought to imply an increase in autonomy – one component of the “liberty” envisaged by the American Declaration of Independence. The loss of autonomy that all the world is now experiencing as it becomes locked in to the technologies and philosophy of global business is a reversion to the age of Empire and perpetual subservience.

Despite all this horror – and it really is terrifying – there is an upside to industrial agro-chemistry too. DDT caused a lot of trouble but it can be seen as a “first generation” pesticide – or at least as a second generation pesticide, following the arsenic and nicotine and so on that were favoured (hugely dangerous though they were) in Victorian and Edwardian times. Now we are up to the fifth or sixth generation of pesticides and herbicides (depending on who is doing the counting). Some of the newer kinds are immensely subtle: some, for example, are based on the particular pheromones of particular pest insects and lure them away from the crops. They do not simply zap everything that moves. The science involved is brilliant. The morality is important too, and most of the scientists I have met who are involved in this kind of thing are not villains, but truly bent on improving the lot of humanity.

Personally, too, I am far from convinced that artificial fertilizers are

beyond the pale. Nitrogen in a form that plants can absorb – generally nitrate – is the most abundant ingredient. Once in the plant the nitrogen becomes a key component of proteins and nucleic acids and a lot more besides. Plants need it in great amounts – it is a macro-nutrient: the N in NPK. When plants have enough water and sunshine, more often than not it is then a lack of available nitrogen that limits their growth (and limits their protein content). It surely is a mistake and a dangerous one to suggest that all plant growth can be understood simply in terms of chemistry, as zealots have often maintained. But when we come to particular elements and radicals – well: it isn't obvious that there is any special difference between nitrate that is made in a factory (by the Haber process, first devised in World War I), and nitrate that is made in the root nodules of clovers in the field. In both the factory and the root nodules nitrogen gas from the atmosphere is "fixed": combined first with hydrogen to make ammonia, which is later exposed to oxygen and then transformed into nitrate. To be sure, as things stand, production of artificial nitrate depends on electricity that is commonly generated by burning oil. But electricity is electricity and can just as well be generated by wind or solar power. It isn't good in principle for any farmer or any company to be dependent on a few chemical companies – but there seems to be no reason in principle why any one farming region should not set up its own wind-powered or solar-powered factory for fixing nitrogen artificially. Wind power and solar power are renewable so long as the sun continues to shine, and nitrogen accounts for 80 per cent of the atmosphere – trillions and trillions

of tonnes – and in any case is easily and constantly re-cycled: the prime example of an effectively infinite resource.

The problems with artificial fertilizers begin – as is so often the case – with excess. If artificial nitrogen is applied to crops as and when they would clearly benefit – when nitrogen really is the limiting factor in growth – then it would be used relatively sparingly, and little or none would be left to drain away in the waterways or evaporate into the atmosphere (and there serve as a greenhouse gas). If nitrogen fertiliser is applied too lavishly or cavalierly (whether in organic or inorganic form) then it can be a serious pollutant. If crops are bred purely for their ability to produce massive yields when plied with artificial nitrogen then their quality suffers. If fields are required to produce massive yields year after year without regard to soil structure then they erode. And so on. Again, we find the economy at the root of all such problems. Farmers who are obliged above all to "compete" must strive for maximal yields. In the longer term their farms may well deteriorate – but so what? As John Maynard Keynes observed, in the long term we are all dead anyway. The chemical companies too must "compete" which means they must "grow" which means they must produce more and more and so they must encourage more and more farmers to use more and more of what they produce and so must also encourage the kinds of crops that respond to extra fertilizer, with little or no regard for any of their other qualities. So, because of the economic imperative, we are driven more and more towards a global agriculture that is conceived as a branch of agrochemistry, with all the ecological and political

dangers that this brings with it. This indeed is evil. But it has little or nothing directly to do with the judicious use of sensibly produced fertilizer to give a boost to plants when they need it.

Overall, I find it very difficult to believe that all the endeavours of the agrochemical industry this past 200 years (for it properly began at the start of the 19th century); all this investment; all this brilliance and goodwill has produced nothing that is of use to humanity, and could not be used safely for all our benefit. In short: to write off all high tech a priori just because it is high tech seems to me to be somewhat too cavalier. The tragedy is that because of the obvious abuses, and because the present economy encourages abuse, the only sure-fire antidote to the dangers inherent in agrochemicals seems to be to ban them altogether. That cannot be ideal. That is not in the spirit of enlightenment.

So it is that a long-term task for all who would seek to create an enlightened agriculture that truly can feed everybody well must be to find safe ways of harnessing the ingenuity of the chemist without becoming the slave of big industry and the mentality that seems to go with it. Many farmers already achieve such a compromise. One such is a wine-grower I met in Malta whose vineyards are 97 per cent organic – but he keeps a close eye on mildew and mites and all the rest as wine-growers must and if and when, and only if and when, some infection or infestation shows signs of getting out of hand, he sprays with whatever is appropriate. Always, organic farming should be the default position; and for the time being at least, it remains the

gold standard. But it is not, I believe, the sine qua non. Others disagree.

But however we choose to farm, we are told that humanity as a whole cannot be fed in the future without austerity. In the 1970s when the UN held its first World Food Conference

to discuss what was even then seen as the approaching crisis we were told we all had to live on beans, or on “textured vegetable proteins” – imitation meat spun from beans. But this was not true then, and it is not true now. Enlightened Agriculture is designed primarily to

provide enough through difficult times – but as a huge serendipity, the food it produces seems bound to meet the highest standards both of nutrition and gastronomy.

In fact,...

3: THE FUTURE BELONGS TO THE GOURMET

Enlightened Agriculture produces ‘plenty of plants, not much meat, and maximum variety’ – exactly the balance that leading nutritionists recommend, and the basis of all the world’s greatest cuisines.

Enlightened Agriculture as defined above produces plenty of plants, not much meat, and maximum variety. And these nine words – “plenty of plants, not much meat, and maximum variety” – beautifully summarize all the most convincing nutritional theory of the past 30 years. In other words, farming that is designed principally to make best use of landscapes without treating farmers and livestock badly or wiping out our fellow creatures, would also meet our nutritional needs precisely.

And where is the austerity? For these same nine words – “plenty of plants, not much meat, and maximum variety” – also encapsulate all the recipes of all the world’s greatest cuisines: Italy, Provence, Turkey, Lebanon, Persia, India, China. Turkish cooks make feasts out of wheat, olive oil, nuts (almonds and pistachios), mint, coriander – and whatever bits of fish or meat happen

to be around, which is usually some but need not be any. Some great cuisines are vegetarian or even vegan – including those of parts of India such as Kerala, or among some Japanese – but most make at least some use of animals. Meat is eaten in bulk only on feast days. Most of the time it is deployed sparingly, for texture and flavour; as garnish and as stock. The chefs of Italy and Provence spend half their time on stocks. After that, excellence is guaranteed. The ingredients of a good stock are the things that modern northerners in general throw away (although, to be fair, they typically find their way into burgers or sausages).

These principles apply to haute cuisine as much as to village cooking. Of course they do: the greatest chefs acknowledge that haute cuisine is rooted in peasant cooking, and if it forgets its roots it tends to become

nonsensical. In the modern west “peasant” has become a term of derision. In truth, historically, peasants are the people who knew the things that are worth knowing. They represent the collective genius of humankind – which, in truth, far exceeds the high-flown abstractions of experts and intellectuals. Losing sight of this is perhaps the greatest single mistake of humanity. But we can come back to this later.

On a practical note, to make Enlightened Agriculture come about, we need also to maintain and re-instate traditional food cultures – because good farmers need consumers who appreciate what they do. In this respect the Slow Food Movement, which was begun in Italy as a people’s movement by Carlo Petrini, must be seen as one of the great social advances of our time. The Campaign for Real Farming will work as closely with the SFM as the SFM is willing to do.

4: A MODEL FARM

All farming should be conceived as an exercise in agroforestry.

It would be highly desirable (indeed it seems necessary) to establish a model farm to show how the principles of enlightened agriculture and all that goes with it might work in practice. You may feel that this is nonsensical. After all, no two farms are the same: and on the global scale it seems ludicrous to suggest that what works in Suffolk, the predominantly arable county in the drier east of England, could also work in the wet tropics, or the prairies of North America. But the basic biological principles are the same worldwide and the underlying logistics and legalities – who owns what and who has control and so on and so on – pose the same kinds of problems.

Indeed, we can even identify a particular farm structure – the basic lay-out; the way people operate within it – that really could be transplanted to almost anywhere in the world that is not downright peculiar (for example it might not lend itself too well to mountainsides – but mountainsides, although important, are not the norm in agriculture). In fact, examples of farms very similar to the model proposed below already exist all over the world.

The model should demonstrate all the key aspects of a future farm. First, the structure: how is it physically laid out. Secondly, the husbandry: what crops and livestock are raised, and how. Thirdly; the social, logistic, and legal aspects: who owns the farm; who controls it; who has a right to do what, upon it; how does it relate to the

community of which it is a part.

The basic structure

In structure and in much of the husbandry my own vision of the model farm is based on Martin Wolfe's Wakelyns Farm in Suffolk (a fuller description will appear on the Campaign blog under innovators when I can get round to it, and some details can already be found through Google). Professor Wolfe is himself a plant scientist, who spent many years at the Plant Breeding Institute in Cambridge when it was a government research agency and moved to the Swiss Federal Institute of Technology when PBI was privatized. Now he continues to carry out research for the Organic Research Centre, based at Elm Farm in Berkshire. Among other things, he has shown that crops are most resilient with high yields and quality when they are grown as populations with immense, inbuilt, genetic variation based on appropriate parents. This may sound simple enough but in truth it is a huge conceptual advance of global significance -- and is the precise opposite of the strict monocultures that are now perceived to be "conventional".

But, as in nature, there also needs to be diversity among crops as well as within them, hence the physical lay-out of Wakelyns. Martin argues that "All farming should be seen as an exercise in agroforestry". This may seem a wild comment, until you look at his own farm and see what this can mean in

practice, and then think how differently the whole world would look – and how much more beautiful and biologically secure it would be – if farmers worldwide took this to heart.

Much of East Anglia including some of Suffolk is, as the expression has it, "featureless prairie". The land as Noel Coward said of neighbouring Norfolk tends to be "terribly terribly flat", and it tends to be devoted, horizon to horizon, to monocultural cereals (or rape or something similar). Wakelyns could easily be like this too. Instead, Martin has planted double rows of trees, oriented north-south, to divide more or less the whole 60 acres into strips – generally about 18 yards apart, although this can be tailored to different systems.

The trees themselves fall into three categories. The basic kinds are willows and hazels, which are coppiced. The hazels provide a bonus crop of nuts and timber that is valued by thatchers for stapling the thatch (and potentially for many other purposes); and both the hazels and the willows are also a prime source of fuel. (Indeed we might argue that timber remains by far the most convincing source of biofuel just as it always has been – and since it can be raised on farm with net advantage to the farm as a whole, why not?).

There are fruit and nut trees too. They are mixed with other species to reduce the spread of pests and diseases between them; but there are plenty of beneficial insects among the trees

and the tussocky grass beneath them, to ensure pollination. Thus the farm as a whole contains a reasonable sized orchard – but it is not all consolidated in one place.

Thirdly, the rows of trees include bona-fide hardwood timber trees: oaks, hornbeams, limes, whatever; and some alders, for their ability to fix nitrogen (and in some countries such as Latvia alder is highly favoured as a timber tree for everything from barn doors to pianos). These trees enhance the beauty of the farm, are good for wildlife, and over time they steadily increase in value. Indeed, it has been shown that timber trees are the surest of all long-term financial investments. They go on growing steadily while the markets boom and bust. As a bonus, the timber trees at Wakelyns are all highly accessible – which, when it comes to selling them, is crucial.

At present at Wakelyns the strips of land between the rows of trees are used primarily for cereals and potatoes, with some horticulture. These, together with clover leys, move around the farm in a classic rotation to maximise fertility while minimising pests, diseases and weeds. Which means that the strips also lend themselves beautifully to any class of livestock. Martin would keep livestock now, if the labour was available.

But don't the trees get in the way? Spoil the crops? Sap the nutrients and shade them out?

This seems to be the received opinion but in truth the exact opposite is the case. (It's remarkable how many of the accepted truths of agriculture, the idées fixes on which the whole modern

exercise is based, are not properly explored and often are simply wrong.) If the trees are orientated correctly – north-east to south-west is ideal then the shading is minimal. In any case, for some crops, shading is desirable. Even in Britain, wheat in the middle of a vast conventional field is stressed in the midday sun, and growth is reduced. All livestock benefit from shade. All the conventional domestic species including cattle, and with the sole exception of sheep and goats which are basically upland creatures, originated in forest. Research in the tropics has shown that cattle in shaded woods yield up to 30 per cent more milk than they do in the open. Pigs and chickens – jungle fowl – of course are woodland animals. Increasingly, when I see farm animals in vast fields without shade -- pigs in the modern “free range” fields of freezing or baking mud or cattle herded across the prairie in cowboy movies – I can't help thinking it is simply cruel. It also wastes a great deal of the animals' potential.

Far from competing for nutrients, too, the trees bring up minerals from the depths with their deep roots, and obligingly deposit them on the surface every autumn as they shed their leaves. As an extra bonus, the rows of trees provide “beetle banks” – havens for the predatory insects and arachnids that are the agents of “biological pest control”. As a final bonus, they are also good for bank voles, which in turn are the basic provender of barn owls – always good to see. Yet this is not just a matter of aesthetics, for bumblebees nest in the voles' holes – and they are vital pollinators, not least for the clovers which in organic systems in particular are so important for nitrogen

fixation. Conventional wisdom says that farming and rodents don't mix. The voles are showing, yet again, that conventional wisdom often needs modification.

In short, biologically, the structure of Wakelyns farm seems unimprovable; and for good measure, since the yields are so consistent, it seems to offer a very sound economic investment (although Wakelyns is not commercially profitable since it is run primarily for research purposes). Furthermore, albeit with different species of trees and crops, the actual physical structure of the farm could be emulated more or less slavishly, virtually anywhere in the world. Indeed, as intimated, systems that in principle are very similar already occur all over the world.

But how in practice will it be possible to establish new farms, model or otherwise, in countries like Britain, where there is no “virgin territory”, and every square inch is already spoken for?

The logistics

In accord with the principles of sound biology, Enlightened Agriculture is complicated and because it is complicated it requires skilled, intensive husbandry – lots of hands-on farmers. Common experience and many a study show that the farms that best combine productivity with long-term resilience are small to medium-sized, mixed family farms, with lots of highly skilled people on board.

But the history of the past few hundred or even thousands of years has ensured that in practice, the land in most modern countries tends to be divided into big units. Typically these

were great estates, owned by rich families. Nowadays, too, we have big units because countries like Britain and the United States have industrialized their agriculture, and industrialized farms benefit enormously – at least in cash terms – from scale-up. So now in countries like Britain we tend to have estates that are vast for reasons of cash and by virtue of technology, and estates that are vast because, historically, they were owned by rich people -- who nowadays may not be ancient families but are quite likely to be insurance companies or some such.

So if we want agriculture that can be relied upon to feed us well, now and into the future, we need to replace these vast, monolithic estates with small, mixed units; and “mixed” these days ideally would mean “polycultural” (with several or many crops growing side by side in the same field, like a mini-ecosystem). But how can we make such a transition? How – to be humane and realistic – do we bring about such a radical transformation without pitched battle, which surely would harm everybody (and almost certainly is not going to happen)?

Many people are on the case. There are plenty of encouraging precedents. The broad principles are roughly as follows.

In essence, there are two problems. The first is to find ways of dividing up great areas of land that are privately owned, into smaller units, without having a fight about it. The obvious route is the traditional one: let out some or most of the estate in the form of smaller units that are then occupied by tenant farmers. The greatest

conceptual obstacle – which alas is far from trivial – is to draw up tenancy agreements that are fair to all parties.

Of course, the owners could decide to sell their land. But in practice, only a small proportion of land is on the market at any one time, and in Britain at least it is extremely expensive: far too dear for most would-be farmers to buy their way into, especially if they are young (and farming needs a new generation). But there are ways around this, too – which in general involve spreading the costs. Groups of people buy parcels of land collectively, and can then divide it up as they please. These groups, conceptually, can be of many kinds. Sometimes communities buy farms which they then let out to farmers – which is one example of “community supported agriculture”. Or the groups can form clubs or companies of various kinds. Sometimes cooperatives of farmers may collaborate to buy farms that none of them could afford alone. All such mechanisms are already being essayed in Britain (and there are more variations from overseas and from history). All are outlined in the forthcoming LandShare report. The point here is merely to acknowledge that there are many serious issues here but to a significant extent, people are on the case.

Whoever owns the farm, and however it is divided up, the relationship between the various farmers is crucial – and again there are many approaches, all of which have been and are being put into practice. In many a large English estate, the various tenant farmers all operated more or less independently, although typically cooperating to a

significant extent: sharing machinery; exchanging straw for manure; helping jointly with the harvest. In typical farming communities, as in traditional business as a whole, cooperation played a far greater part than competition, which in today’s economy is deemed to be essential. But on the whole the cooperation was ad hoc. Each farm was independently managed by its tenant. Yet there have also been, and are, many systems in which the cooperation is much closer. In some the farmers simply work side by side. In others, each farmer remains semi-autonomous, but all contribute to and work within a cohesive management strategy.

In real life, each group of people in each circumstance must evolve its own modus operandi. All approaches have advantages and disadvantages. But again, this is not new territory. People who want to start farming, or to form cooperatives, can find out how this has often been achieved (and as LandShare develops, it should be able to provide a guiding hand; a “tool kit”, as the modern jargon has it).

The importance of part-timers

Farming is immensely hard work and can use up all the hours that God made and then some – but nonetheless, paradoxically, most individual farm enterprises can be run by part-timers. Some enterprises require input every day – but only part of the day, if they are practised on a small scale. Others are highly seasonal. Even dairy farming, which seems to require full time commitment, can become part time if the farmer milks the cows only once a day, and also allows the cow to

raise her own calf – which indeed is a traditional practice. Obviously the yield is far less than if the calf is taken away and the farmer takes all the milk – but the calf probably takes only about 300 gallons out of a total lactation and since a modern cow of the kind that fits comfortably into an enlightened system might give at least 700 gallons, there is clearly a worthwhile surplus. (For reasons of welfare alone the “modern” cow, sometimes giving up to 2000 gallons in a 10-month lactation, has no place in an enlightened system). Arable farming in general requires heavy input only for a few weeks each year. On traditional, labour-intensive farms, it was often hard to find useful work for everyone all year round. Workers were often laid off.

All this – plus the fact that it is hard to make a good living even as a full-time farmer – makes the case for part-time farming.

Part-timers are not necessarily second-raters. Traditionally, some of the finest farmers in the world have been and are part-timers. The crofters of Scotland, who often work miracles on difficult soils in unforgiving climates, were traditionally part-timers; combining crofting with fishing or building – or, nowadays, with medicine or accountancy or writing or what you will. Many African farmers are part-timers. A surprising number of extremely urban and urbane Italians seem to own olive groves, somewhere out in the hinterland, commonly where they grew up. Many at least of the founding fathers of the United States were farmers as well as lawyers and statesmen – John Adams in particular comes to mind. The allotment owners of Britain are for the

most part amateurs, but many are highly accomplished. You don’t have to be paid to be good. In general, a part-time farmer is a good thing to be. Nowadays there won’t be much money in it – but it can still be the most important part of a person’s working life. Worldwide, in its many different forms, part-time farming makes a tremendous contribution to the food economy.

There are some intriguing models that seem particularly pertinent to the modern age, not least in Britain. One is the dacha of Russia. Western Europeans tend to think of dachas just as holiday homes, but traditionally they were and are much more than this. They are small family farms, where the owners get away from the city but also grow significant quantities of food. In modern Germany, the hobby farm fulfils much the same purpose. I am reliably told that at least in parts of Germany the Napoleonic system of land inheritance still applies. The parents’ land is divided equally among the children. This is all very fair but it means that the parcels of land can get smaller and smaller. In many countries this kind of system is regarded as a huge embarrassment – which it can be if people live in a totally agrarian economy and are obliged to make their whole living from their tiny farms. But for modern, affluent Germans (affluent by world standards, that is) a miniscule parcel of land somewhere in the country becomes a huge bonus. Some of them at least, farm these little patches. If they are able to set up a chalet there, then the allotment becomes a dacha. A brilliant arrangement.

The model farm

The model farm could and should incorporate all these elements. Its structure should emulate Wakelyns – a very tidy exercise in polyculture and agroforestry: an exemplar of enlightened agriculture. It should be owned collectively, by any of the many possible mechanisms. Individuals who work on it should be able to specialize, if they choose to do so – albeit operating within an overall, professional management strategy. And some or most of the farmers could be part-timers – preferably with mobile homes or chalets or some such either on site or nearby, so they could spend several days or weeks at a time on site if this was needed.

Wakelyns lends itself beautifully to rotations; alternating different crops; alternating crops and livestock. Each strip over a decade or so might be used for cattle, cereal, horticulture, poultry, then back to cereal, and so on.

By the same token, the farm as a whole, especially if run as a cooperative, would be ideal for farmers who wanted to be specialists. The specialist growers could up sticks after a few years (more or less literally) and go and work another patch; and the dairy farmer could shift his or her cows to another strip; and so on. Obviously this becomes a tricky social exercise – but these problems are not insoluble. Ideally, the rotations should be as long as possible but in practice it is reasonable to change crops every year. But temporary leys (grass for grazing) can be kept for two to three years.

(In fact, this arrangement – different farmers dividing an area of land into plots and shifting between plots in

different years – is logistically similar to the traditional Feudal farm. But then, logistically, Feudal farms were very good. Mediaeval farmers lacked modern technology of course – the ox-drawn wooden plough doesn't make for an easy life. They also tended to separate the strips of land with drainage ditches rather than trees – so the farms must have been somewhat windswept. The social arrangements were also undesirable. It is not good in principle to be ruled by a baron who is perceived to have God-given rights, even if the baron is benign (which presumably must sometimes have been the case). But

the overall arrangement of the Feudal farm, given the limitations of the day, was really quite clever. If – as suggested here – such an outfit were to be run democratically, as in a co-op or some such, then in principle it would be very good).

The community at large

Finally, the model farm should incorporate elements of Tim Waygood's Church Farm, in Hertfordshire: the farm that has given rise to the Agrarian Renaissance movement, which is our partner in the Campaign for Real

Farming. For Tim, a farm, or at least some farms, should be a focus of the whole community: working, commercial farms but also operated as a club, where local people come and feel at home and are involved. He is extending the idea into education and, vitally, into commerce; using the farm also as a retail hub (though with a shop off-farm in the local village).

Like Martin Wolfe's Wakelyns, the Church Farm model is of huge importance (see www.churchfarmardeley.co.uk and www.agrarianrenaissance.co.uk).

5: ENLIGHTENED AGRICULTURE IN THE WORLD AT LARGE

Every country should seek self-reliance, and most could achieve it. In general, international trade should be conducted only in luxury crops that have a high value relative to their bulk.

Enlightened agriculture is intended to make best use of landscapes, and to produce the widest variety of crops and livestock. If a country specialises in just one crop, or a very few, then it would be not be self-reliant in food however much it produced, since people need more than one kind of food. But a country that raised the whole spectrum of foods within its own shores, would be self-reliant. The conference in Oxford alluded to earlier, "Can Britain Feed Itself", concluded that Britain could feed itself quite easily – and so could most other countries, including most of those of Africa that are now commonly perceived as disaster zones. Only a few, like Monaco and perhaps Israel, would be hard-pressed to do so.

However, the fact that most countries could feed themselves, does not mean -- does it? – that this is

necessarily their best policy. So we should also ask, "should Britain feed itself?" – and other countries too. The Oxford conference did discuss this and on the whole concluded that again the answer is a resounding "Yes!". For most countries – all that can achieve it, in fact – self-reliance would surely be a very good idea (see references: *Can Britain Feed Itself* and *Towards Food Sovereignty*).

A caveat, first of all. Self-reliance does not mean total self-sufficiency. Self-reliance means that in times of war or some other disaster, a country could provide all of its people at least with a good basic diet, from its own resources. No-one need starve and indeed, no-one should feel unsatisfied; the basic diet should be good to eat, and not just good for the body. But self-reliance does not mean an end to food trade. Even when countries are producing

enough good food to feed everybody well, they might still want to import a few things that they cannot grow themselves. The British, for example, have a penchant for tea, coffee, and bananas, and a lot more besides. Contrariwise, hot countries that grow these things should be able to sell them for a very high price. If a country wants to buy some exotic food and another country is prepared to sell it, then it would be perverse to suggest that this should not happen. So in normal times – if we assume that peace and tranquillity are indeed "normal" – of course the food trade should continue, even when most countries have become self-reliant.

In trade, as in all things practical, common sense must be the guide. Survival and security are surely more important than luxury. Common sense therefore says that countries should

not be looking round for luxuries before they have fed their own people; and should not be producing commodity crops for foreign cash until they have ensured their own security. Much of the misery in the modern world has been caused by the loss of common sense, in favour of dogma (it's odd that the hard-line scientists and economists who claim to be "rationalists" are in truth the most dyed-in-the-wool dogmatists). The dogma of the global market in effect says that every country should treat all its crops as commodities: focus on the most lucrative, and sell them to the highest bidder. So we find countries from Senegal to Costa Rica raising more and more commodity crops to sell to the west – peanuts for European cattle, coffee for affluent people everywhere – at the expense of the traditional farming and the cuisines that went with them that once fed the people, at least adequately and sometimes very well. Costa-Ricans now import maize (corn), their basic staple, from the US – although Central America was the birth-place of maize. The world has seen food riots of late and there will be more – not simply because people are hungry, although that is cause enough, but because they have been kicked off their own land in favour of cash crops, and know that if they had been left alone to practice their skills they would not be hungry. People worldwide should never stop asking whether their governments are really on their side. Common sense suggests that even in many an alleged democracy, they are not. (We might note in passing that at the time of the Irish potato famines of the 1840s, Ireland was exporting oats, which are a supreme staple food. Then, as now, the dogma of free trade was allowed to prevail over human life.)

To conserve what is left of the world's oil, the trade should be conducted only in crops that are of high value relative to their bulk, and can be transported cheaply. By these criteria, cinnamon from the Far East is obviously OK while French beans whisked by jumbo jet from Kenya to the suburbs of Britain are an obvious nonsense. Obviously, too, the trade should be just. The buyers should pay a fair price – not try simply to screw the producers into the ground and then make a virtue of its cheapness – and the farmers themselves and their communities, rather than fat cats (who often are foreign companies) should get the rewards. All this again is commonsensical -- common morality. The Fair Trade movement is on this case and human rights legislation is obviously highly pertinent. The general point, however, is that enlightened agriculture and self-reliance are compatible with a healthy food trade – but the tail must not wag the dog; and (just to round off the zoological metaphors) the spoils should not go to the fat cats.

But if trade continues to be acceptable, and indeed desirable, why should countries bother to be self-reliant? Why not go down the route that successive British governments have inclined to over the past 30 years, and import everything? Why – as I recently heard a senior government adviser suggest – shouldn't British farming go the way of its mining?

There are various answers, political and biological. It is often argued (not least for example by such intellectuals and prophets as Ivan Illich and Amartya Sen) that the elusive concept of "development" is not about wealth and

still less should it be about westernisation. It is about personal fulfilment, and personal and national autonomy: the right and opportunity of people to create their own destiny. Again, food is not the only issue – of course not – but again it is central. Personal fulfilment is obviously impossible when people are hungry, or cannot be certain of the next meal. Autonomy is deeply compromised if people must rely on foreigners or on faceless corporates for their basic provender. These political principles are crucial – and the flouting of them is again a prime cause of human misery.

Yet the biological reasons for urging self reliance are even greater. At present, many countries rely on foreign "bread-baskets": the wheat of Canada, the soya of Brazil, and so on. As global warming strikes, none of these cornucopias can be considered secure. Brazil is in the firing line: one of several plausible climatic scenarios suggests that much of the tropics will become much drier, including Central Africa and Brazil. Amazonia could thus be reduced to open forest or even in parts to savannah, as it has been at times in the deep past. Brazil's highly productive and ecologically extraordinary dry forest, the Cerrado – which few people seem to have heard of but in truth is twice the size of France – could be reduced to desert. These same climatic models suggest that Canada should still be able to grow wheat – but will surely need new varieties, because wheat gears its growth cycle both to day-length and to temperature, and while day-length will be unchanged by global warming, the temperature obviously will not. Wheat in a state of physiological confusion may not ripen. New varieties can be produced – but it takes a dozen years to

develop a new variety and more years on top of that to provide enough seed for a vast area and, despite the promises from on high, genetic engineering has almost nothing worthwhile to contribute to a task such as this (or at least, it will not improve significantly on conventional breeding).

In short, countries that rely on foreign imports may find that their supplies have dried up. Besides, if Brazil does have spare soya, there is no obvious reason why, in a global market, it should sell it to Britain. China undoubtedly would be able to pay more, and Brazil owes Britain no favours.

In short: if the world as a whole is to have a reasonable chance of pulling through the coming years and centuries of uncertain climate, then everyone everywhere should be seeking to grow as much food as possible, in all possible variety, in the expectation that some at least of those varied crops will do well; and in the hope that enough will do well to feed us all. To rely on monocultures grown in other countries with deep problems of their own in a time of such pending fluctuation looks very like suicide. But this is what governments are doing, and urging others to do, because they are guided only, or primarily, by short-term market forces. We cannot go on with the pretence that this is serving our interests.

Local food

The idea that food should as far as possible be produced locally – close to where it consumed – is of course in line with the ideas both of enlightened agriculture and of self-reliance, and has many social and environmental

advantages of its own. There are many good examples in train worldwide (some of which again are outlined under refs and archives). But again, the issues are far from simple.

Particularly intriguing is the question, “How do we feed the cities?” This is one of the central obsessions of LandShare, parent of the Campaign for Real Farming. Again, the issues are intricate, and run deep. For instance, big-farm monocultures are often justified these days on the grounds that big cities need big farms to feed them. This notion has helped to frame policy – yet a moment’s thought exposes it once more as arm-waving rhetoric of the kind with which, alas, governments seem all too content. A mass of small farms can obviously produce just as much food as a big one – in fact much more, more safely. The distribution becomes more complicated – but if the small farms are better, then that’s a problem that just has to be solved. It is obviously soluble.

A key question, again endlessly intriguing, is how to produce more food within the city itself. This was once usual. London’s Long Acre – now a main road along the north side of Covent Garden – was called Long Acre because that is what it once was – a long stretch of vegetable garden, for feeding city people. People of my father’s generation told me that they remember when there were dairy farms near where I used to live in ultra-urban South London. I have seen barley growing in the middle of modern Beijing. Allotments are very much part of the scene in urban Britain. When Cuba lost its trade links with Russia, Havana contrived to produce all its own food

– a miracle before our eyes (which will soon be detailed in the Campaign blog). Most countries are not currently under siege as Cuba has been but the lessons are worth learning. Crops should be bred for city life – fruit of all kinds that can grow on vines, for instance, and preferably on perennial vines, to grow up walls. We should re-explore, as a matter of urgency, the food chains required to raise urban pigs – which traditionally, and sensibly, were fed largely on swill. We are told that city-dwellers nowadays waste about a third of all food. With urban pigs and poultry, most of it could be put to good use. To be sure, it can be hard to grow crops on modern apartment blocks or to fit farms into modern cities – though already there are plenty of city farms of one kind or another. But if we were serious, we would encourage architects and planners to create buildings and cities with growing and farming in mind. On a point of detail: all the rain that now falls on roofs and floods the sewers and rivers (more and more as Britain grows wetter) could be raising crops, or watering ever-thirsty animals. The resulting environments could be truly splendid; people-friendly and wildlife-friendly; out of the concrete jungle in one bold leap.

Again, it all wants talking about (and acting upon). Descriptions of various initiatives in Britain and elsewhere to encourage city people to their own food supply, and indeed to grow some or much of it, will be described on the Campaign blog, when we get round to it. They include Martin Large’s endeavours in Stroud; Julie Brown’s enterprise in Hackney, in east London; and the East Anglia Food Link.

6: THE AGRARIAN RENAISSANCE

Farming that is seriously intended to feed us all well, and go on doing so, must be labour-intensive. This has huge consequences.

“The Agrarian Renaissance” is the really big idea.

The idea of it springs logically from the idea of enlightened agriculture. Farming that truly serves the long-term interests of humanity and of the world at large must be productive, but also resilient and flexible. As outlined above, this means it must be polycultural, and this in turn implies that the husbandry must be intricate. Various devices of permaculture – including minimum cultivation, zoning, and the emphasis on perennial crops – tend to reduce the labour required. But even so, because enlightened agriculture (including permaculture) is complex – deliberately so – it must be far more labour-intensive than the industrial kind, which is expressly designed to replace human input with machinery and industrial chemistry (including biotech).

This fact – that farming that is seriously intended to feed us all well, and go on doing so, must be labour-intensive – has huge social, economic, moral, and political implications. In general, countries that already have a strong agrarian workforce, including virtually all those of the present Third World, should seek to hang on to that workforce; not try, as they are now urged to do, to westernize their farming

with all haste, and send the farm workers and their families into the cities (where they make out as best they can in the slums, for there is very little that is useful to be done in the cities. There is a limit to the number of offices or buses that need cleaning, or taxis that need driving). In countries like Britain and the US only one per cent or fewer of the workforce are now working full-time on the land. Thomas Jefferson envisaged the United States as “a nation of small farmers” – but now there are more people in jail in the US than full-time farmers. In Britain, the average age of farmers is now around 60. The two governments have made a virtue of this. They call it “efficiency”. We tell ourselves and the rest of the world that our own extreme form of urbanisation, our virtual rejection of the agrarian life, is “progress”.

But if we concern ourselves with human survival and well-being, and with the structure of the world itself, and are not focused exclusively on cash, we see that countries like Britain and the United States have in truth gone way out on a very precarious limb. We have destroyed the infrastructure of farming expertise at our peril. Common sense and common humanity suggest that instead of urging others to be more like us, Britain and the US should be seeking

to restore their own farm force. Indeed, a key task for the next few years – it would be top of any thinking government’s agenda – would be to increase the number of farmers in Britain and the US by several-fold, and preferably at least tenfold, with all possible haste, and to create a new farming generation. (Instead, of course, Britain is still losing about a thousand farmers a month, which the government perceives to be a good thing because, they say, it is “efficient”.) Education is a key issue. Alas, as things are, even the educators need educating.

In other words, all countries should seek to maintain or to restore their agrarian economy, which more and more has been playing second fiddle to the urban economy – first to manufacturing, and now to paper finance. In *Feeding People is Easy* I urged the need for “The New Agrarianism”. Tim Waygood speaks of “The Agrarian Renaissance”. This summarizes what is needed precisely.

As things are, however, the governments of Britain and the US, and all their scientific and economic advisers, are still in effect urging the precise opposite. Again it’s clear that if we give a damn, we just have to create a people’s movement and do it ourselves.

7: AND SO TO MARKET

Third World farmers in general could increase their output two or three times if only they could be sure to sell their produce for a reasonable price

Good farms cannot exist in isolation. You don't have to be in love with the neoliberal economy to acknowledge that farmers must be able to sell what they produce. The communist state which simply pays farmers to produce is surely not ideal or practical, however useful it may sometimes be in times of emergency (for example when a country is at war or under military or economic siege). In short: farmers need markets. Indeed, Professor E R (Bob) Orskov, who spends much of his working life in SE Asia and elsewhere and is a key figure of whom much more will be written on the Campaign blog, says that Third World farmers in general could increase their output two or three times if only, for example, the price of the produce was guaranteed, as it has often been in the past. At present they under-produce because they cannot risk the cost of the inputs needed to increase yield. With wholesale food prices linked to the stock market and dependent on the price of oil, they know that if they double output, they might then find that the market price has halved, and they will not recover the cost of the extra inputs. In short: even if it was true that the world needs to double food output over the next 40 years, this could readily be achieved simply by making life easier for poor

farmers – which would be highly desirable socially even if the world didn't need more food. (Again we see the nonsense of the present fixation on high tech.)

I am not an expert in marketing and retail. Absolutely not. But the more I look at it the more I see that its complexities match those of farming itself. To take a few specific examples: farmers' markets now have become vital – without them, some farmers could not make a living and many people would have little or no access to local, fresh food. But they cannot be a permanent, nation-wide (or worldwide) solution. They take up too much time, effort, and indeed fuel. In effect they represent another form of farm subsidy – the farmer subsidises his or her farm by doubling up as a retailer. But farmers should be properly paid just for doing their own job well. Food hubs and permanent farm shops are the next step – but they raise more problems. Present-day supermarkets are in many ways a disaster but if we want truly to improve on them we have to identify why this is so; it isn't just a matter of ideology. They have developed some techniques that a more enlightened system could make use of. (For an overview see Andrew Simms's *Tescopoly*.)

Since I am no expert, I will leave the matter here. But I hope that contributors to the Campaign blog will take up this matter – marketing, retail, and the differences between processing that is highly desirable (like pickling) and the kinds that are simply designed to make money for middlemen. In recent decades at least, this whole area has been handed over to corporates on the assumption that it must be the task of marketing and retail to make as much money as possible. We need to develop techniques that are equally smart, but within a far more benign and sensible economy. Among other things, it is clearly essential to involve all the traditional craftspeople and traders in the preparation and distribution of food – bakers, brewers, butchers, charcutiers, millers, merchants, village shopkeepers, and all the rest; and the task of coordinating crafts within an economy that serves society and the world as a whole, without compromising the essential freedoms of individuals, is obviously very tricky. The founders of the United States seemed to get most of it right at least in principle, although there were inbuilt flaws from the outset (including slavery) and the good things that they achieved alas have not endured.

8: AN ECONOMY FIT FOR PEOPLE

The founding fathers of the United States were good capitalists but they said nothing about an unalienable right to become as rich as possible.

The deep flaws in modern agriculture are largely, though by no means entirely, encapsulated in a slogan that I first heard in the 1970s: “Agriculture is just a business like any other”.

The objection is not that agriculture is perceived as a business. It probably works best when it is treated as a business. The problem lies firstly in the “just” and the “like any other”; and secondly, in the modern conception of what business really is. For all businesses are different – and as the pigs in George Orwell’s *Animal Farm* might have observed, agriculture is more different than others. Inter alia it is incomparably vast – the world’s greatest employer by far. It impacts directly as no other business does on the fabric of the Earth itself and all the creatures within it; the world is the way it is, largely because of farming. It supplies us with a “good” (as the economists say) that is absolutely essential – that we cannot safely do without for more than a few days, and do not generally choose to be without for more than a few hours.

For all these reasons, “like any other” is just not appropriate. At the very least, agriculture must be seen also as a public service. A government that truly believes that farming is merely a business “like any other” is at the least disingenuous, and in truth is dangerous. Indeed we can see historically that this is so. Britain’s corn laws caused enormous misery – to people at large when

the tariffs were imposed, and to farmers when they were removed. The export of oats from Ireland at the time of the potato famine has already been alluded to. Now we can see people starving worldwide primarily because their nation’s agriculture has been geared to what is perceived to be business, rather than to feeding people.

Then again, there is business and there is business. At its best, business is benign. Businesspeople were often moralists, and some still are. The business itself is often perceived as a public service, and the dealings between businesses can be what used to be called “gentlemanly”: based on trust; competitive to be sure, but more in the spirit of rivalry than of combat. But nowadays – in the wake of Milton Friedman’s thesis on monetarism, first published in Chicago in 1964 – business more and more has been perceived as an exercise in making money. Modern governments like those of Britain measure their success in terms of GDP – gross domestic product, which in practice means the total amount of money produced within the country in a given year. Increase in GDP is called “economic growth” and is perceived to be the great desideratum, indeed the sine qua non. To fall below growth “targets” is seen as the great disaster. The market is also intended to be maximally competitive, in a crude and foul imitation of Darwin – an all-out, virtually no-holds-barred competition to make as much money as possible more quickly than anybody

else. Worse, the market has become global, so although it is still theoretically possible to opt out, those who do so are seriously and systematically done down. In practice, therefore, everyone is now involved in this to-the-death struggle. Dr Rowan Williams, Archbishop of Canterbury, has recently spoken cogently on this (see references).

To be fair (and it’s probably better to be fair, tempting though it is simply to put the boot in) those who have put all their faith in money, and envisage business simply as a way of making more of it, are not necessarily evil. Some sincerely believe, or apparently so, that the more money people have, the happier they are. Common sense, a great deal of folklore (of the poor-little-rich-girl variety) and quite a lot of formal studies show that this is simply not so. People who live in a cash economy but are too poor to afford the basics of life cannot of course be happy. You can’t be happy if you don’t know where the next meal is coming from, or have no proper roof over your head, or are liable at any time to be kicked out of your meagre home, or live in the constant awareness that your children could die at any time – and, sometimes, that they blame their parents for their plight. The 1.4 billion these days who are living on a dollar twenty five a day or less, or the over three billion (half the world!) who live on no more than two dollars fifty, cannot be happy, except fleetingly, when perhaps they can forget the abyss beneath their feet. But once people

have enough – and enough seems to be remarkably little; about \$5000 dollars a year seems to be the baseline – then the relationship between income and happiness ceases to be linear. As John Maynard Keynes himself pointed out when the concept of GDP was still new, there is no obvious relationship between GDP and human well-being. Why should there be? GDP was never intended as a measure of well-being. But still – to be fair – some politicians and others in power are wedded to economic growth because they do assume that it must be a good thing. (The King of Bhutan has substituted a “National Happiness Index” for “Gross Domestic Product” as a measure of performance. To modern western hard-heads this seems quaint. But the second and most famous paragraph of the American Declaration of Independence speaks of humanity’s “unalienable Right” to “Life, Liberty, and the pursuit of Happiness”. The founding fathers were good capitalists but they said nothing about an unalienable right to become as rich as possible. In truth they were closer in spirit to the King of Bhutan than to their inheritors.)

Those who would dedicate the economy to money commonly argue that nothing useful can be done without money. It costs money to build public works -- concert halls or hospitals or schools. So again – the more money, the better. So it is that in modern cash economies the people who miraculously conjure the cash into being – bankers and so on – are by far the most highly valued. They have been rewarded beyond the dreams of Croesus. In truth, a huge and disproportionate amount of this money stays within a very small

elite but this is justified by the notion of the “trickle down” effect: that the poor are supposed to benefit from the employment provided by the rich – which to a significant extent means by serving the rich. Here we might borrow the line with which one of Evelyn Waugh’s characters was wont to placate his obviously loonie boss: “Up to a point, Lord Copper”. For in truth, over the past few decades, the rich have grown incomparably richer while the poor have become inexorably poorer. In practice – in what defenders of the status quo are wont to call “the real world” -- trickle down does not work.

The public works argument fails in practice not least because, in reality, much or most of the cash now generated in modern societies is not spent on public works. Indeed to the modern die-hards, public spending has become an anathema, for it seems to sniff of socialism, invoking Cold War fears of reds under the bed. In practice, as soon as there is some squeeze on the money supply, the first thing that modern governments curb is public spending – which is not seen as the reason for making money, but instead as a “drain” on the economy. Even when it is spent on public works, the perceived need to maximize cash typically militates against the purpose in hand. So new schools and hospitals have often been jerry built – to save cash and maximize returns. But prestige architecture, of the kind now favoured under PFI, can be just as damaging. Good architecture should of course be a bonus but increasingly these days we see hospitals fit for emperors which alas, cannot afford to employ nurses, as the hospital board strives to pay the contractors. One

of my abiding memories is from Tamil Nadu, southern India, where a market square straight out of some western commercial city, all fountains and gleaming concrete and “retail outlets”, stands abandoned, like some Aztec temple in the jungle, or Shelley’s Ozymandias.

Worse, is that the means whereby money is generated often does enormous harm to the fabric of the Earth itself and so, directly or indirectly, harms all of life including our own. In Britain we can see this before our eyes as supermarkets are built on school playing fields; and on the larger scale as mangrove forests, among the richest ecosystems in the world and a prime nursery for marine fish, are turned into marinas, or drained to make way for casinos. On the grandest scale, governments these days sometimes promise low-carbon growth economies, which are supposed be environment-friendly cash economies, but in practice they have not delivered on the necessary low-carbon strategies and technologies and are most unlikely to. Right now, in the Spring of 2009, Gordon Brown is preparing to “boost the economy” by knocking £2000 off the price of a new car. The needs of the environment at large are put on hold while he sorts out the economy. Unfortunately, the laws of physics continue to apply even when prime ministers choose to ignore them and the chances of saving the world diminish with each day that the present obsession with “economic growth” continues.

Still, the enthusiasts for cash have an answer. With enough cash, they say, we can buy all the technologies we need to dig ourselves out of trouble. GM crops will help us to adapt to climate change.

Carbon sequestration in various forms will help us to reduce atmospheric CO₂. It's just a matter of getting rich enough. But it just ain't so. Again we see that the means that generate cash also exacerbate the problems. More to the point, science does not make us omniscient, and never can; and technology, no matter how fancy, can never make us omnipotent. In the end the world is beyond our ken, and its ills are beyond our capabilities. Most scientists and engineers and all philosophers of science know this to be true but some, alas, are prepared to go along with the fiction, the convenient lie, that with enough sci and tech we can solve all our problems, and that cash can buy all we need. These are the scientists that governments and big industry choose to listen to. So the decline continues.

The practical details of the modern cash economy are disastrous. As the London-based American economist Ann Pettifor has long been pointing out, the modern economy is a debt economy: it is based on money that does not exist, but is deemed to be repayable in the fullness of time. Increasingly ordinary people are obliged to live on debt. Houses in Britain are as dear as they are because they are seen as "assets" – collateral against which to borrow; and the amounts borrowed give the temporary illusion of wealth. Ann Pettifor has long predicted the collapse of this never-never economy, just as we have witnessed over the past year. The British government's claim that "no-one could see it coming" is simply untrue. At the same time, the debts that are inevitably incurred by anyone who wants to do anything enterprising these days, must be repaid by compound interest; and as Margrit Kennedy

has observed, this results in a steady and prodigious flow of wealth from the bottom eighty per cent of the population, who perforce are net borrowers, to the top ten per cent, who are net lenders. (The remaining 10 per cent are in balance – interest paid equals interest received). For Third World countries, compound interest is disastrous. Thus as Nigeria's then President Obasonjo wryly observed almost a decade ago at the G8 Summit in Okinawa: "All that we borrowed up to 1985 or 1986 was about \$5 billion. So far we have paid back about \$16 billion. Yet we're told that we still owe about \$28 billion". The difference between the 5 billion borrowed and the 44 billion paid back, is compound interest. These ideas are outlined in an essay entitled *Economic Renaissance*, which was commissioned by Schumacher College in 2008 (see references).

Worst of all, we can see from all this that the modern cash economy which dominates all our lives has lost all touch with reality. Cash can grow infinitely – indeed, compound interest leads us rapidly and inexorably towards cash infinity, at least on paper, which in truth is the only reality behind the cash. Yet the Earth itself, which really is real, is all too obviously finite. But anyone who suggests that the economy ought to be geared to the physical limits of the world is likely to be told these days, as I have often been told, that this is "unrealistic". Apparently the realities of the money market and the power structure that goes with it are more real than the realities of the physical world and the biological realities of living creatures and indeed of human life. This is strange to the point of madness.

In truth, we have allowed ourselves to lose sight of what the economy really is. It is not just a matter of cash, as is so often implied these days. The word "economy" comes from the same Greek root as "ecology"; in fact from oikos which means household – but also has greater connotations, as of "dynasty" and "family", more like the Maori faka. The economy, in short, is the milieu within which we live all our lives. It should be the medium through which we translate our wishes and aspirations into action; but, although I hate to use the word "must", our wishes and aspirations absolutely must be rooted in morality – we cannot simply give ourselves carte blanche to indulge whatever whim may strike us – and recognize what is possible: the physical limits of the world. In the present economy in which cash reigns supreme the market itself determines the morality – what people are willing and able to pay for is deemed by definition to be right; and the hypothetical, infinite mountain of cash in practice has real buying power, yet it bears increasingly little relation to what is available in the world, or what is possible. So it is, to take one obvious, global example, that it would take five planets Earth to bring everyone in the world to the material standards of present-day Britain; yet present-day Britain is held as a model for other countries to aspire to. A six year old can see the nonsense of this. But it remains the official aspiration of world governments. "Development", in practice, despite many a denial from on high, means "them" (the "Third World") becoming more like us. God save us all.

When the demands and assumptions of the modern cash economy are applied to agriculture, we can see

how truly off-beam they really are. Indeed, the demands of the modern cash economy are diametrically at odds with the principles of enlightened agriculture – agriculture that is actually intended to feed us. It really is not at all surprising that one sixth of humanity is permanently on the verge of starvation, and farming as a whole has become so destructive. Again, some people have been pointing this out for decades (I made precisely this point in my first ever book, *The Famine Business*, published in 1977; and certainly was not alone). Again it is simply a lie to suggest that no-one could have seen the present disaster coming.

Why is the present economy so bad for farming?

There is nothing fundamentally wrong with the idea that farming should be a business – if business is conceived in its traditional form, as understood by traditional Tories in Britain and old-fashioned Republicans in the United States. There is nothing fundamentally wrong with capitalism, when capitalism is construed in the way that Adam Smith and Thomas Jefferson meant it to be. The principles of private ownership, free enterprise, and trade could serve us all very well. But as Smith and Jefferson and traditional businesspeople have always recognized, all must be construed within a moral framework; and people who lived in 18th century Scotland or the newly forming United States could never suppose, as modern governments and industries now seem to suppose, that it possible to re-design the whole Earth for our own personal comfort. They were far too close to reality not to know that it is always necessary to live within means.

Modern producers of all kinds – including farmers, for theirs is perceived as “a business like any other” – are required above all to produce cash profit. More: in a competitive economy, they must maximize cash profit, or else be surpassed by others who will. Whatever they are producing, producers who seek to maximize profit must do three things. First, they must maximize turnover: “Pile ‘em high and sell ‘em cheap”, as Tesco’s founder Jack Cohen put the matter. Secondly (pace Cohen) they must “add value” -- make whatever is cheap as dear as possible before selling it. Thirdly, they must cut costs.

The problems with yield

In agriculture, maximizing turnover means increasing the area farmed, and maximizing yield. The world’s most fertile land has long been spoken for so now to increase the area we are cutting down what is left of the rainforest. We are seeking to maximize yield – of everything – by higher and higher inputs and through breeding programmes that are more and more narrowly focused on yield and, for the most part, steadily reduce the underlying diversity.

We are told – it is one of the modern mantras – that we need to double food output by 2050 both to keep track with rising numbers and to meet “rising demand” – and in particular the “demand” for meat; and it is seen to be vital to meet that “demand” because meeting demand, in this crude modern political milieu, is perceived to be synonymous with “democracy”, which is still dimly perceived to be a good thing.

In truth, however, as noted earlier, the world already produces enough basic food to feed us all well – and fails to do so because of the way the food is distributed and marketed, because it is not grown in places and in ways that could feed people, and because once grown it is sold to the highest bidder. In 2050 the world population will be about 9.5 billion and then stabilise – not a 100% rise, which would require a doubling of output, but a 40% rise. Let’s call it 50% just to keep the arithmetic simple.

Yet we are told from on high – it is the basis of world food strategy, insofar as there is such a thing – that we need to increase the food supply by 100 per cent. This is perceived to be more or less impossible – unless we make use of exotic technologies, notably GM. So it is that a succession of politicians, industrialists, and their scientific advisers queue up on television to tell us that without GM we will all starve, and that anyone who says otherwise is grossly irresponsible. Thus the technology is justified on moral grounds; and so too is the right of politicians to stay in power; to ensure that the right things are done despite the clamourings of the mob.

Even if we did need to increase our food supply by 100 per cent, it still is far from obvious that we need recourse to fancier and fancier technologies. Bob Orskov and others tell us from first-hand experience that Third World farmers – which is most of the farmers in the world – could readily double output if only the economy was a little less hostile to their efforts. This argument does not in itself mean that the new technologies could not be useful and hence could be desirable. But it

does mean that there is little or no moral case for introducing them. The sanctimoniousness of their grave and grey-suited apologists is not justified. GM is not a matter of necessity, in short, but of commercial and political expediency; and when we see it in that light, the discussion assumes a whole new complexion.

But when we see, finally, that we do not need to increase food supply by 100 per cent, but only by about 50 per cent, we realise that the panic that is generated from above and orchestrated in the interests of commerce is entirely spurious. It might indeed be hard to double output, even with best strategy, especially in the face of global warming. A 50 per cent increase seems far more feasible. As for the alleged increase in “demand” and the apparently democratic urge to satisfy it well – that mainly springs from the rising emphasis on meat-based diets, at the expense of traditional diets. Yet we have seen that traditional diets are superior – nutritionally, gastronomically, and culturally (since traditional cooking is the great social adhesive). The real reason for the increase in “demand” for meat we will discuss briefly later.

Anyway, the destruction of the last bits of forest and of the Cerrado and the insouciant irrigation of deserts to increase the area under cultivation is obviously immensely damaging; both to the landscapes themselves and the creatures and people within them, obviously, and to the world as a whole (the Amazon forest, for example, is a huge carbon sink and also, through the transpiration of the trees, supplies most of South America and the southern United States with most of its rain). The frenetic desire to increase

yield, of livestock as well as crops, is cruel; it tends to damage soils beyond repair; it leads to massive pollution if irrigation is careless, as it often is; it is obviously unsustainable in its present form because of its dependence on oil; it obliterates traditional systems of farming and the cooking traditions that go with them, which in truth – with a little support – offer the best hope for humankind; and in practice it consolidates the powers that be, helping to shift the control of agriculture and of the means to practice agriculture into the hands of high-tech commercial companies, big-time financiers, and politicians; the very people who have brought the world to its present sorry pass.

Yet in truth the present urge to maximize yield and all the rhetoric that goes with it has nothing to do with real need and still less to do with physical reality and has everything to do with the perceived commercial imperative. If you want to stay in business then you must, above all, pile ‘em high.

“Value adding”

Value-adding includes excess packaging and processing and French beans out of season whisked half around the world to be sold in English suburbs – and all this is wasteful but it is not the main problem. The main issue here by far is livestock. For agriculture all too easily comes up against the barrier that can halt any business in its tracks: the saturated market; the limits to what people are prepared to buy. After all, traditional diets are based firmly in staples – mainly but not exclusively cereals – and it is easy to produce enough cereals. If the perceived imperative for

a business, including an agribusiness, is to “grow”, then this barrier is utterly destructive. Indeed, the main problem for farmers is that for much of the time it is far too easy to feed people. The farmer can sell all that is possible to sell even when working only at half speed. What’s the use of that, if the producer is seeking to maximize returns? For farmers everywhere the problem is made worse by natural forces over which they have no control – notably the weather. In very bad years the farmer has nothing to sell and goes bust (and the people starve); and in very good years all farmers have a glut – and again are liable to go bust as the markets plummet.

The solution – as it is in the diamond trade, or in Britain’s housing market in the absence of public investment – is to ensure that the output never quite meets demand. That keeps the prices up.

In agriculture, the antidote to market saturation is provided by livestock. The market for meat can never be saturated. If people have enough meat, then the traders can simply throw most of the carcass away – put it into catfood or other animal feed – and sell only the steaks and chops. So it is that nowadays, half the world’s wheat, 80 per cent of the maize (corn), almost all the barley that is not used for brewing, and well over 90 per cent of the soya, is fed to livestock. Animals kept on grass or leftovers in the traditional way enhance the agriculture and add to our diet. Animals raised by the shedload on cereals which we could be eating ourselves – which indeed are the basis of the world’s greatest cooking – compete with us. Indeed it is estimated that

on present trends, livestock by 2050 will be consuming enough cereal and soya to feed four billion people. This is roughly equal to the world population of the early 1970s when the United Nations held its first global conference to discuss what was then seen as the mounting food crisis. It also means that the practical population of the world will not be 9.5 billion, which should be readily manageable, but 13.5 billion, which is a different issue altogether. But this problem is caused not in truth by real “demand” but by commerce: the modern, perceived need to maximize profit.

But isn't the demand real? Surely people do like meat? Surely by supplying it, governments and commerce are merely behaving democratically? But behind this argument we find more spurious biology and sociology – the notion that people are basically carnivores, and eat more and more meat as soon as they are rich enough to do so. In truth, meat has been sold, sold, and sold again this past half century, as energetically as any other lucrative commodity, from motor-cars to soap powder. To be sure, people who become affluent after years of deprivation do tend to eat more meat -- we are good opportunist omnivores, after all – and for a time, meat tends to become associated with social status. But people who really know food do not focus on meat, as the great cuisines demonstrate; and people who are too obviously affluent to bother to prove it do not necessarily eat much meat. The mandarins of old China were as rich as Cleopatra – and they gave the flesh of ducks to the servants and ate only the skin, in the form of Peking Duck. They knew that meat is just for flavour – and the skin is the most flavoursome.

Among the modern, western, affluent middle class, vegetarianism is positively chic. The way to flaunt status these days is to demonstrate that you have time and energy to devote to cooking. Meat eating is not an evolved and ineradicable obsession after all. For the most part, it is largely fashion. But like all fashions, for those in the driving seat, it is immensely lucrative; and when profit is god, the fashion must be kept going even when it threatens the whole world.

Cutting costs

But the final imperative of profit – to cut costs – is even more pernicious. It results in cut-price husbandry. In the case of livestock, this is extremely dangerous. All the foulest epidemics in Britain over the past 30 years – BSE, the worst foot and mouth outbreak ever, then swine fever, then more foot and mouth, and the recent brush with bird flu and the current threat of swine flu – have sprung from the perceived imperative to keep animals in vast numbers, as cheaply as possible. In this global world, where people travel even if animals don't, animals kept badly in any part of the world can jeopardize everybody. Swine flu seems to have arisen from foreign-owned pig cities in Mexico – or perhaps more likely, so modern thinking has it, from the pig metropolis in North Carolina. After all, the new virus includes genes from the viruses of bird and human flu, as well as from swine flu.

Yet there is even worse. Above all, to reduce costs, labour must be cut – for labour, in traditional systems, is generally the most expensive input (even slaves must be fed). This affects farming, and the world as a whole, in two ways.

First, the polyculture that is the basis of Enlightened Agriculture is intricate. This means that perforce, it is labour-intensive. If labour is cut, then polyculture must give way to monoculture. Monoculture is not especially “efficient” as often claimed -- not if you cost all the inputs, and the collateral damage. But it is simple and so can be done by machines and industrial chemistry, aided by biotech, rather than by human ingenuity. In industrialized systems, too, there are tremendous advantages of scale – and so the machines get bigger and bigger and so do the farms, and the agrochemical and seed companies become more and more consolidated. Complexity, and hence diversity, and hence flexibility and hence long-term resilience, go out of the window. But it's cheaper that way – and that is all that is deemed to count.

Even more importantly, despite the best efforts of governments and industry to cut its labour force, agriculture is still the world's biggest employer. In the Third World as a whole 60 per cent of the working population live on the land. India alone has more than 250 million farmers, and 600 million people rely directly on those farms – far more than the total population of the newly expanded EU. Governments and “experts” who advocate the wholesale industrialization of Third World agriculture insist that there are “alternative industries” but in truth there are not, and in reality there can never be. The world does not have enough resources to create industries that could employ so many people, and certainly not usefully. Many people in slums these days earn a living of a kind by re-cycling old tyres and polythene bags but although that is useful up to a point it can hardly be preferred to farming. In short, the

urge to cut costs and then cut them again, by whatever means, is creating unemployment on a scale that matches all the other disasters of the world. What price the much-vaunted “war on poverty”? The industrialization of agriculture that the west calls progress is its greatest proximal cause.

Again, livestock is at the heart of the trouble. Small-scale livestock farming, often practised most ingeniously, is vital. Cattle in the third world are multi-purpose – calves, milk, dung for fuel and fertility, transport and draught; but, traditionally, they are fed on nothing at all – on crop residues, or taken out on leads to feed from the roadside verges. This may not be ideal for all kinds of

reasons but in principle such thrift is precisely what is needed – and the task of science, when it has a role at all, is to build on the traditional systems and make them work; not to sweep them aside in pursuit of the wild and unrealizable dream that we have come to equate with “progress”. We need to recognize again the absolute need for a sound rural economy that continues to employ vast numbers of people – not necessarily the 60 per cent of the current Third World, but certainly at least a fifth. Truly, we need to bring about the Agrarian Renaissance. And “we” means all of us. The powers that be have their eyes fixed on quite different targets.

As for the economy as a whole:

we do not have to leap straight from neoliberal global markets into communism. Adam Smith and the founding fathers of the United States and a great many ordinary traders and businessmen and women ever since have shown that there are alternatives to both, rooted in “natural sympathy” and guided by common sense; and various radical economists worldwide including the ones already cited and those of Britain’s New Economics Foundation are already on the case and already, in many instances, showing how these alternatives can and do work. We just have to get away from the extremism, rhetoric and dogma of modern-day politicians and their intellectual and expert advisers.

9: GOOD SCIENCE, BAD SCIENCE, AND THE AGE OF BIOLOGY

We need to rescue science: rescue it intellectually and find ways of harnessing its powers for the common good without crushing its creativeness.

I have a love-hate relationship with science.

Actually, though, that’s not quite true. I have a love-love relationship with science itself – with what science really is, and ought to be. I love some of the high tech that emerges from it – defining high tech as the kind that could not have come about except on the back of scientific theory, like the laser and the computer; as opposed to the wondrous folk technologies that evolved without formal science, and gave us windmills and sailing ships and carts, and temples and cathedrals, and the day-to-day technologies of spinning and dying, sewing and knitting, cooking and farming. Folk technology is the stuff of civilization and is brilliant but high tech is the gilt on

the gingerbread. I love its ingenuity, and the fact that it saves people’s lives, and can make our lives so much more comfortable, and is providing revelations by the day about the natural world and in many ways has become indispensable for serious wildlife conservation.

But I hate much of what is claimed in the name of science, and much of what is done with high technologies; and equally hate the way in which science is often sidelined, even when it could be of enormous use; or is deployed in the manner of modern politicians – cited and applied when convenient, and otherwise ignored or even derided. Science as an intellectual discipline is just as powerful as religion, and high tech has long since shown its ability to change

the world down to its core (so that, to take a negative example, there is hardly a square inch of the Earth or any living animal or plant that does not show signs of industrial pollution). Both as an intellectual discipline and as a source of high technologies, science is immensely powerful. Like everything powerful it needs to be handled with extreme care. Yet we treat it as if it was just a household appliance, to be picked up or left in the drawer at whim. Science and technology are deployed in large measure simply as agents of power, which largely means of oppression and bamboozlement. In recent decades, in the modern economy, we have left their development more and more to “the market place” – for reasons that can be made to sound plausible but in reality

simply give corporates carte blanche to fill their boots and consolidate their hold over the world at large.

In short, for our own sake and for the sake of the world, we need to rescue science: rescue it intellectually; and find ways of harnessing its powers for the common weal without crushing its creativeness. Again, “we” means us – all of us: because there is no evidence that present-day governments even recognize the problems, let alone have any worthwhile thoughts on what to do about them; and the corporates are doing very well indeed out of the status quo and have no interest in change.

The issues are far too big to discuss exhaustively here, but these are the main headings:

What science is and what it is not

Science is presented to us nowadays as an entirely materialist pursuit that advances by the method of reductionism (breaking problems down into soluble-sized bits). Both of these assertions are true up to a point, but only up to a point. It is often implied if not baldly stated that science is a royal road to truth, for with repeatable observation and maths we can't possibly go wrong. But this is deep nonsense. Many seem to claim that science in the fullness of time will bring us to a state of omniscience – if we don't know everything now then we soon will, or everything at least that needs knowing. That is the most dangerous nonsense of all. Many prominent scientists and philosophers claim too that science leads us inexorably to atheism and that is so far wide of the mark, philosophically and

historically, as to beggar belief. All this matters, because it gives science a bad name, which means that many people take little or no interest in it and never get to taste its delights; and because it has surely nipped many a potential talent in the bud, as children turn instead to business and media studies, or some such.

Most immediately dangerous, however – indeed it threatens to kill us all -- is the subliminal idea that omniscient science will generate omnipotent high technologies: that humanity, with science, will be all-knowing and all-powerful, taking over from God himself.

There isn't time to discuss all this here but it is the most terrible junk. In a nutshell, science tells us only what science tells us. All serious modern philosophers of science and some who are not so modern tell us that the ideas and explanations that science provides are partial and provisional, and always must be. In the end, the universe and its ways are beyond our ken. The best scientists know this too of course, and act accordingly. As Sir Peter Medawar put the matter, “Science is the art of the soluble” – which means that scientists tackle only those questions that they think they have a reasonable chance of answering, which are the ones for which they think they can provide a plausible explanation with the techniques and within the time available. Omniscience is something else entirely. By the same token, the greatest technologies we might develop will leave us far short of omnipotence – even if we had all the resources in the world to develop them, which of course we do not and never can. This leads us to the next great caveat:

Hype on the one hand, neglect on the other

Politicians like to promise us the Earth. That way, they win elections. Corporates want to sell stuff, which means they need to market stuff, so they too promise us the Earth. Science and high tech, as the world's most powerful agents of material change, play key roles in this. The world's food problems are reduced, in the minds of the world's most powerful people, to an exercise in yield: with more yield (and a few million more hectares of Amazonia to play with) we could save the world. And the way to increase yield is to rearrange and re-synthesize the genes of food crops, and even of livestock, by the allegedly precise mechanisms of genetic engineering. This, we are assured, can be done safely, because the dangers can be identified and filtered out by field trials.

Again, this is the deepest nonsense. We have already seen that “feeding the world” is not a matter of yield. Bob Orskov, cited above as a true authority (as opposed to a politician on a PR trip) says that after 25 years experience of Third World farming at first hand he has never yet come across a case where GM crops would have been the best option. Then again, such data as there are (and it hard to find any data that are not, to some extent, PR) do not show us that GM crops invariably or necessarily outstrip those produced by conventional breeding. GMOs (“genetically modified organisms”) may well do better in some respects, in some years, in the most favourable conditions. But over time, in the rough-and-tumble of the real world – which is now a very changeable world – GMOs often fare rather badly.

Safety is important too – and here we find an anomaly. For the biotechnologists who manipulate DNA so adroitly presumably must know some biology or they could not have got their degrees in the first place. But the claims that they make for their technology suggest that they know no biology at all. For instance, they claim to be able to show in a three-year field trial on a few hectares that their GM crops are “safe” – that they will and can have no ill effects on the environment at large. Or at least, since absolute assurance is obviously nonsensical, they argue that the chances of anything going wrong are so low that they are not worth thinking about.

But nature deals in very large numbers. Astronomers deal in large numbers too but biologists far outstrip them. Maize for example is grown over many thousands of square kilometres, and any one field will contain many millions of individual plants, and each will produce many millions of pollen grains, and if we are talking about the future – not the next three years of some field trial but the next few hundreds and thousands of human history – then the number of pollen grains produced in that time begins to exceed the estimated total of stars in the entire Universe. Huge. This means that events that seem most unlikely – one in 10,000; one in a million – in reality become commonplace, or indeed a racing certainty. In nature, single events can change the world forever: one consignment of rats to an island; one errant pollen grain. Of course, small risks are worth taking if the possible rewards are great. But when the rewards are almost entirely spurious -- almost entirely a matter of commercial profit – the

risks are not worth taking at all; and when people who really ought to know better insist that there is no risk when it is absolutely obvious that there must be, then alarm bells ought to ring.

GM is not the only misapplied technology we have to deal with, by a long chalk. But it does seem to have become the current obsession in high places, diverting attention from far more pressing issues – and making it less and less possible to do things that really do need doing, as biodiversity is rapidly reduced and native skills are lost and the big commercial companies and the governments they manipulate, consolidate their power.

On the other hand, when science is not being horribly misapplied, it is commonly left to moulder on the shelf even when it has true and urgent things to say. Some scientists have been warning us for twenty years that global warming is likely (and the physics of this was worked out in the 19th century). But until New Orleans was all but overwhelmed by the kind of hurricane that has long been predicted, the Bush administration chose to dismiss the whole idea – for it was, as Al Gore put the matter, “inconvenient”. Environmental biologists have been warning us at least since the 1960s (and in truth long before) of the dangers of pollution and the loss of biodiversity – but although there has been spasmodic legislation, often ham-fisted, we continue to lurch from bad to worse. In short, governments and corporates deluge us in hype when high tech seems to offer a quick fix and a quick buck, but ignore anything that gets in the way of their agendas, their ideologies, and their dogmas. Britain’s Gordon Brown

is apparently aware that global warming could make nonsense of everything but to boost what he calls “the economy” he is currently promoting short term measures (like reducing the price of cars) that are obviously liable to make it worse. So much for the laws of physics.

What a pity! For if on the one hand we embraced science, and understood it – including its obvious limitations – then it really would be a huge asset, truly able to help us to live on this Earth for thousands of years to come, in peace and fulfilment, and in the company of other creatures. Indeed, without excellent science, our chances of a long and peaceful life are much reduced. But as things are – as science is misunderstood, and high tech is horribly misapplied – science has emerged as one of humanity’s greatest threats. I do not know myself whether to encourage the children who occasionally ask my opinion whether to pursue a life in science, with all its pleasures and possibilities, or to warn them to stay well away.

If we are truly to use science to our own and the world’s advantage, then we need to undertake what the American philosopher of science Thomas Kuhn in the 1960s called a “paradigm shift”: a complete change of worldview. We need, in short, to enter “The Age of Biology”. Indeed, the Agrarian Renaissance may be seen as part of this paradigm shift. Enlightened Agriculture can be seen as a prime example of good biology in action.

The Age of Biology

I once was privileged to talk with the great Pakistani physicist Abdus Salam, who won a Nobel Prize for

developing electro-weak theory (don't ask). He was a devout Muslim and a social reformer who believed in science in the service of humankind, and he established the University of the Third World. He suggested that we can gauge the stage of development of a country by its technology. Industrial chemistry is primitive technology, he said. Truly modern countries focus on particle physics -- his own specialty -- which has given rise to the technologies of electronics, which achieve so much with so little input.

I like Dr Salam's idea that industrial chemistry is primitive: all that energy and heat; all those foul and still uncontrollable fumes. But of course I prefer the idea that the most appropriate science for present and the long future is not particle physics -- at least, not particle physics alone -- but biology. The world needs to enter The Age of Biology.

At this point the biotechnologists -- creators of genetic engineering -- will leap up and shout, "But we are already in the Age of Biology! This is what biotech is!"

But of course they are quite wrong. Biotech in its present form is industrial chemistry with bells and whistles. It partakes of the same mentality. It seeks to take nature by the scruff of its neck and re-design it, as if living organisms were motor cars or refrigerators. It

operates, in the reductionist tradition, at the level of the molecule. It perceives all life as an exercise in DNA, and works outward from there. True biology is theoretical, of course -- but it is rooted in natural history; in reality; in what life actually is. It is aware of DNA, of course, but it is mainly concerned with whole organisms, and with the ways in which whole organisms relate to each other. In other words, predominantly, true biology is an exercise in ecology.

Again we hit a conceptual snag. For if ecology is to be done well, and if it is to progress, then it must be deeply rooted in science. We can't get a serious handle on what is out there -- the very basic information -- without counting, which in practice means serious statistics and algebra. We can't begin to get a feel for the different populations without DNA analysis to tell us where one breeding group ends and another begins. We cannot find out who goes where and why without, for example, remote cameras and radiotelemetry. The great naturalists of the 18th and 19th centuries would have loved all this gear -- and their successors are still out there, just as dedicated and talented, but now equipped to the nines. It's a bit sad, then, that many who claim an interest in "ecology" seem somewhat anti-science: more inclined to equate ecology with poetry. But then, perhaps the fault lies with the way science has been presented. In particular it has been a

huge mistake to abandon the spiritual roots of science, and to sit back while some of its most vociferous advocates present it as an exercise in materialist atheism. That makes it repellent. The Age of Biology can come about only when we perceive once more that the only appropriate emotions in the face of nature are humility and reverence, and go on from there. This is the attitude that inspires many a traditional culture worldwide, and inspired the greatest naturalists, including John Ray and Alexander von Humboldt and Alfred Russell Wallace and Charles Darwin and all the rest.

Enlightened Agriculture belongs, conceptually, to the Age of Biology. So too, therefore, with only mild extrapolation, does the Agrarian Renaissance. If you suggest in public places that the world needs biology-based agriculture that performs labour intensive, and on both counts requires small, mixed farms, you are bound to be told that you are trying to "turn the clock back". In truth, the precise opposite is the case. Enlightened Agriculture and the Age of Biology are true modernity. Biotech belongs with the conceptual dinosaurs. I hope very much that future generations will look back on our crude technologies and economic dogmas and see the present time as another Dark Age. Actually, without such a paradigm shift, there might be no future generations.

10: THE CAMPAIGN FOR REAL FARMING

The idea of Renaissance is not to pick a fight with the powers-that-be but to create something new, and allow the status quo to wither on the vine.

I first conceived the Campaign for Real Farming as the Campaign for Enlightened Agriculture. But some thought there were too many syllables, so I changed the name. The Campaign has begun as a project of LandShare (not to be confused with Landshare, without the big S in the middle, which is a different organization). It is evolving in concert with the Agrarian Renaissance. The details of the working relationships do not matter. What matters is the common cause.

Why, first of all, do we need a “Campaign for Real Farming”? Why not leave things to the powers that be? Haven’t they got it all in hand?

Reform, Revolution, Renaissance

Clearly, the powers that be do not have the problems in hand. They do not take the most serious things seriously. They are restricted by their perceived need to win elections or maximize returns to their shareholders. They are committed to dogmas that are obviously misguided – notably to the neoliberal economic theory that has given us the global market. Almost as a side-issue, but still highly pertinent, they are locked into particular political agreements that typically were conceived in a different age for different purposes – notably to the Common Agricultural Policy of the European Union. They do not understand science and technology, the most powerful agents of change,

and are content to rely on expert advisers – which would be reasonable enough, except that they listen only to those advisers who tell them what they want to hear. They seem incapable of changing direction – and certainly of changing direction quickly, in the few short years in which useful action may still be possible. In fact, if we leave our fate to the powers that be, all our lives are liable to be cut short and the prospects for our children, and certainly for our grandchildren, are dire.

It follows that if the world is to become a tolerable or indeed a possible place to live, then we have to make our own affairs into our own hands. How?

In practice, there are three possible ways to effect serious and long-lasting social change. The first, and most obvious, is by Reform. The idea is that the existing powers that be change, increment by increment, into something else. Reformers in the history of the world have achieved much, from the abolition of slavery, at least in the mainstream economies, to women’s suffrage. Agricultural reforms in recent decades include some significant improvements in animal welfare, at least in Europe.

Overall, though, Reform cannot deliver what the world now needs. For one thing it is too slow. Reformers can take months to organize a meeting with a cabinet minister, only to find that they are dismissed within what seems like seconds and/ or that the minister has no real influence in government

even if he or she is sympathetic. Indeed, governments these days have far less power than might be expected. They have locked themselves into international agreements, such as those of the World Trade Organization or the North American Free Trade Agreement (NAFTA), and now can have remarkably little freedom of action.

Worse still: there is no plausible route by which some of the world’s most powerful organizations could be transformed from what they are today, into what the world really needs. Supermarkets, for instance, scour the world to find the cheapest possible products – playing one producer off against another – so that they can sell as cheaply as possible, and sometimes at less than the cost of production (and way below the real cost of production, if human injustice and collateral damage were taken into account). In all respects, both moral and practical, this is at odds with the tenets of Enlightened Agriculture. Supermarkets can pay lip service to more enlightened methods as a matter of PR – allot a little shelf-space to local produce for example – but they could not embrace Enlightened Agriculture whole-heartedly without abandoning their *raison d’être*. In an enlightened system, the superstructure of directors, managers, accountants, warehouses and truck drivers that enables them to bestride the world scene, and the shareholders that finance and feed upon the whole enterprise, becomes entirely superfluous.

The second route to change is by Revolution. Sometimes revolution is necessary. But wherever possible it is best avoided. It kills people, it can wreck a great deal that is worth conserving, and its results are most uncertain. The outcome of political action is always uncertain – the relationship between action and outcome is, as the physicists say, “non-linear” – but revolution can be particularly chaotic. So let us not go down that route.

The third possibility is via Renaissance: re-birth. The idea here is not to try to change the status quo, or pick a fight with the status quo, but simply to re-create some new modus operandi in situ; making use wherever possible of what’s around, but happy to innovate where necessary. Buckminster Fuller summarized the idea beautifully:

“You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete.”

I am inclined to suggest, indeed, that all the most significant changes in history have begun as exercises in Renaissance – including the rise of Christianity (for the early Christians did not set out to pick a fight with the Romans) or, of course, the Italian Renaissance.

I discussed the idea of Renaissance in *So Shall We Reap and Feeding People is Easy* – and then found that Tim Waygood had independently coined the expression “Agrarian Renaissance”. Another serendipity.

How radical do we need to be?

Anyone who challenges the neoliberal agenda these days is liable to be called a “commie”. Since “commies” talk mainly about justice and fair shares it isn’t obvious that a “commie” is necessarily a bad thing to be. But the precedents set for example by Stalin’s Russia and Mao’s China are not encouraging, so the charge is damaging.

But the accusation is also wide of the mark. The economic system appropriate to the Agrarian Renaissance is the traditional form of capitalism, rooted to a significant extent in private ownership and trade – with the conditional clauses that “ownership” does not imply absolute rights and trade must be fair. The economy as a whole is constrained, commonsensically, by morality on the one hand and physical and biological feasibility on the other.

There is nothing wild about any of this. The necessary moral principles are all within the literature of capitalism itself. Adam Smith spoke of “natural sympathy”: he did not suppose that the free market that he advocated needed to run on to-the-death ruthlessness. The founding fathers of the United States were good capitalists, but the Declaration of Independence makes no mention of wealth. It rings instead with phrases like “the Right of the People” and “the Laws of Nature and of Nature’s God” and “native justice and magnanimity”. The species of ethics represented here is not a simple exercise in utilitarianism – judging moral value by outcome. It is “virtue

ethics”: defining what is good in terms of moral abstractions that in truth are rooted primarily in human attitudes. The greatest exponents of virtue ethics were the world’s great prophets and religious teachers. The Buddha spoke of “compassion”. Jesus spoke of “love”. Mohammed stressed courtesy and the absolute human debt to Allah. The 19th century Hindu mystic Ramakrishna summarized all the fundamental ethical teaching of the world’s great religious leaders in three principles: personal humility; respect for other, sentient creatures; and a sense of reverence for the Universe as a whole (which is entirely in line with the idea of the Age of Biology).

It is hard to see how anybody sane could be offended by moral principles like these. But we live in strange times. In recent years various intellectuals in the United States have been threatened by imprisonment for expressing sentiments that seem to come straight from Thomas Jefferson. Abraham Lincoln, a few decades after Jefferson, spoke of government that was “of the people, and for the people”. Lincoln is the great American icon but this is subversive stuff indeed by modern standards. People build statues to people but they don’t necessarily listen to what they actually said.

One last but vital issue. The point of industrialization in general is to replace human labour with machinery. Insofar as machines can help to take the back-break and the tedium out of labour, they are obviously a good thing. But they also tend to make human beings redundant. They put people out

of work, and many a craft has been rendered obsolete. This is at least a pity. In agriculture, this is of huge importance to everyone. Agriculture employs so many people worldwide that if all of it was industrialized half the world would be unemployed and poverty would be the norm, probably forever more. Yet agriculture also, of all human pursuits, is perhaps the one that can benefit most from more labour. Enlightened farming – polyculture that is sustainably productive – requires skill. This means by definition that it is a craft, or a series of crafts. We are killing off the crafts of farming at our peril. They need to be restored post haste. On a purely material note: farmers need to live close to their crops and animals, and so therefore do their families. Overall, then, the Agrarian Renaissance does not simply imply that farming should shift to labour intensiveness. It implies a huge reversion to the land, and hence to agrarian economy and ways of life. It requires, in short, a huge social shift. But the aim is to ensure that everyone in the world can be well fed; and in doing the things that need doing it restores the dignity to human labour – for craft has dignity; and it provides the economic base for true, convivial communities. In short, the whole exercise would be highly desirable even if it were not absolutely necessary - which, in reality, it is.

So these are the basic principles of the Agrarian Renaissance: scientific, moral, economic, and social. How – given that the powers-that-be are not helping – can we bring it about?

I: A body of friends and allies

We can begin by identifying and making contact with like-minded institutions, and gathering a consortium of like-thinking, well-informed people – farmers, restaurateurs, scientists, economists, writers and broadcasters, accountants, businesspeople, bankers, engineers, administrators -- and indeed of anyone who gives a damn. These institutions and individuals form the “Friends” of the Campaign, our functional base. There is no need to try to form a majority, or to convert the unconvertible. To make a difference we merely need a critical mass; and we could form such a mass from the people who already know that things need changing, and roughly agree on what needs doing. I am reliably informed that significant permanent change can be brought about if eight per cent of the people are on side. There can be no doubt that the necessary eight per cent already exist, several times over. We just have to make contact.

II: Raise money

To make significant progress after that requires money. Fund raising is thus a priority.

III: A model farm – and then more

The structure and modus operandi of the model farm are described earlier. The Campaign needs to make it happen. Once the precedent is set it can be replicated.

IV: Begin to form the retail chain

As outlined above, production is only part of what is required. We also need to develop better ways of marketing and retail. Linked to this is the need to re-develop food cultures – but in this the Slow Food Movement is already on the case and the main requirement is to make common cause.

V: The College for Enlightened Agriculture

We need post-haste to re-establish the research base that has been thrown to the winds over the past three decades – in science, husbandry, economics, sociology. The first step to this is the College for Enlightened Agriculture. In the fullness of time – again, sooner rather than later – this could be a real establishment, with computers and common rooms and even perhaps with laboratories – although the prime task for the College would be to identify problems and take them forward, rather than carry out scientific research itself. But initially, we could begin with a “virtual college”: a web-link that enables interested people to exchange ideas. (A preliminary research agenda for the proposed college will appear on the Campaign blog).

So that's it. If you find these ideas interesting, and would like to be involved, please look at the Campaign blog cited with other at the start of this booklet.

The Campaign now exists but is dead in the water unless people who give a damn come on board.

REFERENCES

On the state of the environment:

Fred Pearce: *Confessions of an Eco Sinner* (Eden Project Books, March 2008)

Graham Harvey: *The Killing of the Countryside* (Random House, March 1998)

Robert F Kennedy Jr: *The War Against Nature* (Penguin, 2005)

Mark Lynas: *Six Degrees: Our Future on a Hotter Planet* (Harper Perennial, 2008)

On Enlightened Agriculture and modern agriculture in general:

Colin Tudge: *So Shall We Reap: the Concept of Enlightened Agriculture*, (Penguin, London, 2004)

Colin Tudge: *Feeding People is Easy*, (Pari Publishing, Tuscany, 2007)

Colin Tudge: *Can Britain Feed Itself? Should Britain Feed Itself?* (LandShare, 2009)

Graham Harvey: *The Carbon Fields: How our Countryside can save Britain* (Grass Roots 2008)

Michel Pimbert: *Towards Food Sovereignty: Reclaiming autonomous food systems* (IIED, 2009)

Tully Wakeman: For a discussion of local food and resilient food systems, see East Anglia Food Link's website: www.eafl.org.uk/LocalFood.asp

On the modern food trade:

Andrew Simms: *Tescopoly* (Constable, March 2007)

Felicity Lawrence: *Eat Your Heart Out: Why the Food Business is Bad for the Planet and your Health* (Penguin, 2008)

On the nature and the uses of science:

Peter F Williams: *A Sceptic's Guide to Atheism* (Paternoster, Milton Keynes, 2009)

Sir Peter Medawar: *Pluto's Republic: Incorporating The Art of the Soluble and Induction and Intuition in Scientific Thought* (OUP, 1982)

Ivan Illich: *Tools for Conviviality* (London, Fontana, 1975)

On economics and world politics:

Colin Tudge: *Economic Renaissance*, (Schumacher College, Dartington, 2008)

Paul Hawken: *Blessed Unrest: How the Largest Movement in the World Came into Being, and Why No One Saw It Coming* (Viking Press, New York, 2008)

Amartya Sen: *Development as Freedom* (OUP, 1999)

Margrit Kennedy: *Interest and Inflation-Free Money, Creating an Exchange Medium that works for Everybody and Protects the Earth* (1987, rev 1995)

Ann Pettifor: *The Coming First World Debt Crisis* (Palgrave, 2006)

Archbishop Rowan Williams: *Ethics, Economics and Global Justice*, lecture given in Cardiff (March 7 2009)