

Chapter 1: The Problem

About 90% of the population of the British Isles in the year 2003 live in cities and whereas, at the turn of the nineteenth century, that population numbered about 40 million; now it has become around 60 million. This is an increase of a quarter in fifty years. The fact that 90% of these people live in an urban environment is largely the outcome of the Industrial Revolution, which got going some two hundred years ago, but, in this century, has accelerated beyond what could be imagined at its beginning.

These urban people know virtually nothing about the countryside, the land and how it is looked after, agriculture and the order of Nature; nor of what the people do, and their priorities, who live and work in that countryside and who strive to keep the biosphere in more or less good order.

Yet there is not a single living creature -- man, animal, bird, fish, insect, plant, tree -- that could survive for a single day if anything happened to upset the delicate equilibrium of that biosphere and if the vegetation cover of the Earth came, thereby, to be entirely removed or destroyed. The air we breathe, the oxygen we cannot do without, depends entirely on plants for its availability to us. Everything, therefore, depends -- directly or indirectly -- for its existence upon the green leaf, Nature's provision for the life continuity of all her creatures.

Most city people today are heavily orientated towards complete dependence on machines for their livelihood, in one way or another. They are so preoccupied with their own immediate pursuits that they seldom give a thought to what may be happening to their natural life support systems, nor to the impact of their own activities upon them -- for example, in the incidence of pollution from their factory chimneys and all other technological developments. They have lost the ability to relate cause and effect, to balance the different aspects of the life processes -- and to discriminate between what is biologically permissible in the overall scheme of things and what is not.

Nevertheless, we have arrived today at the point where we must re-integrate our perspectives so that Nature and technology come into balance, and so that Nature can carry on her essential operations without being endangered as she is at present. We must pull together again into a whole picture what has been increasingly fragmented into innumerable separate areas for research (none of which seem to relate to each other). If we leave it too late, we may never hope to resolve the immense problems that beset the modern world -- inflation, urban deprivation, unemployment, social unrest, violence, disease and the general disorientation of the mass of individuals.

Re-thinking is urgently needed from some fresh and firm base from which to make meaningful judgements about what is possible and what is not in sustainable and stable societies within a world structure. To begin with, a first point, and one to which I shall return, is important. In a free society, choices are made by individuals before decisions can be made by government. It is truly said that a nation gets the government it deserves.

A government -- such as operates within our British democratic system -- is elected for a term of only five years and its members know full well that, if they do not satisfy the majority of the electorate, they will not be voted back into office. Governments have very little power at all, if any. It is the people, individuals, who decide on priorities -- and we all have a say.

We have much more power than we know. Therefore, my thesis is essentially addressed to individuals and I am keeping clear of politics as such. If I can convince my readers by what I

have written, it will then be for them to make informed demands on their elected representatives to bring about correct policies in the light of the facts. This will be true democracy and not the current, popular view of it, whereby certain vocal minorities strive to overthrow the elected legislature.

Whatever slow processes, then, of discovery and invention led from the country-based communities of the earlier centuries, developed through the industrial revolution up to our present-day technological age, during this period, the cities grew and rural populations declined. The two most obvious factors which accelerated this process leading to an escalation of urban industrialisation are, perhaps, Liebig's chemical theories and the invention of the motor car and other engines. (The third – and perhaps the most important – should be, presumably, the harnessing and expansion of the use of electricity.)

Before the engine, the mobility of peoples was dependent on travel by horse or on foot and the distance travelled in a day was determined by the limit of the horse's strength -- about twenty-five miles. It was, therefore, open to few to move around. Though some did so, many did not and most people had to make a living where they were born, which was generally on the land or in a village.

Before Liebig's chemical theories took hold, farming – i.e. food production – depended entirely on the fertility of the land on which the crops were grown. This could only be ensured by strict adherence to the well-known "law of return" whereby what was taken out of the soil in the crops grown must be replaced in an appropriate form. And that form embraced the nitrogen cycle which was usually represented by the manure heap built up on the farm. Without manure (the return of animal wastes to the soil), fertility could not be maintained. And no improvement in crop production could be achieved beyond that amount that Nature herself could encompass. For what is taken off the land must be replaced in order to sustain the next crop.

The nitrogen cycle was well known in the past to be the vital link in the chain of the life cycle of the year. Without the return of waste matter, the cycle is broken, as it is today, and the integrity -- the wholeness -- of living systems cannot be guaranteed. The limit of availability of such material, usually composted with straw from last year's cereal crop, was thus the limit of the fertility attainable on any piece of land and conditioned its capacity to produce more and better food, or less good products, absolutely.

On the expertise, knowledge and experience of any individual farmer or gardener the quality of crops depended. Obviously, not everyone had this expertise to the same degree, so some farmers prospered while others did not.

Liebig, however, succeeded in changing fundamentally the customs and thinking of centuries, helped along with industrialisation and by the rise in social expectations engendered thereby.

Through his laboratory experiments and theories, Liebig devised a proposition which ran roughly as follows. "Take a plant, burn it and analyse the ash. The mineral constituents that remain are all the elements required to constitute such a plant. Put these back into the field in balanced amounts of chemicals" – who, though, is to say what are balanced amounts? – "and all the efforts of making dung and keeping livestock to produce it can be done away with. Farming will become a lot easier." Or something like that.

The basis of this theory was that there was nothing else beyond the measurable chemicals that constituted the components of a plant – even though it must be evident, apart from the heat and smoke given off, that other elements must be involved. As Lady Eve Balfour and others have said, and, as she writes in her classic book on agriculture "The Living Soil" (Faber, 1945), it is astonishing that such an incomplete theory could ever have been accepted by scientists, let

alone farmers, and put into application on such an ever-increasing scale over the past hundred years.

But it is really only about fifty years since its application has become world-wide and, today, chemical fertilisers are spread on the land in ever larger quantities in every quarter of the globe. A few voices have been raised in warning – but, for years, they have been brushed aside and the chemical theory has been given unquestioned adherence.

Liebig's chemical theories came to prominence alongside two others that have been given just as much adherence. One was Darwin's Theory of Evolution which developed into the theory of the Survival of the Fittest. This itself evolved into another catch-phrase – Nature Red in Tooth and Claw – to shape a view of Nature whereby one species was engaged in a war to the death with the next in the struggle for survival and dominance in the universal competition for living space. Darwin's theories, of course, were complex and, at least in the latter part of his life, he is said to have had doubts about them. When his own 12-year-old daughter died of pneumonia, he was heart-broken. But his theories, taken up by diligent "disciples" swept the board in the scientific world, even though his former teacher Sedgwick warned him of their implications.

At the same time, a third contemporary theory – this time in medicine or biology – was produced by Pasteur who suggested that germs were responsible for disease. Having researched extensively into smallpox and rabies, he observed that, in many conditions of ill health, the entities that came to be known as viruses and germs were present in the body. Therefore, it must be these germs or viruses, being blown about in the atmosphere, which had entered the body by one means or another and which had made it sick. The theory of germs also took hold very quickly among Pasteur's followers and very soon became standard belief.

However, it is said of Pasteur, as of Darwin, that, in his old age, he complained that he had never meant that germs caused all disease.

It is a fact that, whatever the originators of these theories that became established in the latter part of the nineteenth century may really have felt about them -- and we do not know if Liebig also may have had second thoughts -- ordinary men and women, ever impressed by science, accepted the wisdom of the learned without question. If scientists said it was so, then it must be so.

These ideas had an explosive effect on societies because the thinking of the ages was now suddenly said to be superseded. Everything that was known, or thought to be known, about the countryside, agriculture, the nature of being, medicine and what constituted health, food values and, consequently, farming practice, was called into question and eventually, thrown wholesale overboard.

The argument ran: "If chemicals can be spread on the fields, out of a bag, and brought from a factory where a large number of people would be employed manufacturing them, then the farmer can be absolved from the heavy work of spreading dung and having to make it in the first place. If dung were not needed, then animals were not needed to create it, as one reason for keeping cattle had been for just this purpose. Without animals and with the fertiliser bag, work on the farm could be cut down and fewer men employed. It was less like hard work, especially when the tractor replaced the horse.

No-one noticed that, when the horse went, so did his contribution to the nitrogen cycle, the law of return, nor that horse manure is frequently a much better fertility factor than that of the cow. It is to date the only medium in which mushrooms will grow indoors.

When men left the stable and the fields, they drifted, perforce, to the cities. There, if they were lucky, they obtained jobs in factories – but, often, alternatively, ended up living, unemployed, in the slums. Nobody foresaw the dangerous consequences that might ensue, in the event of a falling demand for the products of their factories. If they could not sell their goods, most of these people would then become unemployed. While living on the land, even with only a small cottage-garden, there might not be much of this world's goods, but there was generally enough food, and wood in the forest to collect for fuel. In the city, men became dependent altogether on the unpredictable forces of supply and demand and, if there was no demand, there was nothing to fall back on.

This frightening uncertainty and unpredictability of urban life is the constant spectre that haunts societies today and the factor which, above others, has come to bedevil our modern technological urban communities. Falling demand creates chaos unimaginable to our forefathers, in the trauma of unemployment.

While men were leaving the land, Pasteur's revolution in the hospitals was getting under way and its effects were as far-reaching as Liebig's. In a sense, both theories are inter-linked and have, between them, brought about an entirely new way of evaluating human existence. The germ theory suggested that disease comes into the organism from outside. Therefore, since germs fly around in the air and swarm over everything, in order to evade the onslaught of infection, we must practice high degrees of sanitation, hygiene and antisepsis. Disinfectants of many kinds have been developed to kill germs and have been applied widely in hospitals, in private and public places. Obviously, Pasteur did show conclusively that, in many situations, germs do indeed invade diseased conditions, open wounds, etc, and bring about untimely death. Through adequate rules of hygiene being observed in hospitals, many deaths have been prevented and it would be absurd to suggest that Pasteur was wrong on all counts.

The role of germs in infectious diseases is well known but, as is so often the case with followers of innovators, Pasteur's entirely logical ideas were taken up and distorted into a new belief that germs were the cause of the majority of diseases. In the name of this theory, many sins have been committed and other possibilities for the cause of disease have been passed by without scrutiny. But there is today a new and growing body of opinion ready to subscribe to the view that, in many cases, there are quite other causes.

The germ theory has, however, been taken as gospel for a long time and a whole body of medical practice has been built around it. It is quite difficult to visualise how medical thinking will have to change if new and more convincing theories come to the fore.

Because of the germ theory, our views on what constituted health changed radically. It was no longer believed that it is the level of fertility built up in the soil that affects the crops grown in it and that therefore, it is the fertility or wholeness in the soil that contributes to health in livestock, crops and men. Health was no longer seen as a known component achieved as a result of correct living and the consumption of good food. It became a matter of mere chance in that you were born lucky or unlucky and, if you were taken ill, it was a germ that had made you so. Therefore, it no longer mattered what you did, what you ate, how the food was produced or cooked – because it was not its lack of quality that had made you ill, but the germ that had attacked you.

The door to manufactured food was opened and food factories came into being. These processed commodities to give them a "shelf-life" (or keeping ability). They quickly subjected them to all kinds of treatments to colour them, preserve them, simplify their preparation. They were processed, dehydrated, emulsified, flavoured, denatured (split up and separated out), dyed, etc – all by means of various artificial chemicals which had been specially invented for

the purpose and which were produced in yet other factories. Packaging techniques, bulk marketing, quick-cooking convenience foods were born. Any treatment of commodities was permitted, in order to make social life easier and more enjoyable with less work being entailed.

People were now free for other, more interesting activities. Food came to be looked on as a means of assuaging hunger or entertaining one's friends or as something pleasant to taste – but no longer as the basic provision the body requires for building up its tissues and organs and maintaining them in good health. Manufactured foods took over. Nobody got up in the morning to cook porridge any more – Krispies and other "prepared" cereal products were quicker and easier.

What these changes achieved was, firstly, to release the countryman from much of the necessity for working in the fields and, secondly, to drive him into the cities. He was willing to go, expecting a greater provision of the world's amenities through the higher wages being offered in the factories and a shorter working day. The technological revolution was intended to provide enough of everything and to ensure us all a better standard of living. The city was the place where all these things seemed possible.

But, unfortunately, it did not turn out as the countryman dreamed and the hidden cost of the city has drained all his higher expectations away. It is not easy for the ordinary man to see how the dream has been shattered or to understand the underlying causes. The cost of the maintenance of cities is enormous, as of survival, as it dissipates all a man's earnings, leaving him worse off than before. This is still not fully realised. Economic theories seldom deal in global contexts and some element of the equation is usually overlooked. Ecological impact and the cost of technological progress is never included since its implications are not understood by economists who are usually urban-bred.

Not until the signs of the costs of progress, in terms of the degradation of the biosphere to crisis levels becomes obvious to all, will the danger be recognised. By that time, much damage will have been done and it may have become impossible to get off the treadmill. Nobody any longer knows what the causes of the problem are, let alone how to redress them. The realities of the situation have, so far, not been fully exposed.

So this is where mankind stands today, on the threshold of global disaster, as expectations rise all over the world, unaccompanied by sufficient vision to see what are the priorities. We are faced with a fearful dilemma of perception. On one hand, we all want the products of technology and an easy life. On the other, there is the possibility that, in achieving this – with ever-proliferating technology and its offshoot, universal pollution – we shall destroy the biosphere, that natural order of creation on which we utterly depend. Thus, if we continue as we are doing, we shall pollute to death the whole of the natural order of green and growing things on which we all depend for oxygen – and then we shall all quietly suffocate -- ourselves and everything else with us.

If this catastrophe is to be avoided, Mankind must, at some point soon, take universal decisions as to a ceiling of preferment – of the proliferation of material and artificial possessions – beyond which, in the interests of survival, we can no longer expect to go on having more and more and more.

Every technological advance exerts its inexorable price on the environment, inflation of costs and degradation of the biosphere. Rivers are poisoned, forests felled, agricultural land taken for houses, roads, playing fields, factories. We take and take from Nature and give nothing back in return. The cycle of life, the law of return, has not only been broken – it has been done away with altogether.

It is not my intention to spend a lot of time describing the damage Man is doing to his essential life-support systems. There are plenty of eloquent writers ably fitted for that task. Today, the facts are thoroughly well authenticated. More and more books are being written on the subject of Ecology but, still, the great body of people are not convinced of the necessity for radical social change. Still less would they be clear about what those changes should be. Many still hope that technology will, one day, come up with a solution to enable them to go on as they are. And this is by the way of some of the very deepest misconceptions still kept alive by the chemists and doctors and Darwinists that I have noted. Not until some of these are called into question will people become convinced that there can be anything wrong with the modern view of things and, thus, be prepared to face unpleasant facts -- and then seek a way forward.

It is in the hope of being able to point to certain alternative ideas that one feels compelled, on occasion, to sit down and write. For there is, surprisingly, a great deal of contrary evidence available that few people have yet noticed – and some of it is of considerable interest. My aim is to bring some of it together and to present a possible interpretation of some aspects of our world to which it seems to point. It is only if we have true knowledge that we can form reliable judgements – and, indeed, in a democratic country, we are all involved.

To begin with, then, it is to the organic farmers that we must look for a very particular view they hold of the world. Their opinions are formed out of firsthand experience in the field – which is why we ought to heed them – and they are a growing band on a world front. These farmers appear to have almost a common inheritance – an outlook on life, attitudes and sets of principles –, which is extraordinarily similar. Once they subscribe to a point of view, they seem, inevitably, to espouse all its other aspects.

Such a holistic attitude needs no explanation and so, when organic farmers meet, there is a general, accepted consensus. They see the landscape, the biosphere and all that pertains to the countryside as one and indivisible, embracing all living things – an organism or body with many members that are all ruled and co-ordinated by precise and definite laws. What these laws are exactly, at this stage, they may not be too sure about – but, that they do exist, they do not doubt. And that these laws, being cosmic, are a great deal more powerful than Man himself is a conviction born of experience and reason. Therefore, Man must take cognisance of them and temper to them all he does. There is an order behind appearances and all phenomena that conditions existence and, without that order, life could not be maintained. Furthermore, the organic farmers see disease as a failure of man to understand natural law and to learn to work in harmony with it.

This is a radically different view of the world from that held by the majority of people today, and it is built up out of a close relationship with Nature and her ways. It is confirmed by the experience of farming practice and it is this practice which is personally convincing in the effects and results obtained -- though it is, mostly, not scientifically verifiable in terms laid down by orthodox science. Herein, too, lies the problem of how to get through to the unconvinced reader who is bemused by the dogmatic claims of the chemists. There are no graphic tables or statistics to show how a man, fed on ordinary food and always unwell, can change to whole-food, grown naturally and eaten fresh, and cease to be ill. The only proof rests in how the man himself feels and, as we all know, there are no tests to measure such conditions.

However, there might possibly turn out to be, after all, such a test. It is with this in mind that a rather arresting idea in the present researcher's view has come to the fore. It is one that seems to merit closer attention than some others because it is rooted in a principle of Physics that can be observed, measured and repeated – and which, as this is perhaps of some importance, can be tried out by anybody who wants to make the effort to discover it for himself.

This principle is the one ruling what is known as **the harmonic series** -- the basis of musical intervals and their ratios on which the whole theory of musical harmony is built up. It is now emerging as a subject in its own right and as an aspect of Physics that can be applied in many contexts and to subjects not hitherto seen to have any relation to music. This harmonic series is what is known as a constant in Physics whereby, no matter what "note" or sound is played on a vibrating string, this sequence of harmonics or overtones will always be found. And no knowledge of science is needed to understand this - its effects can be seen by everyone.

Furthermore (and this is the point that is of present-day concern, unobserved until today), it is now coming to light that this principle underlies many aspects of physical manifestation in our material, visible world – in such a way as to make it pertinent to suggest that it may be shown to be a very basic principle of our existence. Most people could, perhaps, appreciate that the basis of music is Physics, since music is vibration. But it might be more startling to some to be told that Physics is at its foundation, based on the known laws of music.
