

ABUNDANT LIVING

***in
the
coming
age
of
the
tree.***



Kathleen Jannaway

The Movement for Compassionate Living - The Vegan Way

THE MOVEMENT FOR COMPASSIONATE LIVING THE VEGAN WAY

Compassionate Living is about making connections between the way we live and the way that others suffer, between unnecessary industrial development and the destruction of the planet. It involves a commitment to work non-violently for change, promoting life-styles that are possible for all the world's people; sustainable within the resources of the planet, environmentally friendly and free from the exploitation of animals and of people.

MCL publishes booklets, leaflets and a quarterly journal, *New Leaves*, with articles to inspire, inform and give practical help. **MCL** answers queries, runs stalls and has an annual meeting to gather guidance from members. All labour is voluntary.

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Leaflets & answers to queries sent in return for two stamps.

For Annual Subscription to the Movement, which brings the magazine *New Leaves*, we suggest a donation of £5, or what you can afford. Less is accepted, but more will be welcomed, so that we can send *New Leaves* to those that will read it and pass on the ideas, but who cannot afford the subscription. Single copies £1 inc p&p.

Donations also help with the cost of running stalls and meetings, and distributing literature at many events. **Write to the address above.** (Cheques payable to MCL.)

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free of exploitation of people, animals and the environment.
- **RECIPES FROM NEW LEAVES** £1.00
for an ecological vegan diet based on home grown foods.
- **MORE RECIPES FROM NEW LEAVES** £1.00
using acorns, chestnuts, buckwheat, carrots, quinoa etc.

More publications listed inside back cover.

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in the coming age of the tree

Kathleen Jannaway

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CONTENTS

The Challenge	6
The Second Population Explosion	9
Tree Products	12
Trees and the Environment	17
Suffering Animals and People	23
The Vegan Contribution	26
A Tree-Based Culture	32
Changing Life Styles	34
Summary	39
Booklist and References	40

FOREWORD

In 1947 Egon Glesinger, who was chief of the forest products section of the Food and Agriculture Organisation of the United Nations (FAO), wrote a remarkable book, *The Coming Age of Wood*, in which he describes how restoration and proper management of the world's forests can bring in an age of plenty. This book and the work of Richard St Barbe Baker, the “Man of the Trees”, and the plans for constructive villages as the basis of a new world wide civilisation to which Mahatma Gandhi devoted his last years, inspired this booklet.

It presents the grave crises that threaten the continuation of life and claims that regeneration of the world's forests could do much to resolve them.

With sufficient research, carefully selected and nurtured trees can be grown in most habitable regions of the world to meet, with the help of properly directed science and technology, nearly all the material needs of humans and, at the same time, restore and maintain environmental health.

Properly managed forests, with adjacent integrated forest industries, could be the regional centres of rings of self-reliant village communities. Modern communication technology would prevent isolation and facilitate global cooperation. Such developments would both require and foster fundamental changes in human values and habits and lead to an era of abundance, peace and spiritual evolution.

These ideas, only very briefly presented here, are visionary but also eminently practical given the necessary awareness and willingness to discard old habits that are no longer relevant. The present materialist, competitive, violent civilisation which has spread rapidly throughout the world is not sustainable. We need above all the vision and hope of a practically based alternative.

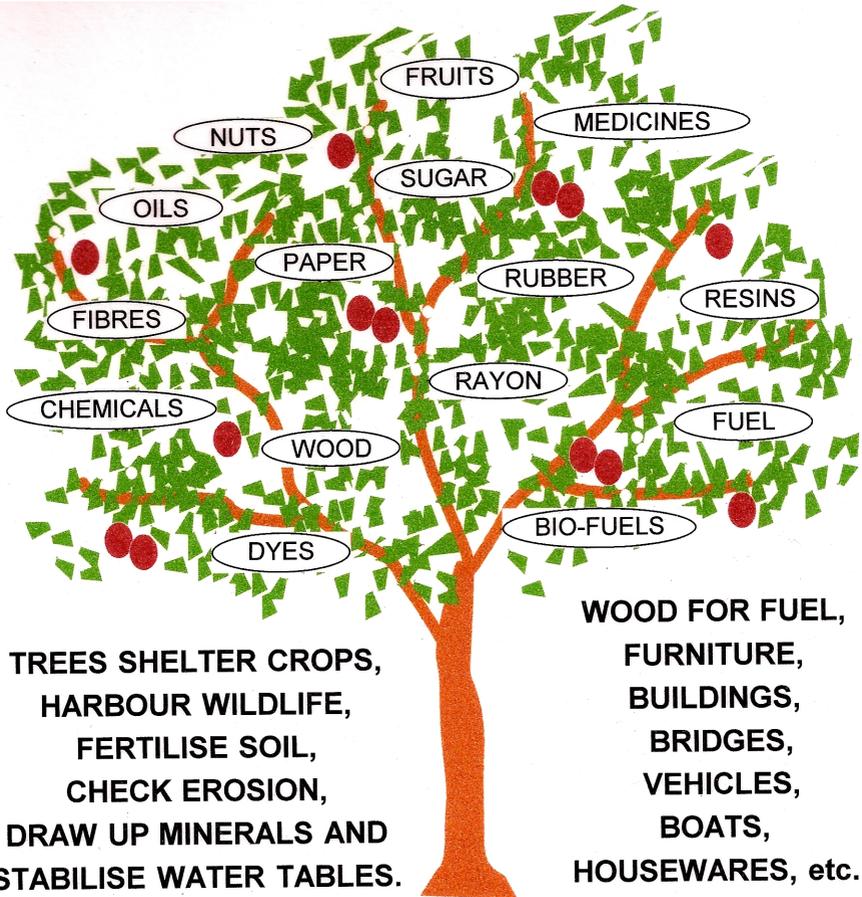
“Without vision the people perish.”

TREES

Take in CO₂ and store the carbon in wood, thus checking global warming.

Give out oxygen.

Transpire water to clouds, promoting rainfall.



TREES CHECK GLOBAL WARMING

They could even reverse it if enough forests were established! Enough land would be available if livestock farming was phased out. Trees take in CO₂ and store carbon in their wood. When wood is burned, CO₂ returns to the atmosphere. However, if forests are of mixed species, and those grown for their wood are selectively felled and saplings immediately planted in their place, the forest unit would be a permanent sink for carbon.

THE CHALLENGE

In 1980 the World Wildlife Fund, the International Institute for Nature and the Environment, and the United Nations Environment Programme; jointly produced and distributed world wide *The World and Conservation Strategy*. In the popular version *How to Save the World* Richard Allen depicted the prospect before us in an arresting graphic:

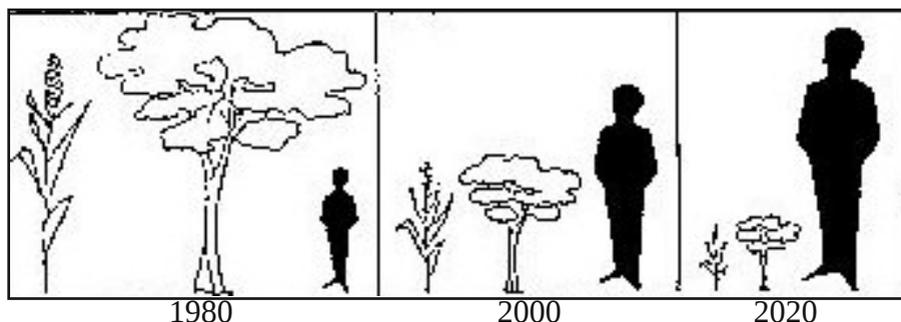


Fig. 2

Under it he wrote:

If current rates of land degradation continue, close to one third of the world's arable land (as symbolised by the stalk of grain) will be destroyed in the next 20 years. Similarly by the end of this century (at present rates of clearance), the remaining area of unlogged forest will be halved. During this period the world population is expected to increase by almost half from just over 4000 million to just over 6000 million. (Allen 1980)

Eleven years later, the deserts were still advancing, the soils were still eroding, air and water still being polluted and the forests destroyed. World population was well past the 5000 million mark and a greater proportion was deprived and malnourished, in rich as well as in poor countries. We were warned to expect 600 to 650 million seriously malnourished people by the year 2000.

Brown (1990) shows how the phenomenal increase in the world's grain harvest, witnessed between 1950 and 1984, has slowed down because of the growing scarcity of new crop land and fresh water, land degradation and soil erosion. The artificial fertilisers that were largely responsible for increased yields are now being recognised as contributing to soil degradation. They use large quantities of fossil fuels. They are not sustaining or sustainable. Drought conditions reduced the 1988 grain harvest in the United States to below that used for domestic consumption. Such droughts are likely to become more frequent if global warming takes over. So much for "the world's bread basket"!

Since 1980 two further threats to survival have been revealed – global warming and ozone layer depletion. The report of the September 1984 *Fate of the Earth Conference* contained these ominous words:

What nuclear war could do in 50 to 150 minutes, an exploding population assaulting the earth's life-support systems could do in 50 to 150 years.

Probably Patrick McCully, writing in *The Ecologist* of Nov/Dec 1989 did not exaggerate when he said that:

The threat is so apocalyptic, and the actions needed to avert it so drastic, that even environmentalists find it hard to admit the full scale of the social and political changes necessary. (McCully 1989)

Can people be awakened to the dangers in time? There are hopeful signs but people are still easily satisfied with inadequate responses – with giving a green coat of paint to basically wasteful and destructive lifestyles and systems. Much is being done to inform and educate as the dangers increase and become more obvious the pace of change will quicken. The warnings must be regarded as challenge not prophecy – and

Danger fosters the rescuing power.

(Holderlein: German Poet 1770-1843)

Shortening the Time of Troubles

Only by shifting our collective attention to the basic biological aspects of the human situation can we hope to mitigate and shorten the time of troubles into which we are moving. (Aldous Huxley)

The basic biological aspect of the human situation is that we, and all other animals are absolutely dependent on the activities of green plants. In the process called photosynthesis, they fix energy from the sun in the carbohydrates they synthesize from CO₂ and water. On this all animals depend directly, or indirectly through eating other animals.

In the same process, plants release the oxygen that, in respiration, animals use to release the energy from their food. Similarly only plants can synthesize the material that build up their bodies and the bodies of the animals that eat them. Predatory animals eat plants "second hand"!

We and other animals are dependent on plants not only for food but for nearly all other necessities.

Most people learned the facts (see next page, fig 3) in school, but few, not even scientists, take them sufficiently into account when facing the life annihilating prospects before us. Only by using the soil, water and plants with due care and economy can human life and the life of all highly developed species be maintained.

Civilisations of the past foundered because they destroyed their soils and created deserts. Now our world wide civilisation is endangered by similar profligacy.

THE CYCLE OF LIFE

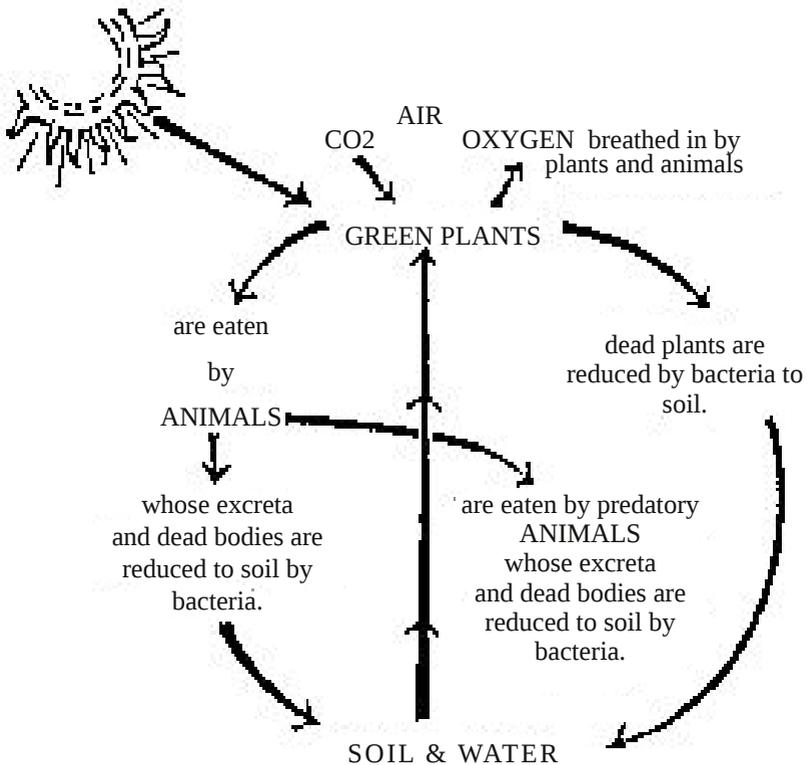


Fig. 3

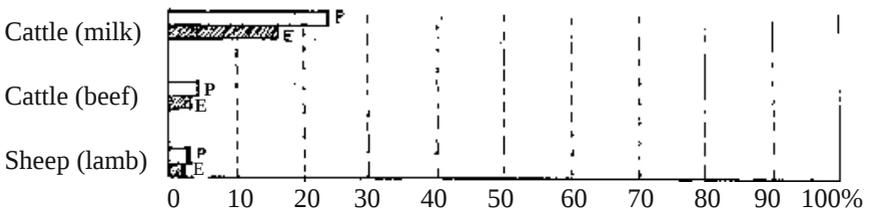
THE SECOND POPULATION EXPLOSION

The cycle of life only functions sustainably if a balance is kept between the products of green plants and the animals that eat them. At the moment it is being disrupted, not so much by the exploding human population, as by the profligate feeding habits of the rich and by the animals they breed unnecessarily to satisfy their desire for meat and milk. Such animals are amounting to a second population explosion, cattle numbers alone more than doubled between 1960 and 1980, and they do not yield anything, not even fertiliser, that could not be obtained more economically, in terms of basic resources, from plants. Animals compete with humans for land, water, energy, human labour, research facilities and other resources.

In the UK 80% to 90% of the 46 million acres of agricultural land is used to support animals (Yates 1986). In addition millions of tons of feed-stuffs are imported, much from Third World countries.

Animals yield as meat and milk only a small proportion of their feed. (Fig.4)

PROTEIN & ENERGY YIELDS AS PERCENTAGE OF FEED



From *Need, Greed and Myopia* and *Scientific American*, September 1976

Fig. 4

In general an omnivorous American type diet requires 0.62 hectares – a vegan, i.e. one without any animal products, needs 0.08 hectares.

Water

Water is a dwindling resource in many parts of the world. Animal farming makes great demands on it. Paul Erlich, in *Population Resources and the Environment* 1971, states that it takes 200 to 250 gallons of water to produce a pound of rice but 2500 to 6000 gallons to produce a pound of meat – taking into account the water the animals drink, the amount used to grow their feed and in slaughtering and processing.

Energy Use

Modern methods of agriculture are heavily dependent on non-renewable fossil fuels for the manufacture and running of their machines, for artificial fertilizers, pesticides and herbicides. D & M Pimental in their book *Food, Energy & Society (Resources & Environmental Science Series 1979)* reveal another advantage of the direct plant diet.

ENERGY

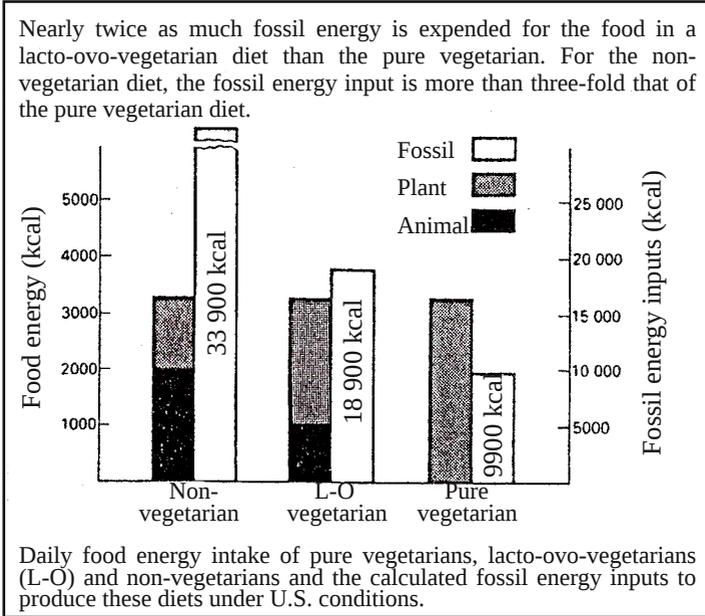


Fig. 5

At present the worlds soils and water could grow enough plant foods to feed the human population adequately. Millions live on the edge of starvation, going over to death when there is a climatic vagary, because the rich use their power to commandeer resources to grow luxuries for themselves instead of essentials for all. Much of the basic cereal production goes to feed "livestock" kept in appalling conditions, and vast areas of forest are destroyed for grazing lands that quickly deteriorate to desert conditions.

Every effort must be made to reduce human population growth humanely or else it will be reduced by disaster. The second population explosion must also be dealt with by phasing out breeding. The demand for meat is rising among the elites of

developing countries. Everyone who recognises the cost in environmental terms needs to attend to his or her diet.

In an article entitled *Save the Trees, Don't Eat Meat* published in the *Illustrated Weekly of India*, 11.11.1990, Maneka Gandhi, the Indian Minister for the Environment, exposes the wasteful eating habits of the West that are spreading fast in India.

More grain is fed by the USA and USSR to livestock than is consumed by the people of the entire third world. Britain gives two thirds of its home grown cereal to its livestock – that amount could satiate 250 million people each year. Even then it imports grain for livestock ... Third world fodder, ...including soya beans from India provides every tenth litre of milk and every tenth pound of meat produced in the EEC. ...

She describes how most of the goats and sheep that supply meat in India:

“Feed off the hoof” on the forest land, in the heart of the jungle, on hillsides, on the roadsides, in village panchayat land, on government land that is totally ravaged by the animals ... all the 'Project Tiger' areas and indeed all the national parks are failing or on the verge of extinction (as in Bharatpur bird sanctuary) because of the huge inflow of cattle and goats that eat up all the young shoots, and whose owners murder the wild animals to protect their meat.

A single sheep or goat destroys 20 hectares of government land before it is killed to feed only the upper middle class. (Gandhi 1990)

No wonder Maneka Gandhi, describes meat as the ultimate luxury in India and appeals to people to give it up if they want to "save the country's green cover, to increase the oxygen in the air and the fresh water in the ground".

Similar stories could be told about other parts of the world and about other forms of madness in the present wasteful and destructive lifestyles of the dominant culture. They will have no place in the COMING AGE OF THE TREE.

TREE PRODUCTS

Trees, as shown in the picture on page 5, yield many products, “everything man needs from cradle to the grave” as Richard St Barbe Baker, the Man of the Trees, was fond of saying.

They yield wood to make into innumerable objects, from houses and furniture to bridges and boats, from railway sleepers to violins and artists easels, to the many articles we use daily. Wood is pulped for paper, treated chemically for rayon and synthetic fabrics of many kinds, which would replace cotton.

Cotton has been described in Africa as “the mother of famine” because of the acreage it takes from food production. More artificial fertilisers and pesticides are used on cotton than other crops to the detriment of both the health of the soil and that of the workers in the cotton fields. Egon Glesinger (1947) in *The Coming Age of Wood* wrote that, when used for fibre, “A forest acre can match the annual harvest of five acres of cotton land”.

Synthetic fabrics are today far superior to the early ones that did not allow the skin to ‘breathe’. There is some concern about pollutants released during the manufacture of synthetics, but doubtless this could be dealt with if health and true economy of resources was the motive rather than short term profit.

Wood can provide the raw material for a vast range of plastics, from that used to make shopping bags to building materials stronger than concrete. John Emery writes in the *New Scientist*, “If some of Europe's pastures reverted to woodland, trees could become a vital renewable resource for the chemical industry when fossil fuels ran out” (Emery 1987). Additionally there are many other products: cork, dyes, resins, medicines, sugars and abundant food.

Perhaps we shouldn't wait until fossil fuels run out; to meet the challenge of global warming we should stop using them as soon as possible.

Wood for Energy

Wood is, as it always has been, the fuel source for most of the world's people. It is a renewable resource and is abundantly available, providing due attention is given to planting and care of the trees. This is not happening in many parts of the world and wood is becoming scarce in some areas, with women having to walk long distances for cooking fuel.

Windmills in exposed and arid places, (not in beautiful and fertile valleys), solar energy, especially in the tropics and a reassessment of energy needs, can all do much to reduce the need for combustible materials of any kind. When it is burned wood should be used in efficient stoves which make the most effective use of the heat and

burn the otherwise polluting emissions. With the use of modern technology, wood can generate gas, electricity and liquid fuel.

Wood is becoming an important feedstock, especially grown for advanced energy conversion processes in developing as well as industrial countries – for the production of process heat, electricity and, potentially, for other fuels such as combustible gases and liquids. (Our Common Future 1987)

Wood and other plant fuels will be the only source of liquid fuel when oil and coal are not available (apart possibly from hydrogen produced by electrolysis from direct solar electricity). It is already being used to make petrol substitutes, especially in the US. Farmers in the UK are using coppiced wood for on-site production of electricity, growing it on 'set aside' land.

Wood used for fuel should come from that not suitable for other purposes. Egon Glesinger (1950) maintained that 80% of the wood from trees felled was wasted because representatives of different interests came into the forests to take just parts of the trees, for veneer, lumber or pulp. The rest would be burned or left to rot on site. He pleaded for the establishment of integrated forest industries adjacent to the forest, so that the wood unused in each process could be the raw material in another and the final waste collected for fuel. MacKenzie (1991) claims that a substantial proportion of Sweden's energy needs could be met with unused wood biomass, "chiefly branches, bark, sawdust and other residues from the timber industry."

In the coming age of the tree, monocultures will be a thing of the past. Trees of mixed species, suitable for different purposes, will be grown in the same forests. The object will be to aid human development and creativity rather than to make a quick profit.

Much of the need for paper will have passed with the development of communication technology and the cessation of the waste of huge amounts on the junk mail and advertisements in newspapers and journals designed to promote economic growth and the consumer society.

Trees and Abundant Food

Our hunter gatherer ancestors probably got the major part of their food from plants direct. Men the hunters brought in the occasional animal, and women collected fruits, seeds, roots and leaves, much of them from trees. There are good reasons why we should turn to the trees again as a main source of food, and those of us in affluent societies should give the lead. Food bearing trees fall into three groups.

Leguminous Trees

Leguminous trees are particularly valuable suppliers of food. Besides bearing large crops of seeds that are rich in body building proteins and energy supplying

carbohydrates, many of them harbour in their roots bacteria that fix nitrogen from not only the trees but also neighbouring plants. There are hundreds of types of leguminous trees (not all with edible fruit) and many of them grow well in arid areas and are being used to reclaim desert regions.

Australia faces severe desertification problems. Native trees were felled over large areas for sheep farming. Now a research team in Sydney led by Dr Brand, (Brand 1989) has discovered that some of the native wattle (acacia) trees have seeds whose protein content is higher than that of meat. They have comparatively large amounts of carbohydrates, fat, iron, calcium, zinc and copper. One variety with 24% protein has a “sweet delicious flavour” and needs hardly any processing. Others can be milled and used to make excellent bread. “It shows”, says Dr Brand, “how inland aborigines were able to survive in one of the world’s harshest environments”.

In a U.N.E.S.C.O. project carob trees from Cyprus are being used to turn areas bordering the Limpopo river, which were previously unproductive, into thriving forest farms. Carob plantations yield annually up to 50 tonnes per hectare of sweet pods which are 21% protein.

Honey locust trees (gledistras) are native to North America and have been naturalised in Europe. They yield 30 tonnes or more per hectare annually of beans which are 26% protein and 50% carbohydrates. (They have not yet fruited successfully in the UK.)

Nut Trees

There are almost a hundred species of nut trees growing worldwide, most of which produce large crops of nuts usually high in proteins, fats and carbohydrates.

Mongongo nuts provide about a third of the diet of the Kung tribe (*New Scientist*, 19th Aug 1989). The yehib tree, native to the Somalian desert is now recognised as a valuable source of food and other products and has earned government protection.

Recent research in an area of the Amazon forest has revealed that Brazil nuts have a commercial value many times that of the timber from felled trees.

In the UK we have hazel, beech and oak widespread and almonds, walnuts and sweet chestnuts in the south, all capable of yielding large crops of nutritious seeds. I know a man who, 1000 feet up in the Welsh hills gets, by careful selection and husbandry, good crops of hazel and walnuts. Richard St Barbe Baker, the ‘man of the trees’, calls oaks and sweet chestnuts ‘corn trees’. Acorns (7% protein) can easily be cleared of their bitter tannin and used in any recipe requiring nuts and they can be ground into gluten free flour.

Fruit Trees

The delicious succulent fruits of many trees are already appreciated. Low in proteins

they have useful sugars, minerals and vitamins. They probably have valuable health promoting properties. A few people concerned not to damage life, not even that of plants, attempt to live on the pulp of fruit alone, the only substance evolved in nature with the sole function of being eaten. In the short term they appear very healthy, but there is no evidence that such a diet can maintain health for long. Even gorillas, the most consistently vegetarian primates, eat large quantities of leaves and stems. Outside the tropics a fruitarian diet would involve dependence on imports. The addition of nuts and seeds can provide a human diet which reaches orthodox levels of nutrient intake. (See *Raw Food Diets* leaflet from MCL)

Leaves as Food

Many leaves, including those of beech, hawthorn, lime and chestnut, can be used for direct human consumption. Green leaves are particularly rich in well balanced proteins, vitamin A and minerals. Their fibrous bulk makes it difficult to eat large quantities. Simple machines to make leaf curd are now available, and are being used with good effect, especially among third world children. A leaf curd production scheme is now going ahead in England and samples are sold by Leafcycle, Coombe Farm, Tiverton, Devon, EX16 7RU.

Alley Cropping and Agroforestry

Some trees may take years before they bear fruit, but cereals and other crops can be grown between them in the earlier stages. It has been found that with 'alley cropping' using leguminous trees, there is a considerable increase in the yield of the plants grown between them.

Agroforestry schemes in which a wide variety of food trees, bushes and vegetable crops are grown in association, are being widely used. Unfortunately livestock are being introduced into some of them with the tree leaves being used as fodder. As with all livestock feeding, most of the nutrients are used up for the animals own needs, only a small percentage are made available as meat and milk. (See fig. 4)

All the while the trees are growing they are helping the environment in ways described in the next section. They should be grown for that reason alone, but when species are selected preference should be given to those that also yield food. This means oaks and beeches in England. They will bear abundant food for future generations when we have stopped importing half our food, much of it from countries where people go hungry. Freed from human interference the land would revert to beech and oak forest!

The table in figure 6 (next page) gives some idea of the value of giving land worldwide to food bearing trees instead of to animal farming or even to arable crops. Yields vary greatly according to area, soil, climate, season, variety, and husbandry. Very little attention has been given to the value of tree crops and hence little research has been done on them.

COMPARISON OF YIELDS

Agriculture and Forestry

Crop	Yield per Hectare including waste (Tonnes)	
AGRICULTURE		
Cereals	4-6	These yields are highly dependent upon artificial fertilizer.
All Livestock	0.2	
FORESTRY		
Mulberries	22.23	
Walnuts	29.64	
Dates	14.82	
Olives	9.88	These are not dependent upon artificial fertilizer and in some cases represent
Carobs	49.4	naturally occurring yields
Locust Beans	29.64	

NUTRIENT VALUE OF TREE CROPS

	Protein	Fat	Carbohydrate
	(grams per 100 grams edible portions)		
Walnuts	16.0	64.0	15.5
Dates	2.5	0.6	73.0
Olives	1.5	24.0	
Carobs	21.0	1.5	66.0
Locust Beans	26.0	10.0	50.0

From Environmental Information Service, Newcastle on Tyne

According to McCance & Widdowson Tables, HMSO:

Lean beef has 20.3g protein, 4.6g fat, and no carbohydrates per 100 gs

100% flour has 13.2g protein, 2.0g fat, and 65.8 carbohydrates

fig. 6

TREES AND THE ENVIRONMENT

So trees properly selected planted and nurtured provide food clothing, shelter, energy and numerous extras which add up to abundant living. Even if they did not it would be vitally necessary to regenerate the forests for the sake of the environmental health.

Trees and Water

The roots of the great forest trees reach deep into the earth and draw up great quantities of water. Most of it passes out of the pores of the leaves to create 'oceans of the air'. Thus water that might sink beyond recall (there is a lake as big as France beneath the Sahara) is made available again for rain.

It is well known that water vapour in the air, when forced to rise by mountain ranges, cools, condenses and falls as rain; water transpired by forests has a similar cooling effect on the air and 'seeds' rainclouds. Dr Paul Schreiber, the meteorologist who did much research in this field, concluded that a region covered by forest increases rainfall to the same degree as elevating the region by some 650 feet. Other observers maintain that the vertical influence of the forest extends in some cases to thousands of feet. Such belts of trees also protect the soil from desiccating winds; their benign influence in this respect extending to thirty times their average height.

Trees and Erosion

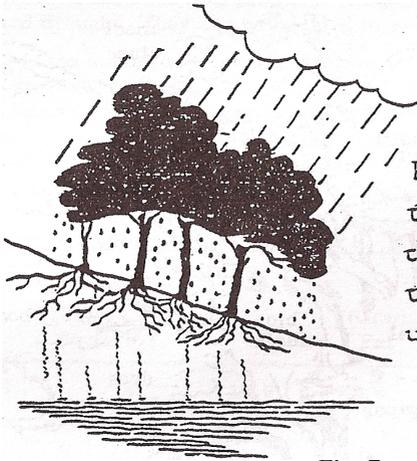
Erosion of topsoil, (represented by the stalk of grain in fig. 2) is one of the most serious threats to the survival of developed forms of life. According to Lester Brown (Brown 1990) "Since the mid century the world has lost nearly a fifth of the topsoil from its cropland." Even in England erosion is affecting over 40% of the arable land. Some governments, especially the US where the dust bowls of the 1930's are still powerful memories, are beginning to take steps to check the loss, but not nearly quickly enough.

Trees help to prevent floods as well as droughts. When rain falls on a forest canopy its force is broken by the leaves and branches; the sponge like debris on the forest floor soaks up the water and prevents it from rushing unchecked down the slopes, carrying valuable topsoil with it, to swell rivers and cause floods (Fig 7). Instead it percolates slowly into the soil, replenishing the underground water table, feeding springs and regulating the flow of rivers. Floods and droughts caused by exceptional weather conditions cannot be prevented by forests, but their effects can be greatly mitigated.

In other areas wind is the chief agent of soil erosion. Once the protective cover of trees is gone, particles of soil blow away. Anything which damages soil structure, such as artificial fertilisers, constant ploughing for arable crops or the hooves of



Rain sweeps down bare hillsides carrying precious top soils into the rivers, causing floods.



Rain drips through trees and soaks through fallen leaves to maintain underground waters.

Fig. 7

grazing animals, accelerates soil erosion. It is increasing to an alarming degree in many areas of the world. When the forests go the deserts come. Growing the right trees in the right way can check deserts and reclaim them.

Trees and Global Warming

It is now generally agreed (see reports of the Intergovernmental Panel on Climate Change 1990) that certain gases are building up in the air and trapping the heat from the sun so as to cause global warming. Major changes in weather and in climatic regions are expected to occur. Storms and hurricanes could become more frequent and more violent, droughts could be prolonged and heatwaves might make some regions uninhabitable. The pattern of crops around the world could be drastically altered. The North American 'wheat basket' could dry up. Trees and wild animals would have difficulty in adapting quickly enough to the changing environment. As the seas warmed up flooding could submerge low-lying land. If temperatures rose

sufficiently to melt the polar ice, flooding would be catastrophic. Some scientists, including James Lovelock, warn of a “differential greenhouse effect” by which cold conditions would increase at the poles and precipitate a new ice age. Climatologists say they cannot foretell effects in specific areas, but there is general agreement among scientists that they could be very serious, and that they could develop with unexpected suddenness.

If we wait until we are sure what is going to happen it may be too late, so it seems good sense to limit emissions of the gases responsible as much and as soon as practicable.

It is estimated that CO₂ released by the burning of fossil fuels and wood (some of it from the forests being destroyed worldwide) is responsible for about half of the global warming danger. Scientists are now addressing the question of how to check, perhaps reverse, the process. As explained in fig 3, green plants take in CO₂, use the carbon for energy and to build up their structures and give out oxygen. While the plankton of the oceans absorb an estimated half of the CO₂ given out, trees, because of their size and longevity, play a very important role storing large amounts of carbon in their woody tissues. While they live and while their wood is used for long lasting products and projects, large amounts of carbon are kept out of the atmosphere. When they are burned or decay they add no more than they originally took in. As a unit, a whole forest, with trees being planted as others are felled and in which the average age of the trees is constant, there is a permanent sink of carbon. Scientists are working out the acreage of forest necessary to check global warming.

According to Greg Marland (see New Scientist 17.8.88) of the Oak Ridge National Laboratory in the US “... proper management of the plantations in temperate and tropical zones, together with the doubling of all existing forests, could return all the CO₂ released from factories and power stations since the industrial revolution to the biosphere (i.e. life forms) in about 35 years.” Later he estimated that 7 million square kilometres could absorb current emissions of CO₂ from fossil fuels.

The idea has gathered a lot of support around the world. For example 52 million trees are to be planted in Guatemala to absorb the CO₂ that will be given out by a new coal fired power station being built in the US (New Scientist 15.10.88). The American Forestry Association has launched a Global Relief Programme to encourage communities to plant 100 million trees in the US by 1992. The Dutch ministries of Environment and Agriculture, together with the Netherlands Electricity Generating Board, have agreed to plan to replant over 25 years some 250,000 hectares of tropical rain forest burned or cut in Bolivia, Peru, Colombia, Ecuador and Costa Rica (New Scientist 2.12.89). This will compensate for the annual emission of 6 million tonnes of CO₂ from two new coal fired power stations to be built near Amsterdam and Rotterdam. The Australian government plans to plant a

billion trees during the 1990's to check both global warming and desertification. The UK government is encouraging tree planting on set-aside land and has plans for 9 new forests to cover a million acres near large towns in England.

The campaign to save the tropical forests is gaining strength, though adequate measures are difficult to implement in a world dominated by market forces. The very difficulties are helping to raise awareness of the need for fundamental change.

The futility of converting tropical forests to cattle ranches is now recognised by the Brazilian government which has stopped tax relief and subsidies for ranchers.

It is frequently said that once the tropical forests have been razed the land cannot be regenerated. Alternative news comes from Herbert Girardet. Filming in Para, in Amazonia, he found an area of 5000 acres that had been taken over by a group of destitute farmers and is being reclaimed as a successful agroforestry project.

These projects are encouraging moves in the right direction but many more such are needed. The coal we have been burning with such profligacy was formed from the trees of the carboniferous age. By thus reducing the CO₂ concentration in the atmosphere of that time and adding to the oxygen, the trees made the balance of gases suitable for the evolution of large air breathing animals. Since the Industrial Revolution we have been releasing the carbon so that now animal life is in danger again. It seems logical to give the cycle another turn and store the carbon once more in trees. Even if fears of global warming should prove to have been exaggerated, the tree planting is justified by the other reasons given above.

Trees and Reclaiming the Deserts

In 1952 Richard St Barbe Baker crossed the Sahara, a desert already bigger than Australia and was shocked to observe the alarming rate at which it was advancing. He was convinced that it could not only be checked, by planting the right trees, but that much of it could be reclaimed to provide fertile living space for millions of the world's landless refugees. He set to work to make plans and to gain support for them from governments around the Sahara and worldwide.

Much has been done to implement such plans. In some parts, water has been found and wells sunk. Trees that can anchor shifting sands have been planted. They have deep roots and can thrive with minimum water. As they flourish they act as nurse trees to other species. More could have been done had there been the political will and freedom from war. Very much remains to be done.

St Barbe had the idea of using the armies of the world as labour in this important work. In the Guardian (27.2.91) there was a letter by Robert Hart suggesting that a contribution to peace in the Middle East could be made by the countries cooperating

to reclaim the deserts. The countries bordering the Sahara have already developed considerable expertise, and Israel's achievements in making the deserts blossom are well known. Instead of quarrelling over the remaining fertile regions, and destroying them in the process, they could thus re-create vast new areas for settlement, and promote peace at the same time. It could be done by planting trees!

Similar plans are going ahead in other parts of the world. G. Tansey in the Financial Times (27.2.91) describes conditions in Australia where the National Farmers Federation, the government and conservation groups are cooperating to reclaim vast areas of degraded land. Much of it was thick forest when the European settlers arrived. It was burned down mostly for sheep pasture, some for arable crops, erosion, salination and desertification resulted. Much of the work is being done by local Land Care groups. The way in which local groups are assuming responsibility in many areas of the world is another hopeful sign of positive change.

Land Availability

If enough trees are to be planted to provide the many different products that they can yield to provide abundant living for all the world's people and to serve the environment in the ways indicated, the acreage required will be enormous but no greater than that cleared through the millennia for grazing animals. It could be made available if livestock farming were phased out. Of the Earth's 130 million square kilometres (msk), 41 msk are forest and 31 msk are pasture for animals bred unnecessarily for food. Such animals are also given a large proportion of the crops from the 15msk of cropland. Then there are the deserts to reclaim. Even Gregg Maxland's idea of doubling the world's forests would not be impossible.

However many people believe that animal farming is essential not only to supply food but for other reasons.

1. For soil fertility:

Many people are becoming aware of the damaging effects, on the soil and on the food production from it, of artificial fertilisers and support the move towards 'organic farming'. The majority of organic farmers are saying that animal manure and slaughterhouse products (bone blood etc.) are necessary and support a return to mixed farming. There are no nutrients in animal manure and products that were not in the plants the animals ate. Soil fertility can be restored and maintained by the use of plant compost, mulching, green manuring techniques, and seaweed. Human excreta, carefully treated, can and must be returned to the land: we cannot go on taking valuable organic material, minerals and trace elements from the soil and pouring them down the sewers into the sea where they become damaging pollutants; they should go back to the soil.

There are now many food growing projects that demonstrate the efficacy of vegan-organic methods. These need to be made widely known and developed on a larger

scale in order to check the return into the cul-de-sac of mixed farming. Farmers wishing to escape from chemical traps and monocultures are seeking information about viable methods. They do not want to be involved in the expenses and hazards of mixed farming, nor in the labour. Animals have to be tended every day, 365 days a year. Bernard Shaw used to speak of “Man's endless slavery to the animals he exploits.” One German farmer who got good crops of cereal for 12 successive years without either artificial chemicals or animal products found that there was definitely less labour required than on a neighbouring mixed farm. The Jean Pain method of making compost from brushwood could add greatly to the amount available and at the same time reduce the likelihood of forest fires. (Details may be found on the internet).

2. To make use of coarse plant materials.

It is sometimes said that animals are necessary to turn grass and other plant materials too coarse for human digestion into meat and milk. Much grass land could be planted with trees, with all the advantages already described. Simple machines are already being widely used to extract the nutrients from leaves. Grass could be used to make leaf curd. (See ‘Trees and Abundant Food’, above.)

3. To provide draught power.

Many farmers in the Third World still use animals to pull ploughs. This releases humans from toil. However it has been calculated (A.J. Smith 1981) that, even when female animals that yield milk and eventually meat are used, more land is required to grow their food than is justified by the amount of human energy they save. Most draught animals require much too much land for their maintenance – and they require human labour for their care. The land should be used for trees, which require no ploughing and little labour. Efficient hand cultivators are now available for the arable crops that can be grown between the trees. Huge hedgeless fields, worked by giant heavy machines, belong to the environmentally destructive era that is passing.

Methane

There has come to the fore recently another strong reason for phasing out animal farming: cattle, sheep, goats and other ruminants belch out large amounts of methane from the bacteria in their guts that break down cellulose, the substance that makes grass indigestible by humans. “A typical domestic cow produces about 200 litres of methane a day” (Boyle & Ardill 1989) Methane is 20-25 times as powerful as CO₂ as a greenhouse gas. It is already judged responsible for 12 to 18% of global warming, as compared with CO₂'s 50%, and is building up much more rapidly. James Lovelock said in his Schumacher lecture that methane

...is probably the most dangerous substance that we are injecting into the atmosphere. Methane is not only a key agent in the ozone hole phenomenon but, much more seriously, it is a greenhouse gas that before long may overtake carbon dioxide in significance. (Lovelock 1990 p.68)

SUFFERING ANIMALS AND PEOPLE

The above facts make a convincing case for phasing out animal farming and giving the land released to forests. Animal farming yields nothing that cannot be got more economically from plants, especially trees – and the animals suffer increasingly. In intensive rearing systems which have spread rapidly through the world since the 1950s animals are deprived of all significance in living. Most are imprisoned in cramped conditions with nothing to do but eat, excrete and produce flesh or eggs.

Modern urban living protects most people from knowledge of the slaughter and suffering inseparable from the production of meat and other animal products. If they think about it at all, they assure themselves that animals are treated kindly and slaughtered humanely. A consideration of the report published in 1984 by the government appointed Farm Animal Welfare Committee would dispel the latter illusion, and as for the former, while some cruel practices may have been stopped, other more sophisticated ones have taken their place.

Until fairly recently the facts about the exploitation of cows and calves were not widely known. Obviously meat involved slaughter but milk was believed to be free of it. As a result of the distribution of many thousands of leaflets over the last 15 years and recent press & TV publicity, many must now know that calves in the modern dairy industry are taken from their mothers soon after birth with resulting anguish for both. Those calves not needed to be reared for beef or milk production are slaughtered immediately, rennet from their stomachs being used to make cheese, or worse still they are sent to veal units to be narrowly confined until they reach a useful slaughter weight. Their mothers are killed as soon as their milk yield drops, or the market turns against them.

People comfort themselves with the notion that animals do not suffer as they do. There is no reason to believe this. Russell Brain, Quaker, authority on the brain and surgeon to the Queen said in a Swarthmore lecture:

I personally can see no reason for conceding mind to my fellow men and denying it to animals. Mental functions rightly viewed are but servants of the impulses and emotions by which we live and are surely diencephalic in their neurological location. Since the diencephalon is well developed in animals and birds, I at least cannot doubt that the interests and activities of animals are correlated with awareness and feelings in the same way as my own and may be for all I know just as vivid.

Calves are normally active, curious and playful animals. Most cows have strong maternal instincts and often cry and search for days for their calves. Many stories are told of their efforts to get back to them, the one given below is not unusual.

Two year old Blackie was sent to market with her first born calf. They were sold to different farmers and taken to farms seven miles apart. Next morning the farmer who had bought the calf was surprised to find it had acquired a mother during the night. Blackie had jumped a gate and managed the long trek in the dark to find her baby. The farmer's wife said, "We will buy her! They will stay together! I am a mother myself and can imagine what she felt like."

Most eggs come from hens imprisoned in tiny cages, deprived of all opportunity to 'exercise their behaviour patterns'. Beak clipping even prevents them from pecking their food properly. As for free range eggs, even these are not free from the taint of slaughter because in order to get laying hens it is necessary to have fertile eggs and half of these hatch into male chicks. These are dispensed with immediately or are reared 'for the table' usually in broiler houses.

The present profit motivated system causes people to suffer too. Many millions die yearly of hunger, poverty and related diseases. More than 25 million have died in wars since 1945.

The fault lies with wrong human values and the systems they have created, with the greed, the corruption, the lust for power of the comparatively few, and the ignorance, the apathy the lack of compassion of the many. The Movement for Compassionate Living defines compassionate living as "making connections between the way we live and others – people, animals, the planet suffer, and working for change in ourselves and the world."

Much of the food in our supermarket shelves, and in other shops has come from parts of the world where people are hungry, in many areas subsistence farmers, powerless because of their lack of money, have been driven off their land so that it could be used to grow cash crops for export. Profits go to rich landlords, multinationals and debt ridden governments. The displaced people crowd into shanty towns round the polluting parasitic cities to live miserable lives as beggars or machine slaves. Their former lives may have been hard in western terms but they kept their dignity and independence.

Some of the dispossessed try to cling to their traditional ways: they fell more of the forest or cultivate hillsides thus adding to global warming and erosion. Others stay to work on the lands that were once theirs, for starvation wages and at risk of poisoning by pesticides.

I shall never forget going into Sainsburys at the height of the 1974 Ethiopian famine and finding a packet of lentils labelled 'Produce of Ethiopia'. Enquiries to Sainsburys headquarters brought the response, "lentils are a major export of Ethiopia upon which the government depends for foreign exchange. More than

usual have been exported this year because crops of lentils have failed in other parts of the world.” But the peasants of Ethiopia were starving while their staple food was exported. And for what was the foreign exchange used? Interest on the debts they had been encouraged to incur? Cars for the rich? Arms?

Drought was blamed for the 1974 and further famines and the droughts were largely caused by the felling of the trees with which much of Ethiopia had been covered. The suffering is exacerbated by war. Do both sides sell the peoples' food to pay for arms? Most of the UK arms sales go to the Third World. How far does our affluence depend on such trade? Trade should be only in what is surplus to the needs of the local people. It should never be in goods that cause suffering or damage to the environment. Time and time again traditional crops that could have fed local people have been replaced by cash crops that later became valueless in face of overseas competition. To the vagaries of nature have been added the unpredictability of market forces.

A few years ago Quakers returning from Uganda reported that the cash economy there had “almost completely collapsed” and that as a result, “the export of cash crops such as tea and coffee are now minimal. People grow what they can eat. Uganda is about the only country in the region not needing large amounts of food aid.” Again John Madeley writing in the *New Scientist* reported that because transport facilities in Tanzania had broken down “... villagers could not get their produce to market. It stays in the villages and people eat it themselves. Moreover because they cannot get their coffee beans to market, they are switching to maize. This again means more food for their families.” (Madeley 1984). Recently a Kenyan woman said, “We used to have enough to eat; now you cannot get food unless you have got money.”

In the 'successful', industrially developed countries, people are similarly dominated by money and market forces. The masses are programmed machine slaves and consumers of the trivialities spawned out by the resource-wasting, polluting factories. Crammed into trains and buses, transported from their high rise battery houses to their offices and factories, their bodies fed on denatured food, their minds filled with mechanical entertainment and crude sensationalism, they are hardly more truly free to function in ways that matter than the animals whose exploitation they condone by their indifference. Those who work the system are corrupted and debased. Those who fall foul of it sleep under newspapers in prestigious doorways.

A system that involves such suffering for both people and animals must not be allowed to continue. There are movements working for its passing.

THE VEGAN CONTRIBUTION

In 1944 a little group of vegetarians became aware that there was more cruelty associated with milk than with meat production. Motivated by disinterested compassion for exploited animals and inspired by Donald Watson, their first secretary's words, "What is morally right cannot be dietetically wrong", they set out to show that it was possible to live healthily without any animal products at all and to bear and bring up healthy children. They called themselves VEGAN because their movement started in vegetarianism and carried it to a logical conclusion (VEGetariAN)!

They suffered considerable ostracism, even from vegetarians who said they would bring disrepute to the meatless diet. Relatives accused them of risking their children's proper development. They were not catered for in restaurants, aeroplanes, hotels, hospitals ... A few in the very early days suffered from vitamin B12 deficiency. The vitamin had not been isolated and studied in 1944. Now 47 years later their faith has been vindicated. There are people in their 80's and 90's who have been vegan for decades enjoying good health. There are young adults, vegan since birth, with healthy life-vegan children of their own. Vegan healthy pregnancies, easy births and fine babies have surprised and convinced people who have witnessed them. Life vegan young people are excelling academically and in athletics.

In the 1960's Dr Frey Ellis, an eminent physician and consultant haematologist put the vegan diet on a scientific basis, and attracted much further scientific research. Now anyone who takes the trouble to study the diet will come to the conclusion that humans do not need animal products. Doubts that do arise in the minds of the uninformed are easily resolved.

Protein

There is obviously plenty of protein in the vegan diet – see Fig. 6 – some even in fruit. Claims are made that proteins from meat are more suitable for humans because the balance of amino acids in it corresponds with that of human flesh. (By the same reasoning horses should eat beef!) Modern research has shown that a mixture of plant proteins, e.g. those from cereals plus those from beans and peas, add up to a balance of amino that corresponds with that of meat. For example bread is low in the amino acid lysine and high in methionine. Beans are high in lysine and low in methionine. Taken together (beans on toast!) they supplement each other and achieve the right balance with the minimum of surplus amino acids. If bread were eaten alone considerably more would be needed to get enough lysine to balance with the methionine and therefore there would be methionine in excess of that need for protein building. This excess would not be wasted, it would be burned up for energy.

In subsistence agriculture a cereal is grown with bean to meet needs economically. Did the farmers know this from the observations of some ancient herbalist dietician, an unconscious feeling for the 'rightness' of a healthy diet or could it be that they observed that cereals grow best in rotation with beans (because of the nodules of nitrogen fixing bacteria in bean roots) and the dietary benefit is a happy coincidence?

Calcium

People are concerned that they may not get enough calcium from plant foods alone. Certainly the main source of calcium in the western omnivorous diet is milk, but this substance evolved to meet the needs of the young of a large boned quick growing animal. There is no evidence that vegans suffer more from calcium deficiency than omnivores. Good vegan sources of calcium are parsley, almonds, haricot beans, broccoli tips, baking powder. Elderly women probably suffer from brittle bones because of hormone changes and the lack of vitamin D (calcium cannot be used without adequate vitamin D). They would do better to take more exercise in the sunlight, or use sunlamps if housebound, rather than milk and cod liver oil.

Iron

Iron is said to be less easily utilised if it is from a plant source; its utilization is aided by vitamin C which is high in a vegan diet. There is no evidence that vegans suffer more from anaemia than omnivores.

Vitamin B12

No vitamin B12 has so far been discovered in plants, save perhaps spirulina. The claim that this algae is rich in B12 has recently been questioned. It may contain only an analogue that does not function in the same way.

B12 is only synthesised by certain strains of bacteria and protozoa that live widely in the soil and water, and in the intestines of mammals. In humans the bacteria have moved too far down the intestines, away from the stomach which excretes a so called 'intrinsic' factor without which the vitamin cannot be used. (Perhaps this move occurred when frugivorous pre-humans began to eat meat?) Dr Frey Ellis was hopeful that in children, vegan from before birth, the bacteria would re-colonize the higher regions of the intestines.

Early B12 deficiency symptoms are similar to those from anaemia, plus some soreness on the tongue and tingling in the extremities. If this deficiency is not dealt with damage to the nerves and spinal column can occur. Providing food supplements with B12 are taken, and providing the intrinsic factor is being secreted the condition can be prevented and remedied. B12 supplemented foods are easily obtainable from yeast extracts, some plant milks and many processed soya foods. B12 deficiency symptoms are rare in vegans and fairly common in elderly

omnivores lacking in intrinsic factor. If intrinsic factor is insufficient injections of B12 have to be given.

It is not surprising that humans thrive on a vegan diet because it accords with their basically frugivorous physiology, probably changed little since their pre-human ancestors 'came down from the trees' in response to an earlier environmental challenge. Now when a very grave environmental challenge requires them to depend once again on tree products, the return to their primaeval diet is easy – at least physiologically.

Veganism is growing rapidly, especially among the young, in industrially developed countries, who have been aroused out of the complacency of their parents by the publicity given to the exceedingly cruel practices of factory farming. There is a danger that some may take the diet too casually and depend too much on the excessively processed soya foods now readily available. Those that depart from the recommended vegan diet, with its high proportion of fresh, raw fruits and salads, its whole cereals and varied intake, risk spoiling its good reputation and thus hindering a most important development, that of disinterested compassion as the motivational force in human affairs.

The growth in compassion for animals during the last few decades will come to be recognised as one of the most amazing and one of the most seminal developments of our times.

When before has a man gone willingly to prison to save a mouse? When before has an eminent professor of philosophy led a successful, Gandhian sit-in to save animals from cruel experiments? When before have misguided actions and threats on behalf of animals sent tremors of anxiety and fear through the lands? (Sadly some of the animal activists have not yet found the non-violent Gandhian way.)

If life on this planet is to go on it is essential that human scientific and technological powers be directed with compassion and reverence for life. Yet compassion has had a chequered progress in human affairs. It is possible that its progress has been hindered by a belief, kept out of consciousness but thereby all the more powerful, that humans can only maintain their health by enslaving, exploiting, robbing of their young and slaughtering highly sentient creatures with feelings similar to their own. The vegan experiment of the last half-century has now proved conclusively that this is not true. It has taken all plea of necessity from animal farming and cleared the way for a tree based culture as an alternative to that which is now spreading fast through the developing world and threatening the extinction of the human species either in war or in environmental destruction, and causing immense suffering now!

Time for Change

Can we respond creatively to the cases that confront us, 'shorten the time of troubles' and move into a new age of abundant living? Undoubtedly it is the behaviour of humans that is responsible for our present life threatening predicaments. Is it possible to change it fundamentally enough? Idealists are often parried with the taunt "you can't change human nature". What is the essential nature of humans, of creatures whose behaviour veers from loving concern to delighting in torture, from rushing to aid the hungry to indulging in the greed that promotes the hunger, from the indiscriminate slaughter of their own kind to the giving of their lives to save others, from scientific rationalism to M.A.D justification of potentially race suicidal weapons?

With most animals it is diet that is the strongest determinant of structure and characteristic behaviour. Is it so with humans? It is only a short time ago, on the evolutionary time scale that our herbivorous, forest dwelling ancestors turned predator probably in response to an environmental crisis. Some scientists claim that it was the change to predatory living that initiated the growth of intellectual powers and typical human behaviour. Language developed with the need to cooperate in hunting. Manual dexterity developed with the making of weapons needed by hunting animals without natural fangs and claws. But language also promoted reasoning powers and poetry. Manual dexterity also made possible crafts and arts.

As reason developed, the creature became self-conscious and began to ask 'the big questions' about the meaning and purpose of life and to feel insecure when confronted with thoughts of death. Some made up answers about tyrannical unseen beings who could be propitiated with, often horrific, rites. Others came to an awareness of a reality behind the appearance of things, a creative spirit, that was beyond their understanding but that they felt was akin to the feelings of love and compassion in their own being. Relationship with this spirit was of paramount importance. Most veered between these two interpretations, as desire for personal security wrestled with the developing spirit within them, and many do so today.

When animal farming took over from hunting there came significant developments, both material and spiritual. As hunters *Homo sapiens* had functioned as other carnivores to check environmentally unsustainable increases of herbivores. As animal breeders and protectors, they promoted the second population explosion that compounds the present crisis. With this animal husbandry there crept in a spiritually debilitating treachery. For a man to hunt and kill an animal that had evolved in the chase, that was subject to the same natural laws as he was, was one thing. To care for a creature from birth, to observe that it had feelings and affections like his own, to teach it to trust him, and then to turn and kill it, this was to sin against compassion and hinder human development, and could help account for ambivalent human behaviour.

Man suppresses in himself, unnecessarily, the highest spiritual capacity – that of sympathy and pity towards creatures like himself – and by violating his own feelings becomes cruel. And how deeply seated in the human heart is the injunction not to take life! But by the assertion that God ordained the slaughter of animals, and, above all, as a result of habit, people entirely lose their natural feeling.

Leo Tolstoy, *The First Step*

The sin against compassion reaches its culmination in war with its mad self-defeating destruction. From his youth to his last years Tolstoy was fascinated by the irrationality of war, by its senseless violence and horror. In many stories and in his great novel, *War and Peace*, he searches for explanations. He maintained that the “first step” out of the trap of violence was to stop killing for food. He asserted that “as long as we have slaughter houses we will have battle fields.”

Henry Bailey-Stevens, American geographer and writer, saw similar connections. In *The Recovery of Culture* (1949) he wrote:

As for the future our handling of croplands for animal products at only 16% efficiency aggravates the problem of world population, which has tripled since the time of Malthus, and causes a hidden pressure towards war. Man operates two major forms of blood violence, the larger of which is the steady day-to-day outflow of the Abattoir. Now with a thermonuclear arsenal he is alarmed to see the potential kill of war swell to a comparable size. He lives under a continuing balance of terror with bombers constantly loaded and in the air. He himself has no place to run or hide. Trapped he chases along the fence, desperately seeking some other exit than the terrible gate. His wealth of complex language provides no words better to fit his plight than does the animal bleat. To any cosmic ear his cry reaches stockyard dimensions in volume and tone. The denouement will tell whether war has been only an erratic episode in his long evolution or the lurid climax of his career. (Bailey-Stevens 1949)

In his last book *Paradesa* a dramatic presentation of Man's long history, he brings hope that man will realise where he went wrong:

But war has only been their punishment for what they did to their own animal dominion. The cause and the effect are suddenly both obsolete, cancel each other out. This hell that they're bemoaning is just the echo of the lamentation of the beasts they bred and were supposed to care for. War and meat have both gone out of date together. Man hasn't quite caught up with that fact, but it's true. (Bailey-Stevens 1975)

The catching-up is being forced on us as the violence escalates, against the animals in the pitiless intensive system, against each other in the wholesale indiscriminate slaughter of modern warfare and in the institutional violence of the market system.

As their powers grew, humans, motivated largely by greed false materialistic values, turned their predatory behaviour against the whole planet. Scientists obsessed by their own intellectualism, claiming the right to eschew value judgements, often denying the reality of anything they couldn't measure, delivered awesome powers into the hands of predatory men. The life threatening crises of today are the result. Can we meet them? Only if we can change the habits that developed in answer to an environmental crisis long ago. Only if we can be guided by the compassion that the saints have found at the heart of the universe and in themselves.

We must look long enough at the horrors before us for them to jerk us out of the ruts of age old habits, and then, undeterred by taunts of naivety and idealism, turn to create a vision of a new world order.

Perhaps the greatest need today is hope that there could be a way of managing the world's affairs other than that which is leading evermore obviously to disaster. We must envisage a way of life that is possible for all the world's people, justice and peace require it, and one that is sustainable on a finite and vulnerable planet, the survival of life depends on it. Having worked out the physical essentials of life styles, very different from those of today's dominant culture, we must go on to evolve a different social system. A system in which we are free to grow in spirit according to the leadings of the world's great teachers. They all accorded with Lao Tse's

Pity, frugality, refusal to be foremost.

A TREE BASED CULTURE

Physically the new order will depend on the trees and socially on village communities functioning with respect, love and mutual service. Richard St Barbe Baker wrote of it thus:

I picture village communities of the future in valleys protected by trees on the high ground. They would have fruit and nut orchards, live free from disease and enjoy leisure, liberty and justice for all living with a sense of oneness with the earth and all living things. The accomplishment of this will assure, not only the perpetuation of the forests through intelligent use, but also the regeneration of the very spirit of man. (St Barbe Baker 1970)

The great advantage of the tree based culture is that trees of carefully selected species can be grown in most habitable areas of the world to meet human needs locally in a sustainable manner. Apart from the enormous saving of the fuel, labour and materials that now transport goods backwards and forwards across the world, such local resources will facilitate the functioning of self-reliant village communities. Such communities will be large enough to provide sufficient reserves of human skills and enlightenment for the whole to function smoothly, and small enough for each individual member to feel that he or she has an essential part to play in the whole, that her or his contribution is valuable and valued. Face to face democracy will function, with decisions affecting the village community reached by consensus.

Food will be produced locally in small fields protected by hedges as in St Barbe Baker's vision. Within each village each garden will have its trees, especially fruit and nut bearing trees. Extensive forest will serve groups of villages. They will be large enough for their function as maintainers of environmental health not to be damaged by their use for supplies of wood. Trees will be sensitively felled in a sustainable yield system, no clear felling. Such trees will provide wood for the variety of uses described in the section on tree products. Much of the wood will go to the village to be made, by wise and joyful craftsmanship, into articles that will last. The rest will be used in the forest industries. Waste wood will be used as fuel for the industries and for any heating and lighting in the villages that cannot be provided by such means as solar panels and sensitively sited wind or water mills.

As nearly all food will be produced locally and eaten fresh, the enormous amounts of energy and resources now used for processing, packaging and transport will be saved. Similar economy will be achieved by goods being made by local craftsmen and local industries.

Nourished by health giving foods, enjoying the security of being members of a mutually caring group, with a proper balance of worthwhile labour and creative

leisure, people will be free of many of the frustrations and fears that, in our present culture, erupt into ill health, crime and violence.

In self reliant autonomous villages the relationship between needs and resources will be obvious and, as a result, over-breeding will be recognised as endangering the local community and as disturbing the relationship between the individual and the group. Such group feeling is one of the strongest forces for checking anti-social behaviour. Coupled with the security afforded by a caring group, of special value to the old and the very young, it could well keep the village population within acceptable limits.

There will be towns, valued as cultural and educational centres, but as people seek creative living, the huge conurbations will become less populous and divide up into village communities.

And what of the relationship between the village and the rest of the world? Attempts to impose blueprints are self defeating. A new world order will develop through the recognition of the need for unity in diversity. It will evolve according to the same principles as inspire the villages: that physical needs must be met in an environmentally sustainable manner, that spiritual growth must be nurtured by freedom, mutual respect and service, and opportunities for creative expression.

Freed from the suppressed guilt of the primary exploitation of animals for food, spiritual growth will be easier to attain. Modern technology will facilitate worldwide communications and the sending of rapid assistance to areas of natural disaster.

Mahatma Gandhi had a vision of:

Innumerable self sufficient villages, Gardens of Eden where would dwell highly intelligent folk whom none could deceive or exploit. The villages would develop in ever widening, never ascending circles. Life will not be a pyramid with the apex sustained by the bottom, but an oceanic circle.

A Vision such as that suggested above is so at variance with present values and practices and with dominating social, religious and political institutions that it may be regarded as the idle fancy of impractical dreamers. Yet it accords with much of the ethos of tribal societies that have flourished for many generations and with the teachings of Buddha, Jesus, Gandhi, Lao-Tse and many others. As it becomes ever more obvious that the 'practical' men are leading humanity to extinction at an ever increasing pace, the 'impractical' visions will come to be recognised as viable and desirable alternatives.

The road of excess leads to the palace of wisdom

William Blake

In the palace of Wisdom we learn to love and live aright, making our contribution to a better world by positive living.

CHANGING LIFE STYLES

Although it would be absurd to consider that we shall ourselves effect a great change, every moment of our lives can either contribute to the transformation of the world or to the deformation being wrecked upon it by the three poisons. In this context to do nothing is to do something, and quite possibly the wrong thing. So act we must, and if we do it properly and intelligently we may hope to serve the ultimate goal.

So writes Adam Curle in *Tools for Transformation* (Curle 1990). He identified the three poisons as ignorance of our essential nature, greed by which we attempt to compensate for the ensuing deprivation, and fear of losing those compensations, with hatred towards those that make us afraid. These poisons cloud our minds, stultify our actions, and, multiplied, lead to tyranny, famine and war.

Adam Curle writes, not from the refuge of academic institutions, although he has held chairs at several universities, but from a long life of service as a mediator in some of the most deprived and violent areas of the world. He achieves his positive and balanced philosophy because he manages to see through the cloud of illusions to the essential nature of the people with whom he has to deal. He made friends with some of the most hardened and corrupt of his fellows, dictators, tyrants, guerilla leaders, torturers, and exploiters of many kinds.

What we need to realise is that people we blame for the critical state of the world are products of the society that we have helped to make, the continuance of which we support by our actions and by our failure to act. Responsibility for change lies with each one of us. Politicians and tyrants alike cannot keep their power indefinitely contrary to the will of the people over whom they rule. The moneymaking, the profiteering, which is the chief instrument of destruction and domination in the world today, depends on what people buy. Amazing changes have been achieved during the last decade by the assertion of people power and the growing discrimination of shoppers. Small though they have been in comparison with what is necessary to save the world, they offer encouragement to all of us. What we do may seem ridiculously insignificant but it all adds up, negatively or positively. The contribution we make to positive compassionate living can make a difference to a future for the planet and to the significance of our own living in the here and now.

It has been calculated (Earth Repair Foundation Leaflet) that over two thousand million people would know an idea from two people if they each told one other person every day for thirty days and each person they told did the same for the rest of the thirty days. But we must do more than just tell people. We need to be able to do so persuasively and back up what we say with factual knowledge, reason and

action. We must read, listen, learn and discuss with minds always open to new truth and with willingness to alter our lives accordingly. Today we are constantly bombarded with information from radio, television, meetings and the unending stream of print. It is not always easy to discriminate between that which will help us to serve life and that which will diminish our contribution. For example we need to have knowledge of the abuses against humans and animals practiced worldwide, but too much attention to this can sap our will to action or can arouse in us the very emotions that give rise to such abuses. Then we act negatively and give the vicious wheel a further turn. We must keep our faith in human potential for good and there is plenty of evidence for this all around us, enough to outbalance the evil.

Most importantly we must change our own life styles in accordance with the enlightenment we seek to spread. The degree to which we can do this will vary according to individual situations, strengths and weaknesses. Let no one presume to dictate to another, some degree of compromise is unavoidable for all. If we are honest with ourselves about this, it will help us to achieve the essential humility and make for progress. Self-righteousness and denunciatory attitudes must be avoided.

There are green groups of various shades springing up all over the place, like the grass between the paving stones in spring. They can help us and we can help them. Each will make a contribution in so far as they serve compassion and bring freedom from consumerism and money worship.

One of the most important areas in which to be active is that concerning the world's forests: the saving of the tropical forests is a most urgent necessity. Their destruction is causing great suffering to indigenous people and animals. The effect on the world climate could be catastrophic.

We need to conserve existing forests in temperate regions too, that is mixed forests, not the dreary monoculture of conifers that have done so much harm to the areas in which they are planted, and to people's attitude to forests. Thankfully there are encouraging moves in this direction. Individuals can do much to further them and to protect trees in their own area. Protection orders can be obtained on specific trees but they can be easily overridden unless local people are constantly vigilant. Thirteen beautiful mature trees in Stroud were to be felled to serve a misguided traffic scheme. They were saved by a tremendous and effectively organised effort by local residents who physically guarded them through 24 hours, days on end, hugging them when the men came to fell them. Wide publicity was gained that served not only to save the trees, but to heighten awareness of the importance of trees in general. Growth in this awareness is one of the most encouraging features in the world today, but not sufficient is being done TO LINK ALL THE VARIED CONTRIBUTIONS THAT TREES MAKE AT ONE AND THE SAME TIME. To draw attention to this is the purpose of this booklet. Its central message is that

priority in the use of the basic resources of land and water must be given to tree growing because trees give materials to meet nearly all human needs and at the same time sustain water and soil resources and can check global warming and ozone layer depletion and reclaim deserts.

In so far as land and water are used, it should be with the maximum possible economy and minimum destructive effect on environment and people and animals. We must seek to order our lifestyles accordingly.

The power of the purse is great in our society. In our purchases we should try to avoid everything that is a product of human, animal and environmental degradation. If we turn the searchlight of truth on to this area we will be astounded to find that there is hardly anything on the supermarket shelves or *on the shelves of other shops* that would meet the criterion! We all have to compromise but knowingly and only to the degree imposed by necessity – necessity for what? Necessity to enable us to make the greatest contribution that we can to saving and forwarding life on this planet.

As far as food is concerned, only the few people that grow all their own by vegan-organic methods, incorporating trees into their projects as well as arable crops, approach the criterion. We should do all we can to encourage and help them and to follow their lead. It is amazing how much food can be grown in well planned and worked gardens – see Robert Hart's *Forest Gardens* (1990). Flower borders also can grow interesting and beautiful *edible* plants. People with gardens they cannot work might find people with no gardens anxious to produce health-promoting foods (difficulties in personal relationships can arise here but positively overcome can lead to spiritual growth). Allotments can be the means of growing health promoting food and at the same time spreading the knowledge that artificial fertilizers, pesticides and animal products are not necessary for good yields.

A surprising number of plants can be grown on windowsills. Three glass jars can give a regular supply of alfalfa sprouts, excellent source of salad material. Tomatoes can be grown in pots to give an all year round supply. Parsley and fragrant herbs that add vitamins, minerals and interest can also be grown on windowsills.

In areas besides those concerned with food, we can make a contribution to sustainable living. Buying only those articles we really need conserves precious resources, and as far as factory produced articles are concerned, lessens pollution. Many journeys are unnecessary, tourism is coming to be regarded as environmentally destructive and geared to money worship.

What we can do may seem very small in view of the huge challenge that confronts us but “he was never more wrong who did nothing because he could do only a

little.” The millions of very poor, in rich as well as poor countries, have little room for manoeuvre. The responsibility for change lies with the more affluent, especially those of the industrially developed nations who are spreading wasteful and destructive ideas and practices worldwide. One of the worst crimes has been the spreading of what Barbara Ward called “The revolution of rising expectations”, expectations that cannot be realised with exploding populations in a finite and fragile planet. It is hard to persuade others that the health of the environment must be given priority unless we give a lead by voluntary simplifying our lifestyles.

Voluntary simplification of life style, undertaken for the good of all and for a future for the planet, does not bring a sense of deprivation but a sense of more significant and truly abundant living. It can free us from the shackles of money worship. Truly abundant living for the human animal means growing in spirit and in truth. It can only be achieved from the springboard of compassion for all that feels.

Reason and Compassion

Humans differ from other animals in their reasoning powers that have developed through language and mathematics to give them awesome powers over the physical world. Such powers, if they continue to be wrongly used, could destroy most life on Earth. With reason and language there also evolved self-consciousness and hence awareness of others as creatures with feelings and experiences. This constituted a change of momentous importance. Henceforth a creature had the power to direct its own evolution, if it could summon the creative faith and will.

Consciousness of the feelings of others combined with the instinctive compulsion of animals to sacrifice themselves for their young, resulted in the development of compassion – another hallmark of the human animal.

At present these two distinctive features of humanity, reasoning power and compassion function at variance with each other. Hence the horrendous assault on life and the earth's life support system in war and misguided development.

Although all humans have the facility of imaginative compassion – it is a distinguishing feature of the species – in all, to varying degrees, its expression is spasmodic and irrational. It has been distorted by deprivation and negative human relationships, by ignorance and the imposition of misinformation. As a result only the few recognise compassion as the most important power in the world, the only force that can create a future for life, for our children.

Most people have been taught that compassion has to be controlled, that, in order to live in the "real world", sensitivity has to be confined largely to a fantasy world of poetry, art, and music. In order to feed their bodies humans have to exploit and slaughter animals that, if they gave reign to compassion, they would know had

feelings similar to their own. This most humans would find difficult to do. Someone has to do the slaughtering so those who indulge in "sentimentalism" are regarded as dependent on the violence of others. This attitude is no longer supportable because after forty years of health promoting compassionate eating, vegans have taken all reason of necessity from animal exploitation and slaughter. They have vindicated compassion in the most basic area of life.

Now it needs to be vindicated in the area of human relationships, in community, worldwide. Here at present the same lack of connection between reason and compassion triumphs. People pay lip service to the power of love but only the few have the faith to try living by it. Most believe in punishing others, people like themselves, who have lost faith in positive life and love. In time the poisons of hate filled living erupt into war. Irrationally the poor victims of some tyrant have to be mass slaughtered. The tyrant is denounced as villainous, his actions are, but as a person he is but another misguided creature who has lost his way in the jungle of violence.

War and the slaughter of animals for food, have much in common. Now as the mass slaughter and violence escalates in both areas, it is becoming obvious that humanity is set on a suicidal course. Most of our intellectual power is used to speed the road to oblivion.

The horror of what ever more obviously lies before us may wake us from the nightmare of carnivorous living. It is becoming clear that the age of predatory man is coming to an end. Will it end in disaster or will we awaken in time and unite our reason and compassion to promote a leap in the development of the human psyche? Collectively what is required is that our intellect be used as the tool of our compassion to forward a world order that will provide the conditions for abundant living for all. Individually, it depends on how far each of us can serve that creative spirit which the masters through the ages have taught is akin to the love in our own hearts.

In so far as we do so, we will find the courage to make our way through the time of troubles that lies ahead – and to find joy and fulfilment making our contribution to the creation of an evolutionary break through.

SUMMARY

We are faced with the challenge of providing for the needs of a rapidly increasing world population from the diminishing resources of a finite and endangered planet. Fundamental changes in the values and practices of the dominant world system, which has created a situation in which millions of people and animals already suffer extreme deprivation and die prematurely, is essential.

What is needed is a trend towards compassionate living the vegan way, with the emphasis on the use of trees and their products. By growing enough trees, we can satisfy nearly every human need, including that for food, and at the same time do much to restore and maintain planetary health. This fact is well substantiated but not taken nearly enough into account. Enough land will be available for the trees if animal farming is phased out.

Animals meet no human needs that cannot be met more economically direct from plants, especially trees. At present the second population explosion of deliberately bred animals competes with humans for diminishing resources and adds to desertification, erosion, pollution, global warming and ozone layer depletion. Animal farming imposes suffering on highly sentient creatures.

What is needed is an evolutionary leap in the development of the human psyche so that awesome intellectual powers can be used consistently according to the compassion taught by the founders of the great religions and philosophies, but only very inadequately practiced by their followers. Veganism which brings freedom from dependence on the cruel exploitation and slaughter of highly sentient creatures is the essential foundation of compassionate living.

As people face the challenge of the environmental crises, as the supreme importance of using awesome intellectual powers with compassion for all sentient beings is realised, an evolutionary leap will be achieved. An era of truly abundant living will dawn in which humans, at peace with themselves, with each other and with all living creatures, will reach heights of creativity as yet unimagined.

Kathleen Jannaway, March 1991

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www.vegfamcharity.org.uk

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