

CONTENTS

NUMBER

SECTION ONE

PAGE

| | |
|--|-----------|
| 1. CONTEXT | 2 |
| 2. RECOMMENDATIONS FOR THE DEVELOPMENT OF LOCALLY-GROWN ORGANIC FOOD CAPACITY | 5 |
| 3. WHAT IS A LOCAL ORGANIC FOOD INITIATIVE? | 12 |
| 4. FUNCTIONS OF A LOFI | 14 |
| 5. SHEFFIELD ORGANIC FOOD INITIATIVE 1998 | 16 |
| 6. ANALYSIS OF SOFI'S METHODOLOGY | 17 |
| 7. LOCAL ORGANIC PRODUCTION: RETAILER'S PERSPECTIVE | 19 |
| SECTION TWO | |
| 1. COMPOST: WHAT DOES IT MEAN? | 21 |
| 2. RECOMMENDED METHOD FOR MEDIUM SCALE COMPOSTING | 21 |
| 3. COMPOSTING IN CROOKESMOOR | 23 |
| 4. HEELEY CITY FARM COMPOSTING ASSESSMENT 1997. | 24 |
| 5. ORGANIC MATTER RECYCLING REPORT | 26 |
| 6. LEAFMOULD LEAFLET | 28 |
| 7. QUICK METHOD / COMPOSTING OF LEAVES IN 3-6 MONTHS | 29 |
| 8. SPECIAL METHODS OF PROCESSING | 29 |
| 9. DESCRIPTION OF LEAFMOULD OPERATION | 30 |
| 10. WORM COMPOSTING | 31 |
| 11. SITE ASSESSMENT FACTORS | 33 |
| 12. ALLOTMENTS INFORMATION AND PROPOSALS | 33 |
| 13. TENANCY AGREEMENT FOR ALLOTMENT / LEISURE GARDEN | 34 |
| 14. OPEN DAY HANDOUT 6/7.8.94 | 35 |
| 15. SEEDLIST | 37 |
| 16. PLANTSTOCK 1998 | 38 |
| 17. ECOLOGY COMPANY SOIL-HEALTH-CARE KIT | 39 |
| 18. HOW TO USE SEAWEED TO GROW HEALTHY ORGANIC FOOD | 39 |
| 19. PLANTING CALENDAR | 41 |
| 20. A BRIEF GUIDE TO ALL YOU NEED TO KNOW TO GROW | 44 |
| 21. FRUITING PERENNIALS: PLANTING PROTOCOL | 46 |
| 22. GREEN MANURES | 48 |
| 23. GARDENING HEALTH: DISCUSSION PAPER | 49 |
| 24. RECYCLING FOR ORGANIC FOOD-GROWING | 51 |
| 25. SOIL ABUSE ON A SCALE FROM 1 TO 10. | 53 |
| 26. HOT POT TIPS | 54 |
| 27. LETS EAT; ORGANIC FOOD AVAILABLE THROUGH LETS | 55 |
| 28. PERMACULTURE AND ORGANIC GARDENING IN SHEFFIELD | 56 |
| 29. EVOLUTIONARY GARDENING; A PRACTICAL ALTERNATIVE. | 58 |
| SECTION THREE | |
| 1. HEELEY HEALTH PROJECT: COMMUNITY ALLOTMENT | 60 |
| 2. ASSESSMENT OF UNSTONE GRANGE GARDENS | 61 |
| 3. ENVIRONMENTAL ASSESSMENT OF SHEFFIELD'S NORTH-WEST INNER CITY AREA | 64 |
| SECTION FOUR C.V.'s AND PERSONAL ACCOUNTS | 87 |

SECTION ONE

1. CONTEXT

Locally grown, organic produce is an aspiration for many different people in the widest possible range of circumstances, in response to a huge range of needs. It represents a component of possible solutions to a multiplicity of identifiable problems from food issues through health and fitness. In addition to meeting personal aspirations, access to organic production could go some way in contributing positively to larger social and environmental issues.

PSYCHOLOGICAL AND SOCIOLOGICAL FACTORS

Diversity is the defining characteristic of the psychological factors involved both in what motivates people to attempt organic production and also in the problems and complexities of managing such projects in the long term. Although it would be impossible to detail each and every psychological factor involved, it is vital that personal motivations and constraints are taken into account. Modern lifestyles are increasingly at odds with the patterns of activity demanded by organic production techniques. Whereas such activities were integral to the lives of the majority of people as little as two generations ago, and were even included in the educational curriculum until the 1970's, the general population's capacity for organic production and familiarity with such techniques have declined to a great extent in the last few decades. The absence or marginality of such familiarity in the context of a modern post-industrial society means that knowledge which would have traditionally been the birthright of the majority is now scarce if present at all.

Social trends may seem to be reducing the likelihood of mass interest in and enthusiasm for attaining any degree of organic self-sufficiency. Typical lifestyles may seem to be increasingly at odds with the requirements of organic growing. Many more people are forced to move home in search of education and employment. The pace of life is perceived to be increasing, especially in cities, involving increasingly more time-saving devices and patterns of consumption [microwaves, dishwashers etc.]. Dependency upon the centralised, mass-scale economy is greater than ever before and is set to continue along the pattern of suburban dormitories with no access to land for growing, serviced by large shopping centres which can only be reached by road transport.

However, in some senses the current situation is improving. Innovations such as teleworking using digital technology could mean that more people are able to achieve a balance between their contributions to the economy and to ecological sustainability. At the same time, economic production is currently less labour-intensive than ever before, permitting increased time and energy for leisure-based occupations.

DIFFERENCES BETWEEN FOOD-GROWING AND GARDENING

There are as many forms of garden as there are individual gardeners and specific sites. However, there are definite, scientific principles which are necessary for the successful production of organic food. Industry standards in the domestic garden and garden centre market are often incompatible with the requirements of growing organic food, encouraging the excessive use of transport and instant "solutions" such as chemical and mechanical interventions. Although related, growing organic food is a distinctly different activity from what most of us understand as ornamental or non-food gardening. Projects concerned with the former need to clearly define themselves as distinct from the latter.

Whilst wishing to encourage organic and ecological practice in ornamental gardening, food production should be considered as a priority for the use of organic inputs, which are by their nature often only available in limited amounts.

NUTRITION

Mineral levels in natural foods are declining, partly because soil is losing its mineral content, but also because the minerals returned to the land as fertilisers [principally artificial forms of nitrogen, phosphate and potassium] encourage rapid growth and can, as in the case of phosphates, bond onto trace minerals such as zinc, making them harder for the plant to metabolise. There is no incentive for farmers to add to the soil those minerals so essential for our health which do not immediately improve the quantitative growth of crops. Plants are subjected to a vicious spiral of abuse, beginning with inadequate fertility which then necessitates the use of biocides to protect vulnerable crops. Analyses of soil samples are highlighting mineral -deficient soils which are having a concomitant effect on mineral levels in fresh produce and in our own tissues.

The following list illustrates the mean percentage increases in nutritional factors in organic produce as compared to non-organic equivalents: Dry mass +26% , Potassium +13% , Calcium +56% , Magnesium +49% , Iron +290% , Copper +34% , Manganese +28% , Protein +12% , Essential fats +35%. Also there were found to be 69% less nitrates and 6% less phosphates in the organic produce. [Source: Biological Husbandry: A Scientific Approach to Organic Farming. Editor: B. Stonehouse: Butterworths 1981]

In addition, minerals are often refined out of food. For instance, white flour contains 22% of the zinc, 15% of the magnesium and only 2% of the chromium present in wholemeal flour. Refined cereals and processed foodstuffs may

even require extra vitamins and some minerals, such as calcium and iron, to be added just to meet minimum nutritional requirements. However, these additives are rarely in the most absorbable forms and the trace elements which are so vital to bodily functions are almost never included.

Finally, our mineral needs are in fact increasing all the time. Dr S. Davies from London's Biolab Medical Unit has analysed 65,000 samples of blood, hair and sweat over the past 15 years and these show that relative to the ages of patients, levels of toxic minerals such as lead, cadmium, mercury and aluminium are irrefutably increasing, whilst those of beneficial elements such as magnesium, zinc, chromium, manganese and selenium are decreasing. As we age, toxic elements accumulate in our bodies, whilst our needs for nutritionally essential minerals, with which they compete for absorption, also increase.

ECONOMICS

The primary economic characteristic of organic produce is its inelasticity of supply, as compared to products derived from the extraction of inorganic and fossil materials. This is illustrated by the current high prices and scarcity of organic produce. Expansion of supply can only be achieved incrementally, by gradual steps in that direction.

Investment in organic production is, even to a greater degree than conventional, a long-term commitment. This is chiefly due to the delay between investment and return; the producer has to invest in the cultivation of a crop long before any profits are obtained from that investment. These lead-times range from 6 months for quick-growing crops, such as salads, to the average of one year for most vegetable maincrops, all the way up to 5-10 years before such perennial crops as soft and top-fruit, nuts or asparagus return a profit to the grower. Although investment in organic production is a necessarily long-term commitment, the rates of return are compatible to or actually better than mainstream financial investments, over the full lifetime of that investment.

As with any investment, assessment of the suitability, achievability and accurate predictions of the profitability of certain outputs within the given parameters on a specific site are crucial to the long-term success of a certain enterprise. Amongst the many factors which need to be considered to make such assessments are whether the qualities of the specific site, soil and local climate are appropriate for the crops proposed. The next most important considerations would be the accessibility of a market for the produce and the need for processing prior to sale.

This inelasticity of supply is exacerbated by the necessarily long lead-in times required for organic conversion and certification. These currently act as a disincentive to conventional producers to convert as they forego or reduce income for 18 months, although they can still obtain a premium for produce grown whilst in conversion. The typical pattern of conversion has been to convert a fraction of a holding each year over several years, as the grower gains confidence in new techniques and markets and to spread costs and lost income over as long a period as possible. Higher levels of support for producers willing to convert would encourage more to do so at a quicker rate.

At the level of individual and even community scale organic food production, there exists very little threat of direct or adverse competition to established food delivery systems. Even if this sector was fully mobilised to its maximum potential, it would only displace a small fraction of the existing market in a limited range of fresh, seasonal produce. It could even benefit existing distributors such as supermarket chains, by developing new suppliers and superior products. The major chains are presently assessing the viability of sourcing a fraction of their produce from the area local to their outlets, in response to public demand and potentially as a requirement of planning permission.

EMPLOYMENT AND TRAINING.

One of the greatest challenges for developed, technologically adept societies is that of occupation. Primary industries require less workers than ever before, hence the burgeoning service sectors of the past 20 years.

The question of how people should occupy their work and leisure time cannot be answered for every individual by strict adherence to the narrow definition of value existing within market economics. Despite the virtual absence of UK organic produce on a commercial scale, there is undoubtedly a considerable "green economy" below the level of commercial viability, which represents a vital potential of untapped resources.

COST OF JOB CREATION

Compared to other sectors, the cost of creating new employment opportunities within the organic horticulture and even agriculture sectors could be a fraction of the sums invested to subsidise and incentivise capital-intensive industries to create new employment. In addition, although there are no long-term guarantees in any given sector, the prospects for permanent occupation in successful organic enterprises are currently good.

FUNDING.

It is possible to make out a special case for public investment in measures to meet the apparent demand for locally-grown organic food from a number of perspectives. On the broadest scale in the U.K., there is currently an enormous mismatch between subsidies to conventional agriculture [£2,700,000,000 p.a.1996 figures] compared to what is available to support the development of organic capacity [£1,000,000]. The imbalance between demand and supply is met by imports from all around the world where the organic sector constitutes a much greater proportion of many other countries' agricultural outputs.

Taking into account the long delays between investment and returns mentioned above, there is justification for the idea that customers of organic produce might be willing to pay for their produce [or part of it] at the time the producer has to commit funds [for seed and cultivation etc.]. Arrangements that attempt to support the organic sector, such as organic box and bag schemes, would be justified in requesting greater support from their customers by encouraging covenants or payment ahead of purchase.

SOURCES OF FUNDS.

Donors have traditionally been wary of supporting projects with a food-growing component, largely due to the perceived danger of displacing existing trade and markets.

Projects with a specific remit or centre of interest, in areas such as education, health and disabled organic food gardening, should be able to raise funds through the bodies dedicated to managing these sectors; education and health authorities and social services. Grant structures exist in these kinds of sectors suitable for supporting organic projects and the special requirements they each have; for interpretation, therapeutic value and accessibility in the case of the above. Considerable potential exists for co-ordinating approaches between these various sectors to optimise use and minimise duplication of facilities.

One of the most common stipulations on donated funds is often the requirement to publicise the improvements achieved by donations. Donors should be aware that this should be handled sensitively, without jeopardising the project. There is a danger that over-exposure could generate unwelcome interest, either from wanton vandalism or alternatively simply by swamping a small organisation with more participants than it can comfortably manage.

The timescales involved in funding food-growing projects need to be realistically synchronised with their requirements. As has already been pointed out, they are often long-term commitments, which need sustained support over several years. Investments in infrastructure and resources which will enable and facilitate activities in the future are often inadequate or lacking in current project specifications. Sometimes the accountancy-based timescales of fund donors are actually detrimental to the success of projects. For instance, spending at the end of the financial year [March] is too late to start a new project or be useful in ordering and planting fruit and nut trees. Grants distributed by Sheffield's Healthy Gardening Group are specifically timed to coincide with the planning stages of gardening projects; in February and September, to cater for activities in the seasons subsequent to those dates.

PROJECT ASSESSMENT.

Fund donors have a requirement for expertise in assessing the suitability of projects, taking into account their stated aims and objectives. It would be desirable that these judgements are based on the experience of active practitioners in this field or by administrators who have practical organic experience. Sites with multiple and interlinked activities are hard to evaluate and recognise what should be prioritised, especially to the inexperienced eye. Assessors would also be required to establish a strategic overview of the state of organic development in a given area, so that capacity is not duplicated and to help direct development efficiently. Projects themselves should be primarily human-centred and controlled as directly as possible by the individuals involved.

2. RECOMMENDATIONS FOR THE DEVELOPMENT OF LOCALLY-GROWN ORGANIC FOOD CAPACITY

MANAGEMENT OF L.O.F. PROJECTS

Organic food growing operations differ from the norms of employment and productivity in many ways. Any attempts to promote and stimulate increased activity in this sector should take full account of their nature.

Measures to provide training and employment in this sector should take note of the basic conditions in which cultivation takes place. For instance, outdoor work on cultivation is governed by daylength and weather. Hence it would be unrealistic to insist upon a rigid work pattern throughout the year. Whereas a six hour day may be all that is possible in the winter, summer conditions permit anything up to 18 hours per day. Similarly, the types of jobs undertaken should be appropriate to the time of year, and the daily pattern should take account of excessively hot or cold conditions, such as the dangerous heat and sunlight exposure possible in the middle of hot summer days. The domination of work-patterns by daylength and the weather can be obviated if facilities are provided to permit indoor working when necessary, although it must be noted that this requires the provision of suitable facilities, which may incur extra expenditure and could be inappropriate on sites which are unprotected or liable to vandalism.

Projects which are open to public involvement have specific requirements. It is necessary to re-launch and re-advertise such enterprises on an annual basis, taking into account improvements achieved each year. Such projects should aim to provide tasks suitable for all types of individuals and abilities. Where there are identifiable communities associated with projects, the choice of crops and products should be designed to meet their needs as a priority; for instance, food for deprived communities, medicinal herbs for health-related initiatives, demonstration gardens with an emphasis on interpretation in an educational context or ecological practices for environmental organisations.

VIABILITY

The viability of any food-growing project could be judged on two distinctly different levels. Attempts to guarantee supply to the growers themselves should be accepted as the first priority and a precursor to any efforts at commercial production. The majority of new entrants to organic growing have highly restricted access to growing space and are unlikely to be able to produce crops surplus to their own requirements for several years. Acceptance of this pattern of operation helps to guarantee that the motivation of participants is maintained over a long period.

This would also help develop growers who are competent to produce a wide diversity of crops providing a continuity of supply over the year, rather than the typical constraints of commercial production, such as specialisation in a minimum range of crops.

Some element of self-sufficiency should be regarded as a precursor to income-generating activities, which can only be considered where relatively abundant over-production can be guaranteed. Even where conditions favourable to small-scale producers are present, such as if there are many other growers nearby or if especially favourable markets exist, growers can only be expected to gradually increase their output, dependant on their ability to access the usual means of production; land, capital and expertise.

The productivity of any given grower and site could approximately be doubled if the grower is or can be resident on site, compared to having to travel from home to garden.

There are an enormous variety of occupations which could be derived from increased investment in the organic sector. There is, however, a danger that subsidies to organics could displace existing jobs in the horticultural supply industries, thereby antagonising existing providers. This should be avoided by targeting areas of activity which are not catered for at present.

ALLOTMENTS

Allotments and leisure gardens still provide the most common means for most people to gain access to land on which to grow their own food. As such they represent an asset of immeasurable value in terms of providing a route or conduit by which ordinary people can attain a basic level of competence in food-growing, which would then give them confidence to progress to larger, commercial scales of production..

Allotment provision has been enshrined in law for the past century, guaranteeing everybody the right to a plot on demand [on submission of a petition of 12 or more ratepayers' names]. In practice, this led to an average desirable ratio between the concentration of population in a given area and a suitable area of land devoted to allotments, generally interpreted as 4 acres per 1,000 members of the population, although actual provision is much more varied and unequally distributed than this suggests. The gross number of allotments provided in Britain has remained stable throughout this century, at about 500,000, despite a perceived drop in usage and value in modern times.

If a comparison is made with the numbers of people employed in agriculture [150,000] or the number of smallholdings [100,000], it is obvious that more people have access to food-growing opportunities on allotments than by any other means, even taking into account underuse and the use of allotments for purely ornamental growing [estimated to be 50% of the total]. Of the 16 million domestic gardens in the country, very few provide enough soil of sufficient quality to permit the growing of anything but a token amount of food. It might even be possible that

allotments represent the greatest area of land under organic cultivation, since obtaining fresh, locally-grown fruit and vegetables, free from additives or contaminants has been the prevailing motivation of the majority of new tenants for the past twenty years. There currently exists an acceptable balance between organic cultivators and those using chemicals on most allotment sites, whereas in the recent past, the preponderance of chemical use did much to overwhelm, discourage and prevent organic culture.

A national review of allotment provision is long overdue. The last major attempt to reassess their structure and function was 30 years ago [the Thorpe Report]. Very few of the recommendations of this parliamentary committee were enacted and the last legislation relevant to allotments dates back to 1950. Despite this absolute official neglect, the indigenous, vernacular culture of allotments is as strong now as it has ever been, although this could be interpreted as strength in and because of adversity.

The most important reform that could be easily achieved to improve the function of the allotment system would be measures to ensure continuity of usage, to pre-empt and avoid the disuse and underuse that is currently widespread. Simple administrative reforms, such as timing of tenancies or acceptance of shared tenancies and subdivided plots, could also do much to ameliorate this situation.

Reform of the anachronistic and frankly incomprehensible standard tenancy agreement between plot-holders and local authorities could contribute to this end amongst others. A draft version of an improved tenancy is included in the second section of this document. Designed to be easily understood, it retains most of the legal tenets stipulated in the original, but includes changes which could improve the situation.

Allotments provide an excellent opportunity for the development of education and training specifically dedicated to the encouragement of organic food growing. Such provision should accept that food-growing is equivalent to a skilled or craft occupation and that growers need to practice for several years to develop a range of abilities. SOFI operates what is in effect a scheme to permit individuals to undertake an apprenticeship in organic growing, learning from more experienced growers, over a period of several years.

It should be noted that the average size of allotments, approximately 300 square meters or one eighth of an acre, is only sufficient to provide a limited amount of produce. When most allotment sites were created, there was considerable demand and this limited area allowed more people to have access. If the grower is trying to maximise one individual's self-sufficiency by cultivating the greatest diversity of crops for as long as possible each year, one half of an acre or 4 plots would provide enough soil to attain this goal.

Although allotments are undoubtedly affordably priced, there are still justifications for subsidised rent, especially for those on low incomes. The price of rented land on an agricultural scale is approximately equivalent to what is paid by plot-holders, at about £200 per acre per year, although allotment soils and sites are rarely of a standard equivalent to agricultural land. Provision should be made both for those unable to maintain a whole allotment and for those who need more space. Facilities provided with allotments are extremely variable and rents reflect this.

RECYCLING

Existing recycling capacity in the U.K. is founded upon the reclamation of resources which are still in a sufficiently prime state to be equivalent to the raw materials they replace, where the cost of reclamation is less than expenditure on extraction of those raw materials. This pattern is illustrated in such sectors as minerals, metals and plastics. Large-scale, centralised and industrialised recovery is inappropriate and less economically viable for many materials, such as bulky organic matter [or putrescible wastes] and many other occasional recyclables, which could have value in organic growing systems and be effectively dealt with by a proliferation of dispersed networks of users.

Recycling capacity could be greatly expanded by measures to harness these underexploited resources. Any measures should be predicated upon the identification of end-users for suitable recyclables. If a sufficiently broad network of local growers could be encouraged to receive and process such materials, mutual benefits could be achieved both in terms of the avoidance of inefficient current practices, such as landfill and incineration, and in the generation of desired end-products; increased organic food output and related benefits. Suitable measures could help achieve targets for the proportion of the wastestream which is recovered and recycled whilst also tangibly benefiting the areas in which they take place.

Crucial to the development of capacity in this field is the fair and efficient administration of existing statutory incentives, such as the requirement on local authorities to recycle 25% of waste by the year 2000 and the availability of credits to organisations recycling waste material.

Many initiatives are already in place to demonstrate the efficacy of such measures, the best example being in the case of the composting of municipal refuse. However, current capacity is geared to limited objectives, ignoring closely related materials such as the processing of autumn leaves into leafmould, a superior substitute for peat.

Effective commitments to achieve these objectives could include the interception of materials suitable for organic food growing before they are taken to landfill or incineration. Guaranteed prices for quantities of these resources could support increased employment opportunities in the reclamation industry to supply the needs of organic food growers. Lists of such resources are included in section 2.

In the case of many materials, it would be justifiable to accumulate, stockpile and store them indefinitely, awaiting use. Similarly, drop-off sites close to production, such as on derelict allotments accessible by road, could be managed to allow waste processors to divert materials away from other destinations.

This pattern could be expanded to include regional databases and directories, performing the role of clearing houses for matching supply and demand of available resources. The improved environmental impacts of operating such schemes would justify public investment to subsidise them at least initially, stimulating cultivation in the areas where this happens. Private industry is already being motivated to develop in this direction by pressures such as increases in the landfill tax.

URBAN CONTEXT

Although towns and cities are obviously handicapped by their limitations on access to abundant growing space, they do have certain distinct advantages in relation to the production of organic food, especially for the limited needs of simple self-sufficiency rather than over-production for commercial ends.

As well as being in close proximity to large markets for organic produce, the large populations which inhabit conurbations are capable of delivering the huge amounts of human time and attention required by organic production. As has already been established, there is chronic underexploitation of the huge amounts of resources generated as waste by urban populations. To this can be added the waste-products of other activities and even the byproducts of processing industries. For instance, the number of horses currently kept purely for leisure exceeds the equine population a century ago when horses provided the main means of transport, and many stables have no provision for disposal of the copious quantities of manure produced.

The fringes of urban areas were historically used to produce food. This pattern of use, which is still maintained in the case of the siting of remaining allotments, could be revived and extended to generate multiple related benefits. Active use of the zone around the edges of towns and cities would help to maintain and re-inforce existing green-belt policy, whilst meeting people's aspirations for a more rural lifestyle. An inverse pattern of commuting can be imagined whereby people travel from their homes in urban areas out to work on organic holdings on the more rural fringes of urban areas.

In the case of large cities, close examination reveals that there are in fact a surprisingly diverse range of small-scale opportunities for appropriate organic cultivation, which if developed could immeasurably improve the quality of life for inhabitants. Often sites within conurbations present definite advantages such as warm microclimates produced by buildings and the waste heat they generate. A detailed case study on the availability of urban sites for cultivation is included in section 3 of this document [the *Environmental Assessment of Sheffield's North-west Inner city Area*]. Threats to health, such as air pollution and ground contamination, should be conscientiously considered when suggesting productive uses for urban sites, but it is to be hoped that these threats will continue to diminish as they have done over the last 30 years.

Soil quality and contamination are issues especially relevant in urban contexts. Town and city soils demonstrate the full spectrum of forms of abuse [as categorised in section 2]. Their limitations and, in extreme cases, actual dangers dictate what uses are appropriate for them. However, it would be wrong to dogmatically assume that they are all unsuitable for food use. Many forms of contamination are only mechanical and involve inert materials which will not interrupt or endanger the health of plants and humans, especially when low-maintenance fruiting perennials are planted.

Organic techniques are essential in efforts to ameliorate or mediate toxic, chemical forms of contamination. These include measures to raise the pH of soils containing heavy metals to reduce their availability and the inclusion of abundant, mature organic matter to compensate for deficiencies. Recent improvements in the sensitivity of measuring equipment mean that detailed soil tests are cheaper and more accurate than ever. Measures to improve access to soil-testing for food growers could include an obligation on landlords to fully inform their tenants of the up-to-date results of such tests.

INTERPRETING LOCAL BIODIVERSITY: AN ORGANIC PERSPECTIVE

Local Biodiversity Action Plans are currently being compiled for all regions of the U.K. as a result of recommendations made by Agenda 21, which outlined principles and suggestions for local sustainability arising out of the Rio de Janeiro Earth Summit 1991. This process involves identifying the wildlife and flora of each region so that judgements can be made relating to the conservation of existing genetic biodiversity and ensuring that current populations can be preserved and enhanced across the full range of species extant. Whilst fully supporting the aims of this exercise, no-one doubts that the practical implementation of these findings will be immensely complicated and potentially contentious.

Concern has also been expressed that these surveys will concentrate upon the broad natural environment to the exclusion of smaller scale aspects of biodiversity under the control of individuals. In comparison with natural or wild ecosystems, cultivated spaces often contain a wider spectrum of genetic diversity, in terms of flora, fauna and also micro-flora and fauna. Private gardens and public plantings are often characterised by exotic and imported species,

which are not representative of the region's naturally occurring biodiversity. However, a proportion of domestic horticulture can be considered as legitimate for these studies, such as the preservation of locally-adapted genelines and landraces. Inadequate consideration of this category of eco-systems would produce an incomplete assessment of local biodiversity. Biodiversity surveys which do account for this human-influenced gardening dimension will be more likely to provide a comprehensive picture which addresses the urban and suburban contexts, which may be seen as less of a priority, but possibly contain the widest diversity and the greatest potential to either enhance or disrupt broadscale ecosystems. In addition, inclusion of this category of space would involve the majority of the population, both in the survey of existing species and future management for maximising biodiversity.

Organic horticulture and agriculture is founded upon the balances and synergies achievable between wildlife and human activities, for mutual benefit. Compared to the mechanised, industrial pattern which has dominated British agricultural production to a much greater extent than in most other countries, organiculture minimises the negative impact of intensive production on surrounding ecosystems and has an important role in healing and repairing land and ecosystems damaged by the excessively destructive techniques of standard agricultural practice.

The aim of this local biodiversity initiative could be defined as the attempt to maximise the range and quality of ecosystems within the parameters dictated by the ecological niches available in a given area. From the perspective of organic food growing, this definition could be extended to include maximising the number of species and varieties, and ensuring continuity of cropping over the maximum season possible at a specific latitude and in a given situation. The organic grower requires to produce a sufficient quantity of high quality crops for his or her own consumption and secondly for market.

In the context of organic cultivation, it is possible to engineer and maintain a massive range of specific micro-ecosystems, such as the manipulation of soil conditions to prepare for the requirements of all the crops feasible. The organic cultivator attempts to design systems which contain as many multiple function elements, performing several different tasks at the same time, such as the inclusion of bulky organic matter in the soil, to provide structural, biological and chemical improvements. In addition, organic methods promote symbioses which balance and integrate different stages of the food-chains and nutrient cycles involved in soil, plant and animal ecology, for instance the mycorrhizal associations between fungal hyphae and plant roots which are critical to plant metabolism, or the successive progressions of different micro-organisms within processes such as composting. Organic systems could also be categorised as quasi-natural, since they are to a greater degree self-sustaining, requiring minimal intervention on the part of the grower; such as harnessing the potential of a fertile, healthy soil and ecosystem to prevent pests and diseases instead of constantly intervening to suppress the symptoms of underlying inadequacies in the growing system, obviating the need to use [or abuse] herbicides, fungicides and pesticides which can cause far-reaching ecological disruption.

Organic growers have three important roles to play in maintaining and increasing the bank of genetic diversity available both regionally and nationally. As seed collectors, organiccultivators are competent to preserve the legacy of historic, heritage and heirloom varieties which have been developed over generations to suit the various requirements of and conditions available to gardeners and market gardeners. It is generally accepted that organically grown seed has superior long-term viability compared to strains fed by chemicals. Secondly, varieties which have been reproduced for more than two generations in a specific area will have been incrementally adapted genetically to suit local and regional conditions. When this has happened over a historical timescale, the resultant breed can establish itself as a distinct variety or land-race, which needs to be pollinated in isolation from its close relatives and ancestors to preserve its characteristics. This process of natural selection can be enhanced and improved by careful selection to obtain varieties with particular properties such as bulk of crop or early maturation. A third category of genetic diversity can also be achieved by local growers, referring to the breeding and crossing of distinct, new varieties of plants, either by open or by protected cross-pollination.

Taking all these reasons for the value of small-scale local biodiversity into account, Sheffield Organic Food Initiative has proposed that any measures for the protection and promotion of genetic diversity should include a collection of local seedstock, which could act as a seedbank or library available to growers in the area, preserving varieties which might otherwise become extinct. This proposal could involve a public appeal for regionally distinct and heirloom varieties which may have been grown locally by private growers for decades. Facilities and funds would be required to grow out, test, identify, compare, multiply and re-distribute stocks.

ORGANIC FOOD INITIATIVES AND ENVIRONMENTAL CONSERVATION.

For many years, there has been increasing support for environmental conservation. This has come from every strata of society; from the individual to the government level. Indeed, there currently exists any number of active local groups allied to Wildlife Trusts, as well as organisations that offer training and qualifications in all aspects of

conservation. Many more commercial companies are now equipped with teams occupied solely with the environmental implications of their industries as well as independent professional consultancies.

Most of this investment in conservation has contributed, sometimes vitally, to maintaining and restoring various habitats and species. Other aspects of conservation have included measures concerned with sustainability and the prevention of further environmental degradation generally, such as the recycling of discarded materials, the reduced use of toxic chemicals and innovations in energy efficiency and materials design, all informed and inspired by the environmental imperative.

One step forwards, two steps back often seems to be the case, but this only highlights the need for the establishment of clearer aims and renewed determination to achieve them.

An issue which has caused major scares over many years concerns food production and its implications for human health and our environment; the build up of agrochemicals in the food chain and water cycles, fungicide and pesticide residues in fruits and vegetables, outbreaks of B.S.E. in cattle, e-coli, salmonella. As a result, many people no longer trust the food on their plates and are concerned by the damage done to the environment in getting it there.

Concurrent with this has been a heightening in profile of organic methods of farming and a sharply increased demand for organically grown foods. Indeed, governments and supermarket chains have recently tried to catch up with consumer demand by endorsing and encouraging organic practices. The Soil Association's organic standard is widely trusted as a guarantee of authenticity, quality and food safety

The conventional, chemically-dependant farm, orchard or market garden usually supports a disappointingly small number of wildlife species, whereas an organically managed site depends on its success partly on the dynamic interactions of the multiplicity of lifeforms abolished or seen as a threat in conventional systems. Well-managed organic sites and sensitively managed farms with strategies to restrict the use of chemicals and features such as hedges, ponds, wildflower breaks and uncultivated headlands play host to many beleaguered wild species which can be helpful; weeds which can accumulate nutrients, beneficial insects and predators, such as birds or amphibians, can control pests and help to establish complete ecological cycles including micro-organisms.

It is now recognised that urban and suburban areas, with their back gardens, parks, disused industrial sites, rivers, streams and pockets of woodland are absolutely crucial for the survival of many wild species, some of which were once thought to exclusively inhabit the countryside. The ease with which one can sight foxes, hedgehogs, magpies, bats, butterflies and many migrant birds around urban areas is ample evidence of this fact.

Taking all of these elements into account, it is possible to build an argument in support of local organic food initiatives not just from the viewpoint of human health and well-being, but also from the perspective of conserving the environment and moving towards greater sustainability, which through local Agenda 21 is now an official obligation for our towns and cities. Organic cultivation methods are positively complimentary to the requirements of conservation and the environment.

Practically, this means that existing conservation groups and environmental interests should, if they wish, be involved in food growing projects, but more importantly, that such initiatives should be able to attract funding and grant-aid equivalent to that which supports existing conservation projects. Steps in this direction have already occurred. Landfill tax money is now available for funding recycling schemes that could facilitate community gardening projects. Precedents exist in the commercial sector; Shell's "Better Britain" campaign already supports a community gardening project in Birmingham and is endorsing the Community Gardens Conference in Bristol.

Although land is at a premium in urban areas, it is often the case that such open spaces are underused and undervalued. Converting carefully chosen and appropriate sites over to various forms of organic food growing, whether as gardens or orchards, provides opportunities for people to understand the realities of their natural environment, actively and intimately becoming better informed about the relevant issues as a result. In contrast to conservation, cultivation requires more frequent ongoing involvement, which can generate a sense of attachment and provide a focus for local communities. This can restore the value of previously neglected sites, increasing the personal and recreational space available to city-bound individuals and families.

On the larger scale, a network of local organic gardeners, including both commercial and community-based market gardens would help supply the huge demand for organically-grown food. Widespread adoption of organic techniques could contribute significantly to attaining environmental and social sustainability targets; from simply reducing traffic, congestion, emissions and fuel consumption to the recycling of putrescible organic wastes into compost or turning autumn leaves into leafmould to replace peat.

Another issue of great importance to both the organic grower and the conservationist that would be consolidated by such initiatives is that of maintaining genetic diversity. Wild species are under threat as their habitats are eroded and agribusiness coerces farmers to switch to the latest genetically-engineered seeds. In fact, it is essential to maintain older seed varieties as active members of the gene-pool for their vigour, nutritive content, hardiness and their adaptive and disease-resisting capabilities.

It would be possible, by concentrating the expertise of both the conservationist and the gardener, to analyse and assess urban open spaces so as to categorise their potentialities. A site contaminated with toxic wastes would not be suitable for food growing, but could be allowed to regenerate through natural or assisted successions of wild plants. Uninteresting areas in or around local parks may make fine sites for community orchards.

Recognising the positive effects that local organic food initiatives can have on our environment could engage and extend the interest and resources of people currently involved in conservation. In many ways, this is a greater challenge than restricting the approach exclusively to wildlife or conservation issues, but it could help to form a coalition amongst several interest groups. It could also improve the prospects of employment for graduates of current environmental training and education programmes, many of whom find it difficult to find suitable jobs, despite their expertise and enthusiasm. Competence in organic cultivation could become a skill required by more employers. It could also benefit trainees personally in the long-run if they cultivated their own food.

INSTITUTIONAL ORGANISATION

In the same way that gardening and food production are all-encompassing in the type of people who practice them, institutions of every kind, public and private, could benefit from participating in and supporting efforts to develop local organic food growing projects. Rather than further marginalising the organic food lobby by creating separate departments devoted to these ends, it would be more desirable for mainstream organisations to put an organic perspective and practice at the core of their operations.

Many professions and occupations are currently concerned with powers to help or hinder the organic food sector. Elements of an overall strategy for improving the prospects for this sector would be best managed by the delegation of suitable tasks to those who have existing relevant responsibilities and expertise.

Direct and ongoing practical experience of working on organic food projects would inform bureaucrats and decision makers who are in a position to help develop the organic sector. Training, arranged by and paid for by employers for those without their own facilities, would help by providing more concrete concepts of what is involved and could also function as a means of enhancing the common-sense capacities of their employees in much the same way as team-building activities do at present.

Current reform of organisations such as local councils is aimed at achieving a more co-operative ethos both between departments and in their dealings with local communities. There is increasing understanding of the savings achievable by consideration of long-term strategies, which encompass the whole lifetime of undertakings, rather than the limiting economic myopia based on the accounting year. This is especially so in the case of food growing projects, which are indefinite commitments only justifying the investment required over a period of several years.

Without the support of agencies and infrastructure to provide authoritative support to local organic food growers, there will continue to be vast underachievement, disappointment and wasted effort, compared to what the time and energy current practitioners dedicate could produce.

LEGISLATIVE SUPPORT

Reform of planning regulations should acknowledge the desirability of organic production, due to its benign or positive effects on the environment around them. Present restrictions concerning permanent dwelling on agricultural land could be relaxed to permit the expansion of smallholder-scale operations, given reassurances that organic cultivation will benefit the environment and local communities. Precedents already exist where planning authorities have granted special dispensation to new housing developments which include elements of sustainability and self-sufficiency over those which do not.

In addition to measures to directly improve the legislative framework for organic food growers, certain other reforms could vastly improve the situation. The most obvious example of such measures would be the legalisation of the cultivation of hemp and marijuana. In the case of hemp, cultivation under home office license is already widespread. The acceptance of its use as a green manure and companion crop would be highly beneficial for small scale cultivators in improving the quality of soils. These crops would be dug into the soil at an early stage in their growth, presenting no danger of drug production whatsoever.

On the more contentious question of legalisation of herbal drug cultivation, the present situation presents several anomalies and contradictions. There are no sanctions against the cultivation of other drug crops that are arguably more dangerous than cannabis; opium poppy seeds are offered for sale in most seed catalogues and the species often occurs as a weed in the wild. As regards the cultivation of cannabis, the British Medical Association declared itself in favour of its medicinal use in 1997. Currently, the police are unlikely to prosecute cases where less than a dozen plants are grown, since this is arbitrarily judged to be the level for personal consumption rather than as a commercial activity. Legalisation of the cultivation of cannabis for its medicinal and therapeutic properties could simply be seen as an admission of current legal practice and would remove the criminalisation of citizens who are otherwise completely law-abiding.

This admission could also encourage the productive use of underused resources such as allotments. Surveys suggest that several hundred thousand people, including many sufferers of such complaints as glaucoma, arthritis,

multiple sclerosis and chemotherapy, are currently engaged in illicit cultivation of the crop indoors, often to avoid resorting to the vagaries of the black market. Legalisation of cultivation, even at a restricted level, could encourage these "closet" growers to come out into the open with concomitant improvements in the uptake of presently underused facilities such as allotments. This might also encourage these growers to expand the range of plants they grow to include more food crops.

PROFILE

Public perception of the organic sector is currently paradoxically ambivalent. On the one hand, organic products are understood to be more expensive, luxury or value-added items. On the other, organic methods of production are thought to be remedial, unsophisticated or even anachronistic. Both of these attitudes could be explained as being partly due to the chronic underinvestment in this sector, as can be illustrated by comparisons with the situation in other countries which have committed themselves to a much greater degree to funding the organic sector.

It is vital that measures to stimulate organic production are accompanied by establishing a new positive impression in the public consciousness. This partly involves confronting misrepresentations and undervaluations of organics, but would also mean asserting the positive benefits of organics more strongly in relation to all the issues it touches upon; lifestyle, social, environmental and economic. Without positive practical working examples of all the potential applications of organic growing, others will not be convinced that they are achievable.

Efforts to promote organic food growing through the mass media should be positive and encouraging, but most of all it is crucial that they are comprehensive and realistic, so that they do not raise expectations which cannot be achieved by individuals who could then end up demoralised, disillusioned and wary of attempting to grow their own food again. Hence broadcast material should be well-founded in organic practice to begin with and should ideally be followed up by more detailed information or preferably by ongoing supportive contact. This is currently delivered in a formal context through the ever-popular means of question-times on national and local radio, which could make more of an effort to provide specifically organic information, and also to a degree by helplines available to members of organic gardening organisations. In both of these cases, there is a dearth of practical information derived from actual experience of productive organics, since many current proponents either have academic and specialised experience often outside the sphere of organics, or repeat the secondhand prescriptions they have read in textbooks without verifying them against their actual performance in reality.

3. WHAT IS A LOCAL ORGANIC FOOD INITIATIVE?

Drawing upon 10 years of practical experience in developing organic food projects, the participants in SOFI have compiled a theoretical outline of the functions that a dedicated project could perform to promote locally-grown organic food. SOFI can presently fulfill only some of these functions on a small scale for a limited number of people, but our experience suggests that many benefits are achievable even within limited means.

Local Organic Food Initiatives could provide an infrastructure dedicated to the support, backup and encouragement of projects specifically dedicated to growing organic food locally. The scale of operations of such initiatives would of course vary according to the amount of relevant activity in a given area, but many of these functions should be seen as necessary precursors to activity, especially in disadvantaged areas.

Projects delivering provision can seem marginal if they are assessed simply upon single criteria, such as net output or short-term profit, but can be justified and recognised as valuable in many different ways if the full scope of outputs generated is acknowledged.

WHY LOCAL?

Current food delivery mechanisms are increasingly dependant upon high levels of transport, both on the part of the retailer and the customer. Considerable savings in transport bills could be made if a proportion of food could be supplied locally. This would have the side-effect of improving transport mobility and related problems such as pollution, congestion and accidents. In addition, it could service those consumers who do not have ready access to private or even public means of transport.

Only a limited range of products can be grown in any given locality and output is to a large degree seasonal. However, the current delivery system imports staple and seasonally-available supplies, which could be provided more efficiently from local sources. In addition, competent cultivation and more sophisticated techniques can vastly extend the range of products available and extend the continuity of outputs though the year .

One of the defining characteristics of gardening is that it is immobile geographically, although the gardeners themselves may be peripatetic; having to travel from their homes to one or more growing sites. In the case of specifically organic projects, this is more so since the techniques involved are often long-term, such as radical soil improvement and achieving balance in the productive system. As such, organic gardening projects require several years to achieve their full potential. Many communities of people could benefit from the long-term or even permanent nature of the commitment involved, generating a sense of social confidence and continuity.

Several benefits could be generated in terms of the local economy. The recycling of organic matter would contribute to solving existing problems associated with current waste disposal practices such as landfill, dumping and incineration. A thriving and productive organic sector would help to retain and cycle wealth within a local community, as demonstrated by the pattern of Local Economic Trading Schemes, instead of the current structure in which most expenditure on consumable items disappears from the local economy.

Locally based projects are well-placed to develop direct links between growers and customers, based on personal contacts and trust.

WHY ORGANIC?

There is currently a huge imbalance between the demand for and supplies of organic food. Supply is inadequate and this scarcity means that staple organic produce is perceived as an expensive luxury. Unless substantial incentives are provided to conventional producers, this will continue to be the case. Paradoxically, the image of organics is equally perceived as involving low cost strategies such as recycling and independence from costly inputs. Hence it is possible that good organic practice can actually supply expensive, scarce produce at an affordable cost to anyone who has the time, energy, knowledge and patience to develop such a system.

The overwhelming majority of new productive gardeners are motivated by the desire to obtain a reliable supply of organic food. Detailed guidelines for achieving organic standards are available from the HDRA, for domestic production, and from the Soil Association, covering all aspects of commercial production. Whilst these guidelines are an invaluable aid, they are complicated and could be described as intimidating especially for novice horticulturalists. It is vital that the fundamental principles are understood and that organics is perceived as a relative standard, rather than in absolute terms. There is no guarantee that even the most scrupulous organic systems can avoid every influence which would undermine its organic status. For instance, the individual grower has no control over spraydrift in rural areas or airborne pollution in urban and industrialised areas. Hence, a pragmatic approach of minimising non-organic contamination should be accepted as best practice, taking into account factors outside the control of the grower.

However, having established that the organic standard is necessarily relative, rather than absolute, it is vital that it is adhered to as strictly as possible. Many existing garden-related projects are compromised by the inclusion of non-organic elements, such as proprietary chemical fertilisers. This may be excusable if only ornamental, non-food use is made of the produce, but should be rejected by projects whose main aim is the production of food. Organic inputs are

by definition more scarce than inorganic fossil-fuel-derived additives and there is a convincing argument that they should be reserved for food-production.

Compared to conventional production involving chemical enhancement, organically-produced food has been shown to have a much more benign effect on human health. It avoids the dangers of residues found in conventional produce introduced both during the growth of the produce and in treatments to improve appearance and extend shelf-life. Evidence also exists that organic produce is nutritionally superior to conventional, containing greater concentrations of vitamins which are more easily assimilable by the human body. This is supported by the phenomenon of appetite being sufficed by smaller amounts of organic produce and accounts for its recommendation as a component of disease therapy such as in cancer treatment.

In addition to its unarguable superiority in nutritional value, the production of organic food is also much less dangerous for the producer. The use of chemicals can cause potentially lethal results for the users especially if they are unqualified or inexperienced and even if they observe all safety recommendations. Hence, any project involving members of the public or occurring in proximity to dwellings has an obligation to minimise potential dangers, which can be achieved by maintaining organic standards.

WHY FOOD?

Food is a necessity, which people are highly motivated in securing. After World War 2, the maintenance of local food-growing capacity was seen officially as a matter of civil defence, since it augmented national security and self-sufficiency in times of conflict. Although the danger of interruptions to international trade have decreased, dependence on food imports is greater than ever.

Compared to the provision of other necessities [clothing, shelter] and even more in the case of imported and processed manufactured items [such as cars or computers], food is different in that it can be produced by local individuals and communities independently of complex, centralised, technologically-advanced, capital-intensive systems. The patterns of mechanical mass-production and economies of scale that function perfectly well for inanimate products are not necessarily appropriate when applied to living systems.

Organic food could be described as having been grown for taste, flavour and nutritional value instead of simply for cosmetic appearance or gross bulk.

CONVERSION OF CONVENTIONAL OUTPUT TO ORGANIC.

The most readily available means of generating increased supplies of organic food might appear to be the conversion of existing conventional, chemically-enhanced capacity to more organic output. Existing growers are often aware of and actually employing elements of organics in their systems for pragmatic reasons. However, in the context of several centuries of agricultural depression and de-population, and taking into account the discrepancies between existing subsidies to different sectors, there are significant disincentives to this conversion. Conventional growers are reticent in abandoning practices that have been successful for them in the past or are required by their corporate customers, and can often be unwilling or unable to change their practices to suit organic techniques.

Despite the huge current demand for organic produce, British growers have not so far responded to meet this demand, except in low volumes of luxury outputs. There are less than 1,000 farms registered as organic in the UK. If any major conversion to organics were to be undertaken, there would need to be many more people employed in the agricultural and horticultural sectors, which could bring with it a concomitant repopulation of rural areas by people competent to produce organically. A national network of initiatives to encourage new growers into the market would help to provide this groundswell of new producers.

4. FUNCTIONS OF A LOCAL ORGANIC FOOD INITIATIVE TRANSITION

It is reasonable to expect the existence of amateur, smallscale, part-time, hobby gardeners already practising organic food growing in all parts of the country, including even in less suitable areas such as inner cities. This is confirmed by the contacts members of SOFI have made over the past decade and by the fact that more than 500,000 allotments are still cultivated in this country. How can these limited activities be developed to become occupations?

The major challenge facing any kind of Local Organic Food Initiative would be how to encourage these small-scale, amateur growers and individually based projects to expand both in terms of area cultivated and their capacity to introduce more gardeners to organic production techniques. Hence it is possible to project a network of existing projects with the potential to offer these skills, which could theoretically have complete geographical coverage. Ideally, a LOFI could act as a co-ordinating body putting people in contact with growers able to help them in their own local area. This could be complimented and supplemented by more advanced courses offered by regional colleges and universities.

It is undoubtedly the case at present that such an initiative would initially have to be concentrated on remedial education to introduce inexperienced new beginners to the fundamental principles of organic production.

Once a degree of competence has been achieved, the next step would be to help complete the transition from growing to a standard acceptable to the grower him or herself, to a quality which would be acceptable to the buying market. For this purpose, less experienced growers could be put in contact with those with more experience. At this point, the LOFI could begin to act as a market maker, co-ordinating supply with existing demand, and attempting to avoid under- or over-supply of certain products in each season. If this stage with many competent producers can be reached, it becomes possible for certain growers to specialise either in specific products or in the over-production of materials such as compost or seeds which could then be re-distributed to the rest of the network.

Assisting many smallscale growers to make a living out of organics could deliver local supplies especially where little large-scale production capacity exists. Also, once a multitude of qualified growers has developed, they could then help with the conversion of industrial-scale, mechanised agriculture to a more humane and human-scale means of production.

LOCAL CERTIFICATION

LOFI's could fulfill the vital function of guaranteeing and confirming that produce claiming to conform to organic standards is just that. Without some form of certification of local sites, the effort of establishing organic production and marketing could be undermined and devalued by conventional produce falsely claiming organic status.

National and international certification bodies exist to ensure that commercial production and marketing conform to organic standards [including biodynamic, biological or ecological equivalents in other countries]. However, the current administration costs and logistics of certification are prohibitive for small-scale and occasional production. LOFI's could fulfill this vital function by organising systems for local certification, which could be much cheaper than the existing scheme geared to medium to large-scale producers. Sites could be visited by a local officer trained to identify genuinely organic practices, in the same way as the national body currently operates. The national body could then monitor local schemes and ensure that standards are being maintained, by visiting as at present and by conducting spot-checks on some of the small sites. This could alternatively be achieved by extending the bond of trust between the certifying body and existing certified suppliers in a given area, to include dispersed networks of minor producers. For instance, when an existing outlet registered to sell organic food exists, such as a shop or retailer, small-scale producers could be encouraged to start supplying whatever produce they have available. This pattern could also act as an incentive to encourage smallscale producers to group together and expand their activities.

The proliferation of information-processing technology has increased the quantity and quality of source-labelling of individual products. As well as providing information about the ingredients of processed goods, this capacity could be used to communicate accurate details about how a certain item was produced, where it came from and even who produced it. This kind of innovation would enhance the trust between suppliers and customers, and would mean that specialist requirements such as biodynamically or veganically-produced food could be made more available.

AREA CO-ORDINATION AND LOCAL NETWORKING

Many functions essential to the successful development of organic food-growing capacity could be undertaken by a dedicated agency working in a similar pattern to existing services such as the Agricultural Development and Advisory Service [ADAS] or support organisations such as Smallholder and Tenant Farmers Associations and unions. A separate body could be justified to provide specifically organic advice and support or alternatively, existing organisations could be reformed to deliver help to the organic sector.

It is vital to understand that the nature of a network of organic producers would be disparate and scattered. Organic operations are often isolated from other organic producers and motivated more by individual commitment to the

ideals of organic growing than by simple economic ambitions. Producers have historically been marginalised and may have a beleaguered or embattled attitude compared to their conventional counterparts. Hence initiatives to develop this sector must attempt to be structured in ways which take into account the devolved or subsidiarised nature of the network they serve and the psychology of the individuals involved.

Ideally, support staff for organic networks would be drawn from the ranks of existing producers or at least by people experienced in and sympathetic to the ethics of organic production. In the initial phase of development, employment in organic support networks could provide supplementary income for producers who have not yet completed the transition to being self-supporting solely from their own produce.

The functions of Local Organic Food Initiatives could include the co-ordination of fundraising and/or raising investment for organic enterprises. Bulk-buying of externally-sourced inputs and arranging secure markets for produce could also benefit producers participating in such a scheme.

One of the key functions would be to help promote the public profile of organics locally and to undertake more complex campaigning roles which the individual grower is unable to achieve. LOFI's could act as the local link for larger, national organisations and agencies, delivering support direct to local growers on a more personal and ongoing basis than those large organisations can achieve. There is a need to promote recommendations for organic practices and explain the many mutual benefits that could be generated not just amongst the general public but also specifically directed to organisations such as local councils, health authorities and education departments. There is great potential in lobbying such authorities to convince them to permit, encourage and even favour organic food growing capacity.

LOFI's could also function as providers of information to growers, not just on remedial principles and techniques, but also to provide specialised information and research which individuals may find difficult to access. Hence a LOFI could acquire libraries of relevant information for distribution around its area and form links with larger organisations that have the facilities to deliver complex and specialised data.

There are many other functions which an organised network would be better placed to provide than isolated individuals. Complex and costly services such as soil testing or designing packaging could be obtained much more easily, as occurs in existing organisations such as the Soil Association's Organic Marketing Company.

LAND ACCESS

Pressures on land use are continually increasing from domestic, industrial and transport requirements. In spite of this, there is still more than enough land suitable for cultivation even in urban and suburban areas. LOFI's could develop registers of land available for organic growing and mediate between landowners and prospective tenants, performing the function of estate agents for owners and tenants who wish to manage land organically.

A similar function could be evolved to act as a contact point [or dating agency], putting prospective organic customers in touch with producers. Likewise, people seeking training and employment within the organic sector could be assisted. Ideally, this function would help to bring together groups who could benefit each other to their mutual benefit, such as those who own land or can fund organic projects, with those who have the time and energy to actually develop them.

5. SHEFFIELD ORGANIC FOOD INITIATIVE 1998

Sheffield Organic Food Initiative represents a network of individuals committed to developing the provision of locally grown organic food. We have been active for the last ten years developing our own productive capacity and attempting to promote organics wherever possible. SOFI comprises a dozen regularly active individuals and several dozen more passive supporters. We have been members of the Henry Doubleday Research Association for many years and have organised displays, tours and open-days in co-operation with Sheffield Organic Gardeners.

SOFI provides working examples of urban, organic self-sufficiency and can demonstrate the tangible benefits arising out of the application of such techniques. We have developed our own productive capacity to a reasonable state of competence and hope to be able to help others achieve the same. As practitioners, we are well-placed to fully understand the complexities and demands involved, ranging from the personal challenges to more general lack of support from society at large.

SOFI operates on more than twenty sites in and around the Sheffield area, including 4 acres of cultivated ground and extensive areas of public open space [15 acres]. The combined output of the active members for 1997 was more than two metric tonnes [2000 Kg] of commercial standard vegetable produce of many different crops [more than 100 maincrops]. In addition to this direct food output, members also produced more than 25 metric tonnes of food-growing quality compost, over 5 metric tonnes of mature leafmould [for use in potting composts and as a soil-conditioner], several thousand herbs in pots and collected substantial quantities of seed of more than 50 varieties of vegetables including many Heritage strains.

SOFI's constituent projects received minimal funding during 1997, a total of £500 from six sources. Total expenditure was about £1000 more than funding, which was met by investments by the individuals involved.

Beanies' Wholefood Co-operative has been Soil Association registered since this became obligatory for retailers in 1992 and currently distributes produce from the Organic Marketing Company to more than 200 customers [box scheme] per week, as well as further produce sold from their shop. Beanies' annual turnover for fresh, organic produce is in excess of £70,000. At present, all of this produce is sourced from outside the local area [Herefordshire/British produce/imports], however Beanies have a long-term commitment to identify and encourage local supplies.

Since 1988, members of SOFI have operated a community composting scheme [**the Compost Collective**]. Vegetable waste generated by Beanies [up to 500 Kg per week] and brought in by the general public is transported to a variety of sites [in excess of 50 over 10 years] where it is combined with manure, garden waste and other organic fertilisers to produce food-growing quality compost. This project is successful because it generates mutual benefits for those involved: the greengrocer saves paying for 1000 L a week of refuse collection, which more than covers the cost of transport and the recipients gain a valuable fertilising agent in return for the effort of processing the material. This service has been advertised by a concise and comprehensive leaflet, distributed around the area [section 2].

The **Ecology Company** acts as a drop-off point for donations of vegetable waste and as a focus for organics and related topics. A selection of organic fertilisers has been stocked since 1990, available in bulk at discount. In co-operation with the Ponderosa Group and Sheffield Health's Healthy Gardening group, the Ecology Co. is the distribution point for a pilot scheme to give away free seaweed as fertiliser to help local people to grow their own organic food. Eco. Co. also stocks a wide range of books and magazines on all manner of topics relevant to organics and permaculture. Proprietor Barry New has regularly attended meetings of the council's Environment Forum and Recycling sub-committees over the past 7 years. Barry is a committed Green Party member, and has stood as candidate for Netherthorpe in local council elections five times and as candidate for the European Parliament once in 1994.

Since 1991, members of SOFI have been at the core of the **Ponderosa Environment Group** [PEG], a community group dedicated to improving a 15-acre designated urban open space. PEG's activities on the site have delivered a community orchard, planting extensive new areas of native woodland, installation of benches and many basic maintenance functions. A detailed management strategy [Ponderosa Information Pack] was compiled in 1993, sent to all interested parties and widely publicised. It has since been edited and updated. In 1994, PEG was invited to take part in the council's North West Inner City Action Project, a regeneration scheme to renew council housing stock, involving the demolition of the infamous Kelvin block of flats and the refurbishment [or rebuild as housing association property] of over 2500 council dwellings. PEG members attended fortnightly meetings as part of this process and contributed constructively over a period of over 3 years. In October 1997, PEG was commissioned to write an environmental survey of the area by Hallam University's Joint Institute of Social and Economic Research, which was successfully submitted, compiling knowledge and data collected over the previous seven years. Following mismanagement of SRB and URBAN funding for environmental improvements to the area, the council's own Department of Land and Planning were replaced as the lead agency in this process by Sheffield Wildlife Trust, who have a successful track record in the local area and have formed a working partnership with PEG to deliver improvements to the Ponderosa site itself and to the broad environment of the area.

SOFI operates a scheme to introduce inexperienced growers to the basic methods of organic crop production [the **Allotmenters**]. Once a week, on Friday a group under-takes the maintenance, reclamation and renovation of more than a dozen allotments in the Crookes/Rivelin area, including Crookes special needs allotment for people with disabilities. Volunteers contribute their labour in return for produce, instruction and camaraderie. Results from these plots are well above the average standard for allotments and they contain several more sophisticated elements such as extensive orchard developments and several glasshouses and a polytunnel. The mutual self-help generated by this scheme accelerates the learning of novice gardeners and permits some who would not otherwise have sufficient time, space, money or commitment to participate.

In 1995, a project to restore a large, antique kitchen garden and orchard at **Unstone Grange** [5 miles south of Sheffield] was initiated by SOFI members as a means to extend their scale of production. The Grange itself is a registered charity based around a substantial building, set in four acres of grounds, which can accommodate and cater for up to 30 residents. The core activity of the Unstone Grange Trust is to operate not-for-profit conference facilities, the receipts from which are presently repaying a substantial mortgage taken out at the start of 1997, to buy the site from Sheffield Education Department. The Trust permits the gardeners to use the kitchen garden and orchard in return for ongoing improvements to the gardens and a share of the produce. Volunteers visiting once a week since 1995 have managed to renovate nearly all of the space available for cultivation, renovated three greenhouses and a huge polytunnel, and repointed a 30M south-facing brick wall, along which are now planted apricots, peaches, nectarines and a sweet cherry. The site has value as a publicly accessible venue for extended training opportunities and could act as a regional focus-point for people interested in organic food production. Plans for 1998 include an extensive new planting of soft fruit using self-made cuttings and runners, and using our own organically produced seed including many heritage varieties for vegetable production. Unstone Grange Gardens will be open to the general public on the weekend of August 1/2, 1998, as part of the HDRA's nationally promoted Open Days scheme.

SOFI is run on a completely voluntary basis by participants who are unemployed and/or full-time carers. As such it represents one model of self-help scheme for directly accessing organic food. Members of SOFI are well-acquainted with the issues arising out of this field of interest and have made many efforts to develop local organic food capacity in this region. We have attempted to review our experiences and compile a document summarising our recommendations for developing organic capacity further, as a contribution to the growing debate about how to meet current and future aspirations for safe and wholesome food security.

6. ANALYSIS OF SOFI'S METHODOLOGY

The methods evolved by SOFI over the past ten years illustrate patterns of operation which are suited to small to medium sized activities, accessible to anyone with a simple commitment to the practice of growing organic food. This methodology involves the minimal commitment of resources to achieve returns which are substantial in personal terms.

One of the defining features at the core of SOFI's operations is the attempt to address each and every stage of the complete productive cycle. For example, supplies of growing media such as leafmould obviate the need to buy in commercial growing media and the maintenance of a vegetable seedbank minimises dependency on external supplies.

SOFI operates on a multiplicity of sites and a variety of scales, at a wide range of stages of development. Participants in SOFI projects are all peripatetic gardeners who have very limited opportunities to grow where they live. In order to satisfy their needs and fulfill their abilities, they have resorted to travelling to sites between 1 and 10 miles from their homes and have accumulated holdings spread over several different sites. This has the advantage of providing access to a variety of sites, each with distinct qualities. For instance, the range of allotments cultivated provides a continuum of different microclimates at various altitudes, ranging from south-facing to several with north sloping aspects. In addition these sites provide a full spectrum of soils; sandy, heavy clay and alluvial, each of which is suited to specific types of crop and cropping regimes.

Within the constraints detailed here, it is possible review practical experience to extract a rate at which the area of land cultivated can be expanded. A single dedicated individual could be expected to comfortably reclaim and consolidate one allotment [an eighth of an acre] each year, especially if it is possible to plant low-maintenance perennial crops, such as tree fruits and nuts. This rate could be increased if copious amounts of organic matter are available to achieve radical and long-lasting improvements in soil fertility.

Whilst the disciplines SOFI has been operating under are severe and frustrating in their limitations, they do have immense value as a dependable grounding in understanding the fundamental principles and mechanics of organic food growing. If competence can be achieved within these constraints, expansion to take on extra land and resources will be founded on confidence and a track record of predictable success. Growers who have achieved competence within such constraining parameters are practically qualified to expand their operations in size and scope. They can also convince investors of time, money and resources that their investments will be used judiciously.

High profile projects which are more dependant upon greater inputs of resources or funding have often proven to be much more vulnerable to disruption and are prone to become unviable if extra means of support are no longer available.

MINIMAL EXPENDITURE

The methods used by SOFI demonstrate that a full range of organic growing activities from the remedial to the most sophisticated can be achieved within a minimal budget. Notwithstanding this, the expenditure involved is prohibitive for anyone whose disposable income is at or below subsistence level, since it involves postponing current outgoings on food in favour of returns which will only be recouped after one or more years in the future.

Techniques such as the re-use and recycling of freely-available resources allow shoestring budgets to be stretched to produce more without undermining organic principles. Expensive resources such as seaweed and fertilisers are only used to supplement those freely or cheaply obtained, such as bulky organic matter.

MINIMAL MACHINERY

Even within the constraints of the most rudimentary technology, an extremely diverse and abundant range of production can be achieved.

Mechanical aids are justified when the scale of operations exceeds the personpower available to service them, or where the value of the crop justifies the expenditure involved. However, other considerations must be taken into account in assessing the value of machines in this context.

There are logistic difficulties involved in transporting and storing machinery, especially when expenditure can only be justified if the plant is used on several sites. The greater the value of machinery, the more liable it is to be stolen and relatively greater care must be taken to secure it. Extra skills and resources must be acquired in order to maintain machinery in a serviceable state.

As is true of any intervention in natural systems, the more powerful the means employed, the greater the possibility that it may actually cause damage if over-used or ill-used. For instance, the use of rotavators on soil infested with perennial weeds will propagate those weeds unless the process is carried out repeatedly and often, which will tend in turn to disturb soil structure, destroy soil life, causing compaction and an impermeable deep-pan harmful to drainage. Equally, excessive use of machinery increases the likelihood of injury to the operator, who should be trained in safe usage and equipped with appropriate safety equipment. .

OPPORTUNITIES

SOFI activities are open to the general public and have been advertised in a variety of ways. There is a danger that groupings around single interests can be self-limiting and exclude anyone outside those interests. The participants in food-growing projects represent a complete cross-section of society. Projects which are open to all ages, sexes, ethnic backgrounds and beliefs can produce a creative fusion between these diverse influences. SOFI has recognised and concentrated its efforts on introducing novice and beginner growers to basic organic techniques. By providing demonstrations of good practice, it is hoped that others will adopt them and develop them further on their own sites. SOFI has also been able to offer facilities to those without the time, energy or money to achieve organic goals on their own. Ongoing support from sympathetic practitioners is a vital element in nurturing and encouraging people to begin to grow their own food. Care must however be taken not to do too much for people, which can lead to them feeling dispossessed and hence undervaluing food-growing facilities.

REWARDS

SOFI is dependant upon the goodwill of its participants in trying to attain the shared aim of growing organic food. The continuation of this goodwill is dependant upon reciprocation between participants and a balance between the effort expended and the value gained by each individual. This relies on a shared understanding of what can be achieved within organic growing systems. Produce is used to reward volunteers in proportion to the amount of time, energy and expertise they have donated.

LAND OWNERSHIP BY USAGE AND NEGLECTED INFRASTRUCTURE

Unstone Grange provides an example of the development of a sense of ownership derived from responsible use of productive land. In return for maintaining and improving the gardens' capacity to grow food, the Trust which owns the site are happy to allow the gardeners a rent-free tenancy and even contributes to expenses. In the case of Unstone and the allotments, SOFI has been able to achieve more than it would otherwise have been able to by recovering and renovating infrastructure which had been neglected and fallen into dereliction. This pattern could be repeated to a great extent, since many landowners including local authorities possess suitable assets which they have been unable to maintain commercially in recent decades.

7. LOCAL ORGANIC PRODUCTION: THE RETAILER'S PERSPECTIVE

Like most distributors of organic produce, Sheffield Wholefoods [Beanies] are as much preoccupied with supply as we are with sales. In recent years, we have been selling more and more imported organic produce in an effort to satisfy demand. We are concerned that relying on imports contradicts one of the aims of the organic movement, which is to support localised production. Many of the imported lines could be grown in the north of England, but this country would probably need a threefold increase in acreage under organic cultivation just to provide for existing demand. Recent expansion in the availability of organic produce has been characterised by greater increases in processed goods than in fresh produce.

Beanies' greengrocery trade is equally divided between organic and conventional produce in terms of value or turnover. In terms of total volume or weight of produce, we sell twice as much conventional produce. Fresh organic produce is more than half as expensive again as conventional. Organic produce is almost never available at Sheffield's wholesale markets.

Beanies have been Soil Association registered since this became obligatory for retailers as well as producers in 1992. We have complete confidence in the current systems of guaranteeing organic standards and their international counterparts; *biologique*, *ecologisch*, *biodynamic* etc. Retailers such as Beanies have a vested interest in protecting the integrity of these standards and preventing unscrupulous traders from undermining them. We could also have a role in encouraging more new producers into the market either by referring them to the Soil Association or potentially by acting as local agents for the national bodies in operating local, small-scale certification schemes. Retail outlets are in contact with local networks of organic growers whose output does not justify expenditure on certification, but whose produce may be just as organic as that derived from registered sources.

ORGANIC MARKETING COMPANY BOX SCHEME

Approximately half the organic produce handled by Beanies is distributed direct to 200 customers each week as a box [or bag] scheme. We try to strictly maintain the quality and quantity of the produce supplied by this method to maintain and reward customer loyalty and give a positive impression of organic produce. The great advantage to the grower of such schemes is that they provide a predictable income.

Beanies have a policy of limited and gradual expansion of the box scheme, to avoid peaks or volatility in demand which may not be sustained in the long term.

If it were not a viable commercial proposition, Beanies would not be able to subsidise the organic side of its business. However, the profitability of the box scheme is small or marginal after the full costs of bagging and transport are taken into account. Hence it would be true to conclude that our commitment to organics is an ethical consideration and means of supporting organic agriculture, as much as it is a business proposition.

FROM OUR PERSPECTIVE, LOCAL ORGANIC FOOD GROWING INITIATIVES COULD BRING THE FOLLOWING ADVANTAGES:-

TRANSPORT Reducing the need for transport would bring clear environmental benefits. The majority of Beanies' organic produce currently comes from Herefordshire. For the consumer, an added advantage could be a reduction in the cost of fresh produce by about 10 %.

FRESHER PRODUCE Our organic fruit and vegetables are delivered to a central depot, where they can remain for several days until the entire order is ready for dispatch. Our deliveries occur on a weekly or sometimes bi-weekly basis. Local sources, particularly for the more delicate fruits and vegetables with a short shelf-life, would mean that we could have more frequent and smaller deliveries. This would consequently improve quality and could also reduce wastage.

INNOVATION Interesting and unusual fruits and vegetables are in demand, but larger growers are often slow to respond to fashion and unwilling to experiment. Beanies' awareness of consumer trends means that we would actually like to commission some lines in advance.

COMMUNICATION Because our produce travels large distances, it is often hard to feed information back to the grower. Regular ongoing contact with local growers would make it easier to respond to changes in the market.

AVOIDING SHORTAGES There is presently no local organic supply to fall back on if our main supplier cannot deliver. It would be possible to anticipate and avoid shortages where they follow a predictable pattern; for instance, in the spring and early summer, vegetables are scarce and growers could be encouraged to concentrate on salads, greens and early onions, which are usually in great demand at that time of year..

PROMOTION OF QUALITY FOOD One of the main aims of our co-operative is to encourage the consumption of quality, natural food. Identification with local producers would raise the profile of the shop, particularly in this urban environment, and help us in this aim. In the long term, this would generate bonds of trust between consumers and producers which could help to guarantee the economic success of growers.

PROBLEMS THAT MIGHT BE ENCOUNTERED:

LACK OF CONTINUITY OF SUPPLY When you market a line, you need to be sure of some continuity to generate return trade from satisfied customers. Growers are obviously restricted by the seasons and the weather, but it is important to be able to build on repeated buying habits on the part of the consumer.

QUALITY Produce must be of a reliably saleable quality or it becomes a financial liability for the retailer.

PRICING Market prices are prone to fluctuations, though this is less so with organic produce, and this is hard to predict in advance. Large organic holdings are often very efficient and certain crops, such as grains and pulses, are only appropriate for this scale of production. Relatively inefficient smaller growers could find themselves getting a poor return if they are competing for trade in mass-produced lines which are already widely available.

CERTIFICATION At present the Soil Association is working hard to reduce the cost of certification for small growers, but they could still be considerable for new enterprises with minimal turnover. The rules and regulations for commercial organic production are complicated and could be a daunting disincentive for many.

CO-ORDINATION There could be an administrative burden to bear in co-ordinating small amounts of produce from many small growers.

SECTION 2. A compilation of original information which we have developed to explain various practical subjects related to local organic food growing activities and issues.

1. COMPOST: WHAT DOES IT MEAN?

An article written for the Community Composting Network in 1997, attempting to establish straightforward labelling to describe compost produced for sale

The word "compost" has a glamour or kudos all of its own, charged with quasi-mystical potency by those few initiates who have witnessed its effects; occult alchemy to most, ignored by society at large.

However, this humble concept could hold the key to solving some of modern civilisation's more intractable problems, such as waste disposal, contamination of food cycles and the increasing ineffectiveness of anti-biotics. Modern usage for the word and the process it describes date back only about 100 years in the western world, although there are examples of the indigenous practice of composting throughout history and pre-history, especially the continuous tradition of composting techniques in China.

Etymologically, the word is derived from the French *compot*, a mixture or composition.

As a verb, there are a variety of definitions and descriptions of the process: *The aerobic decomposition and reconstitution of organic wastes into humus by the action of micro- and macro-organisms, involving the bonding of nitrogen onto carbon molecules, fixing proteins and carbohydrates in forms readily available to plants.*

The word *compost* is now used as a generic term to describe any growth medium. As the collective name used to refer to a diverse range of different products and processes, compost can be a confusing and misleading term. A stricter and more accurate use of the word would perhaps be to describe compost by its humus content. Humus compost is a distinct and superior product when compared to many other growing media, which should really be sold as such on its own merits.

Garden compost, potting compost and fine seed compost all have distinctive and separate uses and are not interchangeable. The infinite diversity of composts can be classified variously: according to the inputs to the process or source of materials, such as garden, domestic, municipal, industrial or agricultural: or by the end-use for which the medium will be used, such as for seed, seedling, potting on, potting up, cuttings, acid [ericaceous] or alkaline, special mixes for indoor growing, high-fertility for heavy feeders and formulations for specific types of plants such as cacti. Garden composts containing different manures will result in a variety of different properties suitable for specific types of crop. Concentrated fertilisers [organic or chemical] can be added to create quick-acting or slow-release mixes. Different production methods also generate specific qualities in the end-product, such as stacking, windrow, pit or vermiculture [worms]. Less accurately, the word is even applied to related processes such as loam-making, the formation of leafmould and even the anaerobic putrefaction of liquid wastes in cesspits and settling tanks [slurry].

The promiscuous application of the word compost to so many different materials means that anyone engaged in selling a compost product must label it explicitly and comprehensively to avoid inappropriate use. It is necessary to explain what ingredients the material consists of, where the inputs were sourced from and how it can be expected to perform. Most importantly from the perspective of growing organic food, it is necessary to explain whether the product is suitable for food use or whether it is only fit for non-food use in ornamental gardening. Accurate trades description of products means that customers will be less likely to use them in inappropriate contexts and will therefore be more likely to be satisfied with their performance and trust the producer with further business.

2. RECOMMENDED METHOD FOR MEDIUM SCALE COMPOSTING

[Suitable for 1,000 Kg per week producing 25 metric tonnes of mature compost annually]

For the past ten years, the **Ecology Company Compost Collective** has had access to a regular supply of vegetable waste from Beanies Wholefood Co-operative in Sheffield. This source provides between 300 and 500Kg of matter per week, collected in 12 ordinary domestic refuse bins, supplemented by donations of compostables from local residents. Beanies provide transport [van + driver for 1 hour per week] and the waste is delivered cyclically to twenty sites, a total of five acres of cultivated ground. In return, Beanies save the rental of two or three trade waste bins, 500 to 750 L capacity, which would otherwise cost £250 per year each. A small proportion [5-15 %] of this material is directly from certified organic sources, but most is conventionally grown.

Composting areas 4-6 square metres in area, with a base of clay and loam, are edged on two sides by large sheets of marine plyboard [1.5m/5 feet high], set at a right angle. This space can be subdivided by moveable boards to create three-sided compartments to accommodate variable volumes from 1 to 8 cubic metres. This is useful since when composts reduce in volume, they can be re-stacked to take up less space. A depression in the ground directly in front of this area forms a collection pit for any nutrient-rich liquid which leaches from the heap and can be returned to the

hot, dry top of the heap. These pits are covered by wooden chopping boards [5cm/1.5 inches thick; 50-70 cm square] which facilitates chopping of inputs.

Each week, heaps are constructed between 1 and 3 cubic metres in volume, depending on the availability and density of other materials combined with the vegetable waste. Except for transport, no machines are used in this scale of composting, since their costs and logistics would be prohibitive, and they increase danger of accidents.

Three types of bulky material are included in each heap in approximately equal measures:

VEGETABLE WASTES. Chopped into 3cm square pieces with a sharp spade.

GARDEN WASTES. Crop residues, annual weeds, hay and straw. Chopped if necessary. Structural material.

MANURES. Cattle or horse. Introduce digestive bacteria and influence the nature of the end result.

In addition, a variety of more concentrated sources of fertility are added: seaweed, rockdusts, magnesium lime, activators [urine, comfrey and nettle teas]. In addition, the heap is inoculated with small amounts of topsoil, mature compost and populations of *eisenia foetida* and their eggs to ensure the presence of abundant micro- and macro-organisms to digest the raw materials.

This diversity of inputs guarantees that the conditions for efficient composting are present; aeration or ventilation, moisture cycling by evaporation and condensation, and insulation to help the thermophilic bacterial reactions which achieve the initial breakdown of the inputs.

The three forms of bulky organic matter, as above, are alternately added to the heap in layers 10-20 cm/4-8 inches thick. Additives are distributed over these layers as the heap is built. The base of the heap [the first 50cm/18 inches] consist of porous matter which will soak up liquid draining down through the heap and structural material [such as woody stalks], which permit air to be drawn into the lower half of the heap. Care is taken to flatten the layers progressively to maximise the horizontal surface area, which produces a firm sheer vertical edge on the fourth, open side of the heap, allowing it to be built up higher [1.5m/5Ft] than if it were built at an angle. The last cycle of layers can be used to form a dome-shape at the top of the heap, shaped in an inverted parabolic curve, to facilitate the re-distribution of condensed evaporation back into the heap. Materials which are harder to digest [such as weed roots and seeds] are included in these upper strata where they will receive most heat and be effectively cooked. The heap is covered with three coverings: a layer of paper or card which will absorb evaporation, a layer of plastic sheeting to prevent moisture escaping from the heap and a piece of natural fibre carpet or underlay to retain heat within the heap.

Heaps are turned at least three times at 2-4 week intervals, by chopping vertically through the horizontal layers formed when the heap was made, slicing through with a sharp spade every 5cm/2inches. This effectively re-distributes the materials and generates a second flush of heat and bacterial breakdown. After two months and one turning, the individual materials included at the start are indistinguishable and this raw compost can be used as mulch or for perennials or for heavy feeders like squash, tomatoes and runner beans. If the heap is re-stacked further, the aim is to invert it inside-out and upside-down [outside-in and downside-up], which will produce a fully homogenised mixture and allow macro-organisms to uniformly improve the material further. After six months, the compost is stable enough to be incorporated into the soil and mature enough not to contain pests or diseases. At this age, any residues which might have contaminated the input material will have been digested and neutralised, and the compost can be considered fit for inclusion within a strictly organic growing system.

Six-month old compost has also reached a stable volume, approximately a quarter of what it was to begin with, and can be stored in bags or containers to mature fully. Year old compost can be safely applied to any vegetable crop at almost any stage of its growth and is also now fit for more sophisticated uses, such as in potting mixtures or houseplant mixes.

Ecocococo produces approximately 25 tonnes of finished organic compost each year, used for growing organic vegetables, fruit and herbs. The following overleaf has been used as a leaflet to advertise this project for the past seven years.

3. COMPOSTING IN CROOKESMOOR

Have you ever thought about recycling your vegetable waste? Up to 1/3 of the volume of domestic refuse is organic matter which can be recycled to feed plants and soil. This is much more ecological than incineration, which is where your bin bag ends up and separating this matter keeps your regular bin clean and free of unpleasant smells.

The Ecology company and Beanies have been composting shop and domestic vegetable waste on local allotments for more than eight years. If you would like to recycle more of your rubbish and make more gardens greener, simply collect all the ingredients listed below in a carrier bag or plastic bin and bring them to the Ecology Company or place them in the special bins in the yard round the back of the shops.

- ★ If you have large amounts of single materials (eg leaves/sawdust) please deliver them bagged separate from the rest of the waste.
- ★ If you would like more information or advice on how to compost your own domestic waste, please ask at the Ecology company (Tel 267 1200).
- ★ If you have a large garden or allotment and would like a load of vegetable waste to add to your compost, we may be able to deliver some to you free of charge.

COMPOST INGREDIENTS

FRUIT AND VEGETABLE WASTES AND PEELINGS

FOOD SCRAPS AND LEFTOVERS (INCLUDING BREAD AND EGG SHELLS)

TEA BAGS AND TEA LEAVES. COFFEE GROUNDS AND FILTER PAPERS

FLOOR SWEEPINGS AND VACUUM CLEANER DUST (IF FREE FROM CONTAMINANTS)

HAIR (HUMAN OR ANIMAL)/SHAVINGS/FEATHERS/NATURAL FIBRES (WOOL/COTTON etc)

AUTUMN LEAVES/GRASS MOWINGS/ANNUAL WEEDS/DEAD HOUSE PLANTS

PET LITTER AND BEDDING (NOT CAT OR DOG)

SMALL AMOUNTS ONLY OF:

WOOD ASHES/SAWDUST/WOOD SHAVINGS/PAPER/TISSUE PAPER/KITCHEN ROLL/LOO ROLL

☠ CONTAMINANTS ☠

Please do NOT include any of the following:

PLASTICS / METALS / GLASS / PAINT / CHEMICALS / COSMETICS / DETERGENTS /

TOBACCO / WOODY HEDGE CLIPPINGS / PERENNIAL WEEDS

OTHER USEFUL MATERIALS

If you are throwing out any of the following we would be happy to put them to good use helping local allotmenters:

OLD PLANT POTS / OLD GARDEN TOOLS (MENDABLE) / WOOD GUTTERING / TIMBER

/ GLASS PANES IN FRAMES / OLD CARPETS (WOOL AND HESSIAN,

NOT SYNTHETIC FIBRES)

THANK YOU

4. HEELEY CITY FARM COMPOSTING OPERATION.

A report by Richard Clare, assessing the composting scheme at Sheffield's city farm, compiled after a visit in August 1997.

Following a visit in August, I have compiled a brief, critical and hopefully constructive summary of the current state of the project and included basic recommendations for its improvement.

My motivation is that the HCF composting operation has a high public profile and should therefore be a demonstration of best practice, for the benefit of the farm itself and the general public it serves. I would hope that this advice is noted and acted upon where and when possible. I would be happy if this document is used to aid lobbying for upgrading the system and would be willing to co-operate further if required..

The main parameters of this survey are to minimise wasted time and energy and to maximise the quality and usage value of the end product.

I am concerned about the reputation of compost and wish to promote a positive profile. My qualifications to make this assessment are that I have co-ordinated a composting operation based in Crookesmoor and Crookes for the past nine years, now producing 25 metric tonnes of food-growing grade finished product annually. I have also actively attempted to promote this and related issues such as organic horticulture, leafmould, recycling and the health and educational potential of these subjects.

CURRENT INFRASTRUCTURE AND PROCESS.

GROUND AREA; 5 x 6 m = 30 m² [20 x 25 Ft]

Time and effort are at presently being wasted because of inefficiencies in the structure of the composting area. If the concrete block dividing walls were largely removed, the turning of the heaps would be facilitated and variable-sized heaps could be accommodated more easily. These walls should be replaced by moveable sides made of inch-thick marine plyboard.

The concrete path down the middle of the working area is fine to permit access in all weathers, but is not a suitable surface on which to compost. Similarly the rubble and compacted clay base under the binspaces could be improved by breaking up the subsoil and importing a six inch [15cm] layer of good quality loam from soil under cultivation. This would achieve a much greater uptake of air from beneath the heaps and permit compost worms [*Eisenia foetida*] to migrate from maturing to fresher material. This measure would also help to minimise leaching, since any leachate would be consolidated into the loam, which could be dug out and replaced on an annual basis to provide a supercharged loam when returned to growing areas.

ONSITE INPUTS; MANURE AND BEDDING FROM ANIMAL STALLS.

These provide a good initial diversity derived as it is from a wide variety of beasts, although excessive amounts of carbon are present in the form of sawdust and woodchip. Additional materials such as crop residues in season and occasional vegetable wastes from the cafe and local domestic sources are also included in the mix.

From an organic viewpoint, these materials are contaminated by the inclusion of chemical fertiliser pellets [Osmacote] derived from spent potting composts from the garden centre. These are presumably used to compensate for the inadequacies of the COIR-based media currently used. Exclusion of this fertiliser would give the end-product more genuine claim to be of organic standard. In the long term, a switch to more soil-based media, eventually with leafmould substituting for coir or peat, would help to achieve this aim. It should be noted that many of the plants sold are herbs and native wild species which have no need for high levels of fertility, which can actually be detrimental for example in the case of culinary and aromatic herbs.

INPUTS FROM OFFSITE; SPENT HOPS FROM LOCAL BREWERY.

Like any other material, this is difficult to compost without dilution with 3 to 4 times its volume of material which will balance its particular qualities. Unfortunately, hops are very close in nature to the woody bedding which has already been identified as being excessive in the present mix. They release a flush of nitrogen which must be used to reduce the high carbon and cellulose content of the raw material. Unless sufficient suitable material can be added, the hops may be best composted separately to produce a mulch. Addition of nitrogen in liquid form would enhance their breakdown and may help to reduce the unpleasant smell often associated with them.

RECOMMENDATIONS.

1. It is vital to source and import much more green matter, vegetable and putrescible wastes, shredded garden waste and grass mowings etc. An amount of such material two to four times the volume of manure and bedding could be successfully digested. Sufficient input of these types of material would provide a better initial carbon-nitrogen ratio. Sources of slowly released moisture and nitrogen from within the heap would help to digest the woody content, simultaneously moderating the vigour and extending the length of thermophilic bacterial heating.
2. The current mix of inputs does not provide sufficient structural material to allow circulation horizontally and vertically around the heaps. Tubular cellulose material permits oxygen to be drawn into the heap without the effort of

turning. Such materials as brassica stems and stalks or even current year growth hedge prunings may take 6 months to break down but would improve the process and the end-product.

3. Steps could be taken to improve the recycling of moisture within the heaps. If the top of heaps forms a dome shape [ideally an inverted parabola], water evaporating from the heat at the centre of the pile will recondense when it rises to the top of the dome and trickle down inside the covering to remoisten the heap. This would also reduce the amount and frequency of watering required. Present coverings are permeable plastic tarpaulin which allow water and nitrogen to exit the heap in the forms of steam and ammonia gas, creating a risk of denitrification [the loss of nitrogen from the heap]. The combination of the dome-shape and use of impermeable plastic covers would help to recycle water and bond available nutrients.

4. Insulating layers of carpet are efficient, but could be changed to natural fibres instead of man-made/synthetic materials. Wool and hessian carpets or carpet underlay should be sourced since they do not desiccate to contaminate the compost, but instead break down yielding high levels of nitrogen and can be added to the compost mix. When synthetic materials do become unserviceable they present a waste disposal problem.

5. Current inputs have the potential to produce finished material of food-growing quality, fit for human consumption, if the imbalances in the initial mix are remedied. This goal could be further helped by the addition of a wide variety of fertilising agents, which together can guarantee the end product will perform well enough to meet the high demands of most food crops. Some suggestions are listed here with brief comments on the improvements they contribute. SEAWEED; Gelling agents promote the retention of moisture and nutrients in forms available to plant roots. Contains many soluble trace elements often leached out of soils at high altitude [as in Sheffield].

ROCK DUSTS; VOLCANIC etc. Contain wide spectrum of trace elements that are usually slowly released but can be quickly dissolved in the acidic composting reaction. Suitable for composts for enduring growth and long-term performance.

MAGNESIUM LIME [e.g. DOLOMITE] Predominantly useful in small amounts to feed bacterial reactions in the early phases of breakdown but is also vital for chlorophyll metabolism in plants.

HIGH NITROGENOUS FERTILISERS [e.g. BLOOD FISH AND BONE MEAL/HOOF AND HORN]

Soluble fertilisers would help to balance the carbon-nitrogen ratio and slow-release would improve the value and range of uses of the finished product.

MARKETING. Maximum values can be obtained from the product by ensuring it will satisfy the customers' needs and expectations. To this end, the material should always be fully mature [6-9 months old at least], requiring a backlog surplus to be built-up. When fully ripe, the moisture content of the material will naturally decrease unaided by sun drying, which is a test of its ripeness to the experienced eye.

The leaflet produced to promote the material is commendable although it would confuse many readers into thinking they were buying an organic product due to the profligate use of that term in the text. The issue of trades description is crucial to providing accurate information to buyers about what uses are appropriate for the product. If customers are satisfied, they will return and generate a good reputation which will help to guarantee the long term security of the project. Samples of product on sale in August showed signs of being a woody mulch which could cause denitrification and consequent stress to plants if incorporated into the soil.

ADDED VALUE. The more processing and improvement and the greater variety of end-products produced, the greater will be the profitability of the operation. For instance, special potting composts for specific uses command higher prices than the unrefined output. Also, greatest financial return can be gained from a limited throughput by post-processing; growing herbs, flowers and vegetables using the material.

FUNDING. As a business proposition, even large scale, mechanised setups would find it difficult to remain viable competing against the abundance of products already available in the mass market, even if they were distinguished by organic certification. Although commercially marginal, projects are socially and ecologically justifiable in themselves. However, recent official incentives to encourage the proliferation of composting are related to the mass and volume of waste material they can extract from mass wastestreams, saving valuable landfill space [and tax] or in the case of Sheffield diverting material which is 90% water from the incinerator. Action to intercept larger amounts from the green [putrescible] wastestream would be likely to be seen favourably by fund distributors and could provide the basis for expansion of the project.

5. ORGANIC MATTER RECYCLING REPORT

The following report was submitted to Sheffield Council's Recycling Officer, Stuart Hodgkin, in 1991. Much of it is still relevant and Sheffield currently has no means of recycling the organic fraction of its waste.

1. PRESENT SITUATION.

The estimated weight of putrescible organic matter waste processed annually in Sheffield is approximately **40,000** Metric Tonnes [25% of the total wastestream, 160,000 tonnes]. Much of this material is currently burnt at the Council's Bernard Road incinerator at a cost of £6 per M.T. Organic matter is unsuitable for combustion being made up of over **90%** water, which must be evaporated before the remaining dry fraction burns.

The Environmental Protection Act 1990, provides local authorities with the statutory power to enforce source separation of any recyclable resource, where a means for its recovery exists. The E.C. target for recycling is to recover **25%** of total waste by 1996. Although 68% of households in Sheffield make some effort to recycle, present estimates show that only **16%** of total waste is recovered citywide.

It is reckoned that on average organic matter takes up about **30%** of domestic binspace. Many individuals already compost their own waste organic matter on a garden scale. Sheffield Community Recycling Action Project has recently produced a leaflet explaining the composting process, to encourage more people to use this valuable resource. Heeley City Farm has run courses and field trials, successfully growing organic vegetables on brickdust subsoil using compost derived from domestic collection. The Ecology Company's Compost Collective currently produces **20** tonnes of compost per year on 12 allotment sites, recycling vegetable waste from greengrocers in S10.

Although Sheffield's economic history is predominantly industrial rather than agricultural, there has been a strong and continuous horticultural tradition in the area, in private gardens and the 3,000 allotment plots, on 66 sites covering 350 acres. Sheffield is uniquely well-provided for in the area of greenspace since the city itself covers an area of 36,00 hectares. However, organic matter must usually be obtained from rural supplies or imported from outside the region. Last year, the compost budget for municipal parks alone was **£75,000**. By diverting putrescible organic refuse away from the inefficient incinerator and converting it into compost, the city could save and benefit from the nutrients it contains. This form of recycling would make Sheffield a literally greener city.

Several cities around the world have already begun to recognise the value of their organic waste resources and acknowledge the ecological importance of re-using this resource. Composting is most suitable for urban areas where population is dense and local opportunities to recycle organic matter are limited. Some schemes are operated as high-technology, capital-intensive, centralised operations, using industrial-scale waste digesters such as the *Dano* processors [e.g. Munich]. Others are run using low or intermediate technology, as local community amenities [e.g. Byker Tyneside], or as schemes to encourage and facilitate home-composting [e.g. Adur West Sussex].

2. RESOURCE INPUTS.

A wide range of industrial, institutional, retail and domestic waste materials can be recovered by composting processes. Some inputs are readily compostable, such as spoilt produce from shops and wholesale markets, spent hops from breweries and fruit and vegetable wastes and peelings from homes, hospitals, schools and other food processors.

Some inputs are valued as fertilisers, such as abattoir products, manures, pet and poultry litter, wool shoddy from old carpets and mattresses, hair clippings from barbers and urine [piss]. Many other materials can be added to compost, either to improve its texture, such as rotted sawdust or shredded cardboard, or to add minerals, such as coffee grounds, gypsum plaster and basic slag from kiln linings. A variety of contaminants, such as metal and plastic packaging, glass, chemical residues and colour inks must be removed from the inputs by separation before processing and also by screening the finished product.

Citywide collection of available inputs could be achieved by a variety of complimentary methods, ranging from large-scale high volumes, delivered to a centralised composting site, to local collection rounds and domestic composting units. Information on inputs and sources would need to be databased and mapped to enable efficient collection to take place.

3. PROCESSING.

Compost can be processed either in heaps or in long rows. The process is improved by aeration, moisture control, insulation, microbial inoculation and by introducing specialist compost worms [*Eisenia Foetida*] to refine the material into a mature finished product. Initial decomposition by micro-organisms generates heat [up to 65 degrees C], water vapour and carbon dioxide, and persists for 2-4 weeks. During this stage, the volume of the material is reduced by about a third, facilitating storage. This material is then matured into stable, homogenous, humus-rich ripe compost by the action of macro-organisms, a process which can take up to six months. The essential chemical action of the process is the bonding nitrogen onto carbon, which can be achieved most efficiently if these elements are combined in a suitable ratio, ideally 35 parts carbon to 1 part nitrogen. In the mature compost, this carbon-nitrogen ratio is reduced to 10:1, at which level, nitrogen is safely and readily available to plants.

The logistics of a composting operation are decided by the volume and frequency of inputs. This supply is subject to seasonal and other cyclical variations. Mature compost can be obtained in as little as six months, using an area of 1 sq. metre to process each metric tonne of inputs/output. A site used for composting would have to be managed to ensure efficient reception, processing, storage and despatch of materials. It would also have to meet environmental and health and safety requirements. In addition, attention should be paid to site ecology to ensure that the sight, sound and smell of the process are not offensive to public opinion. The end-product should be monitored and tested regularly for its pathogen and heavy metals content.

Any large-scale composting scheme would benefit from the technical involvement and support of a wide range of disciplines. Locally, expertise, facilities and information are available from Cleansing Services, Sheffield University and Polytechnic. Nationally there exists a large network of organisations and initiatives in this field.

4. COSTS.

The start-up costs of a composting enterprise using low/intermediate technology would be very small relative to the impact it could make on the total volume of wastes recovered.

Capital expenditure would be required for site-preparation, machinery and transport, although existing facilities and plant could be adapted at minimal cost. The site would need a road and drop-off point suitable for large lorries delivering fresh garbage. Chopping and mixing machinery appropriate to the scale of the operation would be essential for the initial preparation of materials for composting. Building and turning small volume heaps can be achieved efficiently by personpower using basic tools, though other machines such as front-loading earthmovers and conveyor belts would greatly increase the rate of processing larger volumes. Suitable transport would be required for the collection of raw materials and for the delivery of finished compost. Safety and monitoring equipment would also be necessary.

Operating costs would largely be expenditure on wages. These would vary in proportion to the volume of organic matter available for processing. Other running costs would be minimal expenditures such as additives to improve the quality of the final product, such as seaweed meal or rock dusts, fuel costs and administration resources etc. Some costs could be minimised by using other recycled materials such as timber or pallets.

5. FUNDING.

A wide variety of funding opportunities would be available to a municipal-scale composting scheme. Environmental concern groups such as Friends of the Earth and Greenpeace are keen to support new ecological recycling projects. The City Council is committed to "encourage and develop domestic, industrial and commercial recycling initiatives and develop mini recycling centres throughout Sheffield; and encourage industry and business to adopt better management of waste through recycling." [Draft Unitary Development Plan 1991. SCC Planning Department] These aims could all be achieved by supporting and co-operating in composting projects. The council has mechanical resources and logistical expertise which could be made available to such projects on favourable terms to the mutual benefit of both parties. Big business is aware of the potential economic benefits of recovering waste and retailing compost products. Several large concerns are currently offering help with finance and research and are keen to be involved in such projects.

In addition to these established sources of support, a composting scheme could use other creative methods of fundraising. For instance, donors of organic waste could be issued with shares entitling them to a proportion of the end-product. This form of credit would act as an incentive to the separation and collection of material. If the scheme was financially successful, these credits could even be redeemed for cash.

6. OUTPUTS.

The returns in profit from composting will be delayed by two factors. Firstly, the processing cycle from raw material to saleable product should take 6-12 months to complete. Secondly, the buying public may take some time to accept and demand the new product. However, a large market already exists for compatible products. Trends such as organic gardening and the substitution of peat as a growing medium could put recycled organic compost at a premium.

The financial return from output can be estimated by comparing the retail prices of similar products. Stable manure costs 50p for 25 Kg [=£20 per Metric Tonne]. Peat costs approximately £4 for 50 L [=£80 per MT]. Growbags cost £1 for 20 Kg [=£50 per MT]. Fine potting compost costs £1 for 5 Kg [=£200 per MT]. Wormcasts cost £2 for 5Kg [=£400 per MT]. Different grades and mixtures of compost could be manufactured to supply these various markets.

In addition to the core products, there are also several by-products of the process which could also be generated, such as uses for the heat output and related products such as liquid feeds derived from leachate. The potential value of these secondary outputs can be understood by reference to one specific product. A large demand exists for compost worms to use as bait for fishing. These can be sold for as much as £2 per kilo, a staggering £2000 per metric tonne. Since these potential returns may take years to be realised, it must be understood that any compost processing business could only reach break-even point and profitability in the medium to long term.

A composting enterprise would perform two services of benefit to the community; waste disposal and provision of compost products. Several other benefits could be derived, such as the use of compost to help regenerate derelict allotment sites. Compost could be made available at a subsidised price to enable more disadvantaged people to grow their own fresh fruit and vegetables. It would be especially useful for elderly and infirm gardeners who may be less capable of making their own. A composting scheme could also provide opportunities for practical research in the field of biotechnology. A successful operation would have prestige value for Sheffield as an innovative example of resource recycling and improving urban ecology.

6. *The following material was prepared as a leaflet to explain leafmould in February 1994, when it was created to accompany a display on the subject at a peat-free growing media conference, organised to promote the preservation of peatland in Sheffield. It seemed necessary to present some basic argument in favour and a simple, coherent and comprehensible explanation of the process. In spite of this being a national event, no-one else was promoting leafmould. On reviewing the HOW section, I think it stands up as a concise explanation with most of the important points included. This leaflet has been widely distributed since.*

WHY LEAFMOULD ?

Trees are nature's soil builders. The floor of forests and deciduous woodland is often referred to as an ideal soil-creation system, steadily recycling and accumulating plant foods. A mature tree produces several acres of leaf surface area annually compared to moss which only grows a few millimetres. Leafmould is not just an alternative to peat, it is in fact far superior and more versatile.

Mature leafmould both retains moisture and promotes aeration. After a year in storage it can be added to heavy soils to create a workable loam. This produces a feast for worms and soil micro-organisms which will flocculate clay and generate humus. After 18 months, it can be roughly chopped and used as a mulch or forked into established beds to improve soil structure, texture and tilth. It also darkens the topsoil which means it will warm up quicker and easier. It is ideal for rejuvenating tired, neglected or abused soils. At this age, it can also be prepared for use in potting compost mixtures by further chopping and riddling. Sieving through 1 cm mesh produces an ideal fibre for potting on established plants and seedlings or for rooting cuttings. Finer screening and older mould can even be used in seed mixes.

So when the first gales and frosts start to strip the trees bare, be prepared to harvest the best of the year's crop of leaves. You will find an abundant supply locally, if you get there before somebody else. It makes economic and common sense to collect and recycle this valuable, multi-purpose resource. The old practice of burning leaves seems bizarre and the municipal policy of dumping large volumes in landfill sites is almost criminal. Leaves oxygenate and filter the air we breathe. Leafmould is the gardener's gold-dust.

LEAFMOULD - HOW

AUTUMN - Collect leaves soon after they fall, when dry if possible. Sweep them into piles with a broom, fork or hay rake. Windy weather will often produce deep drifts ready for you to collect. Pack them into binbags or larger nets to carry to storage site. Larger loads can be carted by wheelbarrow or van.

A wide variety of leaves from different types of trees will result in a balanced end-product. Beech and oak leaves contain more calcium and makes the best mould. Sycamore is worst, only breaking down to a rough, woody fibre, but is still worth mixing with other types.

If you collect from local woodland, check with the landowner and only remove a fraction of the total. It may be necessary to remove twigs and branches.

Street leaves from busy roads will be contaminated by exhaust emissions, but all leaves pick up airborne pollution when growing. Correct processing will help to render these contaminants inert. Collect leaves from the pavement or roadside before the roads have been gritted with salt. Try to remove any plastic, glass or metal refuse as you collect and store the leaves.

WINTER - Stack loosely in a heap with blocked in sides so that the wind will not blow them away. Leave the top open to the elements so that the whole heap can become saturated with rainwater. After about two months, turn the heap to make sure it is fully moistened all the way through.

SUMMER - Pack the leaves down and cover with carpet and/or plastic to stop them drying out in hot weather.

AUTUMN - Chop vertically through the heap with a sharp spade into inch cubes. Transfer material to smaller containers to make space for the next year's leaves and store open to the elements for the second winter.

SPRING - Chop again then keep dry ready for riddling and rubbing to produce potting compost material.

7. QUICK METHOD / COMPOSTING OF LEAVES IN 3-6 MONTHS

By collecting sufficient leaves at one time, they can actually be composted, to create genuine humus-rich leafmould in less than six months.

If a sufficient critical mass of leaves [minimum **1000L = 1 cubic metre**] can be gathered within a short period of time [**one month**], fungal spores will multiply as they consume bacteria on the surface of the leaves generating a heating reaction. The heat [**40 degrees C +**] effectively sterilises the material and can break down the cellulose structure of the leaves if it can be maintained for several weeks. Successful 'cooking' can produce material which is friable [choppable] in the first spring after collection [**12-16 weeks**] and can be incorporated into the soil [dug under] with no ill effects.

The reaction will begin spontaneously from airborne spores on the leaves. Whereas, a compost process involves innumerable different species of micro-flora [bacterias, fungi, moulds etc.], the heat-generating reaction within the leaf-heap is produced by a small number of specialist thermophilic actinomycetes [slime moulds]. The exothermic [heat-producing] reaction can be cultivated by ensuring there is sufficient moisture, aeration and insulation within the heap, in the same way as a regular compost heap is managed. However, because it relies on just a few microspecies and has no progressive chain of redigestion of smaller by larger organisms, as is the case in compost, the hot phase of a leaf heap is less stable and more liable to interruption than a typical composting process. Unless the leaves are restacked regularly [**every 3-5 days**], to redistribute moisture throughout and restructure the heap to permit better aeration, the reaction can burn itself out due to lack of air or moisture.

The leaves need to be half-saturated [retained moisture content = **50% by weight** : twice the weight of the dry material] for the initial inoculation to be able to colonise the whole heap. This moisture content should be maintained, replacing water lost to evaporation. Large numbers of leaves in a heap have colloidal physical dynamic qualities, their flat shape means that they settle into layers which insulate the center of the heap, retaining heat within the heap. Within 5-7 days of stacking, evaporation from the hot center can cause the reaction to burn itself out in a process similar to firefang in compost. This laminating structure becomes so efficient after 7-10 days that it is impermeable to air and the reaction is suffocated and stops.

The aim of turning the heap should be to invert it [top-down + bottom-up] to distribute moisture throughout, and restructure it [inside out + outside in] to redistribute heat and aeration. Ideally, a stack should be turned regularly **twice a week for one month**. Initially, the leaves can be left uncovered until sufficient rainwater has wetted the whole mass. Hotspots at this stage can be spread to inoculate the rest of the heap with active digesting organisms. Once the reaction has been spread throughout the pile and sufficient moisture is present, the whole can be covered with plastic to retain and recycle condensed evaporation back into the heap, and with insulating materials such as carpet to allow heat to be generated and retained right out to the edges of the heap.

Well-tended heaps treated in this way are then warm enough to withstand the chilling effects of winter frosts and will remain warm for up to two months until all the bacterial nutrients on the leaves have been digested. Once the exothermic reaction has ceased the stack can be left open to the elements to resume a more gradual maturation process, or chopped through which reduces particle size and increases surface area, facilitating the incorporation of the leafmould into the soil.

The heating reaction can be enhanced and harnessed in several ways to improve the process and the end-product, remembering that it is relatively fragile and can be easily disrupted. Small doses of fine dolomitic limestone powder [**2-5 Kg per 1000 Kg leaves**] applied soon after collection, stimulate bacterial flushes and help to counteract the slight acidity of an average selection of leaves [especially if leathery, evergreen leaves are included]. Nitrogenous liquid feeds [such as urine or nettle tea] can be judiciously introduced to supplement water lost to evaporation when and where the reaction is strong. Care should be taken not to overwater and loose nutrients to runoff or leaching. Despite their cellulose structure, leaves will only have carbon available to bond onto introduced nitrogen after the exothermic reaction has begun to break down their molecular structure. Other soluble fertilisers could be introduced at this stage but only a small proportion of such materials will be bonded onto the structure of the leafmould, the rest remaining as free floating nutrients. Whilst lime is essential to the metabolism of the heating reaction, other additives are not necessary and should only be added where a higher fertility medium is required as an end-product.

8. SPECIAL METHODS OF PROCESSING LEAVES

1. INSTANT

Fresh leaves can be dug straight into very rough, weedy or heavy ground to help mechanically break up clods of clay and start to increase humus and soil micro-life. This is appropriate in the early stages of reclaiming overgrown land for cultivation over an extended period followed by later weed-control and green manuring. Inclusion of fresh leaves would also be a suitable method of initial improvement preceding the planting of any perennials, since they would be well incorporated into the soil by the time the plants are well-established.

2. PASTEURISATION

Compost freshly collected moist leaves by sprinkling with magnesium limestone. Turn every 3-7 days to redistribute and extend flush of heat for as long as possible. Dampen hot, dry spots in the center of the heap. Chop through the leaves vertically when the reaction ceases [after 2 months] with a sharpened spade every 10-15 cm.

3. ERICACEOUS FOR ACID-LOVING PLANTS [CALCIFUGES]

Include predominantly evergreen tree leaves [at least 50% by volume], such as conifers, rhododendron, holly etc. These have tougher structure and will take longer to break down [2-3 years], which can be speeded up by repeated chopping and turning.

9. ACCOUNT OF SOFI'S LEAF COLLECTION AND PROCESSING

This description of collecting leaves and producing leafmould was prepared for a PhD student researching a dissertation on the subject under the auspices of the HDRA [The Potential for Leaf Recycling in the U.K.: Rebecca Baldock: August 1997: Coventry University]

We've been making leafmould for ten years for practical and opportunistic reasons; it was a free resource, abundantly available and underexploited. We have evolved methods of urban scavenging to facilitate as much local, organic food growing as possible, for myself and others. By accessing free resources such as leafmould, compost and other recycled resources, we can stretch our expenditure further, allowing the purchase of high grade imported organic fertilisers such as seaweed meal. Leafmould is the most valuable and versatile free resource available to me as a food gardener.

For the past five years, our leaf harvest has followed roughly the same pattern. We borrow a van [Transit/Urban-size] and spend 5-7 days from late October to early December [November]. We hope that dry, warm days, when the wind has recently piled up newly fallen leaves, coincides with when we have transport. We have perfected a method adapted to our scale of operations using large wooden hay rakes [18 inch] and inch-mesh nets [3 x 4 m recycled volleyball net]. We drive out to the genteel old leafy suburbs on the west side of Sheffield, where mature Victorian trees planted along wide, quiet avenues, yielding large crops of oak, beech, lime, chestnut, ash, maple and a wide variety of more exotic garden species. We try to choose roads with minimal traffic, grass verges and target the best possible quality and quantity available. Netloads are lifted into the van and packed down if dry.

Large volumes of leaves have some characteristics of a fluid when fresh and dry. They can be swept along and will flow over each other when pushed along. A metal rake scrapes too deep, scratching up tarmac and stones with the leaves and getting caught on minor obstacles like tree roots and cracks in the pavement.

In terms of the actual number of leaves collected, a dry load of 500 Kg is equal in volume to a 1 tonne wet load [unsaturated], and would require 3-4 times the volume of storage space when loosely stacked. It depends on just how wet the leaves are, but the energy and effort required to lift and shift them is much greater; twice as hard due to the weight of the adhering water. Warm, wet, muggy days are the most unpleasant conditions for collecting since you get wet on the inside as well as outside. We deliver about six vanloads per day and deliver these to a variety of allotment sites. They are stacked loosely in large bays [2-4 m square]. If the leaves are dry, they can be stacked up to 1.5m [6 ft] high, but the higher they are stacked the more they will need to be turned subsequently to ensure they are moist throughout.

The optimum condition of leaves for processing is approximately 25-50% water to weight of leaves, achieved when dry-fallen leaves have been exposed to showery rain for 48 hours or continuous rain for 24 hours. This can be achieved by progressively watering the heap when it is turned if no rainfall is available. In this state, a heap of sufficient critical mass [3-4 cubic metres] will heat up to 40-50 degrees C within a week irrespective of outside temperatures. However, without turning to redistribute moisture, the center of the heap will overheat and burn-out in the leaf equivalent of firefang, a white mycelium which reduces the leaves to a fungal mush when wetted. This is partly caused by the natural dynamic of the flat leaves settling into laminated layers, which act as increasingly efficient insulation for the center. If the heap can be inverted, turned inside-out and the moisture evenly redistributed, this exothermic bacterial-fungal reaction can be maintained for 2-4 weeks, if tended regularly, depending on weather [intensity and duration of frosts]. When able to harness this heating process, it is possible to create material which is friable [choppable within two months and can be dug into the soil in the first spring after collection].

Like compost heaps, leafheaps will benefit from additives if they are evenly distributed. Powdered limestone, specifically containing magnesium [dolomite or calcified seaweed], feed and favour flushes of bacterial growth which in turn invigorate the actinomycetes [slime-moulds] which together start to break-down the cellulose structure of the leaves. Lime should be added as a very fine powder to guarantee maximum distribution throughout the heap, but could also be sprayed on in water-suspension. If the heating reaction is strong and permeating the whole heap, diluted compost activator [piss] will further strengthen and prolong the heating. However, if the leaves are already saturated or too cool, no benefit is gained. The much longer maturation phase of the heap also provides opportunities to improve the quality of the finished mould. The basic aim should be to use minimal inputs to produce a homogenised base material for a full spectrum of uses. Hence any soluble agents for raising fertility should be added to the mature mould when it is included in mixes for specific uses. Insoluble mineral agents such as volcanic rock dust can be added at the preliminary stage to make use of the long storage time to break rockdusts down, resulting in a completed leafmould with additional plant nutrients and trace elements. Both lime and rockdust should be added at a rate of 2-5 Kg per metric tonne.

We also collect beech and maple leaves from a nearby disused allotment site, which has reverted into young woodland. In this case it seems fitting to extract a small proportion of the annual leaf-fall to replenish working allotment soils nearby. Depending on whose land they're on and the status of the trees, extraction from woodland could be inadvisable. Excessive extraction could be ecologically disturbing and change the nature of an area of woodland, depriving plants and fungi of their annual mulch. But it could equally help to create more diverse habitats for plants demanding low fertility. It is also possible to create patches of deep litter mulch [*eco-piles*] made up of twigs, branches and rocks removed from the forest floor preferably before leaf-fall, providing useful new opportunities for animal shelter and enhancing the soil-formation process in these areas. As a rule, no more than 50% of the total shed of leaves should be removed in any given year.

Clearing leaves from public land is justified by the precedent set by the ancient Rights of Common, such as grazing and turbury [turf-cutting]. *Leabury*, the right to extract part of the leaf-harvest from common land, accompanied other privileges such as fattening pigs by allowing them to eat beech mast. Although catastrophically reduced by centuries of enclosure and privatisation of forest, these rights were never rescinded and are therefore presumably still applicable.

In total I would estimate that we make 5 tonnes of finished material annually. The majority of this is distributed over two acres of fruit and vegetable beds and 25-50% is retained as a base for a variety of potting mixtures. This supplies a large requirement for raising young vegetable seedlings and also provides enough medium for raising 1-2000 cuttings and herb plants in small pots annually. These intensive nursery applications are the most effective use for fully mature leafmould. I have never experienced 'damping off' or retarded growth in beech mould, both of which are sometimes mentioned as worries in connection with leafmould.

In my experience, leafmould is both superior to and more versatile than either peat or coir.

The end-product contains a wide spectrum of trace elements, according to the diversity of tree species included. The decomposed leafmould has a very high humus-forming potential when digested by soil micro- and macro-organisms, with consequent benefits for soil structure and the mobility of nutrients throughout. Humus is formed when the minerals in the clay are bonded onto the proteins from the leaves. On heavy clay soils there is no better agent for radically improving structure, tilth and water-holding capacity.

10. MAKE YOUR OWN WORM COMPOST .

Vermicomposting is especially relevant in an urban context where space is at a premium and sources of fertility are often in short supply. The following text has been issued with accompanying illustrations to assist inner-city flat dwellers to recycle their organic waste and produce top-quality compost.

Worm bins are safe and convenient. The solution for people with not enough materials to make effective compost heaps, as worm bins perform best when matter is added a little at a time, and for those with little space or no garden. Worm compost is a distinct product characterised by a high humus content which is superior to any other growing medium.

SETTING UP: Any uncontaminated, clean plastic container will suffice. For the average household a container of at least five gallons capacity is required. For example, a plastic fermenting bin or dustbin. A lid is needed, but should be well perforated with small holes [3mm diameter] to provide good ventilation, but prevent the worms from straying out. Drainage is essential, either a tap at the side, or holes in the bottom with the bin stood on top of a sturdy bowl or equivalent. Alternatively, it is possible to use a wooden box. If the box has a large surface area, this enables the worms to feed most efficiently.

WORM SPECIES: *Eisenia foetida*, also known as red, tiger, brandling, compost or manure worms. Found in leaf litter and manure heaps. They are also available commercially (including a related and equally effective species, *Eisenia andrei*) or from anglers shops. You need at least a hundred worms to start with, but about half a pound weight is recommended as a minimum colony to digest the organic waste from an average household .

BEDDING: Good bedding is required for settling in the worms to their new home and as a site to return to should conditions in the bin become temporarily uncomfortable (overloaded with raw material). Suitable materials make both air and moisture available to the worms and should retain its structure for as long as possible. Well rotted garden compost, manure or leafmould are the most natural bedding materials, which will also help to introduce more worms and their eggs and young to the process. Straw, hay or well shredded and moistened plain corrugated cardboard or thick brown paper bags are adequate. Smaller and thinner materials such as sawdust or newspaper will tend to compress into a solid mass, impenetrable to the worms.

OPERATING TEMPERATURE: The worms will remain active between 35°F and 84°F [2-30°C] but they work most effectively between 55°F and 77°F [12-25°C]. Worms may try to leave the container if it is too hot or cold for them. Consider these limitations when siting the bin. Good examples are a cellar-head, garage, shed or cool kitchen. Carpet, bubble wrap or equivalent cover for the top and sides can be employed for winter protection.

TO START THE BIN: Layer in 4 - 6 inches [10-15 cm] of bedding, mixed in with two handfuls of clean soil, which provides grit for the worms' gullets to grind up organic material. Bedding should be well moistened but not saturated. Add the worms and allow them to settle in for a week. You can then gradually add the materials you have collected for composting.

WHAT CAN GO IN THE BIN: Fruit and vegetable peelings. Large lumps and tough stumps are best diced into 1 inch [2 cm] pieces before inclusion. Food scraps such as bread, cooked rice, pasta and porridge. Tea leaves and coffee grounds. Garden weeds. Egg shells.

AVOID: Meat and fish. Dairy produce such as cheese, only in small quantities.

MAINTENANCE: Dust lightly every 4 - 8 inches [10-20 cm] with either dolomitic lime or calcified seaweed to keep the contents 'sweet' (pH balanced) and provide necessary calcium for the worms' reproduction. Take care not to overload the system, or the bin contents will start to putrefy. This will result in the worms retreating to their bedding or, if conditions are very bad, trying to escape out of the top. Add materials a little at a time, up to 3 inches deep as a rule, then leave the worms to work their way through most of this material before adding more.

READY? : After about six months of normal operation, much of the bin will consist of worm castings, or *vermicompost*., which can now be extracted. Remove the top several inches of raw or not fully digested material and keep aside. This should contain a substantial quantity of the bin's most active worms. Turn out the rest of the bin's contents. Try to recover as many worms as possible from this compost to enable a fast return to normal operation of the bin, including any of the small, oval, yellow eggs. This extracted compost may need a little drying out before it can be used easily, especially if you intend to sift/riddle the material. Restart the bin by adding fresh bedding and soil, followed by the worms, then finally adding the raw and undigested matter with a little dusting of lime.

USES OF WORM COMPOST: Use judiciously in seed and potting composts. It is a concentrated product and so even a little can greatly improve the quality of potting mixes and the health of seedlings, in particular. Sprinkle a little into seed drills before sowing, especially during dry conditions, or for slowly germinating seeds. Rake into seed beds to improve texture and provide a balanced set of nutrients. Worm bins are particularly popular in the USA and Switzerland, where the compost is used for houseplants and for all sorts of container growing. The restricted and stressful conditions imposed on a containerised plant are well ameliorated by the use of worm compost. The 'leachate' caught in the bottom or from a tap at the side can be used at a dilution of approximately 1:10 parts water as a general-purpose liquid feed.

MAKE-UP OF WORM COMPOST: Worm compost contains large amounts of humus. Humus is a complex material formed during the breaking down of organic matter. It provides the binding sites for plant nutrients such as calcium, iron, sulphur, potassium and phosphorus. These nutrients are stored in humic acid in a form readily available to plants, as and when the plant requires. Also, humus improves soil structure, enhancing aeration and moisture retention, and can help buffer excessive acidity or alkalinity in a soil or growing medium. Additionally, humus exerts beneficial control over plant pathogens, nematodes, harmful fungi and bacteria.

PROBLEMS? If the bin does not seem to be working, or worms are trying to escape or even dying, it could be... 1. Too hot/too cold. Re-site the bin accordingly.

2. Overloaded. This causes putrefaction, bad smells and the presence of flies (though usually only harmless fruit flies). Aerate the top of the contents with a handfork, sprinkle in some lime and add fresh bedding.

3. Unbalanced materials. If the bin smells but is not overloaded, it may be that it contains too much salty or acidic matter. Corrective strategy is same as for an overloaded system. Add a wider range of materials in future.

BUGS: Most creepy crawlies seen in the bin are integral to the composting process and so are friends, not foes. You may spot tiny white 'pot' worms; these perform the same as brandlings, but far less efficiently, and are an indicator that conditions are waterlogged and probably somewhat acidic.

FUNGI: Fungi and moulds are also an integral part of the normal composting process. If large moulds are developing on the surface just turn them in slightly with a hand fork. If you have an allergy to fungi and mould spores, you may not be able to cope with a worm bin situated in the house, but will most probably be alright with one situated outside.

11. SITE ASSESSMENT FACTORS

As part of our efforts to encourage and help new organic food growers, we have conducted several dozen site surveys, assessing both the physical state of the site and also recommending strategies suitable for the specific sociological and psychological situation of the individuals or groups involved. The following is used as a checklist to make notes on during site visits, which are then written up as a full report together with a schematic diagram of the site.

SITE:

- SIZE SHAPE DIMENSIONS AREA ACREAGE CULTIVABLE
- MICROCLIMATE --- SLOPE N/S SUN WIND GEOGRAPHY
- SHADE SHELTER EXPOSURE --- HEDGES TREES WALLS
- ZONES MICRO-NICHES ASPECT ELEVATION
- INFRASTRUCTURE DESIGN LAYOUT HARD LANDSCAPE
- ACCESS --- ROAD TRACK GATE TRANSPORT
- WATER --- TAP RUNOFF RUNNING COLLECTION
- **SOIL**
- TYPE SUBSOIL MINERAL COMPOSITION QUALITIES
- HUMUS CONTENT FERTILITY --- RESIDUAL/INHERITED
- DEPTH STRUCTURE TEXTURE
- DRAINAGE pH ACIDITY CONTAMINATION POLLUTION
- WEEDS INDICATIONS
- RECENT HISTORY FERTILITY DEFICIENCIES INDICATORS
- REMNANT PLANTS PERENNIALS FRUIT COMFREY HERBS
- **INHERITED ASSETS**
- BUILDINGS PATHS COLD-FRAMES FEATURES
- FOUNDATIONS COMPOST BINS BRICKS BED EDGING
- ORGANIC MATTER WOOD GLASS WATER BUTTS
- **LOCAL**
- RESOURCES --- NETTLES LEAVES HAY GATHERING
- RECYCLABLES --- WOODLAND STABLES FARMS SHOPS
- COMMUNITY --- NEIGHBOURS DEMOGRAPHY SKILLS
- **SAFETY** DANGERS VANDALISABLE
- SECURITY BOUNDARY DEFINITION DISSUASION MEASURES
- **PERSONAL**
- PROXIMITY TO HOME TRAVEL TIME & OPTIONS
- APPROPRIATE USE AIMS AMBITIONS PROFILE
- VISIT FREQUENCY DURATION HARDINESS

12. ALLOTMENTS INFORMATION SHEET

Issued in 1994, when Richard Clare stood in the local council elections on an allotments platform to highlight the absence of allotments in the ward. 87 people voted for this candidate, demonstrating substantial support for provision of growing space in this inner-city area.

In 1887, an allotments candidate, Halley Stewart, was elected as a member of Parliament, the same year that local councils were given the duty to provide allotments for its citizens.

In 1934, during the (last) Great Depression, Sheffield Allotments for the Unemployed Scheme provided free tools, seed, lime and fertilisers to 117,500 people nationwide, supplying 56,000 spades and forks, all made in Sheffield.

The Allotments Act of 1950 recommends 4 acres of gardens for every 1,000 population. Sheffield currently has only about a third of this statutory ratio.

There are about 14,000 registered voters in Netherthorpe. There are NO (ZERO) allotments in this ward. A clear majority of people in Netherthorpe do not possess a car (about 75%). Without transport, a journey of several miles to reach a garden (say in Rivelin Valley) is prohibitive if not impossible.

By law, a new allotments site can be created if just 12 local taxpayers cannot get a plot near to where they live.

Allotments are better value than any other recreational activity or sport, providing fresh air, leisurely exercise and contact with nature as well as fresh produce.

Financially, an allotment at about £25 per year (including water charge) is more than fifty times cheaper than renting a room (at £25 per week). How many rooms cover an area of 300 square yards (250 m²)?

ALLOTMENTS PROPOSALS

A fraction of the money spent on unnecessary prestige projects such as the World Student Games could have completely regenerated all the allotment sites in Sheffield. There are many simple and straightforward initiatives that can be made to improve allotment provision for us all.

NEW SITES NEAR POPULATION CENTRES — designed by the people who are going to use them.

REGENERATE OLD SITES — the residual fertility from over 70 years of cultivation can be reclaimed.

ORGANIC-BASED IMPROVEMENTS — provide long-lasting effects when compared with short-term mechanical and chemical methods.

SHARED/COMMUNITY/GROUP PLOTS — should be encouraged, taking into account patterns of social organisation.

INTER-AGENCY APPROACH — combining the skills and experience of different professions, such as health, social services, employment services etc.

ENVIRONMENTAL ACCOUNTING — assessing the beneficial side-effects and potential savings of improvements in the local environment.

ALLOTMENTS ADVISORS — to provide authoritative advice on site, aspect, soil, infrastructure, contaminants etc. to new and established plot-holders.

REDIRECT WASTE FLOWS — disposal problems of such items as autumn leaves and vegetable refuse can be solved by recycling them into the soil at local processing points.

DECONSTRUCTION INSTEAD OF DEMOLITION — useful materials such as windows and doors could be removed and re-used (e.g. Kelvin flats).

13. TENANCY AGREEMENT FOR ALLOTMENT / LEISURE GARDEN

The current form of allotment tenancy agreement issued by local councils is both incomprehensible and anachronistic. If the tenant cannot understand this document, the rules and regulations it contains cannot be expected to be observed. If a briefer, simpler, straightforward agreement which was more closely related to the reality of allotment practice were available, tenants would be more likely to follow its rules, would have a better image of and relationship with the local authority department servicing allotments, and could even help with the resolution of misunderstandings and conflicts. Some councils helpfully issue guides to the full agreement, summarising its contents, however, many of the conditions contained within the present document are out of date, unrealistic, unenforced or unenforceable. The following is a draft proposal for a revised tenancy in layman's language, but which could still be legally binding.

| | |
|-------------------------------|---|
| <u>LANDLORD</u> | <u>TENANT</u> |
| BETWEEN~ | AND~ |
| ADDRESS~ | ~ |
| TEL: | : |
| START OF TENANCY DATE: | |
| PLOT NUMBER: | |
| SITE: | |
| GROUND AREA: | square metres |
| RENTAL VALUE: £ | |
| AMENITY CHARGES: £ | [e.g. water / buildings / electricity standing charge] |

[This tenancy is in accordance with the Small-holdings and Allotments Acts 1908 and 1950.]

PAYMENT The rent and amenity charges administered by the landlord should be paid in January when the bill will be sent to the tenant by post. The rent is paid three months in advance and nine months in arrears. New tenants taking on plots which are in good condition before July will be liable for the full amount of the rent in January of the following year. New tenants taking on plots either in the second half of the year or plots which are neglected or abandoned will not be billed for rent for one year after the date the tenancy commences, but may still be liable for amenity charges. Please inform the landlord of any change of address.

NON-PAYMENT If the rent remains unpaid for longer than a period of six weeks, a reminder will be issued. If the bill is still unpaid after another 4 weeks, it will be assumed that the tenant has terminated the tenancy and notice of eviction will be posted at the site of the allotment itself. After a further period of 4 weeks, the plot will be re-let to another tenant.

RESPONSIBILITIES OF THE TENANT

1. Keep all cultivable soil on the allotment free from weeds and in a good state of fertility.
2. Keep the soil free from noxious contaminants [glass, plastics, metals, asbestos etc.]
3. Keep the site access track adjacent to their plot clear of obstacles.
4. Ensure that the plot is accessible to visual inspection by maintaining hedges at no more than 1.5 m.
5. Repair and maintain any buildings erected on the plot to the highest standard possible.
6. The tenant will be liable for removing any perennials at the termination of the tenancy.

RESTRICTIONS *The tenant is NOT permitted to:*

1. Cause any nuisance or annoyance to neighbouring plot-holders.
2. Cause excessive disruption to the natural environment either on their plot or in its environs, including water, mineral and soil extraction.
3. Use the allotment for business, trade, profit or the generation of any income except to meet costs already incurred in developing the plot.
4. Sublet the plot to another party.
5. Use the allotment as a permanent residence or place of abode.
6. Use the water supply for anything other than filling butts and containers.
7. Use hoses attached to the water supply without due attention to the needs of others.
8. Use barbed wire, razor wire or any other features which may cause severe injury.
9. Erect any new permanent structures without obtaining the written consent of the landlord's agent.
10. Light frequent or slow-burning bonfires, burn plastics and synthetic materials, or generate any other form of air pollution.

PERMITTED

1. The tenant and one or more other parties may agree to share the use of the plot by written agreement. If this is registered with the landlord's agent, a joint tenancy will be issued, providing the co-tenants supply a single contact address and agree to pay the rent in a single sum.
2. Tenants wishing to keep [or increase the number of] animals or livestock on their plot should first apply to the landlord's agent for written consent.
3. In the unfortunate event of the death of the tenant, first refusal will be offered to a relative or close friend of the tenant.

TERMINATION *Notice to Quit will be issued in the following circumstances:*

1. Failure to pay rent and/or amenity charges promptly.
2. Failure to abide by the regulations as specified in the tenancy agreement above.
3. If the land on the site is required for statutory developments authorised by the Secretary of State.

14. OPEN DAY HANDOUT 6/7.8.94

Issued as an explanation for visitors to allotments in 1994.

These open days are part of HDRA's national promotion of organic gardening. I'm pleased to be able to help by providing practical examples of organic techniques and issues. This leaflet explains my motivation and describes some of the aims and achievements so far on each of the allotments.

I began gardening five years ago with the aim of growing some of my own food, culinary and medicinal herbs. I had the advantage of knowing nothing about horticulture which allowed me to evolve my own methods by experience and observation together with extensive study of organics and related topics. Allotments are often the only means of access to land for most people.

All the gardens I've helped with were recovered from states of neglect and dereliction. The initial process of weeding and clearing was hard work which is best approached gradually. The other first step was to find sources of fertility. I began a quest for organic matter by collecting vegetable waste from my local greengrocer, which I have continued to collect and compost each week ever since. I also began several good organic practices to build up the soil, including loam-making, leaf-collecting, mowing hay and nettles, collecting horse manure, comfrey, mulching, green manuring and raised beds. I also found that many resources such as wood, glass and carpets etc. could be saved from skips (landfill) and recycled on allotments. My research into these activities convinced me that they offered excellent opportunities for acting locally to solve problems on personal, social and global levels.

After a couple of years, these methods proved themselves successful and I felt confident enough to start branching out and taking on other gardens. I encouraged friends to take on allotments and gave them advice and help. I also became involved with a local environment group and supervised the planting of 1,500 indigenous species trees on an open space, the Ponderosa, Crookes Valley.

The gardens are all at different stages of recovery and development, which is a long process, and none of them are anywhere near complete. Visitors will realise that soil fertility is my priority and that cosmetic tidiness is a secondary concern. I think that it's better for people, especially beginners, to see real, messy but productive gardens in the making than some of the formal, perfect, unattainable examples we see in textbooks and on t.v. The gardens I've worked on each have a character of their own and are designed for the different needs of the tenants.

As my interest and experience of allotmenting has grown, I've also been trying to raise the profile of allotment gardening by lobbying Sheffield council, standing in the local elections and advising the city's environment forum. As part of my research into organics, horticulture, recycling and composting, I've compiled several handouts full of concise information which are available from the bookstall today.

EIGHT ORGANIC ALLOTMENTS

All of these gardens had been left uncultivated for several years and were overgrown with couch and perennial weeds, which means that they all began as organic. Underneath the weeds and rubble, each had solid foundations for rebuilding huts and glasshouses, and a basically sensible layout of paths. All the hedges had grown wild which required cutting them back hard over several seasons.

CROOKES QUARRY

This site was constructed about 80 years ago on the rubble of a disused sandstone quarry. The soil is sandy with clay subsoil and is free draining. The site slopes gently to the north and is exposed to wind from the north and east.

Number 20

Richard, unemployed, cultivated since 1989. The aim is to provide continuity of supply of a diverse range of vegetables throughout the year. This is my main nursery area for raising young plants. It is very exposed to the north, but has magnificent views up Rivelin valley and over the city. All the buildings have been rebuilt from the original foundations and the hut has been rebuilt twice since the first was burnt down by "joyriders" who crashed and burnt out a car at the end of the track last year. Featuring a healthy stand of tobacco.

28

Sue and Mary. Help since 1991. The aim is to produce an easy maintenance garden with many perennial crops and lots of soft fruit. The plan has been to break open a quarter of the site each year, improve the soil and plant up.

35

For people with special needs and disabilities. Help since 1992. The aim is to provide a variety of activities suited to the users' abilities. Wide concrete paths allow wheelchair access and there are a range of bed shapes and sizes for fruit, veg., flowers and herbs. I have not helped with the reconstruction of the hut, but I do plan to build a greenhouse once the rubble has been cleared from the extensive foundations. This year most of the beds were put down to a variety of green manures to improve the soil.

37

John, Clare and their two children. The layout has been changed considerably to provide safe play area for the children separate from the composting and cultivation areas. The soil on the main beds was very poor; compacted, mineralised and acidified by chemical abuse, but has now begun to revive after double-digging and heavy composting. The huge greenhouse had 75% of its glass missing but was just about structurally sound.

30

Dave, unemployed, 1994. This garden is still in the initial stages of clearing and reclaiming. It provides an example of the kind of problems which have been dealt with on the others. It features an ancient vine which it should be possible to make fruitful again when the greenhouse is rebuilt.

39 MARSH LANE

Barry, since 1990. Busy working person with only a few hours spare per week. Basic layout of raised beds and a very DIY hut.

2 HAGG LANE

Steve, unemployed, non-gardener. Steep slope with terraced beds and lots of fruit trees. Featuring wild areas and a badger set!

54 HAGG LANE

Richard's 2nd, since 1992. Aim to produce larger crops of staples and green manure seed. Sheltered aspect with a very fertile but extra heavy clay soil. Raised bed terracing down slope along contour. Featuring a thriving eruption of squash growing out of the compost heaps.

15. SHEFFIELD ORGANIC FOOD INITIATIVE SEED CATALOGUE '97-8

S.O.F.I.'s seedbank offers you the opportunity to obtain locally grown, organic seeds.

These seeds have been cultivated using ecological inputs including;

- A variety of mature manures [horse, cow, pig, elephant]
- Genuine composts including recycled shop and domestic vegetable matter.
- Leafmould from locally collected leaves as a source of soil humus and peat replacement.
- Loam formed from the breakdown of turf and perennial weeds.

These inputs have been combined with cultivation techniques derived from organics, biodynamics and permaculture to produce the highest quality seed, adapted to growing locally.

Varieties marked * are heritage heirloom varieties, not available commercially.

This list is an example of what a dedicated individual grower can achieve.

VEGETABLE SEEDS

BEANS BROAD -- WHITE WINDSOR/BUNYARD'S EXHIBITION/CRIMSON FLOWER*
 RUNNER -- KELVEDON WONDER/CZAR
 CLIMBING -- LAZY HOUSEWIFE */YARDLONG/BLUE LAKE/CASEKNIFE *
 PEA-BEAN */BLUE AND WHITE */CHEROKEE TRAIL OF TEARS *
 DWARF -- GOLDEN BUTTER/ROYALTY/BLACK VALENTINE */SOLDIER *
 CHEVRIER VERT/VAL'S BEAN/VERMONT CRANBERRY *
 HUTTERITE SOUP */HUNGARIAN BUTTER */HORSEHEAD
 PEAS -- PROGRETA */MAGNUM BONUM */NE PLUS ULTRA */ALDERMAN
 SUGAR SNAP/MARKANA/GRADUS/CAROUBY DE MOUSANNE/
 CHAMPION OF ENGLAND */DUN PEA */PURPLE PODDED*
 AUBERGINES -- LONG TOM/LONG PURPLE
 SWEET PEPPERS -- HOT WAX/SLIM PIM/MINI-RED/LONG SPANISH
 CHILLI PEPPERS -- CASCABEL/JALAPENO/PAPRIKA/ROCATILLO/KOREAN
 TOMATOES -- CHEROKEE */BRANDYWINE */HUGH'S */OXHEART GIANT */
 BONNY BEST */BRITAIN'S BREAKFAST/HARBINGER/TIGERELLA/
 GARDENER'S DELIGHT/SAN MARZANO/GOLDEN SUNRISE/ORANGE/
 MARMANDE/BEEFSTEAK/YELLOW SALAD BEEFSTEAK
 COURGETTES -- ALL GREEN BUSH/CLARELLA
 WINTER SQUASH -- POMPEON/UCHIKI KURI/BANANA PINK/PEPO/CROWN PRINCE
 SPINACH -- PRICKLY WINTER/MEDANIA/LEAFBEET/RAINBOW CHARD
 CHICORY -- BRUSSELS WITLOEF
 LETTUCE -- LOO'S TENNIS BALL */VALDOR/LOLLA ROSSA/AVONCRISP
 BROCCOLI -- PURPLE SPROUTING/WHITE SPROUTING
 KALE -- PENTLAND BRIG/ASPARAGUS KALE *
 SALAD GREENS -- GREEK CRESS/LAND CRESS/ROCKET/BROWN MUSTARD
 ORIENTAL GREENS -- WHITE CELERY MUSTARD/KOMATSUNA/SHUNGIKU
 ONIONS -- UP TO DATE */ISHIKURA/TURBO
 LEEKS -- GIANT WINTER/LYON
 RADISH -- MUNCHEN BIER/PINK BEAUTY/CHERRY BELLE/SCARLET GLOBE
 PARSNIP -- TENDER AND TRUE SALSIFY/SCORZONERA
 OTHERS -- FLORENCE FENNEL/SUN HEMP/KENYAN MAIZE/FIELD SESAME
 GRAINS -- GRAZING RYE/WHEAT/OATS/QUINOA

CULINARY HERBS

BASIL [SWEET/LEMON/GINGER]/BORAGE/BRONZE FENNEL/CARAWAY/CHERVIL/
 CHIVES/GIANT CHIVES/GARLIC CHIVES/CLAYTONIA/CORIANDER/CILANTRO/
 DILL/FENUGREEK/GOLDEN MARJORAM/HYSSOP/MARIGOLD/MITSUBA/
 NASTURTIUM/PARSLEY [CURLY AND FLAT=FRENCH=PLAIN]/SALAD BURNETT/
 SORREL/SUMMER SAVORY/THYME/ORANGE THYME/WELSH ONION

MEDICINAL HERBS

CHAMOMILE/CLARY SAGE/DATURA[ANNUAL AND PERENNIAL]/ECHINACEA/
 ELECAMPANE/EVENING PRIMROSE/FEVERFEW/FLEABANE/HENBANE/HOPS/
 LEMON BALM/LOBELIA/MARSHMALLOW/MEADOWSWEET/MONKSHOOD/OPIUM
 POPPY/PENNYROYAL/POKE ROOT/SELF-HEAL/SKULLCAP/SQUIRTING CUCUMBER
 ST. JOHN'S WORT/SWEET CICELY/TANSY/VERVAIN/WHITE HOREHOUND/
 WHITE VALERIAN/WOAD/YARROW

COTTAGE FLOWERS

ASTRANTIA/RED CLOVER/COLUMBINES/CORNFLOWER/COWSLIPS/DELPHINIUM/
 DIANTHUS//FRENCH MARIGOLD/GODETIA/HELICHRYSUMS/HOLLYHOCKS/
 HONESTY/IRANIAN POPPY/JACOB'S LADDER/LAWN CHAMOMILE/LIMNANTHES
 [POACHED EGG PLANT]/LUPINS/NEMESIA/NIGELLA/POLYANTHUS/RED QUINOA/
 ROCK ROSE/SNAPDRAGONS/TEASEL/VETCH[TARES]/YELLOW FLAG IRIS

PLEASE PLACE AN ORDER BY LISTING SELECTIONS OR HIGHLIGHTING THEM ON THIS SHEET
 AND COMMUNICATING THIS TO THE ORGANIC FOOD INITIATIVE

AT THE ECOLOGY COMPANY 199 CROOKES VALLEY ROAD S10 1BA TEL/FAX 2671200

ORDER PREFERABLY BY DECEMBER '97 OR FEBRUARY '98 AT LATEST.

NOTE THAT SEEDS ARE FREE, BUT A SMALL CONTRIBUTION TOWARDS PACKING [5-10 p]
 WOULD BE APPRECIATED.

IF YOU NEED LARGER QUANTITIES OF CERTAIN VARIETIES, INDICATE CLEARLY ON ORDER.

THE GERMINATION AND VIABILITY OF THESE SEEDS SHOULD BE AT LEAST EQUAL TO
 ANY COMMERCIALY PRODUCED SUPPLY. SOW WITH CONFIDENCE!

S.O.F.I. CAN ALSO OFFER FRUIT CUTTINGS, HERB SEEDLINGS AND VEGETATIVELY PROPAGATED
 PERENNIALS, AVAILABLE ON REQUEST.

16. PLANTSTOCK 1998

These plants have been cultivated using ecological inputs including;

- A variety of mature manures [horse, cow, pig, elephant]
- Genuine composts including recycled shop and domestic vegetable matter.
- Leafmould from locally collected leaves as a source of soil humus and peat replacement.
- Loam formed from the breakdown of turf and perennial weeds.

These inputs have been combined with cultivation techniques derived from organics,
 biodynamics and permaculture to produce the highest quality seed, adapted to growing locally.

Plants grown from seed in 100 ml pots. Cuttings and root-divisions in 1 litre.

CULINARY HERBS

CHIVES GARLIC CHIVES BLACK PEPPERMINT WHITE MARJORAM GOLDEN MARJORAM
 THYME ORANGE THYME ROSEMARY HORSERADISH RUE

MEDICINAL HERBS

SELF-HEAL MARSHMALLOW SKULLCAP RED SAGE WHITE VALERIAN LAVENDER
 WHITE HOREHOUND PENNYROYAL WHITE COMFREY CLARY SAGE CATMINT FLEABANE
 CURRY PLANT

COTTAGE GARDEN PLANTS

LAWN CHAMOMILE STAG'S HORN SUMACH PEONY HONEYSUCKLE BUDDLEIA CURLED
 IVY ROCK ROSE POLYANTHUS SNAPDRAGON WINTER JASMINE BOX
 HOLLYHOCK WALLFLOWER PERENNIAL SWEET PEA

FRUIT

STRAWBERRIES --- DOMANIL/AROMEL/HONOEYE RHUBARB --- HAWKES CHAMPAGNE
 ALPINE STRAWBERRY --- BARON SOLEMACHER HAZEL --- PURPLE
 BLACKCURRANT --- BEN SAREK/WELLINGTON PLUM --- WINTER CRACKS
 GOOSEBERRY --- WHINHAMS INDUSTRY
 LOGANBERRY/THORNLESS/TAYBERRY/BOYSENBERRY/JOSTABERRY

PERENNIAL VEGETABLES

ASPARAGUS --- LIMBRAS FRANKLIM/CONNOVERS COLOSSAL
HOPS CARDOON GLOBE ARTICHOKE

PERENNIAL DIVISIONS

BOCKING COMFREY TANSY WILD STRAWBERRY RED VALERIAN FLEABANE LEMON
BALM LOVAGE WELSH ONION GOOD KING HENRY JACOBS LADDER
MINTS --- APPLE/GINGER/PEPPER/SPEAR/GARDEN LARGE-LEAVED SORREL EGYPTIAN TREE
ONION LUNGWORT YELLOW FLAG IRIS

SELF-SOWN BIENNIALS

LIMNANTHES/MULLEIN/TEASEL/EVENING PRIMROSE

17. ECOLOGY COMPANY SOIL-HEALTH-CARE KIT 1991-1998

All the products in this range are completely organic, supplied by Cumulus Organics [Pinetum] and Sea Trident. Supplied in 1Kg units. Larger bulk quantities available on request.

PEAT-FREE POTTING COMPOST AND COIR BRICKS --Environment-friendly growing media.

LIQUID SEAWEED EXTRACT -- A quick-acting tonic for heavy-feeders and pot-plants. Dilute for use as a liquid feed or to spray on foliage.

SEAWEED MEAL -- A panacea or cure-all for soil and plants. Provides nitrogen and trace elements, which are especially valuable in Sheffield where soils are easily leached and depleted. Can be added to the soil as worm-and/or plant-food or used as a compost activator.

CALCIFIED SEAWEED -- A type of coral limestone which neutralises and sweetens acid soils. Also helps to improve aeration, creating good soil structure and tilth.

DOLOMITELIMESTONE -- Balances pH in acid soil and promotes bacterial activity. Contains magnesium which is vital for plants' chlorophyll metabolism.

VOLCANIC ROCK DUST -- Slowly releases an exotic mixture of over 40 trace minerals, which will revitalise tired and overworked soils.

POTASHROCKDUST -- Contains potassium which is vital for plants' root, fruit and leaf development.

ROCK PHOSPHATE -- Contains phosphorous which is crucial for fruiting, flowering and seed growth.

COMPLETE ORGANIC FERTILISERS: GROSAFE AND BLOOD, FISH AND BONE. Balanced, quick-acting complete plant foods. N.B. Vegans; These contain animal products [abattoir by-products].

MAY YOUR WORMS FLOURISH AND MULTIPLY!

18. HOW TO USE SEAWEED TO GROW HEALTHY, ORGANIC FOOD

SEAWEED IS A SAFE, PLEASANT AND EASY TO USE ORGANIC FERTILISER.

IT CONTAINS TRACE ELEMENTS AND NUTRIENTS FOR PLANT HEALTH AND GELS [ALGINATES] WHICH HELP FORM HUMUS AND IMPROVE THE SOIL'S STRUCTURE AND TEXTURE.

IT ALSO IMPROVES THE TASTE AND FLAVOUR OF THE FINAL CROP.

1. COMPOST ACTIVATOR

1 Kg per M³

SPRINKLE ON IN LAYERS AS THE HEAP IS BUILT UP AND MOISTEN.

IMPROVES THE QUALITY OF COMPOSTS AND MANURES.

ACCELERATES THE BREAKDOWN OF COMPOST INGREDIENTS AND TIME TO MATURITY.

2. SOIL IMPROVER

1 Kg per 4 M²

SPREAD EVENLY 4-8 WEEKS BEFORE CROP SOWN OR PLANTED.

IMPROVES TEXTURE, STRUCTURE AND WATER RETENTION CAPACITY.

INCREASES MICRO-ORGANISMS, HUMUS AND NUTRIENTS AVAILABLE TO PLANTS' ROOTS.

3. CROP FERTILISER.

1 Kg per 2 M²

SPREAD AROUND ESTABLISHED PLANTS 4-8 WEEKS BEFORE CROP MATURES.

GENTLY HOE OR RAKE TO MIX SEAWEED INTO TOP INCH OF SOIL.

HELPS PLANTS ATTAIN FULL POTENTIAL EVEN WHERE SPACE IS LIMITED.

4. LIQUID FEED.**1 Kg per 25 L**

FERMENT IN [RAIN-]WATER FOR 2-4 MONTHS, STIR WEEKLY.
 DILUTE FERMENTED LIQUID WITH 20 PARTS WATER BEFORE USE.
 APPLY TO SOIL WHICH IS ALREADY MOIST AROUND MATURING CROPS.

5. FOLIAR SPRAY.**1 Kg per 5 L**

FERMENT IN [RAIN-]WATER 4-6 MONTHS. STIR REGULARLY. DILUTE 1:10.
 IMPROVES PLANT'S VIGOUR AND HEALTH AT ALL STAGES OF GROWTH.
 EFFECTIVE AGAINST PESTS AND FOR RECOVERY OF DISTRESSED PLANTS.

6. POTTING COMPOST INGREDIENT.**1+ Kg per 50 L**

DISTRIBUTE WELL IN MIXTURES FOR POTTING ON PLANTS AND SEEDLINGS.
 OMIT ALL FERTILISERS FROM SEED-SOWING COMPOSTS.

*THESE APPLICATION RATES ARE APPROXIMATE, BUT GENEROUS.
 USE A LITTLE MORE IF SEAWEED IS THE ONLY FERTILISER YOU USE.
 USE LESS IF YOU COMBINE SEVERAL METHODS OF APPLICATION [1-6]
 OR IF YOU ALSO USE OTHER FERTILISING INGREDIENTS.*

HEALTHY SOIL = HEALTHY PLANTS = HEALTHY PEOPLE

WE'RE GIVING IT AWAY !

Seaweed has always been recommended for its fertile effects on gardens. If you live by the sea, you can collect as much potato or beetroot fertiliser as you want from the shore for free. Unfortunately, Sheffield has no beaches, but you can still collect free seaweed if you want to grow your own healthy fruit, vegetables or herbs. We've obtained funding from Sheffield Health Authority's Healthy Gardening Group for a pilot project to distribute free seaweed in this area.

The Ponderosa Environment Group has been working to encourage productive gardening according to organic and permacultural principles for more than five years. We have successfully planted and maintained an orchard of more than 30 fruit trees and 150 hazel cultivars and established 2 acres of new woodland [1400 native species trees]. We are still actively engaged in improving the Ponderosa as a community resource and a public amenity, and have recently installed 10 rustic wooden benches.

PEG has extended its activities to include the cultivation of 12 organic allotments [in Crookes and Rivelin] and a one-acre kitchen garden [Unstone Grange]. We have provided advice, support and encouragement to hundreds of local people, including site-surveys and ongoing help. We have operated several mutual aid schemes including a tools bank, a weekly compost delivery, seed bank, bulk seed and fertiliser orders and shared fruit stock orders.

To qualify for the free seaweed, applicants must be committed to trying to grow organic fruit, vegetables or herbs. Also they must live or garden in the area local to the Ponderosa, within 5 minutes walking distance, i.e. Netherthorpe, Upperthorpe, Shalesmoor, Crookes, Crookesmoor, Walkley etc.

And can demonstrate financial circumstances that mean they deserve support, e.g. low-waged, benefit-dependant, special needs or disabilities, carers etc.

To date, we have purchased 500 Kg of feedstock-grade, washed and dried seaweed meal, sustainably harvested from the west of Ireland. Half of this amount was given out during 1997, so we still have 250 Kg to give away.

insert calendar

19.

PLANTING CALENDAR

LUNAR CYCLE

NEW/WAXING MOON----SOWING SEED
 FULL MOON-----GERMINATION
 WANING MOON-----PROPAGATION
 DARK MOON-----TRANSPLANTING

EXPLANATION

The Planting Calendar is a practical tool derived from generations of successful **biodynamic** practice. The information overleaf is a presentation I have found functional and sufficient over the past five years. It simply records **the phase of the moon and its place in the sky** throughout 1998.

These basic facts allow you to perform various activities when the influence of the moon and stars are most likely to help.

TIMING SEED-SOWING.

STEP ONE : Sow seeds as many days *before* full moon as it will take them to germinate.

STEP TWO : Sow on the nearest most suitable sign day for the *crop* you want at maturity.

Identifying **windows of opportunity** suitable for various tasks means you can plan ahead and don't try to do too much at one time or too soon. The restriction imposed by following this timetable is compensated for by improved subsequent growth. Priority tasks such as seed-sowing can be prepared for well ahead of time, fitting less important jobs in as and when possible. Following this pattern provides a diversity of activities through the course of each month which enhances personal motivation and momentum.

THE SUN

The sun is the most important factor deciding what plant growth is possible at different times of the year and month. Solar activity dictates the availability of necessities such as **heat, light** and drives the weather cycles of **moisture and respiration**. Sunlight can be unpredictable even in summer, but the sun also has cycles of increased activity, such as the occurrence of sunspots and the emission of particles from its reactions.

The influence of the sun and the weather generally obviously defines conditions for both plants and gardener, although it sometimes seems that the influences of the sun and the moon are synchronised, as when a drought breaks just before a full moon.

THE MOON

THE SYNODIC MONTH: From an earthbound perspective, the visible moon takes **29.5** days to complete the cycle through its phases from new to full and back to new. It is this cycle which governs and is synchronised with the behaviour of **water** around the world, causing it to rise and fall twice daily. On the macroscopic level, the gravitational pull of the moon on the oceans directly controls the pattern and extent of tides. The same force which causes oceans to move also influences the behaviour of the liquid magma beneath tectonic plates and consequent volcanic activity. It also influences water and all liquids on a microscopic and molecular levels. Behaviour patterns of both plants [e.g. dormancy/fertilisation] and animals[e.g. hibernation/reproduction] are both timed by the moon's cycles, as are menstrual cycles.

Just as the moon is capable of producing two high and low tides a day, so water rises and falls within the soil. These **land-tides** are most extreme at full and dark moons. When the sun and moon are opposite each other [full], water in soil rises strongly twice, twelve hours apart, feeding plant roots and then encouraging them to travel into the soil as the water drops. When they pull together [dark], they produce one combined pull every 24 hours, causing roots to venture even further in search of water.

1998

COSMIC CYCLE

| | | |
|-------------|--------------------------|-------------|
| FIRE SIGNS | [ARIES/LEO/SAGITTARIUS] | = FRUITING |
| EARTH SIGNS | [TAURUS/VIRGO/CAPRICORN] | = ROOTING |
| AIR SIGNS | [GEMINI/LIBRA/AQUARIUS] | = FLOWERING |
| WATER SIGNS | [CANCER/SCORPIO/PISCES] | = LEAF |

AND THE STARS

THE SIDERIC MONTH: The moon takes **27.5** days to cross the celestial sky and return to its starting point. The sky can be understood to be a **zodiac** made up of 12 approximately equal longitudinal sections [astrological **signs**], each occupying 30 of the 360 degrees of a complete circuit. It takes the moon 2-3 days to pass through each section. The effect of the moon is different according to which sign it is passing through. The signs correspond to the four **elements** [fire, earth, air and water] in three sequential cycles each month [as above].

When the moon is in a certain sign, specific types of growth process are promoted and enhanced. These are identified by relating the four elements to four main categories of growth [fruit, root, flower and leaf]. Depending on what part of the plant is required as a **crop**, harvest or end-product, activities can be carried out on days ruled by the relevant sign and element.

FOR EXAMPLE: Dandelion seed could be encouraged to grow bigger, better leaves by sowing on a water sign day. The same seed could also be used to produce a seed, root or flower crop if sown on fire, earth or air days respectively.

Moon and Stars: Lunar and Cosmic influences can combine and re-inforce each other. For instance, a transplant carried out just before dark moon and during an earth sign [rooting] would be receiving doubly helpful influences. Even subtler systems of attribution assert that individual plant species correspond to or have affinities with specific astrological signs or planets, or even the point at which the moon transits from one sign to the next. I do not recommend trying to take on these even more complex dimensions, until one is familiar with the simple system described here, because these correspondences are more contentious and one species may be associated with more than one sign, if it has many different purposes and uses.

NOTES FOR CALENDAR:

- There are **13** moon cycles in the vertical columns.
- Each column starts at the **new** moon for that moon-month.
- The central line across the page, half way down each column shows when the **full** moon occurs.
- Moon cycles are of variable duration [28-31 days/29.5 average], requiring a maximum of **32** daily entries.
- The signs and symbols are assigned to the day on which the moon is in position for most of the **daylight hours**.
- The astrological sign is only marked on the **first** day that the moon enters that sign.
- **Sundays** are underlined.

20. BRIEF GUIDE TO ALL YOU NEED TO KNOW TO GROW

An attempt to convey some basic principles vital for understanding the living systems which help with food growing.

BIODYNAMICS

A farm or garden in which all the nutrients it produces needs very little extra input from outside itself. Composting all available organic wastes and returning them to the soil creates resource loops which maintain the biomass in the system. In this way, the soil is maintained in a high state of fertility and is more active or dynamic.

COMPOSTING

The decomposition and reconstitution of organic matter includes all four elemental processes; heating=fire, breathing=air, moisture retention=water, humus formation=earth.

The essential factor is the bonding of carbon- and nitrogen-containing molecules, which requires a balanced initial mixture of ingredients, in a ratio of 30 to 1.

ORGANISMS

Healthy, well-fed soil has an awesome capacity for supporting life. A spoonful of healthy topsoil contains billions of micro-organisms [bacteria etc.]. Earthworms can create many tonnes of fertilising casts per acre each year. The presence of abundant micro- and macro-organisms not only encourages healthy plant growth but also limits the spread of pests and diseases.

RAISED BEDS

A strip of soil 4-8 ft/ 1-2 m wide is edged with beams or planks of wood 6-12 inches/ 15-30 cm high to make a stable bed. Soil from paths can be dug out onto the beds to allow access and prevent cultivated soil from being compacted by footsteps. This helps to create a soil which is well structured, easier to work, holds moisture with good drainage and aeration.

MULCHING

Mulches protect the topsoil around maturing plants from weathering by sun, wind and rain. They provide a buffer at the interface between the soil and the atmosphere, keeping the soil moist in dry weather or warm in cold weather, allowing root systems and soil organisms to remain active for longer.

GREEN MANURES

Ground-cover crops are a living mulch which can prepare land for the crop to follow. They suppress weed growth and can either be dug in to improve soil-structure or raked away for use in compost or as mulch.

COMPANION PLANTING

Neighbouring plants of different species and growth patterns can have a beneficial influence on each other. Herb companions improve vegetable flavour and protect crops from pests. Two crops can symbiotically benefit from growing next to or amongst each other, if they require similar soil cultivation but make different demands on the space available at different times. In permaculture systems, combinations of companions suitable for a particular site creates a self-sustaining plant community.

CROP ROTATION

Monoculture of the same crop on the same piece of land for many years depletes the soil of the nutrients which that crop requires and increases the chances of pests and diseases building up. A sequence of different crops allows the soil longer to recover before the same demands are repeated. Compost or manure only needs to be added once every three years for heavy feeders [potatoes or cabbage] if they are followed by soil-improvers [peas, beans, grains] and lastly light-feeders [roots] that need a well-consolidated soil.

PLANT CARE

Liquid feeds and foliar sprays with readily available nutrients can be made by fermenting any green plant material, [especially comfrey for potash and nettles for nitrogen] or manures in rainwater for 2-4 weeks, stirring occasionally. Teas made of infused herbs can be sprayed onto plants either to strengthen new growth [such as horsetail] or to discourage pests [such as quassia]. Biodynamic preparations containing homeopathic doses of quartz, cow-dung, valerian, chamomile, dandelion and oakbark can be sprayed onto plants, soil or compost to enhance a variety of growth processes.

CYCLIC SYNCHRONICITY

Plants are influenced by daily cycles of expansion by day and contraction at night and also by annual cycles of seasonally changing daylength, both depending on the position of the sun relative to the earth. The lunar cycle also influences the activity levels and life-cycles of plants and soil-organisms, peaking around full moon. Plants are even affected by planetary transits. We can synchronise our actions with these daily, monthly and annual cycles by understanding and observing how they influence growth.

OBSERVATIONS Many factors influence plant growth. We need to observe and understand these seasonal influences to be able to assist in these processes and avoid disrupting them. An awareness of daily and seasonal changes allows us to intervene only when our actions will be effective. A strategy of minimal intervention saves time and effort, and produces great results. So try to regularly put your thinking cap on, relax and use the passive, receptive side of your brain to assess how these observable factors can help you to grow your plants where and when they will thrive.

SOLAR ENERGY

The amount of sunlight available to plants varies according to day length and season. Plants need to both expand by day and contract at night. The relative length of light and dark periods determines when seeds will germinate and when plants will flower and mature. In the spring and autumn, these periods are equal allowing relatively constant growth. In summer, sunlight is more intense, direct and almost vertical, which can be too bright, hot and dry for some plants. Equally in the winter, sunlight is weaker and less direct, casting long shadows, which can be too dark cold and wet for many plants to keep growing.

TEMPERATURE

The air temperature usually [but not necessarily] reaches a maximum by day and falls to a minimum at night. It is affected by wind which can either be cooling or warming. Cold air is heavier than warm and so sinks down slopes which causes frost pockets in dips and valleys. The temperature of the soil slowly changes with the seasons, with an average delay of six weeks behind the ambient air temperature heated directly by the sun. At a certain depth, below 6 inches/ 15 cm, the temperature of the soil remains within a fairly constant range [2-4 degrees C] throughout the year. Darker soils warm up earlier in the year. Some plants have anti-freeze mechanisms which increase the concentration of glucose in their sap and allow them to continue to grow in sub-zero temperatures and others can even generate enough heat to protect themselves from mild frost. Soil organisms can also generate warmth [exothermic reactions], given the right conditions, as illustrated by the heat achieved in active compost or manure heaps.

CLOUD

Clouds reduce the intensity of light reaching plants, but many can grow quite happily with only indirect sunlight. If it's cloudy enough, the cloud-cover actually insulates the air beneath it, which usually prevents frost at night. By regular observation, you can recognise what weather different shapes and sizes of cloud-systems will bring. You can study the unique pattern that your local geography produces in the cloudscape, which allows you to time your actions precisely. If you know your clouds, it should be possible to sow seed just before it rains.

PRECIPITATION

Water is vital for plants, especially in these times of drought. Rainwater is preferable to tap water, so you should try to store as much as possible in butts and tanks. You can also store a lot of moisture in the soil if it contains sufficient humus [over 5%], which acts like a sponge, soaking up and retaining up to ten times its weight in water. You can also conserve moisture in the soil by either hoeing or mulching directly after a downpour. Remember that a layer of snow forms an insulating blanket which actually keeps the soil underneath it relatively warm.

WIND

It is possible to briefly summarise the nature of winds from the four directions of the compass thus; east wind=continental, west=oceanic, north=polar, south=Mediterranean. Try to notice how the strength and direction of the wind changes with the seasons and what effects these changes have on your specific gardening site. Nearby mountains, buildings and trees create local windflows and channels. The best windbreaks are non-solid, permeable barriers such as hedging which slow the wind down, rather than solid objects such as walls which compress and accelerate the wind to even greater speeds, creating dangerous eddies and vortices. Whenever there is danger of wind damage, support tender and tall plants.

LUNAR PHASES

The 29.5 day moon cycle has the same gravitational effect on the land as it does on the seas and oceans. The water in soils, plants and even animals is subtly pulled up and pushed down twice a day by the changing force of the moon's gravitational field as it orbits the earth. At full and dark moons, this tidal effect is greater, which encourages extension growth [shoots and roots]. At half-moons, soil water rises and falls less, consolidating the growth made before. Try to sow around the start of the second waxing quarter moon, which allows the seeds to be influenced by the expansive full moon. Transplant during the fourth quarter [old moon] to allow plants to gently re-establish under the influence of the dark moon.

21. FRUITING PERENNIALS ---PLANTING PROTOCOL

STEP-BY STEP DIRECTIONS

The idea of planting some form of fruiting tree appeals to everybody [or at least the vision of plucking ripe fruits from a tree you've planted yourself]. Whilst wishing to encourage more fruit-planting wherever possible, care must be taken to ensure a successful result. What follows is an attempt to comprehensively describe all the actions necessary to increase the plant's chances of attaining a productive, healthy and long life. This information has been compiled from many sources and suggestions, combined with years of practical experience.

Purchase **OPEN or FIELD-GROWN** stock, which will have a natural root-form, in the **DORMANT** season, rather than **POT OR CONTAINER-GROWN**, which are more likely to have ingrown and restricted roots and may have spent too long in too small a pot. If you can only obtain potted stock, ensure that the **ROOTBALL** is thoroughly disentangled when the plant is transplanted or potted up.

YOUNGER plants [1-3 years] will probably become re-established in their final positions more quickly than older [3-5 year old]. Nursery growing conditions will have been as close to perfect as possible, to ensure maximum growth in the stock offered for sale. Care should be taken to try to ensure that these high levels of fertility are maintained during the first 5-7 years while the tree is becoming established in its final position. Unimproved soil will check the tree's growth in its formative years, postponing its full establishment and cropping.

SOIL IMPROVEMENT should aim to allow the plant to fulfill its prodigious growth potential, first by remedial, mechanical addition of enough bulky organic matter to render a sufficient area and depth of soil readily penetrable by the plant's roots and secondly by the addition of sufficient concentrated long-term, slow-release fertilisers to allow the tree to generate a sturdy and balanced structure of healthy wood which will be capable of bearing the weight of many years' fruit crop. Imagine that each tree may produce hundreds of pounds of fruit annually when it is mature. The future return justifies a generous investment to help guarantee that outcome. Spend at least the value of the plant on feeding its formative growth with bulky organic matter and concentrated fertilisers. Once fully established, the plant will be capable of exploiting all the indigenous, unimproved soil available to it.

SPACING. The size of the mature tree is dependant on the vigour of the rootstock which the fruiting wood has been grafted onto. The full extent of growth of various rootstocks vertically and laterally are as follows; dwarf 5-10 ft, bush/semi-dwarf 10-15 ft, half-standard 15-20 ft, full standard 25 ft +.

PLANTING SEQUENCE.

1. Dig a hole 3-4 ft [1m+] wide and 12-18 inches [30-40cm] deep. Put the topsoil into a mound on one side.
2. Break up the subsoil in the bottom of the hole with a fork to ensure good drainage under where the roots will grow and remove any large stones or obstacles to root growth.
3. Fill half the hole with rough organic matter and fertilisers that will take 3-5 years to break down. Using a fork, first mix with some subsoil and then a couple of spadefulls of topsoil.
4. Overfill the rest of the hole with more mature organic matter and short-term, soluble fertilisers[such as aged compost and seaweed]. Stir the mix with a fork again bringing up a small proportion of the rougher lower half. Add more topsoil until there is 50% soil in the mix.

This completes the radical preparation of the soil to ensure the plant thrives in its first few years and forms a strong and healthy structure. This operation can be carried out during the longer days and better weather earlier in the year [September-November], allowing the additives to settle and be consolidated, and permitting much quicker planting if required during the dormant season [December-February].

5. Dig a hole into the mixture 18 "/40cm wide and deep, larger if the roots are up to a foot [30 cm] long.
6. Form a mound of improved soil at the bottom of the hole.
7. Spread out the roots in a circle in all directions and place it gently onto the mound.
8. Check that the graft point is 2"[5cm] above ground level to stop the fruiting stock from rooting and if possible that the graft wound faces towards the sun [south] so that it stays dry and heals over.
9. Place the stake between the roots so that it meets the tree without disrupting its branches and supports it vertically. Holding the tree away, push the stake into the subsoil and drive it in a further 6-8"/15-20cm with a lump-hammer. Check that the tree and stake are still positioned correctly and adjust either as necessary.

Except in especially exposed, windy sites or on light soils, using extremely dwarf rootstock, a stake that protrudes 12"/30cm above soil level will be sufficient to protect the tree, without making it dependant on support.

10. Tie the tree and stake together loosely at the point where they touch making a figure of eight between the two, using strips of rubber [1x12"/3x30cm] or other soft, elastic, non-synthetic materials.

11. Tease out the lowest main roots from the rootball and spread them radially to cover as much area available as possible. Remove any broken roots. Settle the main and/or fibrous roots into the mix pointing outwards and hold them in place with improved soil mix. Firm down gently with the knuckles or palms of your hands. Aim to guarantee maximum contact between the roots and soil so that the plant can draw on the greatest area possible as soon as it starts to grow in the spring.

12. Identify and separate roots growing further up the taproot and attempt to create a second circle of roots 2"/5cm above the first. Vigorous rootstocks may have enough growth to permit a third circular tier or level of roots to be arranged.

13. Cover the highest roots with 4"/10cm soil mix and press firmly with your fists. Firm pressure minimises the danger of leaving an air or water pocket near the roots which could damage them or even make the tree unstable. The further away from the plant's stem, the harder the pressure can be, since the mix acts as a buffer protecting the roots from damage.

14. Loosen and stretch and tie the rubber so that the stake is firmly supporting the tree.

15. Spade another 6"/15cm of mix and topsoil around the tree and tread down to form a slight mound all around. With your toe pointing towards the trunk, stamp the ground down with your full weight, so that your heels create a circle of well-compressed soil 12"/30cm radius around the tree.

16. Fork over a circle of topsoil outside the compressed soil to bring the whole area back to level.

17. A second, less substantial stake [such as a simple bamboo cane tied with soft string] can be used to supplement the ground-anchor stake whenever a plant is especially tall or on an especially windy site. On well-protected sites, the anchor-stake can be omitted and the bamboo used for the first year only.

AFTERCARE. The purpose of following the complete instructions for planting is so that the tree can be provided with all the conditions needed to succeed with as little ongoing intervention as possible. Problems later in the life of perennial fruiting crops can most often be directly attributed to insufficient soil preparation and care when planting.

WATERING. Copious amounts of organic matter in the vicinity of the young plant's roots will help to guarantee that it does not die even during prolonged drought. However, an extended period of dry weather during the tree's first period of growth in its new situation, during the hot, long days of late spring and summer [May to August], could severely restrict growth and delay the young plant's establishment until the following year. If drought lasts for more than four weeks during this period, water thoroughly [50-100 L] and repeat every fortnight.

MULCHING AND WEEDING. In the first few years of a tree's life, its rootsystem will extend outwards in the soil at the rate of about 15cm/6 inches in each direction each year. Care should be taken to ensure that weeds do not outcompete the tree's roots for moisture and nutrients over the whole rooting area especially at the drip-line, which corresponds to the outer edge of the rooting circle, where most of the tree's fibrous feeder roots are concentrated. Young plants should only be mulched with permeable materials which will readily allow rainwater to penetrate straight through to the roots.

PRUNING. During the first 5 years of the tree's life, it is possible to form the skeleton or superstructure which could bear the weight of crops for many decades into the future. Careful attention to the removal of any small pieces of dead, diseased and damaged wood will help to reduce the chances of minor ailments developing into major problems. Try to read the present shape and habit of the tree and allow its natural form to be expressed. Assess its current shape first in the three dimensions of space and then project this forwards in time to what it will develop into in one, five and ten years. Try to reduce the tree's vigorous, leaf and branch, structural growth by shortening extension growth to allow fruiting on mature wood which is strong enough to bear the weight of fruit. Plums and cherries should only be pruned during April to July, when the sap is flowing strongly enough to heal wounds quickly.

22. GREEN MANURES.

Green manuring has many positive effects upon the soil and upon subsequent crops. It has been employed in traditional agriculture around the world for hundreds of years, and can be used in a number of ways in vegetable gardens and allotments:

1. A green manure crop can be grown either to dig back into the soil as soon as it is cut down [such as perennials like comfrey], or grown on for 1-2 months then chopped and dug into the soil where they are growing, or cut down and composted. It is also often useful to build up your own supply of green manure seed by growing to maturity and harvesting the seed before composting the haulm.
2. Leguminous (pea-family) green manures act as 'nitrogen-fixers', that is, they are able to draw nitrogen from the atmosphere and store it in root nodules. Specific soil bacteria hosts are required for this, but these are usually present in a healthy and fertile organic soil.
3. Many green manures are deep rooting (e.g. alfalfa) opening up soil structure and drawing up essential elements and minerals from the subsoil which are often lacking in a worked out topsoil.
4. Fast growing types (e.g. buckwheat) can be used to suppress weeds on new or neglected beds, or to fill a short gap in rotation. In particular, a green manure crop can be sown on recently dug, rough beds where applications of lime and compost etc. make the growing of crops premature. A thickly sown green manure will help fiberise and homogenise the soil ready for more demanding crops.
5. Hardy types (e.g. rye) can be sown to survive overwinter and so provide essential protection for the soil from the effects of frost and from the leaching of nutrients during excessive rainfall. In the summer, a green manure crop will protect the soil from the effects of drought, and the drying and baking effects of wind and sun.
6. If no typical green manure seed is available, it is possible to use up old vegetable and flower seeds. For example, I have successfully used for this purpose out of date packets and own - saved seed of radish, cabbage, pea, calendula and fenugreek.
7. Common annual garden weeds can, in fact, be allowed to cover a bare patch of ground, but only for short periods, unless you do not mind weeding out the deeper - rooting perennials that inevitably get established. Many of our commonest weeds are particularly good at collecting valuable trace elements and minerals, and so can usefully be employed as green manures.
8. Permitting and encouraging certain beneficial species such as chamomile or limnanthes to self-seed into a patch of clear soil will deposit a store of seed which will germinate to produce a self-sown green manure. This technique can also be used to establish a companion crop around a cultivated crop, which can be hoed in to produce a mulch before it begins to compete with the main crop.
9. Repeated sowing and digging in of mustard at 4-8 week intervals will help to clear infected ground of club-root disease. Like the cabbage family, mustard is a brassica which will activate the dormant spores of this fungal disease, allowing the grower to break its life-cycle when the plants are prematurely destroyed.

TYPICAL GREEN MANURE SPECIES.

ALFALFA: Hardy perennial. Very deep rooter. Rich in calcium and trace elements. Sow April - June. Slow to establish but eventually provides good ground cover and will overwinter. Nitrogen fixer, though bacterial host not always present in British soils.

BUCKWHEAT: Annual. Fast growing deep rooter. Left to flower will attract hoverflies. Excellent soil texturiser. Attractive pink/white flowers, tasty grain.

CLOVER: Perennial. Red clover hardiest. Good, reliable nitrogen fixer. Good companion crop for perennials. Holds soil together against erosion very well. Slow to establish but works well as an undersown crop (or 'living mulch') for big crops such as calabrese or kale. Good bee fodder plant. Sow April - August.

FENUGREEK: Annual. Legume. Quick growing to fill up spaces during the main growing season.

FIELD BEANS: Annual. Legume. Fairly deep rooting nitrogen fixer. Will overwinter if sown in good time. Sow August - September.

GRAZING RYE: Annual. The best overwintering crop, producing a lush cover that protects the soil. Sow August - September, dig in following spring before it flowers. Note; suppresses germination of following crop if sown too early after digging in, especially other monocotyledons such as all of the allium family [onions / leeks]. Other grains, such as oats, wheat or barley can also be used, but rye is the most effective all round.

LUPINS: Specifically agricultural or blue. Annual. Deep rooter. Acid soil tolerant. Nitrogen fixer. Sow April-June.

MUSTARD: Annual. Fast growing, suppresses weeds. Reputed to control wireworm by growing for a whole season. Sow March - September, or any mild spell overwinter, though will not survive hard frost. Consider as a brassica when considering rotations.

PHACELIA: Annual, very quick growing, weed suppressor. Attracts beneficial insects and bees - pretty purple flowers. Sow March - September.

TARES: Annual nitrogen fixer, for overwintering. Protects and fiberises the soil.

23. GARDENING HEALTH:- DISCUSSION PAPER

Note the absence of a comprehensive compilation of health information specifically relevant from a user's perspective. Health care delivery [especially urban G.P.s] not familiar [less familiar than ever before] with pattern of problems presented from gardening context. Similar to sports injuries/ advice/ recommendations [e.g. warm-up].

HEALTH PROMOTION / ILLTH AVOIDANCE. Attempts to promote gardening understandably concentrate on the positive benefits to health available through these activities. The argument in favour of productive and organically-based initiatives is that they satisfy all the psychological, aesthetic and ornamental functions delivered by any form of garden or landscape, and in addition they contribute positively to food safety and can improve diet and nutrition. The promotion of opportunities for good health achievable through food gardening, such as regular exercise or mental tranquility, should be accompanied by an accurate understanding of the potential dangers and threats to health which may be encountered. This discussion paper attempts to outline an approach to this subject from a practitioner's perspective, noting that this information is absent or incomplete in most gardening literature.

AVOID ILL-HEALTH / PREVENTATIVE MEASURES

Avoidance of major trauma[e.g. mechanical injury] and gradual dis-ease [e.g. repetitive strain]

Maximise safety. Maintain concentration and awareness of danger levels.

Precautions [e.g. tools safety talk]

Employment/ contract law obligation to promote safety/ binding contracts/ insurance for voluntary too

Union representation to improve / guarantee working conditions

Minimise dangers

Onsite interpretation and precautionary advice

In emergency: nearest phone/ transport/ help/ doctor's surgery/ hospital

[less accessible = greater incentive to avoid trauma.]

Solitary individual = self-reliant / more vulnerable

Group justifies/ requires extra precautions/ provision commensurate with the size of the group and the vulnerability/susceptibility of the individuals involved. Trained first aider for 6-12 people+.

COMMON SENSE AVOIDANCE MEASURES

Mechanical injuries/ carelessness/ inattention

e.g. cuts/ falls

Repetitive stress injuries / over long time period / seasonal

e.g. blisters/ backache/ arthritis

Exposure to sun/ heat/ cold / wet / windchill

e.g. sunburn/ heatstroke/ hypothermia/ colds/ pneumonia

TIPS

WASH PRODUCE IN CLEAN [OR RUNNING] WATER

CYCLE POSSIBLE SOURCES OF CONTAMINATION SEVERAL THROUGH AS MANY SEPERATE CYCLES AS

POSSIBLE e.g. HEAT IN COMPOST + TURNED

AVOID LIQUID FROM MANURES etc. RUNNING INTO CONSUMED WATER SUPPLY

CONTENTS OF FIRST AID KIT [homeopathy-based]

Cleansing/ antiseptic

Lots of clean water/ witch-hazel / distilled water/ calendula ointment

Minor wounds

Bandages/ dressings/ plasters/ cotton-wool/ Calendula & Chamomile ointments

Shock

e.g. Hypericum [500] / Aconite

Bruising

e.g. Arnica

Major wounds

Dressings/ bandages/ [apply pressure to reduce blood flow]

Bee stings

Adrenaline

Burns

Cold water

POTENTIAL CAUSES OF ILL-HEALTH

TETANUS [LOCKJAW/ JAUNDICE] 50% MORTALITY [WORLD-WIDE AVERAGE]
 SOIL-BORNE INFECTION [OCCASIONALLY AIRBORNE]. MOST LIKELY FROM DEEP CUTS. TRANSMISSION
 HIGH FROM OLD AND RUSTY METAL. TRANSMISSION FROM ANIMAL MANURES
 COLD SYMPTOMS FOR 5-10 DAYS. NERVE ENDINGS PROGRESSIVELY DIE.
 TREATMENTS: INOCULATION RENEWED EVERY 5-7 YEARS OR ANTIDOTE ADMINISTERED IMMEDIATELY
 AFTER EXPOSURE STANDARD PRACTICE IN LIKELY CASES

WEIL'S DISEASE [LEPTOSPIROSIS/ INFECTIOUS JAUNDICE] 5-10% MORTALITY
 TRANSMITTED BY DIGESTION OF/ SUBCUTANEOUS CONTACT WITH WATER CONTAMINATED BY RAT,
 MOUSE OR DOG URINE

SYMPTOMS: DIARRHOEA/ ACHING EXTREMITIES/ RENAL FAILURE [YELLOWING SKIN]
 HIGH FEVER [39+ DEG. C] DEVELOPING HEPATITIS/ MENINGITIS-LIKE.

TREATMENT: ERYTHROMYCIN ANTIBIOTICS/ PENICILLIN AVAILABLE/ DIALYSIS

CHOLERA/ TYPHOID FEVER

INGESTION OF WATER CONTAMINATED BY FAECAL MATTER
 AVOID STAGNANT WATER/ RUNOFF AND LEACHATE FROM CONTAMINATION SOURCES

GASTRO-ENTERITIS [DIGESTIVE INFECTION]

WATER-BORNE e.g. CRYPTOSPORIDIUM

ANIMAL TO HUMAN TRANSFERRED DISEASES: E.g. PIG DISEASES AND MANURE VERY SIMILAR TO
 HUMAN

SALMONELLA HANDLING POULTRY MANURES AND BYPRODUCTS SYMPTOMS LATENT OR SUPPRESSED
 IN ANIMAL

BSE TO CJD INGESTION OF PRION INFECTED MATERIAL

AIDS VIRUS INCAPABLE OF SURVIVAL OUTSIDE OF HUMAN BODY FOR MORE THAN 24 HOURS

FUNGAL INFECTIONS CANDIDA / THRUSH

BEE STING BARBED HOOK. KNOCK/ SCRAPE OFF POISON SACK WHICH CONTINUES PUMPING AFTER
 BEE REMOVED.

SYMPTOMS: BLOOD VESSELS DILATE/ SWELLING/ PUFFY SKIN/ DIFFICULTY BREATHING/ SENSES
 IMPAIRED

ANAPHYLACTIC SHOCK: WHOLE BODY DEFENCE ABREACTION POSSIBLE IN SOME INDIVIDUALS, FOR
 WHOM CONSEQUENT STINGS COULD BE LETHAL.

TREATMENTS: ANTIDOTES/ NORADRENALINE INJECTIONS/ TEST SUSCEPTIBILITY

WASP STING POISON INJECTION HYPODERMICALLY

CAUSES INFLAMMATION/ IRRITATION TREAT WITH COLD WATER/ COMPRESS

SHORT-LIVED PAIN [30 MINUTES] + MINOR BRUISING [12 HOURS]

INSECT BITES ESPECIALLY TICKS

SNAKE BITES ADDER

CARCINOGENS

AVOID INHALING SPORES OF MOULDS [WARM WEATHER]/ BRACKEN [JULY TO AUGUST]

POLLUTION:

SOIL CONTAMINANTS e.g. GLASS/METAL

BIOCIDES ASBESTOS/BIOCIDES

SOIL POISONS MERCURY/LEAD/CHROMIUM/CADMIUM

PLANTS WILL INDICATE EXCESSES BY SYMPTOMS OR NECROSIS. DANGEROUS IF LARGE AMOUNTS OF
 SOIL EATEN.

ATMOSPHERIC /AIRBORNE POLLUTION

VEHICLE EMISSIONS CARBON MONOXIDE/NO_x/PARTICULATES

MINIMUM 10M/30 FEET FROM BUSY ROAD. SHELTER BELTS/ TREES/ HEDGING

INCINERATORS/PLASTIC, TYRE AND FACTORY FIRES DIOXINS

WATER POLLUTION FLUORIDE/ INDUSTRIAL EFFLUENT/ SEWAGE etc.

BIOSPHERE

IMMUNE DEFICIENCIES AND HYPERSENSITIVITY e.g. HAYFEVER/ ASTHMA/ EXCEMA

INCREASED EXPOSURE TO U-V RADIATION e.g. MELANOMAS

ENVIRONMENTAL PROLIFERATION CAUSING GENETIC ADAPTATIONS, RESISTANT TO BIOCIDES/
 ANTIBIOTICS.

OVEREXERTION HAEMORRHOIDS/ HERNIA

24. RECYCLING FOR ORGANIC FOOD-GROWING

A SCAVENGER'S GUIDE

[RECYCLODYNAMIC GARDENING]

Recycling can often be limited in a domestic context by the space available. Gardening and allotmenting can provide many opportunities for extensive recycling and re-using a wide range of resources, from materials which will form permanent features [such as renovated buildings], through items which will be useful for several years [such as repaired tools], to matter which can be continuously collected and consumed [such as compostables]. This leaflet firstly attempts to list many different materials and their uses [1], according to how long they will last. Secondly it describes these same materials grouped according to what function [2] they perform in a growing system. It then suggests several likely sources [3] of freely available resources, grouped according to how far they need to be transported, and concludes with recommendations on what materials could be less helpful or even dangerous [4], especially in the context of growing organic food.

The most important criteria used for assessing all these resources is their suitability and safety for inclusion in food-growing systems. Compiled from ten years of experience of recycling for organic food growing in an urban context.

The defining characteristic of organic gardening and horticulture is an understanding of the many, diverse cycles involved in plant growth and the ability to harness them to improve the growing system. Remember that plants and gardens provide most of us with the only means of accessing and storing the abundant, renewable energy of the sun, the ultimate in sustainable power sources.

1. WHAT TO USE

FOR WHAT PURPOSE AND HOW TO USE

Organic matter [rottable] short-term break-down [6 months - 1 year]

| | | |
|---|--|---------------------------------|
| MANURES | SOIL IMPROVEMENT | DIG IN / MULCH |
| COMPOSTABLES | COMPOST/ VERMICULTURE | DIG IN / POTTING |
| KITCHEN WASTE | | |
| CROP RESIDUES/ HAULM | | |
| LOAM [TURF/ WEED ROOTS/ TWIGS/ SMALL BRANCHES] | STACK 1-2 YEARS | POTTING /CONTAINERS |
| LEAVES | STACK / COMPOST | DIG IN OR MULCH |
| DECIDUOUS, SHED ANNUALLY | REGULAR LEAFMOULD | SOWING / POTTING |
| EVERGREEN/ CONIFEROUS | ACIDIC MOULD | |
| ANNUAL GREEN MANURES | SOIL PROTECTION | DIG IN OR COMPOST |
| PERENNIAL GREEN MANURES | LIQUID FEEDS/ COMPOST | CUT/ WILT/ FERMENT |
| NETTLES/ COMFREY/ BRACKEN | FOLIAR FEEDS | |
| NITROGEN FIXERS | | |
| CARBON SOURCES | WEATHER/ ROT 2 YEARS | MULCH ESTABLISHED PERENNIALS |
| NEWSPAPER/ CARDBOARD | | |
| SAWDUST/ WOODCHIP | | |
| LIME e.g. PLASTER [GYPSUM] | RAISE pH/ CONVERT CLAY TO TOPSOIL | SPREAD ON SOIL |
| CARPETS/ UNDERLAY | WEED-SUPPRESSING MULCH / LONG-TERM SOIL IMPROVER | |
| CLOTHING [NATURAL FIBRE] | MULCH | COMPOSTABLE WHEN ROTTED |
| HAIR / FEATHERS | SLOW-RELEASE HIGH NITROGEN FERTILISER | |
| URINE | COMPOST ACTIVATOR/LIQUID FEED/ PESTICIDE | |
| | FERMENT / DILUTE / POUR ONTO STACKS | |
| FAECES/ HUMANURE | COMFREY FERTILISER/ COMPOST ASSIDUOUSLY 2 YEARS | |
| | STORE + LIME / SOIL / ASHES / CARBON | |
| MENSES | HIGH NITROGEN LIQUID FEED / FOLIAR FEED | |
| NAILCLIPPINGS etc. | KERATIN LONG-TERM, SLOW RELEASE FERTILISER | |

Consumables [will last for a few years.]

SECOND-HAND / REPAIRED TOOLS / EQUIPMENT

SCAFFOLDING PLANKS

WOODEN GUTTERS

Permanent and semi-permanent Materials which will endure indefinitely.

BRICKS / STONE / CONCRETE SLABS / GLASS PANES IN FRAMES / [REINFORCED] GLASS FIBRE

2. SUITABLE MATERIALS BY USE OR FUNCTION

If you remember everything that might have some use in your garden, you can easily source many of the materials you will need.

FERTILISERS:

| | |
|----------------|--|
| NITROGEN | UREA/URINE/FEATHERS/NETTLES/MANURES/SPENT HOPS |
| POTASSIUM | COMFREY/WOODASH [ESPECIALLY SMALL WOOD / BRANCHES UP TO 1"] |
| PHOSPHATE | BONEMEAL / BASIC SLAG / BRACKEN |
| CALCIUM | CHALK / LIMESTONE / GYPSUM PLASTER / CALCIFIED SEAWEED |
| MAGNESIUM | DOLOMITE / MAGNESIAN LIMESTONE |
| TRACE ELEMENTS | SEAWEED |

COMPOST:

| | |
|-----------------|--|
| CARBON | PAPER / CARDBOARD / SAWDUST / WOODCHIP |
| BALANCED C:N | MANURES / VEGETABLE WASTES |
| HEAP STRUCTURES | PALLETS / MARINE PLYBOARD |
| COVERS | CARPETS / UNDERLAY / PLASTIC SHEETING |
| LEAFMOULD | DECIDUOUS TREES |
| LOAM | TURF / PERENNIAL WEEDS |
| MULCHES | RAW / UNCOMPOSTED MATTER |

| | |
|--------------------|--|
| BED EDGING | SCAFFOLDING PLANKS / WOODEN GUTTERING / ROOF JOISTS |
| DRAINAGE | BROKEN GLASS / POTTERY / STONES |
| WATER CONTAINERS | BATHS / DOMESTIC WATER TANKS / INDUSTRIAL LIQUID DRUMS |
| WATERING | DRAINAGE PIPES |
| IRRIGATION | THIN PIPING / PUB TUBING |
| LIQUID CONTAINERS | CARBOUYS / BOTTLES / |
| SLUG PUBS | BEER LEFTOVERS / SLOPS / SEDIMENT |
| SLUG TRAPS | FLOORBOARDS / PLANKS |
| POTS | YOGHURT POTS / LAMINATED DRINK CONTAINERS |
| SEEDTRAYS | FOOD CONTAINERS |
| LABELS | PLASTIC SHEETING / WOOD LATHS |
| BUILDING MATERIALS | BRICKS / CEMENT / PLASTER |
| ROOFING FELT | GENUINE LINOLEUM |
| SUPPORTS | CANES / SMALL WOOD |
| WINDBREAKS | NETTING |
| SHADING | NET CURTAIN / BLINDS / WHITEWASH |
| THERMAL MASS | RADIATORS |
| SEATING | CHAIRS / CUSHIONS |
| COMFORT | TOWELS / BLANKETS |
| HEATING | AGAS / RAYBURNS |
| ADORNMENTS | WINDMILLS / WINDCHIMES / ARTWORK / SCULPTURE |

3. SOURCES OF MATERIALS.

ON-SITE CYCLES

LOAM COMPOST LEAFMOULD LIQUID FEEDS MULCHES LIVESTOCK WILDLIFE

LOCALLY AVAILABLE [up to 1 km] DOMESTIC / SKIPS / BUILDING SITES / INDUSTRIAL / SHOPS / RETAIL / INSTITUTIONAL / MUNICIPAL MAINTENANCE

TRANSPORT TO SITE [5-10 km] LANDFILL INTERCEPT / DUMPIT SITES / COUNCIL SPECIAL COLLECTIONS / SECONDHAND / EXISTING RECYCLING PROJECTS /

IMPORTS

SEAWEED / ABATTOIR WASTES

4. CONTAMINANTS: AVOID / REMOVE / DISPOSE / REPLACE

MINOR PROBLEMS [inert]. Minimise or use responsibly. Substitute superior materials as and when possible.

GLASS [ESPECIALLY BROKEN]

METALS [ESPECIALLY RUSTY SHARP]

PLASTICS DETERIORATE ON EXPOSURE TO ULTRA-VIOLET LIGHT. BRITTLE AND FRACTURE. SHEETING / SACKS 2-4 YEARS, POTS & CONTAINERS 4-8 YRS,

PAINT [ESP.>25 YEARS OLD]

COMPOSITE WOOD / WOODCHIP RELEASE FORMALDEHYDE GAS AND LEACHATE

PAINTED WOOD [DETERIORATING / FRAGMENTING]

SYNTHETIC / MAN-MADE MATERIALS ESPECIALLY NYLON & FOAM-BACKED CARPETS

TYRES

[ROOF-]SLATES

MAJOR Avoid completely

CHEMICALS OLD [AND NEW] HORTICULTURAL PREPARATIONS

SOME PREVIOUSLY OBLIGATORY NOW ILLEGAL e.g. ORGANOPHOSPHATES

ASBESTOS: FLAKY BLUE, INSULATING. MOST DANGEROUS WHEN SMALL PARTICLES AIRBORNE [DRY AND FRAGMENTED]

CARCINOGENS

MUTAGENS

SOURCES OF HEAVY METALS:

CADMIUM IN BRIGHT RED AND YELLOW DYES [IN CARPETS] AND INKS [COLOUR PRINT]

LEAD FROM TRAFFIC POLLUTION

MERCURY FROM BROKEN THERMOMETERS / CALOMEL [CLUBROOT TREATMENT]

25. SOIL ABUSE ON A SCALE FROM 1 TO 10.

Classification of forms of soil abuse, ranging from the least to the most dangerous.

Links between soil/ plant / human health.

1. BAD ATTITUDES. Inappropriate or negative expectations can produce self-fulfilling prophecies which can contribute to the disfunction of attempts at cultivation. Trying to impose a certain form of planting on a site for which it is not suited.

2. INAPPROPRIATE INFRASTRUCTURE

BAD SITE LAYOUT. Hard landscaping producing conditions unsuitable for soil health/ plant growth. Shady, boggy, sloping.

PRESENCE OF DELETERIOUS MATERIALS. Likely to degrade producing negative impact on soil ecology, such as synthetics, plastics, woodchip, painted wood.

INAPPROPRIATE PLANTING. Presence of established perennials such as privet, rhododendron, Japanese knotweed, Russian vine or mature trees such as sycamore which will invade and monopolise large areas of soil, to the exclusion of other plants, by competition for water and nutrients and/or by actively repelling them by root secretions in the soil.

3. SIMPLE NEGLECT.

UP TO ONE YEAR. Seeding of annual weeds and establishment of perennial weeds [docks, dandelions].

2-5 YEARS. Several cycles of annual and biennial weed growth and seeding. Establishment and dominance of mature perennials [nettles, brambles]. Juvenile sapling bushes and trees [willow, hawthorn, buddleia].

OVER 5 YEARS. Overgrown becoming shrubby scrub, juvenile woodland.

4. SOIL LOSS

EXTRACTION, REMOVAL OR PROCESSING OF TOPSOIL. Without replenishing with loam, organic matter.

EXCESSIVE EXPOSURE TO THE ELEMENTS. Bare soil producing losses to leaching by rain and decreased soil life at the surface by bleaching in the sun.

LOWERED BEDS. Effectively produces raised paths and sunken beds after continuous removal of weeds, turf and crops over an extended period. Increases waterlogging, decreases mean soil temperature and micro- and macro-organism activity.

COMPACTION. Excessive pressure too often over long periods, such as by trampling or use of vehicles, destroys soil structure and dynamism and prevents healthy interaction at surface between soil and air. Increases likelihood of soil being washed away and gullied during heavy rain.

5. CULTIVATION METHODS

INADEQUATE ORGANIC MATTER INPUT TO REPLENISH THAT EXTRACTED. Humus content should be maintained at or above 5% by volume.

INSUFFICIENT DIVERSITY OF INPUTS. Imbalances and shortages of certain chemical components due to prolonged extraction.

INAPPROPRIATE TOOLS. Rotavators producing impermeable hardpan after repeated use.

EXCESSIVE CULTIVATION. Too often or too deep destroying topsoil and subsoil structure.

6. MISTREATMENT

EXTENDED MONOCROPPING. MINERALISATION. ACIDIFICATION. DENITRIFICATION.

DEHUMIFICATION. For instance by presence or application of coal or wood ashes.

7. OCCASIONAL TOXIC EXPOSURE. Producing the necrosis, migration and decline of soil organisms.

APPLICATION OF CHEMICAL FERTILISER, PESTICIDE, HERBICIDE, FUNGICIDE

SPRAY DRIFT, ATMOSPHERIC AND AIRBORNE POLLUTION.

8. INERT OR MECHANICAL CONTAMINATION. Relatively harmless except when disturbed.

BUILDING WASTE. Rubble, mortar, cement, bricks.

GLASS. Especially broken.

PLASTICS. Degraded by exposure to ultraviolet sunlight.

METALS. Especially if degrading, e.g. rusty.

CARCINOGENS. E.g. used oil.

ASBESTOS. Dust from dry, freshly fractured blue asbestos lethal.

9. PERSISTENT TOXIFICATION. Lethal if ingested. Uptake in plant metabolism.

LONG-TERM BIOCIDES. E.g. Heavy metal contamination such as mercury.

OVERFERTILISATION. E.g. Nitrate blooms de-oxygenate watercourses.

INDUSTRIAL DUMPING, LEACHATES AND RUNOFF.

LANDFILL REACTIONS AND EMISSIONS. Mixed organic and inorganic waste cocktails.

10. TOTAL TOXIC OVERLOADS

CHANGES TO WEATHER PATTERNS. Greenhouse, iceage. El Niño.

TERRESTRIAL CATASTROPHE. Pinatubo/ Mount St. Helen's.

EXTRATERRESTRIAL CATASTROPHE. E.g. Comet strike.

RADIOACTIVE FALLOUT. Eg. Chernobyl affecting Welsh pasture /sheep on Benbecula.

NUCLEAR WINTER.

26. HOT POT TIPS:

Unadulterated, Organic Homegrown, Free From Mafia And Government Blackmarkets

POTENCY - 2 - 10 % T.H.C. (tetrahydrocannabinol active principle).

SUPPLY - 2 - 8 oz (+) flowers per mature plant.

LEGALLY - 50% less chance of being busted.

- Half sentence of equivalent imported gear (mid-1980s figures).

OUTDOOR SITES - Sunny, south-facing, sheltered, well-drained.

- Difficult to hide full-grown plants, someone may nick your crop.

- Tall plants can be bent down horizontal to reduce visibility.

SOIL - Any good garden topsoil will do. Weed-free, neutral pH.

SUNLIGHT - Has optimum light spectrum. Crop will ripen OK in UK.

GREENHOUSES - Glass filters out ultra-violet light, vital to oil-production.

SEED - Ripe seed is dark green, often mottled. Many variations.

PLANTING - Germinate at 65°F / 16°C (April - May). Plant with pointed end up.

TRANSPLANTING - Harden off young indoor grown plants and plant out after last frosts (May - June).

INDOORS - Make an enclosed, insulated growing space at least 4 foot / 1 metre high.

VENTILATION - Provide enough airflow to prevent excess humidity.

| | |
|------------------|---|
| FIRE HAZARD | - Avoid flammable materials, check wiring, keep water away from electrics. |
| SPACE | - Each plant will need a minimum 2 x 2 x 4 foot ² . |
| PINCHING OUT | - Remove growth point shoots after two pairs of leaves have formed to produce compact plants. |
| LIGHTING | - 30 Watt per mature plant for 12 - 16 hours per day. |
| BULBS | - Fluorescent, grolux, ultraviolet, daylight etc. - Avoid using household incandescent (infra-red) bulbs. |
| REFLECTIVE WALLS | - White emulsion paint is the best and easiest light reflector. |
| POTTING COMPOSTS | - Sandy, loam or soil-based, ¹ / ₃ organic matter, not too rich. |
| WATERING | - Drench and allow to dry out. Avoid prolonged waterlogging. - Preferably rainwater at ambient (soil) temp. Avoid cold tapwater. |
| FEEDING | - Use a high potash (tomato fertiliser) liquid feed when flowering. |
| SEXING | - Young plants tend to have the following typical characteristics: - Males are taller with spindly stems. - Females are thicker with sturdy habit. - Mature plants: - Male flowers hang down and drop pollen. - Female flowers in hairy clusters sweating oil. |
| FLOWERING | - Reduce light to 11 hours per day at 70 - 80°F / 22 - 28°C. - Stress plants by reducing water. Resume watering when flowering. |
| SINSEMILLA | - Isolate females / remove males before pollination begins. |
| CUTTINGS | - Before flowering, plant 4 inch (10cm) branches in humid, sandy compost. |
| OWN HYBRID SEED | - Allow males to pollinate females to breed your own strain. - The second generation of seed you grow will be adapted to your site. |
| GRADING | - Separate male and female flower heads and leaves. |
| DRYING | - Hang upside down in a warm, airy place away from sunlight for 1 - 2 weeks. |
| CURING | - Improve storage and flavour by rubbing with spirits (brandy, rum etc). |
| STORING | - Will keep for years in a dark, airtight container in a cool, dry place. |

27. LETS EAT; ORGANIC FOOD AVAILABLE THROUGH LETS

Extract from article printed in Sheffield LETS Newsletter summer 1997/ reproduced in Unstone Grange Trust Newsletter Winter 1997-8.

'LETS' stands for 'Local Economic Trading System', where people offer skills, services and goods in return for credit measured in a notional unit of currency [in this case called *Stones*]. The LETS system acts like a bank, transferring credits and debits from account to account. Sheffield LETS has a membership of more than 500 people and regularly distributes a directory containing what each member is offering to trade. Richard Clare of SOFI and Unstone Grange Gardens wants to put food on the LETS menu:-

"It's only when you begin to put into practice systems of living that are alternative and/or complimentary to the mainstream, established systems that you discover the complexity of the processes involved, and can really appreciate the value of different approaches. If LETS systems are to succeed, they must meet people's needs and satisfy demands not met by other forms of currency [whether that's pounds or megabytes]. How can value be measured in a distorted society which has lost all connection with its origins and its basic needs for survival? Sheffield LETS hopes to be able to address all these issues by evolving the means to produce locally-grown, organic food. The mass-market system has failed to deliver this simple luxury to many people; in fact it has more often actually eliminated indigenous food security around the world. If LETS could begin to actually feed people, it would be taken seriously, because it would be fulfilling an essential function of society. We are painfully aware [ooh! my back] of all the difficulties involved in proposing and implementing such a scheme, but have already made a head start towards this goal. We think LETS could help develop the presently non-existent local production of organic food. The keys to success are the personal motivation of growers and the interaction between growers and consumers. LETS as a local contact network could provide the kind of nurture and support which could help small-scale growers to thrive and prosper.

28. PERMACULTURE AND ORGANIC GARDENING IN SHEFFIELD

SOME ASPECTS OF PERMACULTURE IN RELATION TO ORGANIC GARDENING IN SHEFFIELD.

Talk for Sheffield Organic Gardeners, 1994.

My personal experience began 5 years ago when I started an allotment in an attempt to grow as much organic food as possible with the meagre resources available to me. Since then, I've been on a quest for organic matter which has convinced me that the resources to feed the soil are plentiful and all around us. This year, I've been cultivating 6 allotments. Our society has ignored and wasted the resources we can use to feed the soil because of the distorting, short term values of an economic system based on the fossil fuel subsidy. Inorganic energy pays for our civilisation's luxuries and excesses.

Permaculture seems to offer an antidote to the imbalances of economics; stressing the eco-logic of resource cycles, a sense of permanence to provide an optimistic vision of the future and a sense of place, emphasising continuity rather than a transient world-view.

But surely this is nothing new? In fact Permaculture represents continuous trends of sustainability and natural logic which we can trace throughout history. The economics of wars and empires may have dominated and shaped history, but they were notable exceptions in a world where the majority of people have always depended on archaic, indigenous patterns of long-term crop-growing in balance with their environment.

Permaculture is especially necessary now because it is now recognised that the effects of militaristic science are destructive and catastrophic when they're mechanistically applied to natural ecosystems. At this point in time, Permaculture is more possible than ever before because we now have the chance to create a synthesis between the tried and tested methods of alternative countercultures and the inorganic mainstream which has run out of ideas. We can also now take advantage of recent advances in computing and biotechnology to meet actual, everyday human needs.

For me, gardening and especially organics are at the heart of Permaculture because they answer the question *"what can I do to help, here and now?"* by suggesting local and immediate solutions to global problems which affect us all. By gardening organically, we gain a full understanding of how whole systems work, rather than the simplistic and reductionist quick-fixes offered by the chemical industry. In this way, we can learn to work in harmony with environmental conditions rather than fighting an uphill battle to try and overcome the forces of nature.

In my experience of gardening, I've discovered that many of the common-sense principles stated explicitly by Permaculture are very useful. For instance, STACKING is simply the idea of arranging layers of tall and shorter plants to increase the yield from a piece of land. Another obvious concept - maximum surface area - is the principle that smaller particles are more effective than larger ones. For example, a small lump of potash rock could have many thousands of times more surface area if it is ground into powder, and will thus be much more readily available in the soil.

I especially like the Permaculture ideas based on Feng Shui, the ancient Chinese study of landscape, which involves noting and meditating on all the influences affecting a gardening site, such as wind and water flows and its aspect in relation to sunlight and cloud cover in different seasons.

Common sense ideas such as these can help us to develop our intuition and build up our sense of folk - wisdom, allowing us to recognise and flow with changing patterns instead of trying to impose preconceived plans where they're inappropriate.

For us as gardeners, permaculture can also be a way of applying organic principles in wider contexts and to a greater degree. The insights and understanding we've gained through gardening can be applied to improve other systems and aspects of our lives. In a society which is cut off from nature, gardening can provide a solid basis of timeless values and reconnect us to the natural world.

For instance, if you imagine where all the crops you grow came from, you will realise how multi-cultural and international your garden is. The DNA in your potatoes wouldn't be the same if it hadn't been cultivated for generations in the Andes. Your sweet corn and squashes are the descendants of crops grown by North American Indians. You are sharing these experiences with millions of gardeners all around the world. Even in this age of virtual reality and the rock'n'roll president, the link between horticulture and culture in a broad sense is still strong.

Over the past twenty years, I think the organic movement has established a consensus among the general public that organic values and techniques are preferable to the agrochemical monocropping that has turned so many of the fields and gardens of England into sterile deserts. It is obvious that organics offers sane alternatives and solutions to the problems of degraded food cycles and polluted waste streams.

However, the vested interests that control agribusiness and marketing have done everything possible to stifle and distort the organic message. Meanwhile, governments have done little or nothing to encourage the supply of healthy organic food. This means that organic food has remained expensive and often the only way to get hold of an organic supply of things like hops or tobacco is to grow them yourself. It is vital that governments and corporations change their attitudes to organics if general permaculture is to become possible.

Sheffield may not seem like the ideal place to start, but the history of the city offers a couple of reassuring examples of permaculture at work. When skilled craftsmen began to be attracted here by high wages in the heavy industries, the original pattern of development was that each family occupied a plot of land to grow their own food, on which housing was later self-built. Before rail transport arrived in 1876, it would have been almost impossible to support the growing population without home-grown food. In 1934, during the Great Depression, Sheffield was the centre of the Allotments for the Unemployed scheme, which provided tools, seed and fertiliser to over 100,000 of the jobless. This not only provided food and recreation for penniless families, but also work for toolmakers and seedsmen.

Now, in post-industrial Sheffield, many allotments which were once so well cultivated are neglected and overgrown. Just a small fraction of the money wasted on Supertram or the World Student Games could have utterly transformed the city's green infrastructure. Organic matter is presently thought of as a problem, to be landfilled, incinerated or flushed away. It is obvious that the whole city needs re-designing using organic and permaculture principles. In Sheffield, each year, 30,000 metric tonnes of organic matter could be collected, composted and recycled into local soils. Not to mention the tonnes of fallen leaves which are swept up and then dumped each year.

In fact, Sheffield does have a plan for a composting plant which would cost an estimated £3,000,000 at current prices. However, this huge single investment would be planned, built and operated by developers and contractors from outside Sheffield and it will only process commercial and industrial-scale waste. Perhaps this will be better than nothing, if it happens, but it's not as good as many small, local resource loops returning benefits direct to the community.

One example of such resource loops is the ancient Rights of Common which permit local people to use the many and various products of common land, such as when we go out collecting bilberries or blackberries. This precedent could be a basis for re-designing local parkland, adding more practical benefits to the municipal-style pleasures they offer at present. A start has been made in this direction on the Ponderosa Open Space in Crookes Valley, where the local community has planted an orchard and begun coppicing, as well as planting 1,300 trees to increase the area of woodland and also the amount of oxygen available in the inner city.

On a completely different scale, the present infrastructure of Sheffield offers some intriguing opportunities for the application of permaculture design. For example, the combined heat and power plant at Bernard Road could be used to fuel acres of perspex green houses all the way down Attercliffe, with compost supplied by the Blackburn Meadows sewage plant. The idea of tropical fruit from Tinsley may sound a bit way out, but remember that the figs growing on the banks of the river Don used to fruit well when the industrial effluent kept them warm all year.

Next, I'd like to mention some of the fascinating facts and figures which have impressed me and reassure me that many of the positive principles of permaculture have already been applied and are happening across the world.

I was amazed to learn from Lawrence Hill's book "*Fertility Farming*" that in 1980, 50% of Britain's sewage was spread back on the land. I've also noticed that certain commercial potting composts smell suspiciously like treated sewage.

In Russia, under Communist rule, the small dachas and backyards consistently out-produced the huge state factory farms, keeping many city people alive. After the 1989 revolution, land was redistributed to anyone who could use it productively.

Many helpful scientific innovations have recently been developed and made widely available, such as satellite weather prediction and biosystems monitoring. Alternative technologies such as windmills and reedbeds are finally being accepted and funded. Scientists are now working on a process of extracting minerals from spoil heaps using weeds that are tolerant of toxic soils. Even the dreaded Common Agricultural Policy of the E.C. is encouraging some positive changes, such as the trial this year of hemp as a fibre crop, which is ironic since it was once illegal not to grow hemp in this country for the supply of rope to the navy.

In my own field of special interest, I have been reassured to discover that there are many splendid examples of large-scale composting going on all around the world. For example, there are now more than a hundred

municipal composting plants in France. In Britain, local authorities are beginning to recognise the logic of composting. Successful schemes are running in Adur, West Sussex and at a ten acre plant in North London, among others. Even the financial institutions seem to approve of the idea - the Royal Bank of Scotland has been shredding and composting its used bank notes.

Having mentioned just a few of the hopeful innovations happening already, I'd like to finish by considering the social impact of seriously applying the principles of organic, permaculture gardening. For instance, if I could spend one week's average income (over £300 a week) on an allotment, I reckon I could produce a veritable cornucopia. Similarly, if only a fraction of the time, energy and money invested in sports and leisure activities could be re-directed into perma-gardening, a huge proportion of the population could become semi-self-sufficient overnight.

Personally, I think that access to organic gardening should be made available on the N.H.S. As preventative medicine or as therapeutic treatment, this would provide fresh air, exercise and recreation, as well as fresh and seasonal fruit and veg. You could even be helped to grow your own herbal cures. Changes in official attitudes and legislation could help to unlock the productive potential of practical permaculture. Noble members of our society, such as the travellers and cannabis users could easily find themselves in respected occupations if their interests were accepted and cultivated instead of being persecuted. Many of the millions of unemployed could be encouraged to occupy themselves in gardening, not as workfare, but for their own self respect and well-being. Even workers could benefit from ideas like job sharing or seasonal flexitime which would allow them to do more sane, humane work in their gardens. I'd like to end by mentioning my own favourite permaculture initiative - the idea of cemetery orchards, in which productive trees could be planted to recycle the body's nutrients into fruit and nuts for your grandchildren and your grandchildren's children.

29. EVOLUTIONARY GARDENING; A PRACTICAL ALTERNATIVE.

An essay to promote organic growing written in 1991.

Planet earth is in the middle of an inevitable change from economics to ecologics, as illustrated by the collapse of the former Soviet Union and the ethical bankruptcy of all the major industrialised nations. The inability of present systems to accept and adapt to imminent global catastrophes has created a political vacuum which may allow timeless ideas of an ecologically balanced and sustainable world to save us.

We could all share in and contribute to this global metamorphosis by interacting with living processes rather than material things, by using loops which recycle resources and by thinking of cost and value in terms of resource availability and origin not just money. Growing a few flowers in a pot or box improves the quality of your life. Growing fruit and vegetables in your garden or allotment makes you more autonomous and self-sufficient. By gardening ecologically on any scale, you are participating in a healing, therapeutic activity for you and your planet.

Everyone can sense and see that there is a crisis in the relationship between humans and the natural processes that sustain us. Present agricultural and environmental technology and policy have led to chronic imbalances with dire consequences. This year, ten times more soil will be lost and destroyed than will form.

Until recently, agriculture has been disrupted and distorted by several overwhelming factors. Countries, nations and companies tried and failed to colonise and dominate other peoples, their land and culture, leaving devastation in their wake. Capital has been invested in mechanical technology to the detriment of people's practical skills and wellbeing. Land ownership has become a speculative, short-term responsibility which is only interested in maintaining the immediate status quo which guarantees that its privileges continue. The clean and tidy ethic has promoted standardised, chemical monoculture which produces sterile soils and toxic wastes. We need to produce our food on a smallscale, personal, local, intensive-care basis rather than the discredited extensive, corporate, centralised, mechanical, harmful methods which are wrecking our biosphere. We don't need nuclear energy to generate the power to fix atmospheric nitrogen to make artificial fertilisers [or explosives].

The present situation may seem grim, but can be put in perspective if we consider these recent destructive trends to be a historical aberration. Throughout history and prehistory, humankind has lived in harmony with nature, as is the case in all settled indigenous, aboriginal, pagan societies. Today, we are all still conditioned and influenced by the genetic imprints of hundreds of generations of ancestors who managed to live in symbiotic balance with their environments. These positive tribal memories persist in giving us an instinctive understanding of the traditions of organics and permaculture. We have evolved to care for and perpetuate this planet's natural environment.

We can rediscover our aptitude for this evolutionary role by growing plants and feeding the soil. This experience could also offer us many opportunities for treating the patterns of stress and dis-ease which presently afflict our species. Just as herbalism can effectively treat physical illness, so interactive nature therapy can help to heal modern man's psychological and psychic disorders. Our race seems to be suffering from a nature-deficiency syndrome, characterised by allergies, phobias, neuroses, immune failures, dependencies, apathy, boredom, alienation and impotence. If we can reconnect our lives with our primal urges to grow, we can start to heal some of the damage modern civilisation has caused.

We all have many links with plants and soil already. Our main connection is still food and drink, some of which we could grow for ourselves. We still have the capacity to enjoy flowers and walking in the country. We use herbal medicines, essential oils and perfumes. Our cultures are still very often based on plants and plant products. But we are often dispossessed because they are provided for us by somebody else who has the pleasure of growing or the joys of processing the plants. If we can follow up our genetic links as ways of participating in the cyclic continuum of nature, we can more fully enjoy and benefit from our connections with plants and planet.

If we can allow our common sense and intuition to direct our evolutionary urges to grow we will be able to achieve a quantum shift in the quality of our lives and the communities we live in. Gardening can allow us to experience directly the dynamic life energies variously described as *yoga*, *ch'i* or *orgone* in a practical context. This experience allows us to synchronise and harmonise our activities with the cyclic revolutions of nature; the solar seasons, the moon-months and phases of growth in plants. It also provides a shared context and frame of reference for communal bonding and collective achievement. Ancient rites and rituals such as ley-lines and festival dates become practical and relevant to our everyday lives once again.

Evolutionary gardening can link us to global consciousness and make us more aware of the proliferation of cosmic processes active here on earth and in the earth. It is a holistic occupation which can produce mental and physical wellbeing for the gardener, and helps to heal the planet.

So why not share some of the psychedelic experiences and fractal symmetries in the garden. Grow with the plants to become healthier, happier, higher and more whole!

SECTION THREE: PROJECT REPORTS

1. HEELEY HEALTH PROJECT: COMMUNITY ALLOTMENT

Report: December 1997

By Darrell Maryon

The Heeley Community Allotment started in 1991, working the same plot as today, no. 8, on the Meersbrook Site in central Sheffield. A group of families and individuals based around the Heeley Green Community & Advice Centre and the Heeley Bank Centre decided they would like to work an allotment together, since none of the group felt able to take on a whole allotment themselves, no matter how desirable.

Members tended to be single parents or couples with young children or individuals currently unemployed. Everyone in the group was interested in health-related issues and keen on the idea of having the opportunity to benefit both from the outdoor exercise of gardening and the chance to enjoy organically grown food; usually either hard to obtain and/or too expensive. Two of the families involved at the beginning did not have any garden or yard at all and so the allotment also meant somewhere for their young children to play other than in local parks.

The Community Allotment was set up and financed (for rent, tools, seeds, manure) by the Heeley Health Project, a Health Authority funded initiative based at the Heeley Green Centre in co-operation with the adjoining Doctors Surgery/Health Centre. A gardener with some formal knowledge of organic gardening practices, Gillie Gould, author of "The Allotment Book", was employed for a couple of hours a week when most of the group met to help as a facilitator.

By 1993/94 the allotment was mostly cultivated with a range of vegetables, bush and soft fruits and people met there also to chat, hold summer parties etc. A second allotment, elsewhere on the site, was taken on as on some days the one allotment seemed a bit overcrowded. However, this second allotment never got going as some members moved away and others became busy with work once children had reached school age. A few new members meant that 1994 and 1995 were very productive seasons, with lots of good food crops, especially salads, and an array of flowers further beautified the plot.

My own involvement with the Community Allotment started when I offered to make a compost heap with a load of vegetable waste from a local shop, which I regularly took and composted for my own purposes. My own children enjoyed going since they could play with friends when there. By 1995, I had effectively taken over as facilitator and began steering the group towards propagating more of our own crops from seed, more effective compost making and making full use of the plot, which has included removing large amounts of rubbish and the reconstruction of coldframes.

Over the last three years, the group has consisted of largely the same six people and various children. During this time, there have been individuals who wished to join in but have not; sometimes simply for the reason that they have not managed to find the time to be properly involved. There have been a few people, however, who would have loved to have been involved, but because of general infirmity and lack of transport facilities have not been able to come.

The benefits of working in a garden to a person's physical and emotional well-being can be significant and so is rightly supported by initiatives such as the Heeley Health Project. The Healthy Gardening Group, part of the "Healthy Sheffield" initiative of the local Health Authority, already strongly identifies with this view. So far, the funding and facilities of the Heeley Health Project have not enabled it to go further into this problem of inclusiveness.

During the winter 97/98, we hope to secure funding through the Healthy Gardening Group to buy materials for the renovation of our ancient and dilapidated greenhouse. For next season, 1998, we hope to expand our membership again. We also hope to hold another open day, midsummer evening party, as well enter some of our produce again at the Heeley Farm Autumn Show.

2. ACCOUNT OF UNSTONE GRANGE GARDENS [January '96]

Unstone Grange, Crow Lane, Unstone, Derbyshire. S18 5AL

BACKGROUND:

In recent decades Unstone Grange has been in the possession of the Education Department of Sheffield City Council. The Grange has been used as a residential centre for schools and youth groups to go on field trips and holidays away from the city. In more recent years the Grange has been managed by the Unstone Grange Trust, using the site for many various activities, including conferences, workshops, alternative medicine, field trips for children and social and fundraising events. Up until about five years ago the kitchen garden behind the house had been cultivated organically; producing vegetables, fruit, flowers and herbs. Foundations reveal an earlier structure which must be the old Crow Hall, which included in its grounds the neighbouring Grange Farm and its fields. It is therefore probable that the kitchen garden area has been in cultivation for much of the past 400 years. The Grange itself has ten bedrooms, large ground floor dining/meeting rooms and kitchen, warden's house and a number of utility outbuildings. The grounds cover four acres, of which about one acre is currently for the kitchen garden. The 'Unstone Gardeners' for 1995 comprised Nick Park, Richard Clare and Darrell Maryon, plus occasional help from an equal number of friends and volunteers during the summer months.

STARTING UP;

We were approached by the Trust at the end of 1994 with a request to take on the grounds and, if possible, steer the garden back into productive use. This was part of the Trust's efforts to secure ownership of the Grange from the City Council, who had long since lost interest in the site because of the high cost of upkeep. A general survey of the grounds was carried out by Richard Clare during the winter 94/95 which described basically the site and its assets. Whilst the survey was encouraging in its appreciation of great future potential, it also warned of the amount of necessary remedial work that must be done, as the site had fallen into a state of neglect and disrepair. On a subsequent visit, Richard Clare and Darrell Maryon noted that there was probably much residual fertility, considering the history of the site, and that therefore our strategy for the first season would be to restore the structure and fertility of the soils. Some patches consisted of a deep loamy topsoil, others of little but heavy yellow clay, but at least of a type that it is possible to turn around using the correct techniques. A meeting was then held with members of the Trust's management committee at which we stressed the importance of using the first year for purely remedial work and therefore not expecting to grow until the second year, i.e. 1996. The committee agreed to make funds available to us for our immediate needs, such as green manure seeds, seaweed meal, lime, organic fertiliser and manures. We started working the site from early spring 95, and whilst work has been carried out on areas simultaneously, the following is a description area by area, outlining some of the methods used depending on the particular challenge met.

GROWING AREAS:

MAIN (LOWER) VEGETABLE BEDS:

Part of this area was still in some form of cultivation, so work first started here. The soil was forked over and sown with green manures, partly to improve soil health and friability, but also to build up a stock of green manure seeds for use around the site. Crops grown included mustard, quinoa, wheat, rye, calendula and cress. The rest of this area was overgrown, especially with couch grass and convulvulus, both difficult weeds to control. The top growth of the weeds was scraped off and stacked away, the soil then being spade turned and left to dry out and break down in the summer heat. Rock limestone dust was spread to help sweeten the soil [raising pH to about 6.5], which at the same time helps to unlock any residual fertility in neglected soils and also promote the beneficial work of soil microbes and bacteria. Bonemeal was applied at the same time to improve long-term fertility reserves. After the first rains in late summer, the area was forked over and weeded, then shaped into 6 ft wide beds, angled with the slope to best effect in terms of drainage and irrigation. Paths were made between the beds by heaping the topsoil onto the newly defined beds, making the beds raised. A deeper bed has many advantages over a normal 'open plot', including a deeper rooting zone for the crop, easily maintained soil structure and easy harvesting of the crop as most work can be done from the paths. The essential addition of seaweed meal, leafmould and manure (cow and pig) then followed, all of which contribute to improving the soils structure, health and fertility. We plan next to sow a quick growing crop of mustard which will have the effect of homogenising the various materials added to the soil into a living, vibrant loam. Once the mustard has been cut and dug in, these beds will be ready to grow food crops.

VEGETABLE BEDS (TOP END): This area was covered in a thick sward and showed a good soil beneath, consisting of a sandy loam topsoil and yellow clay subsoil. The entire area was spade turned and left to dry out. Consequently, much of the turf died, the rest being forked out. Raised beds were formed and seaweed meal, leafmould and compost added. The whole area was sown in late summer with field beans which will be left to overwinter.

SOUTH - FACING WALL:

Some of this area was already in partial cultivation. The wall was for the most part covered in unproductive shrubbery, which we felt were a waste of a sheltered and sun-soaked area. The shrubs were grubbed out, with the intention eventually to plant up with fan-trained apricots, peaches, nectarines and sweet cherries. The bed in front was dug over and improved with seaweed meal, leafmould and compost, and then sown with a cover crop of greek cress and rye.

COLDFRAMES:

Two large coldframes with brick surrounds; the glass frames had to be thrown away as they were beyond repair. Inside, the frames have sandy, gritty, friable soil and so will be used as seedbeds and for crops needing extra protection. The small bed next to the larger coldframe was almost devoid of topsoil, consisting largely of heavy, yellow clay. Barrowloads of manure were dug in early in the year and field beans sown. It has since begun to improve and has now been planted up with comfrey rootlets and jerusalem artichokes.

POLYTUNNEL:

A sizeable structure, approximately 70' x 35'. A replacement skin is available. The polytunnel area is where we have devoted most of our attention as we feel it provides the greatest potential for growing interesting crops productively, with the extended growing season that its protection provides. We were lucky to find that this area had the deepest, richest loam on site. However, we were unlucky in that three years without proper cultivation had left the area heavily overgrown with a gardener's nightmare collection of weeds, such as couch grass, perennial thistle, convolvulus, horsetail and nettles. This situation had been exacerbated previously by people before us trying to use a rotovator - the use of which we have prohibited. The area was steadily cleared and sown with field beans which by July had cropped very well, the seed being kept for use elsewhere on site.

The polytunnel area now has a rich cover crop of rye for overwintering. We intend to put on the new skin at spring equinox, weather permitting, and to start cultivating crops soon after. The borders outside the tunnel will be planted up with comfrey plants, the fermented leaves of which shall provide a rich liquid feed for the polytunnel crops, especially crops like tomatoes and peppers.

ORCHARD:

The main orchard has a number of varieties of apple and pear trees, mainly on half-standard or semi-dwarfing rootstocks. However, whilst the area is very beautiful and a haven for wildlife, many of the trees are old (60 - 80 yrs?), neglected and unproductive. A strategy of slow and careful remedial work is being carried out. This has so far involved cutting back dead wood and starting on the task of pruning, reshaping and thinning. The ground flora was scythed down and each tree given a bulky mulch of cardboard and compost from the trunk out to the drip line. Further work will include cutting back the overgrown hedges, more remedial pruning and shaping, understory plantings of productive and companion plants and the planting up of spaces with new fruit stock, including bush fruits. The newer orchard area has a younger selection of over a dozen apples and pears. These have all now been pruned and mulched. It is anticipated that even by this autumn, 1996, there will be a marked improvement in quality and yield from both orchard area.

PADDOCK AREA:

Most notably the paddock contains a hard standing area against the other side of the south-facing wall, and we are using this for the making and storage of compost and compostable materials. We have already made a few tons of compost and collected a sizeable amount of leaf mould. The success of the gardens is largely dependent upon the quantity and quality of materials we are able to process through this hidden area.

GREENHOUSE:

This is in a state of disrepair, with areas of rotted frame and missing glass. Nevertheless, it has wonderful potential, though without a large input of money, the best that can be done for the moment is to patch up what we can to make it usable. Its size means it could provide a haven for pot grown citrus and for figs, as well as for use in propagation. In the meanwhile, it still houses grape and passion fruit vines.

ENVIRONMENTAL ASPECTS & PLANS FOR THE FUTURE:

Our work at Unstone Grange has many implications relevant to issues of environmental conservation and the creation of more sustainable, closed-loop environments and communities. Our cultivation techniques are strictly organic, with a special accent on the recycling of materials and the composting of as much putrescible waste as we can obtain. The orchard is to be managed in a way friendly to wildlife, with understory plantings to create a richly diversified flora, especially attractive to horticulturally beneficial insects and other animals. The grounds of the Grange contain many valuable features including dry stone walls, stands of mature trees, lengths of mature hedging, streams and unkempt, 'wild' areas. We intend to plant up bare boundaries with productive hedging material, such as damson and hazel if and when finance is available. We aim during 1996 to start being able to supply the house kitchen with a large amount of its fresh produce needs for its many guests and visitors. There is great potential for the garden's resources to be used in conjunction with courses run at the Grange concerning health and nutrition, the use of edible and medicinal herbs, gardening and permaculture. We hope that some time in the near future we can

develop the site as a demonstration garden, showing what organic techniques and permacultural planning can achieve and provide. And from this to present the case for local, organically grown fresh produce, as opposed to the current trend towards environmentally-unfriendly practices of mass-produced, technologically-complex, chemically-dependent horticultural production methods with their inherent wastefulness and concern more with short term economic rather than longer term social (and economic) criteria. We would also like to build up a stock of permaculturally-useful plants and possibly develop a nursery on these lines. We shall also be looking into eventual certification by the Soil Association, by which any produce we market off site can be recognised to be of organic quality.

UNSTONE GRANGE GARDENS : UPDATE 1996

After all the preparatory work of the previous year 1996 was to be the first year of producing crops in any significant quantity. Most importantly, at spring equinox we covered the polytunnel with a new polythene skin and started immediately to prepare beds and sow and plant crops. Indeed, by early May, we were lifting first early potatoes. Outside, on the main beds were planted a variety of conventional vegetables, such as peas and beans, leeks and onions, cabbages and kale, parsnips, beetroots and salad greens, and this continued with much success throughout the season. Many crops were of a potentially marketable quality and the occasional box of spinach or lettuces, for example, was sold to Beanies wholefood shop in Crookesmoor. Some prolonged spells of very hot weather resulted in lush growth in the polytunnel, but not always in much of a crop; tomatoes, for example, do not like very hot conditions. The temperature was often over 100°F in the polytunnel. As we manage to work the gardens just one day a week, we were reliant on individuals residing at the Grange to ensure routine ventilation procedures and watering were carried out during the rest of the week. This did not always occur satisfactorily with the result that some crops did suffer. The polytunnel still produced crops of aubergines, sweet and chilli peppers, courgettes and squash, cucumbers, celery, beans, lettuce and spinach. The remedial pruning and mulching of the orchard resulted in a decent crop of apples and pears - but will improve with time - some still showing signs of scab. Funding was minimal - we made some money back by selling some produce. We relied on our own initiative for some resources; making leafmould from the autumn fall from the mature trees on site; transporting a load of elephant dung on site from a circus that was passing through the area. Lack of funding and the insecurity created by the Council putting the Grange up for sale, with no one being sure as to whether the Trust would manage to raise sufficient funds within the deadline given, meant that we had to hold back on a number of desirable developments, such as extending the orchard and planting up the south-facing wall. On the positive side, however, we had managed to prove the potential of the garden by successfully growing a wide range of crops. As a group we had grown too, so that there was usually six people out on the work day, sometimes more, presenting an opportunity to develop the site in the future beyond what we had so far achieved.

UNSTONE UPDATE 1997

The year started on a high note with the news that the Trust had secured ownership of the Grange from Sheffield City Council. Although funding would again be minimal for the garden, we were at least now securely to remain there. The management committee agreed to let us sell the rotovator which we had already made redundant. The money from its sale enabled to buy essential materials such as manure and seaweed meal.

The greenhouse was patched up in the spring and then filled with various varieties of tomatoes grown in tubs, producing good crops throughout the summer. The polytunnel became less jungle-like this year; the summer being damp and cool for much of the time, making it easier to care for the crops than previously. We managed to push a number of quick growing crops through at the start of the season very successfully, crops such as lettuces and spinach, when it would have still been too cold outdoors to grow a useful crop. Some of this produce was sold to Beanies wholefood shop as before. A number of carrot crops went down a treat: in particular when the Grange played host to a primary school from near Chesterfield, with many of the children taking up the offer to each dig up and nibble a carrot or two. The main beds provided a good crop of winter vegetables such as broccoli, leeks and parsnips up until the spring. Again, a range of conventional crops were grown out on these main beds. We were sometimes down on numbers of volunteers, without whom we were perhaps not able to fully exploit the beds this year. In the autumn, an excellent crop of apples was harvested, about 500 lbs excluding damaged and windfall fruits.

Finally, we were able at the end of the year to start work on developing the south facing wall. The coping stones and brickwork were repointed, planting holes prepared and finally, in December, the area was planted up with two apricots, two peaches, two nectarines and a sweet cherry. Each tree's cost, including soil improvers, was paid for by an adopt-a tree subscription either by one of the gardeners or by a friend/member of the Unstone Grange Trust. There is much potential on site for further developments of this nature. Next we are to develop unused areas of the orchard, starting with planting up one large area with a variety of bush and cane fruits.

3. ENVIRONMENTAL ASSESSMENT OF SHEFFIELD'S NORTH-WEST INNER CITY AREA

BY THE PONDEROSA ENVIRONMENTAL GROUP. NOVEMBER 1997.

INTRODUCTION

The word *environment* has become a ubiquitous generic term in the last decade. This study has not attempted to define or dilute the term, but has adopted a working understanding based on the qualitative and quantitative analyses of the opportunities for local residents to interact with the world around themselves in as many and as diverse ways as possible. This premise permits observations of the naturally-occurring ecosystems within the area as well as the impact of human activities, and the possibilities for harmony (or discord) that exist between them. This assessment also seeks to show how the environment impacts on the community, affecting its health, safety and ways of life.

POTENTIALS AND LIMITATIONS OF ENVIRONMENTAL DEVELOPMENT

It is vital for all parties wishing to contribute to the improvement of the living environment within the study area to acknowledge and fully understand the wide range of factors which limit the quantity and quality of interactions between residents and the world immediately around them.

Many factors are set and invariable, such as huge external influences (e.g. traffic flows and shopping provision). Decisions to change these factors are often beyond the community's ability to influence local affairs and are to all intents and purposes inevitable. Regional and national trends and practices have the power to either devastate or regenerate localities.

A second category of factors refers to the material infrastructure of the area which can be influenced either by individuals or by the community as a whole. The range of habitat spaces identified in this study (from the micro level of window boxes and balconies up to the macro level of land in public housing curtilage and open spaces) can all be seen to provide limited opportunities for local individuals and groups to influence and bond with the environment around them.

A third category of more intangible factors must also be assessed to complete the picture of what problems and potentials this area possesses uniquely. These could be referred to as the psychological dimension of the area or the human dynamics involved. Factors as diverse as mental health status and employment profiles of individuals as well as what initiatives exist to organise and co-ordinate efforts to improve the environment should all be considered.

EXTERNAL INFLUENCES (BEYOND LOCAL CONTROL)

The whole of the NWICA area is situated on the south-facing (lea-side) of one of Sheffield's seven hills (Bole Hill dividing Rivelin and Loxley valleys). Combined with the extra background heat of the city centre and industrial zones along the Don valley (estimated to increase the ambient air temperature by an average of two degrees centigrade throughout the year), the area is in effect a warm micro-climate compared to surrounding areas, especially the raised ground to the west. This is equivalent to a gain of approximately 5 degrees of latitude and means that planting selection can include stock which would normally be considered marginal in the region, for example Mediterranean species such as Rosemary and plants which require an extended growing season such as Almonds, and even fruiting Grapes and Passionfruit.

A commonly used concept of the '**ecological footprint**', the origins and destinations of the gross flows of resources into and out of an ecosystem, can be applied to give a brief impression of the scope of the area to influence the environment.

Food is the primary resource for any population and a ratio between production and consumption provides a shocking reminder of the extent to which this area is dependant on external supplies. In these terms and in common with many inner city areas, the NWICA area would have to be defined as a 'food desert'; both in the sense that food must be imported from all around the world and also in the more limited sense that people must journey outside the immediate locality even to purchase it. Within the area there is a limited choice for staples either from Safeway or the Co-op. Smaller shops provide a minimal range of basic necessities.

However, within walking distance, inhabitants have access to abundant choice from retail outlets in the city centre, its markets and Hillsborough. The output derived from this food is delivered by a Victorian mains system running parallel to the River Don to the sewage works at Blackburn Meadows, next to Meadowhall, where it is aerobically activated and the material sterilised by heat.

General refuse has been landfilled for the greater part of 1997, whilst work to upgrade filter systems to reduce especially dioxin emissions has been carried out to the Bernard Road Municipal Incinerator. On recommissioning, this will supply heat (generating no power) to the City Centre heating system. Though valuable, this system recovers the minimal, calorific value of the refuse and can act as a disincentive to the extraction of recyclables from the waste stream.

Water delivery systems were upgraded in 1996 when Rivelin water works were substantially extended and in 1997-8 when the mains pipes for most of the north-west area were re-laid, replacing the original cast-iron network. Part of the area is supplied by the dams at Redmires above Crosspool, which have also been recently extended and improved. Despite being well served by a reservoir system which was built to service the colossal requirements of the steel industry, the newly upgraded delivery system and consequent improvements in quality would justify the introduction of water metering for most households in the area, most of whom could reduce their water-use and their bills. Free conversion to meters is available as an incentive to households in both the private and the public sector. Uptake of this offer is currently minimal and sporadic, but industry trends are likely to encourage greater numbers of conversions in the near future.

The scale of consumption of all three major utilities, water, gas and electricity, can be conceived by simply multiplying the number of tenanted households in the area (c.6500) by the average annual supply cost. Hence it is possible to apprehend that residents of the area spend between one and one and a half million pounds (underestimate) on each of these three services. These stark figures justify the importance of any initiatives on energy efficiency and conservation in savings to local people although many already have the incentive of poverty forcing them to save resources.

MATERIAL INFRASTRUCTURE (ACCESSIBLE)

The most obvious method of assessing environmental opportunities within the area is to simply divide them up according to scale. A continuum can be constructed from purely private through to public spaces. Efforts to help and encourage individuals to maximise the use and value of their own land and growing spaces should be very different from those strategies developed to improve larger spaces, the sole responsibility for which has traditionally been municipal. The original concept of Sheffield City Council's NWICA(P) initiative held great potential for re-inventing and engaging the community's senses of responsibility for and ownership of the neighbourhood. This opportunity still exists, despite the lack of official progress because a large proportion of residents are (and will be) new to the area and hence unaware of difficulties in the track record of environmental improvement in the recent past. An important distinction needs to be made between the activities of individuals and those of authorities. The latter should be sensitive to the fact that their impact is far greater and can be detrimental to the smaller inputs of individuals and groups. Corporate insensitivity in the area can be evidenced in several instances causing upset and anger amongst local residents, many of whom have given their time and made valuable contributions to many public meetings and forums.

Municipal landscaping with no-maintenance ground-cover can have the effect of merely branding an open space, declaring it out of bounds to the local population and excluding the possibility of public utility.

Alternatively, public consultation and acceptance of the views of the consumers of the local environment can produce innovative solutions which are cared for and cherished. This point is illustrated by the planting installed after Martin St/Oxford St Towerblock refurbishments. D.B.S. landscape designers were forced by residents' opposition to cancel mass planting of shrubberies (pyracanthas/hawthorn etc.) around the retaining walls and in the second phase delivered an improved selection including vines, variegated buddleias and fruiting cherry and plum trees.

If municipal improvements disrupt or destroy environmental assets achieved by groups and individuals, the demoralising effect can reduce or remove their motivation to achieve future developments. This is demonstrated in the case from February 1997 of the installation of virtually useless stone circles at the bottom corner of the football pitch on the Ponderosa by the Planning department's landscape architect, which removed young native trees planted by local schoolchildren. Equally damaging can be the issuing of grand plans for development in which the community has no role, which is a form of exclusion and has the effect of alienating locals from their council and perhaps more importantly from their local area.

It is imperative that any environmental improvement strategy should co-ordinate and synchronise activities on all levels from all parties equitably. As well as having the effect of encouraging more people to contribute to improvements, this would save money spent on unwanted projects which only encourage vandalism and social apathy or resentment.

PSYCHOLOGICAL DYNAMICS.

Anyone assessing or working on the environment in the area must be fully cognisant of the many difficulties and obstructions involved in enacting improvements. These factors are largely not in any way limited to the specific geographical area, but are common to all urban environments in the post-industrial era.

The greatest single source of environmental stress and disruption present for the past five years has been and for the next four will continue to be the programme of rebuilding and refurbishment. Undoubtedly, the stresses and uncertainties involved in this process will deliver fundamental improvements in the quality of life for future residents, but it has visibly had adverse consequences during the first half of the process. Community confidence and development have suffered from the mental, physical and sociological disruptions involved.

However, from this point onwards (late 1997), the majority of the population can now expect a more stable and enduring future. This midpoint or peak of the regeneration should mark the transition from damage repair to firmer foundations in many aspects of community dynamics. It is to be hoped that the recent history characterised by rancour, fear of change, apathy, competition, distrust of authority and inaction will be superseded as the new population pattern stabilises and forms a sense of its own identity. In this context, environmental involvement and interactions can play a vital dual role, practically achieving improvements but also providing a forum for social interaction at all levels across all neighbourhoods.

Projected demographic changes on completion of the regeneration project include a decrease in the numbers of single persons and elderly, and increasing numbers of families and children. Total population will have declined by more than 1000 persons, in line with the city-wide trend. Despite these major impacts on the population of the area, it can be expected that there will be a high degree of continuity in the constitution of the population and that consequently the area will still have above average proportions of unemployed, incapacitated, care in the community cases and elderly (as reported in Joseph Rowntree Trust reports 1991 to 1997).

Any initiatives to facilitate environmental interaction should concentrate on providing opportunities for all, positively discriminating if necessary to compensate for under provision for groups with specific needs, whether they are a bunch of pensioners, a gang of young kids or the mentally and physically disabled.

Extracted from the introduction to the Nature Conservation Strategy for Sheffield 1997 [S.C.C.]--

1.27 "The provision of urban 'Green space' is particularly important in the inner city where access to open countryside is difficult and the problem is compounded by low incomes and poor mobility. It has been suggested that many inner-city problems stem from 'spiritual impoverishment' caused by distancing people from nature."

1.31 "Natural [or wild] landscapes can be a focus for community action and involvement in nature conservation, which will encourage people to understand and care for the environment. Unfortunately, many of the areas that people might use are in poor condition and are often inaccessible. Areas left to nature are often treated as rubbish dumps or are targets for vandals. By clearing rubbish and creating proper access points with surfaced paths, seats and properly fenced boundaries, under-used and abused areas of 'natural' wildspace can become popular meeting places for local people."

PROGRESS INDICATORS

These should combine objective factual statistical data with more subjective perceptions of improvements and progress toward a more harmonious situation. Demographic information should be compiled to create an up to date snapshot, representing the current state of the population as a starting point for anyone working in the local community. This factual basis can identify needs and deprivations and help to prioritise action.

Many of the more subjective indicators may seem less quantifiable and more ephemeral than current statistical analysis, but to anyone living in the area, they are all obviously important. It is difficult to identify a common methodology to record changes over time and therefore comparisons will be difficult. But assessments of the diversity, frequency and duration of interactions with the outdoor environment have been made, studying sections of the study area over the past ten years, and this approach should continue and be comprehensively extended to cover the whole area.

Even subtler indicators would also assess the level of passive use of various sites, establishing that housebound and elderly people (for example) may derive satisfaction and interest simply from looking at the view through their window.

A record could be compiled detailing community participation by establishing the number, scope and membership of local community groups interested in all types of environmental concerns. The level of achievements and simply the continuity of such groupings reflects the frontline of environmental progress. Acknowledgment of voluntary commitments in itself may help to motivate more people to contribute.

The activities of such organisations are generally complimentary to the input of authorities and a potential synergy exists which could be developed to increase the balance between environmental needs and the potential to satisfy them locally. In many cases the incremental momentum of many diverse, small-scale projects will be more likely to deliver the environmental experiences that local people want or need than grand designs that are perceived to be imposed on a community.

This area traditionally had a strong and well-defined sense of place or character which has declined and re-evolved over the past 40 years. Many elements could be drawn from this local history to enhance continuity from the past to the future reassuring long term residents that the character of the area is retained despite major transformations in its appearance. One indicator of the success of the environmental provision in the area is reflected in how long people remain in the area. Length of local authority tenancies, waiting lists for property and house prices all indicate acceptance or rejection of the social and environmental dynamic of the area.

Retrospective analysis of environmental performance can be made and updated in several ways. It is possible to assess the preventative or pre-emptive performance of environmental planning by valuing the degree to which

forward thinking and provision has obviated economic and social costs. For instance by anticipating near future needs, such as play facilities in an area with expanding youth population, the social and economic costs of vandalism, crime and boredom can be reduced.

The principles of environmental accounting, taking into account the whole lifetime benefits of improvements including savings to all budgets, valuing all contributing elements, provide an accurate picture of the area as an ecosystem, taking into account the inputs and outputs of the area and provision for re-use, recycling and recovery of resources which strengthen the local economy and community.

In practice, any efforts to assess progress are welcome. Such elementary measures as ensuring the minimal provision to facilitate usage (eg bins, benches, paths etc) for each and every open space are still lacking in many instances. At the other end of the spectrum, current best practices, such as organic maintenance regimes and full community participation, can be identified locally, city-wide, nationally and even internationally and adopted from successful working examples.

The contexts for profiling an inner city area must also take account of the overall dynamic of the city as its function changes and adapts over time. Any progress indicators can be compared to similar assessments for other areas and other cities and towns. In the case of Sheffield, the overall population is steadily declining and some might argue that self-definition and self-confidence have also declined. The theory that this atomisation of the city will produce a series of interlinked village-scale communities has been prevalent since the decimation of the steel and coal industries over a decade ago. This scenario will starkly highlight the success or failure of environmental regeneration according to whether this area can re-establish for itself a distinct and enduring sense of its own character.

SOIL QUALITY

All gardening or practical environmental activity starts with an analysis of soil properties. This determines what can be grown, how well it will do in the future and what ecosystems are likely to develop.

Aboriginal, undisturbed or virgin soils are extremely rare within the study area. The topography suggests that the area was originally composed of a small, steep-sided glacial valley with a brook running down it as a tributary of the river Don. Rocky outcrops to the north defined the start of the climax woodland (oak) which was cleared to become heather moorland at an early date. Evidence exists that the alluvial silt in the valley bottom was cultivated until the mid-1700's and that sheep were grazed on the acidic moorland pasture of the higher ground.

Disturbance and major re-landscaping has been a constant feature since pre-Roman times. A brief résumé of developments would have to include the construction of a series of increasingly large dams and reservoirs progressively going up the valley; the process of conurbation which covered all available space with housing and factories; the construction of the viaduct to take the original tram in the 1880's, and the slum clearance and redevelopment as council estate in the late 1950's.

Hence the most pertinent broad description of the soils in the area is that they are recovering from previous uses. The deepest and most fertile soils are those that have had longest to rebuild after disruption (such as the meadow in the top N-W corner of the Ponderosa and the steep north facing slope at the back of Sydney Road down to Springvale Road). Other relatively undisturbed soils are to be found in the gardens of the large houses on the south facing slope down from Commonsides (Birkendale to Upperthorpe), although these will also have been subject to extensive modification by the occupants.

Two main processes of soil recreation can be observed:

- 1. the accumulation of turf to create loam on grassland**
- 2. the deposition of humus by mature deciduous trees.**

The bedrock for the whole area is sandstone overlaying granite, which provides generally good drainage with a spring line where the two meet. In the vast majority of cases these subsoils have been supplemented by archaeological strata of building rubble and tipping wastes. Often over time these layers prove to be unstable and subsidence can occur (such as where cellars have caved in at Port Mahon and near St Stephen's Walk on the Ponderosa).

Upper levels of these additions to the substrate are characterised by relatively inert categories of matter such as bricks, mortar, tarmac, flagstones, glass, roof slates and kiln lining. Although the presence of so much alien material can make cultivation difficult and soil-Department can be very thin and variable, drainage is often further improved and the gradual attrition of lime derived from mortar has improved the pH balance and even created alkaline conditions exceptional in the range of what would otherwise now be acidic heather moorland.

More recent tipping contamination (in the last five years) has introduced noxious materials which should be regarded as actual pollutants, such as asbestos, plastics, composites and electricals, all of which are eco-toxins and could present dangers if disturbed in future.

The majority of the soils in the area consist of imported topsoil to a depth of 8-24 inches (20-60 cm), derived from a variety of agricultural and greenfield extractions. These can be typified as sandy clay-based loams, although distribution of batches of specific imported soils is random and sporadic. Most soils present require radical

improvement to facilitate a wider variety of plantings, though they are sufficient to permit many forms of cultivation, if appropriate to the particular site.

Historically, concern has been expressed about heavy metal contamination from industrial sources (lead, cadmium and mercury specifically) and precautions to avoid ingestion should be taken. However, the presence of high levels of lime (in cement, mortar and concrete) will help to ameliorate this problem by bonding the heavy metals onto the calcium. Analysis of current levels of soil-borne pathogens such as toxocarasis is recommended urgently to establish whether and if so where they may be present or alternatively to reassure residents of the safety of allowing young children to come into contact with the soil (see Ponderosa Dog Mess strategy later on).

Understanding of the history and formative principles which have influenced the soils present is a necessary precursor to engaging in their improvement. Despite the major episodes of degradation and destruction in the past, the position is far from irretrievable, on the contrary there exist many opportunities to exploit the existing soil-bank to assist the processes of environmental and social regeneration.

Current practices for achieving amelioration consist of the addition of minimal fertilisation with bonemeal and/or mulching with composted forest bark. Although these additives are perfectly acceptable and also conform to an organic standard, they can be identified as inadequate on two counts. They may fail to deliver a sufficiently varied spectrum of nutrients to support anything but a minimal range of species adapted to survive in adverse conditions and they do not deliver sufficient quantities of humus to allow soil micro-organisms to thrive and generate a virtuous cycle of soil deposition and structuration.

In order to deliver longer term success in a more diverse range of flora, it is necessary to provide a wider variety of nutrients and renew supplies of bulky organic matter regularly. Providing that the choice of species is sensitive to the conditions in a particular microclimate, a vastly expanded range of planting options could be available.

LAND CATEGORIES

This environmental assessment starts with the (generally) small-scale environmental or growing opportunities available to NWICA residents. These are usually (or can be made) completely under the control of the resident/gardener. The assessment then proceeds to move out from this zone into the more public domains of gardens, housing curtilage, minor open spaces and then, finally major open spaces. For NWICA, this means the Ponderosa; the largest open space and the zone that contains the most wildlife and the greatest potential for community environmental projects (not too mention social and even economic projects).

Space within the study area has been divided into six categories ranging from the smallest to the largest. This arrangement reflects the perspective of inhabitants, who may have access to all types of space, but can influence their immediate environment more readily than larger spaces. This summary attempts to describe opportunities for interaction at each level, identifying appropriate strategies for each and recommending methods for the development of each category. The theoretical ideal output of development would be to maximise the number, diversity, quality and usage of all the niches and microclimates within the area. In practice, there are abundant opportunities at all levels, many of which can be illustrated by positive examples from the area itself.

1. INDOOR GROWING SPACE (SMALL PRIVATE GROWING SPACES)

E.G. WINDOW BOXES, WINDOW LEDGES, BALCONIES ETC

For many people, the only chance to cultivate a personal growing space is in their homes. Maisonette and flat-dwellers are able to exploit the limited space available to a huge diversity of ends. Indoor growing permits highly intensive cultivation requiring constant high levels of care and attention, such as growing exotic specialities (tropicals or cacti) or the propagation of seedlings. The potential benefits of warm, protected internal environments (accelerated growth, extended season) must be balanced against the dangers of excessive heat and protection (weak, etiolated structure vulnerable to pests and diseases). Frost hardy, native plants require sufficient periods of cold dormancy to maintain normal patterns of growth.

Due to restrictions on space, the most appropriate productive use of indoor space would be to generate a constant supply of culinary herbs (e.g. on the kitchen windowsill). The most suitable type of plants would be small, dwarf or even bonsai varieties of tender plants. Whenever possible houseplants should fulfil multiple functions to compensate for restricted numbers. Hence, evergreens that flower and fruit over a long period such as citrus or a prickly pear, satisfy aesthetic and practical demands throughout the year.

Windowsills and balconies can accommodate a huge variety of containers including pots, tubs, buckets, growbags, windowboxes and hanging baskets. Observation suggests that between 30 and 50 % of tenants make efforts to grow plants in their flats.

Problems identified in this category include the sourcing of growing media and stocks of plants suitable for these micro-environments. Local trials of commercial worm bins have demonstrated that they are a safe and sanitary method of converting organic wastes into a high fertility medium. Approximately 20 -25% of the volume of domestic

refuse is made up of material suitable for digestion by a worm (*eisenia foetida*) composting system. Bins of varying size and design are available to provide for the output of one to four people.

Schemes to provide free or subsidised units (such as are run by many local authorities including Doncaster) could be used to encourage tenants to recycle their own waste products into a versatile and beneficial potting compost ingredient. It would also be possible to facilitate information-sharing and swapping of successful plantstock between groups of tenants.

The capacity of private individuals to self-organise and generate mutual support could be greatly enhanced by the appointment of a gardener-in-the-community to help co-ordinate and develop the current level of activity. Sensitive development work facilitating self-empowerment & encouraging networking would make a measurable contribution to the community's wellbeing and coherence, in the context of both indoor and also outdoor personal space.

2. EXTERNAL GARDENS SUBJECT TO THE CONTROL OF AN INDIVIDUAL HOUSEHOLD, RESIDENT OR TENANT

Despite the predominance of high-density public housing in the area, more than half the residents have direct access to their own garden or dedicated growing space. These range from the provision of planters on landings all the way up to the substantial surroundings of houses on Uppethorpe and Springvale. The vast majority, however, are modestly proportioned (15x20ft = 3x4 m). These several thousand gardens provide secure outdoor space for the everyday needs of tenants and have been developed in abundantly diverse and often idiosyncratic ways.

It would be impossible to classify the variety of approaches and plantings present, but it is important to observe and interpret the messages they communicate. The state of gardens can be read to give greater understanding of tenants' lifestyles or self-respect and over time to indicate improvement or decline in the population's coherence and continuity. A thriving garden represents the achievements and dedication of the inhabitants to the outside world. Any initiatives to co-ordinate development on this level should begin with an appreciation of existing successful examples, identifying key elements of structure and cultivation and attempt to replicate best practices.

An illustration of the impact that well used private space can have in generating a positive impression of the area is provided by the landing planters integral to the design of the low rise flats on Bonnville, Dover and Morpeth Gardens. The majority of these are imaginatively planted providing all year colour and interest not only to the tenants but also to passengers travelling along Netherthorpe Road on the Supertram.

Approximately half the stock of gardens in the area can be identified as being attached to the older, private houses in the vicinity of Daniel Hill, Blake Street and at the back of the Kelvin site. These are mostly the back yards of terraced housing dating from the last century. Their potential is limited by the quality of the soil which will often be found to be highly mineralised due to the constant addition of coal ash over a period of many decades, which has created poor soil structure and aeration. Choices of plants tolerant of poor conditions and soil improvement by the addition of large or regular doses of organic matter can both be employed to remedy this deficiency. Where mature standard trees are present, problems such as overshadowing and competition for water and nutrients limit space and restrict the range of plants able to survive. Often it is only established perennials suitable for the dark, dry understorey which can compete with the trees.

Gardens attached to the bungalows on the traffic-free Springvale estate provide an example of how social trends can be deduced from their state. Ten years ago, these properties were almost exclusively dedicated to elderly tenants who almost unanimously tended their small plots with great care and attention. This reflected a stable and settled population with sufficient time and money to engage in ornamental cultivation as a practical and aesthetic hobby. Present inspection reveals a marked decline in the usage and standards maintained in these gardens due to changes in the tenant population.

Without wishing to impose higher standards upon tenants, improvements could be achieved by generating strategies which facilitate skill-sharing and encourage active gardeners to assist the inactive or unable. Capacity-building work such as encouraging informal garden clubs and shared-interest networks could once again be undertaken by a gardener in the community, ideally recruited from local tenants themselves.

Refurbished maisonettes and newly built housing association properties include the provision of garden space as an integral part of their design. Hence, the area will have gained approximately 500 new private gardens at completion of current projects. In the case of Crookesmoor Drive and the brownfield Kelvin site, new tenants will be taking on gardens with highly disturbed subsoils covered by imported topsoil of uncertain derivation and quality. In such cases, the installation of minimal planting such as turf and hedging by contractors is justifiable in order to improve the immediate appearance of newly completed schemes, but should not dictate to future tenants who will decide individually the content and use of their gardens. In this situation, with many new tenants and first-time buyers or occupants, a prime opportunity exists to deliver ongoing assistance for the first few years of occupation, to compensate for the inexperience of new tenants and the inadequacies of the sites.

3. INTERZONE BETWEEN PRIVATE AND PUBLIC SPACE (including VERGES AND OTHER OPEN AREAS WITHIN CURTILAGE OF HOUSING)

This category refers to unoccupied public space which can be claimed and cared for by private individuals. It includes odd leftover spaces, verges and some of the land in curtilage around blocks of flats. These provide a valuable opportunity for common ownership and management, and could compensate tenants who presently only have restricted access.

The interzone can be identified as offering a relatively unique range of habitats and could be said to be a distinguishing feature of complex disturbed inner-city areas.

This category contains a subset of the overall categorisation, since people have adopted spaces of all sizes and improved them. Many examples can be found of small scale use of windowsills in shared stairwells and lobbies for simple houseplants, such as geraniums and spider plants. One tenant on Bramwell Street even went to the extent of blocking in her landing with rigid plastic sheets to create a conservatory.

Tenants on Burns Road have effectively claimed the shared land in curtilage around their bungalows, creating a very pleasant communal garden to sit in and talk to the neighbours and passers by. The council's landscape services and the mowing gangs acknowledge these developments and are happy to adapt their maintenance regimes to take into account private planting on public space. Initiatives of this kind demonstrate that a proportion of tenants do tangibly express the need for more growing space and that, if conscientiously maintained, such colonisation can augment the richness and diversity of the environment on people's doorsteps.

Examples of this kind represent the genuine, ongoing commitment of local residents to their local space and will only endure with the consent of the majority. Taking into account the absence of provision of manageable-scale spaces such as allotments in the whole area, it is understandable and justifiable that keen cultivators claim the nearest greenspace to their homes. These types of occupation of common land demonstrate a high degree of social responsibility and should be welcomed and applauded.

The motivation for such usage comes from particular individuals and cannot be imposed, however, opportunities can be restricted by excessive amenity planting which can dissuade and prevent the possibility of local adoption and control of open spaces. Greater acknowledgement of the value of these voluntary initiatives by authorities responsible for planning and design has developed over the past five years and many of the refurbished maisonettes have semi-private, shared garden space in place of the anonymous turf which previously covered the land in curtilage around these blocks.

In some cases it may even be desirable to install infrastructure and ensure soil improvement instead of filling spaces with monocultures of the kind of no-maintenance perennial shrubs which add little more than a splash of dark green all year and may be more suitable for a motorway verge than the corner of a residential street. Whereas commercial considerations restrict and define options for service contractors in terms of the diversity of initial plantings and their ability to deliver ongoing maintenance programmes, community-led responsibility can ensure that specific care regimes and more complex planting concepts are achieved.

Several pre-existing models for occupation and usage of this interzone can be cited to demonstrate formal precedents in addition to the examples of local community initiatives already referred to above. Hanging baskets have become a distinctive feature of many public houses and sponsorship has been negotiated to maintain many roadside sites around Sheffield. These recent phenomena underline the fact that commercial interests can be served by improvements to their environs. The value added to the locality of business operations can actually have greater impact where it is in contrast to its surroundings, as is the case in the commercial quarter of NWICA.

4. FORMAL, MAINTAINED GARDENS ASSOCIATED WITH PUBLIC HOUSING AND OTHER BUILDINGS).

There are numerous examples within the area of a historical commitment on the part of the municipal authorities to install a wide range of formal, maintained, public facilities to compensate for the lack of private garden provision. These are apparent in many forms from the many rose beds and concrete planters on the streets to larger spaces which could be classified as 'pocket parks', and can also be seen in the remnants of previous developments linked to several public buildings within the area.

The overwhelming impression of these gardens is that they have lacked maintenance and fallen into a state of neglect. Having been designed for regular maintenance and clearly defined as the responsibility of the public authorities, cuts in public expenditure and 'rationalisations' of the council's role meant that they were ignored and deteriorated. This can be identified as partly being due to excessively high expectations on the part of the original designers, installing plantings which were felt to be inaccessible to local people and were consequently not adopted by them when council maintenance ceased. Hence part of the tower block refurbishment involved the removal of extensive formal, paved and hedged garden areas.

The community's acceptance or rejection of designs within this category can be shown to be pivotal to their success or failure. This is illustrated by the neglected air of the older parts of Daisy Bank and the underuse of even new installations such as the circular seating area on Jericho Street. Active community adoption of these sites has not taken place and in some ways dooms them to drawn out neglect. As outlined in the section on resources, there is considerable support available for community environmental projects but their real long term success rests on gaining sustained and significant community involvement.

In the case of garden space closely associated with public buildings, continuity of use is equally important. Many developments can only be justified if they are actually used and adopted by local residents. Without this missing component of long-term responsibility, projects can deteriorate as have the wildlife garden outside Netherthorpe School and the concrete planters outside Upperthorpe Library. Conversely, abandonment can also provide new opportunities for redevelopment and a fresh start. Recent initiatives have provided an area of walled beds on a steep slope at St Bartholomew's Church which is wheelchair accessible and the recreation of perennial plantings at Crookesmoor Community Centre, including a small orchard.

Strategies for enhancing and co-ordinating the community's use and strengthen their sense of ownership of facilities such as schools, community centres and even old people's homes could be developed much further, since these buildings offer protected, defensible, safe space and would be suitable as meeting points for a network of communal gardening projects. Environmental/gardening projects centred on these types of buildings can start off with the great advantage of already having significant community involvement, albeit previously restricted to the inside of the buildings.

5. MINOR OPEN SPACES.

A baseline for minor open spaces can be conceived to the effect that they should all possess sufficient basic amenities necessary to permit usage, namely bins, benches, paths. Those deficient in this minimal provision should have priority for remedial spending preferably before any grand plans are enacted on other nearby spaces. The benefits of investment in one area can displace social problems to other places nearby, especially if those others are run down and neglected.

Repeated public consultations have established that local people prefer the sense of openness generated by the large expanses of mown grass in the area, especially the area in and around Port Mahon. Eye-level sight lines along walkways reassure residents that they are safe from muggers. The dominance of mown grass to achieve this aim is due to the constraints on maintenance budgets. However, various imaginative alternatives to monotonous turf could be achieved at reduced cost of maintenance. Disturbed soils, such as those generated by major building work, provide opportunities for wildflower breaks. Where appropriate, these can sometimes even be achieved by managed neglect, permitting indigenous windblown species to recolonise and develop through a succession of populations over a period of years finally delivering the naturally selected climax vegetation for that soil and microclimate. Land within the category of minor open space could also be conceived of as offering opportunities to provide substitutes for environmental components which are absent from the area. Hence they could supply space for communal allotment and leisure gardening organised as formal projects, such as happens already on the Blake Street site. Alternatively, small sites can be viewed as a continuous network with the potential to provide an edible landscape of fruit and nut trees suitable for browsing wildlife and humans.

Examples prompting and demonstrating this idea can be found in the recent installation of fruit trees at Daniel Hill Peace Garden (by SWT.) and the clumps of apple, plum and cherry around Martin and Oxford St tower blocks (by D.B.S.). Mature specimen trees have also been identified, such as three 30 foot almonds in the vicinity of Edward St flats, which fruited prodigiously in 1997, suggesting that the concept of an edible environment has been acknowledged in the past.

Once again, existing examples of good practice can be identified from within the area in respect of playground provision. The circular design of Edward St flats provides the ideal site for play equipment for young children, protected from traffic and overlooked by their parents' flats. These principles, derived from observation and experience, have been adopted as a policy by the Environment topic group of NWICA, together with recommendations for adventure play facilities where teenagers are already inclined to gather, further away from housing but still within view.

MUNICIPAL PLANTING

Much of this can be deeply unattractive with a bare 'green desert' appearance of (often badly done) mown grass and 'lollipop trees'. Huge clumps of overgrown shrubs look dark and affect street safety. They collect litter (their overgrown appearance encourages people to dump litter in them) and, due to inadequate maintenance and poor

siting, overgrow paths and create too much shade. Many lack colour for much of the year. There is often an overwhelming atmosphere of neglect and decay.

Some of the tree planting, especially some of the most recent is extremely poor and even counter-productive to what was intended. The landscape architects from Design and Building Services planned for a 50% failure rate when they planted trees around the Hillside Tower blocks. They achieved this with ease by planting the trees at the wrong time of the year; poorly planting some of them; choosing too large trees which were 'stunned' by planting; poor maintenance; poor siting and arranging them in straight lines which attracts vandals, and failing to involve the community (eg the tenants association and environmental groups such as PEG). The resultant awful looking dead and dying trees, some from the poor planting practices and some from vandalism, increase the fears and despondency of the community.

The vast majority of planting is at ground level only with little attempt to utilise the many levels which the buildings and layout of the area offer. Planting on the ground level is vulnerable to disturbance. More raised beds, hanging baskets, wall and roof plantings and trees and bushes of differing heights could all green and soften the visual aspect of the area.

BIODIVERSITY OF CATEGORIES 1 - 4

PLANTS

Gardens under the control of individual householders contain the widest variety of plants due to individual preferences and resources of gardeners. An enormous variety of often continuously changing native and exotic species of flower, shrub and tree can be found. These are impossible to list.

Extreme levels of disturbance (cars, humans, dogs, cats etc) limit wildlife. Some gardens may contain far more wildlife due to being bigger, better planted up and less disturbed.

Nature conservation groups have helped spread the idea of wildlife gardening whereby particular wildlife-friendly plants are grown or allowed to remain. This can be encouraged further with locally produced and disseminated information and advice.

Verges, gardens and other open areas within curtilage of housing (the Interzone) are dominated by mown grass, dense shrubberies and 'lollipop' trees and are known to environmentalists as 'green deserts'. Their value to wildlife is often very low and their biodiversity is at a minimum. Some of the most botanically interesting and wildlife rich areas occur where neglect or ground disturbance (ie anything which breaks open the dense grass turf) allows other plants, either wind-borne or deposited in other ways, to germinate and grow. In particular, many of these plants suit butterflies (eg Buddleja, Nettles and Knapweed) and seed-eating birds (Thistles, Teasels and Birch).

Shrubs dominate many areas planted by the Council. Many are exotics (eg Cotoneaster, Viburnum, Mahonia and Pyracantha) and have little wildlife value for most of the year. In hard winters, however, they become a valuable food source for wandering flocks of thrushes (eg Mistle Thrush, Blackbird, Fieldfare and Redwing). This is because the countryside, due to destructive intensive agriculture, often lacks enough berries. In any case, native berries may have been exhausted by late winter. Many of the municipal plantings have hard berries throughout the winter which soften (blet) on the bushes and become a food source later in the winter.

There is little doubt that Council Departments have much to learn about how their landscape design and maintenance regimes could be improved to benefit wildlife (and be hugely better for people too!). Simple things such as soil improvement to allow plants to thrive without the need for chemical sprays, with less watering and with less chemical weeding could be used. The provision of bird (eg Robin and Tit boxes, artificial House Martin/Swallow nests and bat boxes) is another cheap possibility.

INSECTS. Biodiversity of insect species may be very variable over the area in gardens. The use of chemicals and the cultivation of many exotic species may limit insect populations. However there is no doubt that many more foodplants are available in private gardens. Plants which particularly attract insects such as butterflies add considerably to the attractiveness of the area in summer. Insect biodiversity is not just a question of interest to academics or insect fans but is of great importance to gardeners who need insects for pollinating their plants (eg Bees) and insect predators (eg Ladybirds, Lacewings and Hoverflies) to feed off their insect pests.

Areas maintained by the Council have seen much reduced amounts of chemical spraying over the last ten years. Unfortunately in the last two years the amount of chemicals used has gone up in an attempt to give a quick solution to the weed problems caused general lack of maintenance due to the Council's overall budgetary problems. The chemicals are being used on the areas of lowest wildlife value but they undoubtedly depress them further. It is not known how dangerous in the long term the chemicals being used are but they could be causing harm to food chains and top-order species in particular (eg birds and mammals). Some of the refurbished areas of housing in Netherthorpe have seen indiscriminate and totally unjustified widespread spraying of herbicides.

MAMMALS. Unfortunately many gardens contain a predator which limits bird and mammal populations. Cats often greatly reduce bird and mammal numbers because they are highly proficient predators who can take healthy adult victims as well as the young or sick. Popular myths (often whipped up by pro-shooting and anti-environmentalism organisations) blame Carrion Crows and Magpies but these tend only to take replaceable young or eggs and not adults. Magpies and Crows may also fall victim to cats!

The NWICA area; moving away from the Ponderosa; across Crookesmoor and Walkley, is visited by the largest wild mammal found in NWICA; the Fox (although some controversy remains over alleged deer droppings found at Kelham Island in the 1980s). Foxes may be able to lie up hidden in the largest gardens in Walkley as well as the odd bit of green space. Foxes, though, are wary of engaging with domestic cats or dogs in disputes in which they are most likely to lose. Brown Rats and House Mice are present in many parts of NWICA, including in some residents homes! Bats are usually represented by Pipistrelle Bats, the commonest urban bat, although others may feed over the area or even roost in larger trees or even older buildings.

MAJOR OPEN SPACES; THE PONDEROSA BACKGROUND HISTORY

The Ponderosa has been a substantial (c.10.5 hectares) open area in inner-city Sheffield since it was cleared of housing in the period 1956-62. Some of the site had earlier been left open (on the top half and known as Crookesmoor Recreation Ground; usually shortened to Crookesmoor Rec) when large-scale housing was built towards the end of the last century. The lower half was covered with buildings, both housing and industrial works, and was known as Port Mahon. Prior to the Industrial Revolution era the whole site had been directly connected to open countryside with smallholdings and farms nearby in Walkley.

In the 18th century it had been a noted beauty spot with a stream and a series of ponds. There are old (18th and 19th century) botanical records showing that it was moorland with wet, boggy areas.

As the Industrial Revolution proceeded in the 18th century, the area around Kelham Island and along to Neepsend became an increasingly industrial area with metal-working and production very prominent.

After the Victorian house building and further developments up to the slum clearances of the 1950s, the Ponderosa was probably not of much wildlife value. The small industrial works on Port Mahon undoubtedly left some contamination. The air quality would have been quite poor with substantial soot deposition and probably some toxic contaminants deposited. The top half of the site was a privately owned landfill site in the late Victorian era with large amounts of rubble and rubbish deposited there.

However clean air legislation and the opening up of the site in the period 1953 to 1963, with subsequent tree planting, has given it a chance to develop as an interesting inner-city haven of wildlife; a green physical and psychological break from the drab concrete of Netherthorpe and the run down, neglected atmosphere of Uppethorpe, and an important (though much underused) community resource.

Photographs, amateur film footage and local memories of the Ponderosa from the 1960s reveal a bare open bowl which was, however, much appreciated and used by the local community for games and community events. The name '*Ponderosa*' came from the name of the ranch in the popular 1960s television series which local people readily compared in appearance to their own green space. The name has positive connotations of a sense of local ownership and lent itself well to the vociferous campaigning by local people in 1993 against a plan to cover it with large-scale housing; '*get off our land!*'

The flora is virtually no trace of its original wet moorland origins (there is now no moorland, open water or marsh on the site) but it has received many phases of planting and disturbance so that it has a wide range of trees, shrubs and flowers. An area alongside the top of Oxford Street now covered in Laurel and other recently planted ornamental shrubs may conceal a small remnant of rock out-cropping and have some original soil.

The whole site thus consists of layers of assorted building debris, rubbish and other dumped material overlaid with imported topsoil. The predominant vegetation has been short-mown perennial grasses which excludes other plants highly efficiently.

Since the housing programme of the 1950s and 60s Sheffield City Council has carried out various bits of landscaping work and plantings. In the 1970s a range of native and exotic ornamental trees and shrubs have been planted. In the early 1990s the foundations of some buildings (a community building and education centre) were removed and the area covered in topsoil and sown with a wildflower seed mixture; some species from this continue to grow or even thrive.

The Ponderosa is home to an interesting variety of wildlife, especially birds. It has had little damage due to chemical spraying in recent years and atmospheric pollution problems have changed greatly since the demise of much of the engineering, cutlery and steel works in Sheffield. Air pollution from motor traffic has greatly increased in recent years

and may be a problem, especially for housing immediately adjacent to main roads, perhaps even affecting the safety of crops grown on the Ponderosa (this has not been scientifically measured). The gully area alongside the football pitch, at the bottom of the South Bank, is a frost and mist pocket and is probably the main area where air pollutants can linger and settle.

By 1991 three Council Departments owned it; mainly **Housing** with a football pitch owned by the **Recreation Department** and a residual area owned by **Land & Planning**. The Council, or to be more specific the Housing Department as owners, neglected the site. They mainly cut the grass. Paths were left unswept with broken glass and there were no bins or benches. It has a lot of litter and is mainly used by dog walkers which leads to more problems and disuse (dog mess is a continual local issue). The poor quality football pitch is used by teams from outside the area. Despite this, it is well liked for the visual relief from the tower blocks and maisonettes which dominate the area. In 1991 Chris Sissons, lay worker at Crookesmoor Methodist Church, decided to form the **Ponderosa Environmental Group (PEG)**. It was widely advertised in the local community and there was a well attended inaugural meeting on 28 January 1991. The group was properly constituted, very much along the lines in which thousands of voluntary environmental groups are operating nationally, and its aims were:

1. Keep members informed so that they can be involved in decision making.
2. Raise funds for improvements to the Ponderosa.
3. Liaise with the City Council and other groups in the area.
4. Organise work on the Ponderosa.
5. Organise educational and recreational activities.

Many local people attended consultation meetings and 180 members joined the group. £4000 was obtained from the Council's Community Chest and some other money was raised. The group was insured for practical work as a member of the British Trust for Conservation Volunteers. Trees were planted and a path was built. There was also a fun day in the summer of 1991.

This was a good start. As is normal, those willing to take an active part dwindled. The core of the group was younger people with experience of conservation, environmental and gardening work. As a self-contained group it could have satisfactorily carried on, working with the Council's **Recreation Department** (now the **Parks & Open Spaces Division**) and other environmental groups such as **Sheffield Wildlife Trust** and the **Sheffield Environmental Training**.

During this initial phase PEG members learnt a lot about the site itself and what the people who use it want from it. Its activities increased public awareness of the site and gained local approval and even enthusiasm.

During 1993 PEG became involved with local people and community groups in successfully opposing proposals to build houses on the lower part of the Ponderosa (formerly Port Mahon). This showed the high value of the Ponderosa as an open space amidst the tower blocks and housing estates of Netherthorpe. It is widely appreciated for its wildlife, its views of Sheffield, its use as a play area for children, a place to walk for adults and as an asset to the community which can be of real practical benefit.

The **Sheffield Parks Regeneration Strategy** (October 1993, Cinteract Consultancy Services for Sheffield Wildlife Trust and Sheffield City Council) contained the following entry:

Crookesmoor Open Space is known as 'The Ponderosa'. Its landscape qualities are much diminished by the low-grade soccer pitch in the middle, and the poor architectural quality of some of the prominent post-war buildings near to the park. A 'Ponderosa Environmental Group' is active and supported by Sheffield Wildlife Trust.

Proposal: A management plan to include design proposals for landscape improvement, is recommended. The adjoining housing areas provide a most worthy constituency for the development of a neighbourhood park which should retain the excellent views of the urban landscape beyond, whilst enhancing the wildlife habitat and improving visitor comfort by adding seats and pathways.

THE THREE PARKS CONCEPT

Any overview of parks provision for the area must conclude that the three major parks (Weston, Crookes Valley and the Ponderosa) possess qualities and facilities that are highly complementary to each other and that when considered together, they supply a comprehensive, relatively complete, range of habitats for wildlife and human usage. The combination of formal and informal styles and range of water and land-based recreational opportunities so near to the city centre constitute an invaluable asset to everyone who lives and works in the area.

A longstanding agreement exists between interested parties (Weston Park Trust, Museum Services, Sheffield University, Friends of Crookes Valley, Council departments, Ponderosa Group) to the effect that future developments should highlight and enhance the linkage between the three and that co-ordinated improvements would be to the mutual benefit of all. Specific proposals include generating interpretation and information which could share a common identity and would refer the visitor from one site to the others. An opportunity exists to develop the three parks together as an outstanding recreational facility.

FUTURE EXPANSION OF THE PONDEROSA

The ideal opportunity will shortly exist to complete an important link between the University and Kelham Island when St Stephen's Walk is demolished. This can include pedestrian and cycle access from one site to another. This would enhance the existing impression of continuous green space, extending out from the Ponderosa to the surrounding land in curtilage.

PONDEROSA ENVIRONMENTAL SURVEY

In 1993 the **Ponderosa Environmental Group** compiled an **environmental survey** of the site giving basic information about what is already on site and detailing, through yearly updates of its **Information Pack**, what work it has carried out. The whole site is recovering from its previous uses and most of the subsoils are either building rubble or tipping wastes. However, a range of habitats have already evolved; each of which has its own wildlife and offers different opportunities for activity and development.

The description of these zones was supposed to provide a continuity of approach which would allow the Ponderosa to develop as common land for local people to use and enjoy, whilst also enhancing its value for wildlife. PEG's basic strategy was to allow the site to continue to regenerate as it has already done, and to gradually encourage improvements which will increase the variety of plants, wildlife and human interest. It was hoped to introduce many of the ideas and aims of **Permaculture** onto the Ponderosa.

HABITAT ZONES ON THE PONDEROSA

1 ASH & MUNICIPAL TREES

This is about 10m by 100m with a slight slope to east. 6-12 hours of sunlight (W/S), shaded by tree canopy in summer. Soil: wet clay & some turf. Tarmac path. The existing dominant species are mature Ash, Sycamore, Holly, Laurel, Hawthorn with Ivy undergrowth.

WORK DONE: Path cleared of grass & undergrowth cut back. Bird & Bat boxes put in some trees (summer 1993). Daffodils planted in clumps by path (Dec 1993).

MANAGEMENT PROPOSALS: Transplant Ash & Holly seedlings. Clear Ivy & plant more shrubs. Bulb planting & possible butterfly garden (ie shrubs & plants that are attractive to insects, especially butterflies & moths).

2 ORCHARD & WILDFLOWER GARDENS

This is about 20m by 40 m with a slight slope facing south. It receives 6-12 hours of sunlight (winter summer) & its soil is 50-100 cm of ash on top of clay turf. The existing dominant species are plantains, grasses & wormwood.

WORK DONE: Tree nursery and leafmould heap. Orchard species planted close to path. Previously sown with wildflower seed.

MANAGEMENT PROPOSALS: Extend orchard plantings (trees & soft fruit) with companion plantings. Remove ash/sycamore saplings as required.

3 ORCHARD

30m by 30m with a slight concave slope to the south. 6-12 hours of sunlight (W/S). Soil: 50-100 cm ash on top of heavy clay turf. The existing dominant species are plantains, grasses, broom & wormwood.

WORK DONE: 16 fruit trees planted in Feb 1992 (14 surviving). Mulched Feb 1993. 22 fruit trees & soft fruits planted in Jan. 1994. Fertilised and organics added. 3 old apple trees pruned. This work earned the Ponderosa Environmental Group 2nd place in the 1994 Sheffield Telegraph/South Yorkshire Foundation Community awards (which judged all kinds of community projects across South Yorkshire). In 1995/6 2 island beds created, planted with perennial herbs and flowers (unfortunately damaged by contractor's mowing operations!). 50 hazel and cobnut cultivars planted and mulched.

MANAGEMENT PROPOSALS: Add to orchard species. Increase cultivation of edges for soft fruit & place companion plants around orchard trees. Mulch around trees with hay/muck.

4 MEADOWS

50m by 40m by 30m triangle with a slight slope to the south. 4-10 hours of sunlight (W/S). Soil: thick clay & town soil turf. The existing dominant species are perennial grasses & broom.

WORK DONE: Mowed early each summer. Hay raked off & stacked.

MANAGEMENT PROPOSALS: Manage site to produce early & late hay meadows by scything/mowing regime, raking & seeding. Some planting eg Cowslips. This would be, due to its higher soil quality, the best area to site a community allotment area.

5 ASH HEAP

30m by 30m by 20m triangle with a concave slope to SE. 4-8 hours of sunlight (W/S). Soil: municipal ash, clinker, pottery shards & coal dust. No topsoil. The existing dominant species are small grasses, broom, gorse, vetch, Black Poplar, Sycamore.

WORK DONE: Ash excavated Feb 1991. Some trees (Ash & Sycamore) felled Winter 1993/4.

MANAGEMENT PROPOSALS: Manage as low fertility wildflower area. Remove growth (leguminous species & trees). Clear some Sycamore & interplant with shrubs (eg Broom & Gorse). Create more seating on mound & remove trees to open up views & create a picnic area.

6 WEST BANK

50m by 120m with a very steep slope facing east (c.1:3). 3-6 hours of sunlight (W/S). Soil: thick turf (20-30cm deep) over rubble structure. The existing dominant species are tough grasses & a wide variety of mixed trees & shrubs.

WORK DONE: 100 indigenous trees planted in 1992. Bat & bird boxes put up summer 1993. Paths cleared & privet hedge, at top, trimmed Feb 1993; grubbed out 1995/6. 3 large sycamores removed at top of Oxford St to open up entrance. Mass daffodil planting along paths winter 1994/5.

MANAGEMENT PROPOSALS: Prune shrubs. Open up view lines. Extend planted area: shrubs with some trees for nesting/roosting/feeding birds (eg warblers, thrushes & finches); thorny species (eg Gorse) to reduce disturbance by sledging; berry-bearing shrubs/trees for winter birds (eg Rowan, Blackthorn & Hawthorn).

7 MATURE TREES

15m by 30m with a steep (c.1:4) slope facing north. 2-6 hours of sunlight (W/S) but has a complete canopy in summer. Soil: clay on rubble. The existing dominant species are mature Norwegian Maple, Rowan, Apple, Elder & Lime. Very little ground cover.

WORK DONE: Rubbish cleared (most recently Feb 1994). 3 trees coppiced June 1992. 2 coppiced Oct/Nov 1993. 50 indigenous trees planted in 1992. Trees & shrubs transplanted from Crookes Valley Park, Oct/Nov 1993 including Yew, Wych Elm & Holly. Bulbs planted in clusters, September 1993 including Wood Anemone & Nodding Star of Bethlehem. Bird & Bat boxes put up summer 1993.

MANAGEMENT PROPOSALS: More planting of trees, shrubs & bulbs, especially Cherry, Bluebell & Ramsons.

8 SOUTH BANK

50m by 200m with a steep (c.1:4) slope to the north. 3-8 hours of sunlight (W/S). Soil: thick clay turf on brick & rubble. Subsidence still occurring with cellars of previous houses now exposed in places. The existing dominant species are thick grasses and c.500 maturing, mixed trees.

WORK DONE: 1,200 mixed indigenous saplings planted 1991-2. Weeded Nov 1993 and mulched 1994 & 1995. c.150 trees & shrubs transplanted from Crookes Valley Park in Oct/Nov 1993 incl. Ash, Oak, Beech, Holly & Horse Chestnut. Rubbish cleared Feb 1994. Bulbs planted in clumps winter 1994/5. Over 100 hazels planted December 1995. The large-scale planting is intended to develop as woodland and, through leaf deposition, to create an improved soil structure and depth. As this develops the grass turf underneath should diminish to allow other plants to grow there.

MANAGEMENT PROPOSALS: More planting of trees & shrubs to diversify flora and take advantage of long term improvements in soil and micro-climates. Path creation along contour and zig-zag up & down slope.

9 GRASS BANKING AROUND FOOTBALL PITCH

10m by 200m circular strip with steep (c.1:4) slope to south & east. 4-12 hours of sunlight (W/S). Soil: thick clay turf on rubble. The existing dominant species are tough grasses, plantains, clover, nettles, horseradish, comfrey & ruderals. Some shrubs including Buddleja, Gorse & Rose.

WORK DONE: Rubbish cleared. Mown July 1992. Some clumps of Japanese Knotweed grubbed out Aug 1992. Daffodils planted on bank north from pitch.

MANAGEMENT PROPOSALS: Extend shrub area. Plant tough perennials, especially seed bearers for winter birds (eg teasels & thistles for finches). Mow & rake hay.

10 FOOTBALL PITCH

30m by 60m and is flat. 6-12 hours of sunlight (W/S). Soil: variable turf on mixed rubble and subsoil. Rubble occasionally breaking through surface. The existing dominant species are short grasses & daisies. The area is severely underused; often teams are from outside the area.

WORK DONE: Rubbish cleared.

MANAGEMENT PROPOSALS: (if football pitch is retained) Rake bare patches. Improve soil. Plant tough grasses. Optimum site for community allotments/garden.

11 LOWER HALF OF SITE (INCLUDING PORT MAHON AREA)

500m by 750m. 10-18 hours of sunlight (W/S). Soil: well drained thick turf on house and factory rubble subsoil. Subsidence over old cellars visible in several areas. Clumps & rows of maturing trees.

WORK DONE: Rubbish cleared. Council agrees to sweep pathways of broken glass etc once building work complete. Mass planting of daffodil and crocus bulbs around trees and on slopes. Unfortunately there has been repeated damage to the bulbs caused by careless and unthinking mowing carried out by SCC Landscape Services.

MANAGEMENT PROPOSALS: Allow grass to grow longer around trees. Complete bulb planting around trees & on slopes.

12 MARTINSTOWERBLOCKS 400m by 10 - 30m. South-facing, gentle slopes. Sheltered walls 1 - 5m tall. Soil: Severely degraded by tipping of wastes from recent refurbishments.

WORK DONE: Area around Hillside (Martin St) tower blocks landscaped by Design Building Services against local advice. The path network is an obstacle course for push chairs etc. and the standard trees are attractive to vandals whilst being poor for wildlife. Area around Hillside tower blocks (Martin St) landscaped, by Design and Building Services, after building work with standard trees and smaller fruit trees (c.30); heavy losses of trees due to poor planting, lack of maintenance and vandalism. Lack of ongoing active community involvement in this landscaping is also thought to have contributed to the relative failure.

MANAGEMENT PROPOSALS: Plant bulbs (daffodil, crocus, snowdrop, tulip etc) around trees & on slopes. Further planting could be made around the bases of the towers. Mulch around fruit trees. Improve paths & access points.

UPDATE: PEG have since planted further species of trees and flowers. The Orchard area has had a variety of fruit trees added to it. There has also been a major programme of bulb planting which has resulted in about 10,000 daffodils and 2,000 croci bulbs being planted all over the site alongside paths and amongst trees. A number of native hazels and cultivars near the orchard and on the south Bank were also added in a "Nutters Day" (December 1995) by PEG volunteers, SCC Countryside Management Unit and volunteers, and students from Sheffield Environmental Training.

The Flora is subject to 2 main influences. Firstly the site has been regenerating from what was mainly an open, cleared site and this has seen various cycles of development such as from highly disturbed ground (eg due to building work) to a more stable closed turf of perennial grasses either kept mown short (with a loss of species diversity) or allowed to grow longer with more species able to thrive, especially when mown at an appropriate time and then raked off to reduce fertility.

Tree planting has greatly changed the site and this is due to the other main influence on the flora; human intervention. Many species found on the Ponderosa have either been planted deliberately or have found their way there in dumped rubbish or imported topsoil. The obvious example of a 'dumped' species is Japanese Knotweed. A range of over 25 tree species is on the site, most planted there. No one species dominates the site but there are areas where Norway Maple and Sycamore have become abundant which shades out ground flora and out compete other trees.

The South Bank has seen the most extensive intervention through earlier work and the work of PEG since 1991. Over 1,500 native, indigenous saplings have been planted and are now growing up and starting to form woodland. These trees are the most extensive area of new trees in NWICA. Not only do they provide oxygen and help trap air pollution but they are also helping to build soil over the rubble and thin layer of top soil. Eventually the thick mat of perennial grasses will start to be shaded out underneath them and a different ground layer will develop. This can be influenced by further plantings of shrubs, fruit bushes, cane fruits, herbs and flowers. Their leaves will soon provide enough leaf litter to transfer fertility as leafmould to other areas of the Ponderosa.

MAMMALS: The Ponderosa has not been studied for its mammalian fauna but it is unlikely that there is much to be discovered. The occasional Grey Squirrel has successfully crossed the hazard of Crookes Valley Road from Weston Park or Crookes Valley Park but, unlike those two parks, there is little food for them (as yet; the development of planted Hazel trees and the growth of Oak trees will probably help them although this is not an intended benefit for what many people consider to be a vermin species). Hedgehogs and Foxes have been seen whilst Brown Rats occur throughout the whole area. No other rodents have been specifically confirmed but Short tailed Vole, Bank Vole, Common Shrew, House Mouse and Long-tailed-Field Mouse are probably present (Kestrels have been seen hunting for rodents on the Ponderosa).

Weston and Crookes Valley Park are good for bats (bat watches have been held there by various groups including Sorby Natural History Society), due to the combination of open water and mature trees, but the Ponderosa is unlikely to be so good with only Pipistrelles having been positively identified there. Some bat boxes were put up in 1993 but have probably not been used much by bats.

The dominance of perennial grasses could be reduced (and so increase other species) by increased disturbance by mammals such as Moles and Rabbits; neither of which are found on the site due to its enclosure by buildings and roads. The addition of Moles could be a possible introduction as unlike Rabbits they are not likely to be seen and thus be a target for persecution. They could possibly flourish on the south bank, particularly as its woodland matures and provides more leaf litter for soil creation. They would disturb the soil, aerating it, improving its texture and their 'hills' provide seeding opportunities for new plant species which require open ground to succeed.

CURRENT HUMAN VALUE (EG RECREATION, PRODUCTIVE GARDENING]

In terms of sheer numbers for most of the time, the Ponderosa might be said to be under-used. It often appears empty, save for a few dog walkers; some people crossing it; a few on the new (1996) seating, and small groups of boys or young men playing football. At weekends the formal football pitch (which has only been there, built on

infilled rubble, for about ten years) is used by organised teams who book it through the Recreation Department. Many of the teams are not local.

In the summer, play schemes have used the Ponderosa for games such as rounders (a pitch used to be marked out at the bottom of the football pitch). Netherthorpe School holds its sports day here. For the last two years, created through NWICA, a Ponderosa Carnival has been held featuring stalls, side shows, live music and other entertainments.

In the past, especially the 1960s and 1970s, the Ponderosa had much higher levels of use with more community events, sports and informal use. There used to be one storey pre-fabricated buildings on the top half of the site, alongside Oxford Street, which were used by Crookesmoor and Netherthorpe Schools and also by community and adult education groups.

However, it has major uses which are hard to quantify. Anyone who lives in view of it or who crosses it is connecting their senses to a large area of green, open space (17 acres) within an intensely built-up area of municipal housing and industry. The two nearest formal parks, Crookes Valley and Weston Parks, are a steep trek uphill from most of the housing areas.

It was the explicit intention of the planners in the 1950s to restore the valley as open space, removing the buildings on Port Mahon, and so creating what is known today as the Ponderosa. A great debt was owed by local people to those planners but has been repaid by their great efforts in 1993 to prevent a housing association from putting a large area of housing on the site. This was unlikely, in any case, to get planning permission as the whole of the site was designated as Open Space in the 1993 SCC Unitary Development Plan. This designation had been lobbied for by the Ponderosa Environmental Group and was agreed with the Planning Dept.

PEG's intention was not to seek to 'run' the Ponderosa, but to see it used as a community resource; to encourage and help other groups and individuals to use it for their activities. PEG would hopefully act as a pool of local knowledge and experience available to the Council and other institutions and community groups.

It was also hoped to organise workshops for people to learn more about their local environment and how to improve it and learn new skills. Some of this has already occurred during the programme of working days 1993-95. Meetings included talks on wildlife, ecology, local history and the many uses of common park land. Many local people who were not so keen (or unable to participate because of ill-health, old age or disability) on physical work were able to find much of interest for them. In particular older members of the community who had been residents for some time were particularly interested in the local history as it brought back many memories for them and gave them a chance to share their knowledge and experience with newer or younger members of the community.

It is important to recognise that community groups exist for far more reasons than may appear from their constitutional remit. The role of a community group as a social grouping for people to enjoy, meet new friends and share their experiences is often not appreciated by professional workers with narrow remits of work. Professional workers often see a particular type of work programme (eg landscaping) as the end in itself without realising that the means to an end is just as important as the end itself.

DISINCENTIVES TO USE: Many residents have complained about dog mess in the area, particularly on the Ponderosa. The Ponderosa Environmental Group submitted the following document to the NWICA Environment Topic Group for discussion and the general consensus was that it was an approach at least worth trying. It was felt that the problem of dog mess could not be approached as a 'law and order' issue and that confrontations with dog owners would be counter-productive. It is an issue of education, community cohesion and unity, and landscape design.

PONDEROSA DOG MESS STRATEGY [31/5/95]

The Ponderosa is a large and varied area of mainly grassland and some wooded areas. Much is 'municipal turf' where people walk and play sports, especially children. Other areas are 'wilder' with long grass where fewer people walk and sports are less popular.

Most local people are Council tenants who are not allowed to keep dogs in their flats, although some do. Several hundred dog owners use the site with hardly any stray dogs. Many owners come from outside the immediate area, even in cars. Any information/education programmes would need to take this into account. Despite the volume of mess being dumped on the site, it is not a severe problem, but it can still be very serious for certain users of the site eg young children, football players, picnickers etc because of the danger from **Toxocariasis**:

Toxocariasis is contagious through contact with faeces from dogs which have not been wormed and soil which has been contaminated by dog mess. It can cause blindness in vulnerable individuals and can persist in the ground for up to ten years! There is high awareness of the problem already and this is demonstrated by the numbers of people who presently do not use the Ponderosa, especially parents with small children. On the Ponderosa, it is not known how persistent or prevalent the problem is locally; soil tests will be carried out to determine this in the near future.

Dog mess is more of a problem in the summer (although it breaks down quicker in warm weather) as this is when more children and other people will be on the site.

So where does it all go?

Rain washes away dog mess, the nutrients in the dog manure increase fertility and build topsoil on the Ponderosa. Bacteria in the soil help the breakdown process and manufacturers add calcium to dog food which neutralises noxious smells etc

Our observation of the Ponderosa has revealed another unexpected solution of the problem; **SLUGS** digest dog mess (especially the big black ones (*Arion ater*) and orange frilled species (*Agriolimax agrestis*). Slugs are more numerous in areas of long grass because they can't hide or shelter in close mown turf. There is obviously a foodchain which naturally helps to clear up this material. If we can encourage and maintain colonies of slugs across the Ponderosa in areas of long grass, this will contribute to minimising the dangers of dog dirt.

The next step is to inform dog owners to encourage their dogs to visit long grass to relieve themselves when they are first brought on the site. It is likely that responsible dog owners will set a good example to others. Even if this only limits the infection of Toxocariasis to certain areas, it will allow young children to play safely and school sports to be held on the mown areas without this hazard.

We recommend that extra areas of long grass be created, especially around mature trees on the lower half of the Ponderosa. This would specifically help those unable/unwilling to walk all the way up to the top half. It might be necessary to clarify the situation by a system of marker posts and/or notices as is being used in Crookes Valley Park. Other strategies such as Poopascoops/dog loos/plastic bags/prosecution are inappropriate and expensive options (especially maintenance of dog loos) and it would be hard to persuade everyone to use them.

We suggest a leaflet should be distributed on the site to dog owners. A copy of this could be put in the NWICAP newsletter. The leaflet could be put together in conjunction with health authorities and made available with information on Toxocariasis via health facilities eg in doctors waiting rooms and health centres. Schools should also be points of information directly aimed at vulnerable children.

OTHER ENVIRONMENTAL ISSUES.

DEMOGRAPHICS AND RELATED ISSUES

The broad population trends in NWICA are mainly due to the housing changes which involve demolition, refurbishment and new building. There will be more houses and less one bedroom flats. These are tending towards lowering the very high proportion of older people, especially pensioners, single people and many people with long-term health problems and bringing in more younger people and more families. There will be far more children and young people.

This could bring more wealth, more wealth creators and more dynamism to the community but this could be countered by higher crime levels, more violence and more vandalism with increased tensions between the young and old and the haves and have-nots. The health and well-being of NWICA residents could still be under threat.

Poverty and unemployment may persist in unacceptably high levels after the main changes introduced by NWICAP have been carried out. A lot will depend on the provision of social facilities and the quality of the environment offered in NWICA, but much will depend on wider environmental, economic, social and political trends which may be beyond the control of any structure of NWICA.

These include the growth of health problems linked to air and water pollution, food contamination and adulteration; the bigger economic issues of unemployment, low-pay and poor working conditions; destructive social trends towards violence and prejudice whether general or aimed at specific social groups (eg misogyny, racism and homophobia); drug (especially alcohol) abuse problems; alienation of people from political processes and decision-making; and the changing relative nature of inequalities. NWICA should be attempting address all these problems but is unlikely to be able to deal with them on its own.

BUILDING DESIGN

Environmentalists have been taking an increasing interest in building design and the planning of housing areas. The key concept is 'sustainability' and this leads to the use of terms such as 'environmentally friendly' or 'environmental impact'. The aim is to analyse the entire through-put of resource use and the effectiveness of designs in making housing areas more efficient users of resources and ensuring that the impact on the natural environment is minimised. However, this should not be seen merely as a dry accounting process as it is also very relevant to quality of life issues.

It is for this reason that Sheffield City Council's project on sustainability (and the implementation of Local Agenda 21 of the 1992 Rio Earth Summit) is called The Living City Initiative. It is led by Steven Byers, SCC's Environmental Policy Co-ordinator. The NWICA regeneration scheme is said to be 'housing-led' and so it could be said that environmentalists should be focusing their attention on the NWICA refurbishment and new-build programme for housing. In fact some of the most important issues have been raised not purely for environmental reasons but more for economic and social reasons, especially as an attempt to alleviate poverty and ill-health.

Unfortunately those Council Departments principally responsible for the design of NWICA, namely Housing, Planning and (the now defunct) Department of Employment and Economic Development have made little reference to, or made little use of the work of, the Environmental Policy Co-ordinator. This failure to build on existing work in this field by the Council has done great damage to the long term success of NWICA. Building designs and area plans have often been already finalised or are well underway without serious consideration of the issues of sustainability. In 1995, after being approached by members of PEG, Susan Gudjonsson, in her role as Environment Topic Group Leader from the Planning Department, circulated a discussion paper about putting together a NWICA Environmental Strategy. It was recognised that this was raising issues that went beyond just the workings of the Environment Topic Group; in particular they overlapped with the Housing Topic Group. Contact was made with Steven Byers, SCC's Environmental Policy Co-ordinator but was not followed up due to the constraints of time and resources. It was identified that a new worker was needed to support the Environment Topic Group, including the Open Spaces Projects. Eventually it was decided that the new worker would be given the title of NWICA Environmental Strategy Co-ordinator and a person was employed in this role.

Unfortunately no further work was done to develop an Environmental Strategy and the worker was subsequently made redundant. Since then, the Planning and Housing Departments have issued, for discussion, a draft **NWICA Environmental Strategy**. As it was then constituted, this was more of a landscaping and planning document but it is hoped to turn this into a fuller, holistic strategy for NWICA.

There are however laws and policies which are already shaping building designs in a more environmentally friendly way. The **Home Energy Conservation Act 1995** requires local authorities to :

- identify ways in which energy efficiency in both public and private housing can be improved by 30% over 10 years and
- outline a strategic approach to achieving this target.

The provision of energy efficient housing which has lower heating bills and is warm and dry is seen by Sheffield City Council to be of great benefit to tenants and residents. It now has a **Sheffield Home Energy Conservation Act Strategy 1996**. Where housing has been refurbished or built with these improvements then these benefits would seem to have been reaped and appreciated very quickly. The Hillside Towerblocks are an outstanding success in this respect. In these refurbished blocks it can be convincingly shown that tenants are now warm, dry and feel more relaxed and content in their homes and that they are achieving this with affordable heating bills.

The Council also gains by this as buildings kept dry are less likely to deteriorate. Contented tenants are more likely to care for their homes and are in a better position to take a more active role in society as workers, community activists and carers. Confidence and a sense of well-being is often created by a stable comfortable home environment.

There is a danger in only providing a quality *internal* environment for residents. A society in which its members simply reside at home or venture out only to leave the area to shop, take leisure or work is not a community in any meaningful sense. Most people are familiar with the concept of 'dormitory towns' with all its implications of dreary suburbia where nobody knows their neighbours and walking down the street or, worst of all, lingering on street corners is seen to be a threat to the moral fabric of that society.

The NWICA area has not only had its share of this in the past but there is a real danger that neglecting to take a holistic approach to redesigning or improving the external environment will exacerbate this tendency, particularly with more young people moving into the area and divisions between them and older residents increasing. A successful community is one in which its members can be economically and socially active, have control of their own decision-making process and can enjoy good health in a sustainable environment which they can productively modify and interact with.

BUILDINGS

Much of the area of public housing, especially the older parts yet to be refurbished, has a harsh, bleak aspect of dreary grey concrete and signs of neglect. Kelvin Flats used to be the outstandingly bad visual intrusion in NWICA but has now gone with a great improvement to the aesthetics of the area. Even this in its lifetime was improved by painting one end of it a shade of light blue which softened and improved its terrible vista of slabs of concrete. Much more use could be made of painting and colouring to brighten up the area. In the Lower Don Valley, Sheffield Development Corporation carried out relatively cheap but significant improvements to the appearance of the area by painting the many bridges in bright colours with highlighted features in contrasting colours. Walls and other architectural features could be much improved in NWICA by this simple improvement with considerable scope for community projects. Kelvin Flats use to have aspects of this with 'official' graffiti walls and murals involving children and young people .

Many local people welcome serious attempts to reduce crime but detest the Police turning their area into what looks like a war zone. Complaints against the extreme low level use of the new Police helicopter (with powerful searchlight

and loud-hailer) have been made; its use is hazardous, creates panic amongst law-abiding residents and gives the impression that crime is so out of control that military-style policing is required.

RECYCLING OF WASTE MATERIALS IN NWICA

The opportunities in NWICA for recycling various resources are very limited by the availability of space and safe, sanitary facilities. The elderly, infirm and those without cars are unlikely to be able to carry paper, glass, plastic or cloth very far for recycling. There are only 2 possible alternatives that might be tried; regular door-to-door collection or local storage and then collection. At present NWICA is badly served by recycling facilities.

Sheffield Recycling is largely dependant on a few mini-recycling centres and a few specialist schemes operating in specific materials ie. plastics or in geographical areas. In areas of dense housing it makes sense to allocate areas for more recycling points that are convenient for the residents.

Packaging materials such as Glass and Aluminium have value and could provide jobs and economic activity if recycled. Otherwise these and all other materials are a burden to the city in ever increasing costs of disposal. Of even greater value is the reconditioning and repair of furniture and electrical goods or re-use through charity shops or similar projects.

(The Council will make special collections of Fridges (CFCs), asbestos or other toxic substances).

The most immediate use can be made of compostable items in gardens and open spaces especially as much of the soil in the area is of poor quality. Some small community compost schemes are at **Crookesmoor Community Centre** (Crookesmoor Road) and **Ecology Co** (Crookes Valley Road). The two leaflets that follow have been circulated in the area for the past five years as part of an attempt to promote increased levels of recycling of organic matter.

The Ecology Co Compost Collective produces more than 20 metric tonnes of mature food-grade compost annually.

RECYCLING BUILDING MATERIALS

There is considerable potential for recycling materials from NWICA from refurbishments or demolitions. It requires forward planning and co-ordination. Space has to be set aside so that materials can be stored prior to collection. The example of the rubble of Kelvin Flats being ground down for other construction projects is perhaps not the best example of environmentally-friendly recycling. However there is one notable example of large-scale material being removed and finding a new use.

During the 1994/5 refurbishment of the Hillside Towerblocks, members of the Ponderosa Environmental Group noticed that the old windows being removed were highly suitable for use on allotments. They were about 1m² with thick wooden frames. The builders were carrying the windows out and dumping them in skips. The Housing Department were approached and helped to liaise with the builders, Henry Boots.

Henry Boots responded very positively and stored windows to one side. They also had to ensure that their workers understood what was happening and so avoid breaking the frames and the glass. A regular collection by the Ponderosa Environmental Group using a van lent by a local shop (Bean Beanies Wholefoods) resulted in more than 1,000 windows being recovered. The builders gained by not having to pay to have the considerable bulk of these windows taken away and put into landfill and avoided having lots of broken glass on site. They also earned the appreciation of all those who gained from the new uses for the windows.

These have been distributed to many allotment gardeners (many being on benefits) particularly on the Crookes/Hagg Lane allotments. The windows have been used to make cloches and repair greenhouses and sheds. One gardener has even made a durable and very functional new greenhouse using the windows (and also material from an old bus shelter from the NWICA area which was being replaced).

There undoubtedly are more opportunities for re-using such materials from NWICA but it requires individuals to spot these opportunities and then to chase up whoever can facilitate the necessary arrangements. A major scheme such as NWICA should perhaps try to co-ordinate these opportunities. The use of a vehicle to transport materials is one of the most important resources needed to exploit opportunities as they arise.

AIR QUALITY AND OTHER POLLUTION ISSUES

According to **SHEFFIELD TRENDS SEPTEMBER 1997**

'the most serious source of air pollution now in Sheffield is that produced by traffic. Of particular concern are nitrogen dioxide, fine particles (produced by diesel engines in particular), hydrocarbon compounds and ozone. This last pollutant can form in high levels as a result of sunlight falling on the mixture of these other pollutants'.

Sheffield Trends also states that *'on a city wide scale, it is not possible to show how air pollution levels vary from area to area. This is due to the use of the limited monitoring equipment to record general levels of air quality across the city. It is hoped that a change in this strategy over the next two years will begin to provide some area based statistics'.*

Since 1985 private cars travelling into the City Centre have increased by 17%. The proximity of NWICA to the City Centre with major traffic routes bordering (Crookes Valley Road and Infirmary Road) or passing through it

(Netherthorpe Road), implies that the NWICA area would have suffered increasing air pollution due to the increase in traffic since 1985. In particular the housing either side of the elevated Netherthorpe Road might have been the worst affected part and perhaps should be a priority for local air pollution monitoring. Infirmary Road is at the bottom of the valley and pollution may accumulate here to the detriment of shoppers and shop workers in premises along this road.

The Ponderosa has had little damage due to chemical spraying in recent years but the increased air pollution from motor traffic may be a problem, perhaps even affecting the safety of crops grown on the Ponderosa (lead would be the most likely contaminant but studies are now showing that modern cars shed a variety of toxic heavy metals from various components as they wear eg catalytic converters).

An agreement not to use chemicals on the Ponderosa between the (then) Recreation Department and PEG was successful between 1992 and 1995. Since then, work organised by the Planning Department and Design Building Services has broken this agreement. Orange areas of dead vegetation mark where spraying of herbicides has occurred. Much of this spraying serves no useful effect with workers going out of their way to find areas to spray. Concern has been expressed for the workers themselves due to inadequate protection (face masks, gloves etc) whilst handling herbicides and the dangers associated with prolonged exposure. The housing areas are particularly singled out for chemical dousing, especially when a run of complaints about neglect and poor maintenance have been received.

The gully area alongside the football pitch, at the bottom of the South Bank, is a frost and mist pocket and is probably the main area on the Ponderosa where air pollutants can linger and settle and could be described as a pollution sink.

DUST AND DEBRIS FROM BUILDING WORK

The dust from the major building and housing refurbishments in NWICA has undoubtedly been a significant problem at certain times and places. In particular the demolition of Kelvin Flats during 1995 created a major problem for residents and shops near to the site. The demolition took place during a very hot, dry summer and dust continually rose from the site and covered the surrounding area. The direction of the wind spread the dust, sometimes in very concentrated amounts across Upperthorpe shops or across the Infirmary Road/Philadelphia shopping/business area. The scale and duration of the problems was made worse by the granting of permission to grind down the rubble of Kelvin Flats into smaller material for sale direct from the site. This went on long after the last section of Kelvin Flats had come down.

Residents living around the Daniel Hill area of Netherthorpe suffered particularly with large amounts of dust entering their homes coating furniture, carpets, kitchen surfaces, food and becoming a constant nuisance. Some residents complained that it got into their beds, that they could taste it in their mouths for long periods, and that some people with respiratory complaints experienced greater problems than usual.

The demolition company and Sheffield Building Standards Department attempted to ameliorate the problem with screening and water spraying to dampen the dust down but these small efforts were considered by residents to be inadequate. The situation became so worrying for residents that some formed the Upperthorpe Environmental Group. The Building Standards Department tried to respond positively by introducing the first project they had ever carried out in Sheffield to monitor dust levels from a building site.

Residents were not reassured to be told that the dust levels were within legal safety limits, mainly due to there being no legal limits! Building sites are not subject to limits as they are legally judged to be temporary phenomena. The rock-crushing operation would have been closed down instantly by Health & Safety Laws if it had been operating from registered business premises as it would have contravened laws; on a temporary building site it was exempt. In fact some environmentalists and medical experts believe that particulate matter (particular material of a small size known as PM 10) is an under-rated danger as it can cause clogging of lungs at levels of concentration not previously thought to be hazardous. Length of time of exposure to dust is a crucial factor; in the long term it is thought to contribute to heart and lung diseases.

The Kelvin incident has been a particularly bad episode in which some people did suffer unduly. Better screening should have been placed and better advice and help for residents could have been given. The rest of NWICA is unlikely to experience such a major problem but there have been many minor problems of building work creating a lot of dust which has been breathed in by residents, especially when it enters their homes. The problem is exacerbated by some residents remaining in their homes whilst refurbishment takes place for their home. Many others have had to live close by to major building work for long periods. A notable example of these kind of problems happening elsewhere was during the regeneration of London Docklands where residents of The Isle of Dogs were surrounded for a long time by huge demolition and building work. A school was badly affected and many residents complained of respiratory problems.

The builders in NWICA should undoubtedly take more care and Building Standards Officers need to have a better programme of monitoring and trouble-shooting. The cheapest and most efficient form of monitoring is to listen to

local people in a coherent, serious manner which treats them with respect and as the most valuable resource in the regeneration scheme. Spotting and solving problems early on can save money, time and create genuine goodwill on all sides.

LAND CONTAMINATION

As has been outlined earlier, most of the area's subsoils contain large amounts of building rubble and tipping wastes. Upper levels of these additions to the substrate are characterised by relatively inert matter such as bricks, mortar, tarmac, flagstones, glass, roofslates and kiln lining. Although the presence of so much alien material can make cultivation difficult and soil-depth can be very thin and variable, drainage is often further improved and the gradual attrition of lime derived from mortar has improved the pH balance. There may be pockets of toxic material. The re-building on the Kelvin Flats site was rumoured to have been delayed whilst reports of dangerous contamination (possibly cadmium) were investigated.

More recent tipping contamination (in the last five years) has introduced noxious materials which should be regarded as actual pollutants, such as asbestos, plastics, composites and electricals, all of which are eco-toxins and could present dangers if disturbed in future.

The massive building work going on in NWICA has not, in the opinion of some residents, been adequately monitored. Complaints about waste dumping (debris from buildings is often simply flattened by tractors and then covered with a thin layer of topsoil; this has been seen to include tins of paint, chemical drums, refrigerators etc) and the (illegal) burning of plastics and other noxious material, as well as numerous safety problems have not been properly dealt with. When PEG members contacted the Building Standards Department about the dumping and burning of rubbish from the Hillside Towerblocks, they were told over the phone that these activities were 'totally illegal' but no further action was taken and a promised report back was never given to PEG.

LIGHT POLLUTION

It is recognised by many people, from environmentalists to astronomers that light pollution is a problem to be taken seriously. Energy is wasted by lighting up the sky as well as making stellar observations more difficult. Modern lighting designs can obviate this growing problem but the Planning Department have been impervious to comments from residents about this.

There is also a community safety issue here as the street light design makes it difficult for people up in towerblocks to see people down under the lights in the glare. This means that at night people out walking who think they are safe because an area is well lit, may actually be vulnerable as residents cannot see them. This is particularly important for the crossings on the Ponderosa where the security of having overlooking dwellings and their residents could be impaired by light pollution.

TRANSPORT/MOBILITY ACROSS NWICA

Before NWICA was created in 1993, a city-wide study of areas of poverty (by Alan McGauley, then a Sheffield City Council Department of Employment & Economic Development officer, (using 1991 census data) showed that the Netherthorpe Ward area had a very low percentage of car ownership by households. About 80% of households were non-car-owning. This was an indicator not merely of poverty in the sense of not being able to afford a car but, due to the way cars are used in society, is an indicator of social and environmental deprivation.

Many NWICA residents have to walk or rely on public transport if they want to travel across or beyond their area and this can sometimes severely limit them. Journeys by public transport often have to be planned in advance and can be very inflexible. Evening/night time services are often poor. Some of the most difficult journeys are to rural areas, including much of the Peak District/Derbyshire, although there are in fact good public transport links with NWICA to some parts of the most beautiful and wildlife-rich areas of countryside around Sheffield.

RESOURCES AVAILABLE TO ASSIST ENVIRONMENTAL PROJECTS

The biggest problem in developing a community environmental project is that of getting enough members of the community involved. Advice and support can be plentifully available and there are numerous sources of funding. Good relationships can be established with Council Departments and there are several national, regional and local organisations who are available to assist a new or existing environmental voluntary group.

A group can be formed by just a few people or by many. It is simple to put together a constitution for the group (including aims, the creation of executive posts, rules for voting and meetings, financial accountability etc). As a non-profit making organisation, it is possible to open a bank account. A bank account and a constitution are the main requirements for setting about raising funds and gathering resources.

In order to carry out practical work, it is imperative to get an insurance policy in order to cover against any serious injuries suffered by members or damage caused by group activities to third parties. This is easily and cheaply obtainable through the British Trust for Conservation Volunteers. Groups have to become members of BTCV to get insurance. BTCV also provide a start-up grant of £50 (and can provide a 'model constitution) and offer advice and training, including First Aid with certification.

A group which is constituted, set up with a bank account, insured, first aiders appointed and with agreed aims can start work and raising funds. It is not difficult and can be done by any group of people. The Ponderosa Environmental Group is just one example of an independent group run in this way. There are many community groups, such as tenants associations, who could easily add practical environmental or gardening work to their repertoire.

In fact, it can be even easier than this because specialist organisations exist to provide much of this framework for groups. The most obvious example within NWICA is Sheffield Wildlife Trust. They can act as an umbrella for small groups and individuals who may not wish to be formally organised, but come together with SWT to carry out improvements to their local area or site of activity. SWT can help obtain grants, provide insurance cover for all volunteers engaged in a days task; give advice on practical work; provide training and education; and negotiate with the Council and businesses on behalf of the group.

Within NWICA, **SWT** have already successfully helped local people at **Blake Street** to adopt a piece of waste ground; developed **Daniel Hill Peace Garden**; assisted **St Bartholomew's Church** to create a garden, and are currently helping the Ponderosa Environmental Group work up bigger plans for the Ponderosa. **SWT** have recently formalised their role in NWICA and are now managing and co-ordinating open space projects with funding from the Single Regeneration Budget (including SRB generated by matching funding provided by volunteer time/work), European URBAN programme and other small scale sources of funding.

The **NWICA Environmental Topic Group** previously (when led by the Planning Department) ran a small grants scheme (1995-6) which successfully helped Daniel Hill Peace Gardens, St Bartholomew's Church, Netherthorpe School and the Ponderosa. Unfortunately after 1996 the Planning Department were not able to continue working in partnership with local people, preferring a 'consult and decide' relationship which alienated members of the community who preferred a more active role as partners in projects. **SWT** replaced the Planning Department with full community backing and are now working in partnership with the community. There will soon be a re-launched small grants scheme specific to environmental projects in the area.

One of the most innovative features of the **Single Regeneration Budget** is that it formalises and rewards voluntary work. It generally gives grants to projects which have to match this money 50/50. A financial value has been accredited to voluntary work on a pro-rata basis. This figure has been set very generously and so groups can raise good sums of money by getting their volunteers out to do work. If a project is managed well then SRB money can provide tools, materials, plants etc whilst the volunteer time donated to the project matches this SRB grant. This is completely appropriate to small scale work and is a real gain for the community and its environment.

There are other organisations in Sheffield who can help community groups develop their projects:

BTCV (they have a Local Groups Advisor based in Sheffield): training (nature conservation and practical skills, advice, help with fund-raising, tools loan service, also their team of volunteers can be hired for bigger projects.

Sheffield Environmental Training: training (nature conservation, practical skills and horticulture), advice, help with fund-raising, surveying, design work, and even practical help from their team of students.

Sheffield Wildlife Action Partnership: training, advice, help with fund-raising. Based close to NWICA at Weston Park.

Sheffield City Council Ecology Unit: ecological surveying, specialist advice on nature conservation. Based close to NWICA at Weston Park.

Sheffield Organic Food Initiative: Locally based (c/o of 205/7 Crookes Valley Road) group offering in depth advice and expertise on all aspects of urban organic food production.

Heeley City Farm: Advice and training on plants and horticulture.

Sheffield Conservation Volunteers: advice, help with fund-raising, also their team of volunteers can be hired for bigger projects, provided there is a strong element of nature conservation included.

The University of Sheffield and **Sheffield Hallam University** both have **Conservation Volunteers** who can help with projects. The University of Sheffield has also been setting up a wider scheme whereby student volunteers can help all kinds of community projects. Both teams of Conservation Volunteers have worked on the Ponderosa in the recent past.

SCC Parks & Open Spaces Division and **SCC Countryside Management Unit**: their proper remit is either for land held by the Department (Parks) or for out-of-town conservation work (CMU) but both offer advice, tools loans and may offer practical help. Both Department have given considerable help to the Ponderosa Environmental Group. In recent years the Parks Division in particular has remodelled itself to develop projects in partnership with local people and community groups. The new Park Rangers are a major addition to their support services. Both Departments have a very positive attitude to working in partnership with the community and have many officers with great knowledge, dedication and skill.

There are many other organisations who could provide assistance and advice, including advice on horticulture, social and arts projects, youth and child-centred activities etc. A very useful Sheffield publication is called '**Caring For Your Environment**'. It is a directory of Council Departments, voluntary groups and professional organisations who are working on environmental projects of all kinds. It is produced by Roger Butterfield of Sheffield Wildlife Consultancy and is annually updated.

SOURCES OF FUNDING

Funding for environmental projects is very diverse, covering everything from funding surveys, studies, tools, plants, training etc) and changes all the time. Grants can be made by Council Departments for small projects (they have a Community Chest fund) and central government (usually through the Department of Environment) has funding for bigger projects. There is a huge range of grants available from business-sponsored schemes, usually awarded on a competitive basis. Any community group wishing to raise money for an environmental project should seek advice from organisations like SWT, BTCV or SWAP. The creation of NWICA has meant that a whole range of big and small scale funding is available through SRB, URBAN and other sources.

In conclusion, it is clear that there are really good resources available to active community groups for environmental projects. However the most important resource is local people. Without their involvement, projects are unlikely to be successful or sustainable. Bigger organisations such as SWT are able to help recruit and encourage local people to come forward and be creatively involved but the real impetus has to come from local people themselves.

RECOMMENDATIONS FOR ENVIRONMENTAL TASKFORCE

The prospect of employment creation in the field of environmental action could provide an invaluable aid in revitalising the green infrastructure of NWICA. However, the specific remit and programmes which develop should be adapted both to the sites worked on and those engaged in doing the work. NWICA offers a complete range of opportunities, from virtual wilderness to intensely manicured private gardens, although it is deficient in provision of land for productive cultivation, which would have to be accessed outside the immediate area.

The taskforce would be most rewarding for its participants and the community if it could operate across all the categories explained in this study, requiring different strategies for each. A programme of works should also attempt to deliver seasonal variety, tasks suitable at different times of year. Where possible, contributors should be able to return to sites they have helped with, possibly as part of ongoing maintenance, to get the reward of seeing them develop over time. Optimal effectiveness would be derived from a taskforce which aimed to be co-ordinated with present maintenance regimes and sensitively complimentary to the contribution of the local community.

COUNCIL AND VOLUNTARY SECTOR RELATIONSHIPS AND ENVIRONMENTAL MAINTENANCE BY SHEFFIELD CITY COUNCIL

There have been numerous problems with the way environmental maintenance is carried out in NWICA. This is not a problem created by NWICA (or unique to it) but has probably been made worse by the large amount of new landscaping and refurbishment work which has exposed the limitations of the current system. The principal problem is that tasks are split between several Council Departments who do not adequately co-ordinate their work (eg Housing, Cleansing, Landscape Services). It also makes it difficult for residents to report problems and create solutions as there is not a 'one-stop' community liaison system.

Local people can make a major difference to the efficiency of environmental maintenance if they are allowed proper access to the relevant officers at all stages of planning, designing, creating and maintaining landscaping or plantings. The efficiency of this process is increased, the more active a role members of the community play in this, especially when through an organised community or voluntary group such as a tenants or residents association or even a specialist environmental group.

Sheffield City Council have already appreciated that there are problems and have already carried out a pilot project/study to address these issues; **Manor Environment Team** (see later section on this). They have various initiatives to assess their own operations and how they work with other organisations such as the **Area Monitoring Programme** and the **Agenda For Change Project**.

ORGANISATIONAL ADAPTATION AND ASPIRATIONS

A crucial development has been the appointment, earlier this year, of a new **Chief Executive** for Sheffield City Council; **Bob Kerslake**. He has made an impressive start which has already given him a higher profile than most of his predecessors. Of particular credit is his inclination to get out of the Town Hall and travel (often by public transport) to meet local people and community groups. Bob Kerslake gave a very positive but realistic talk on 9/10/97 to a packed meeting of Sheffield Funding Forum about 'Sheffield City Council and its Relationship with the Voluntary Sector'. He was well received and it does seem that a more positive climate of co-operation and co-ordination is being built. It is highly significant that this positive initiative is coming from a non-political direction rather than from a politician or political party.

Bob Kerslake gave an interview to **Sheffield Voluntary Action News** (Oct-Nov 1997, No 46) about his vision for the city, the council, and partnerships with the wider community. He gave a clear statement of intent and the following are selected extracts from the interview:

"If I was to sum up what we are trying to do, it's to reform the council to make it more of a corporate organisation - forward looking, focused on services and quality and with closer links with the community. I think what I want to create is what I call 'active community partnership' which really genuinely sees partnership as the means by which change is best achieved. The tendency has been in local authority for that process to be limited to the margins."

"The aim is to increase confidence and understanding of working with the community in its widest sense - voluntary sector, business, otherwise - and be sufficiently clear minded about the value of this so that it becomes something we work at all the time."

"It is a fundamental change but it's vitally important that local government and local councils are seen to be working with people and doing things with people rather than to people."

"What I have experienced in my time is that the voluntary sector brings strength in terms of flexibility, in terms of closeness to communities and in terms of innovation and new ideas that often mean they can achieve more than we can in some services."

"We should look at areas on their merits, look at the options in an open way and, I think most crucially, be prepared to trust the voluntary sector in terms of what it can achieve."

Members of PEG, and many other people active in the voluntary sector, would be in complete agreement with Bob Kerslake's stated views. They do represent a more fully-formed break with the past although some sections of Sheffield City Council had already made advances. It is also worth noting statements made by another 'new broom'; the **Prime Minister, Tony Blair** (Guardian 3/11/97):

"The key to modernising local government is for councils to change the way they govern and organise themselves. Councillors must remember they cannot, and must not, do everything themselves: there can be no monopoly of service delivery by councils; the 1970s will not be revisited. Delivering quality services means that councils must forge partnerships with communities, agencies and the private sector. It is their job to make sure that the people they serve receive the best quality services."

- Aut 90 "Alternative Therapies" Patrick Harding
 Aut 91 "Plants of Manmade Habitats" Patrick Harding and Gerry Firkin
 [above courses by Sheffield University Division of Continuing Education]

EMPLOYMENT

- 7.83-10.83 Clerical Assistant Brighton Health Authority, District Supplies
 10.86-4.87 Temporary Credit Control Clerk at TSB Trustcard, Brighton
 4-6.87 Temporary Storeman for ARC Lewes, East Sussex. Employed by Manpower
 6-9.87 Teaching classes of Spanish language students in Brighton
 10.98-10.90 Running own business "Flowmotionpictures", on Enterprise Allowance Scheme
 [marbled paper, cards and giftwrap]

VOLUNTARY/COMMUNITY

- 1988-98 Fully occupied allotmenting, composting and related activities
 5.91-1.98 Treasurer[91-2] and Chair[94-97] of the Ponderosa Environmental Group
 94-98 Attended Sheffield City Council's North West Inner City Action Plan's Environment and
 Open Spaces meetings.

PERSONAL ACCOUNT.

I myself have been pursuing the goal of developing local organic food growing for the past 10 years. Initially, I had no background in any aspect of cultivation, but felt that it could help to solve many problems, environmental, social and personal. My first aim was to simply prove that I could produce any food at all by organic methods. I contacted as many sources of advice as possible and commenced reading up on the many aspects relevant to organics, self-sufficiency, permaculture and recycling. I was disappointed to find that there were no courses or training opportunities available in this field either in Sheffield or in the region as a whole. Hence my current knowledge and experience is largely self-taught and through the arduous but highly effective means of learning from my own mistakes. In the last decade several courses have been offered, a degree in broadscale Organic Agriculture at Hallam University and a variety of amenity based NVQ courses through Sheffield College. Neither of these provides either the practical experience nor the range of skills and techniques that I have been able to learn and master simply by my own pragmatic learning.

Having obtained an allotment on the outskirts of Sheffield, the first challenge was to source what seemed the key element, namely organic matter. Since 1988, I have co-ordinated a regular, weekly collection of vegetable waste from my local greengrocer. After experimenting for a couple of years, I settled on a simple method of chopping the material and combining it with animal manure, although I was initially wary of employing any animal products, and had enough success both with composting and vegetable growing to be confident enough to take on further allotments and expand the compost collection. For two years I used an old Volvo estate and then a Sherpa van to collect waste from 6 grocers in the local area, an average of one tonne [1000Kg] per week. At this point I was so committed to the idea of composting that I researched the possibilities for large scale expansion and worked on a business plan.

I also compiled a brief report, outlining the potential for composting in Sheffield, which was submitted to the council's recycling officer but never taken any further. Having been unable to gain support for this project either from the local council or other agencies concerned with recycling, I decided that my time could best be dedicated to investigating the full cropping potential in terms of yield, variety and continuity of produce possible within the context of allotment growing. I treated this exercise as an experiment or research project and believe that many of the techniques and methods I have evolved are effective in this specific urban / allotment context. I have also kept records of all activities on a month-by-month basis and maintained plans of all the sites recording crops and cultivation annually.

From this modest base, I proceeded to become involved in other practical projects where I could apply the knowledge I had gained and extend the scope of my activities past the restrictive small scale of a single allotment. I have incrementally increased the number of plots I am primarily responsible for in partnership with a variety of friends and acquaintances; including the design, installation and ongoing maintenance of an allotment specifically for disabled and special needs users in co-operation with disabled care service staff. Since 1991, I have led the Ponderosa Environmental Group, which provided the opportunity to plant an organic community orchard of 30 fruit trees and also to make recommendations for edible landscaping to the council's landscape architects. Since 1994, I have co-ordinated the reclamation and running of a larger [2 acre] kitchen garden and orchard attached to a non-profitmaking conference center at Unstone Grange, near Chesterfield. These activities illustrate the point that there are many opportunities for access to cultivable land if the right expertise and sufficient commitment can be organised.

3. DARRELL MARYON: CURRICULUM VITAE

NVQ Level 2 Commercial Horticulture (Nursery Stock Production)
 NVQ Level 2 & 3 Environmental Conservation (Ecosystems & Landscapes)
 Co-ordinator Heeley Health Project Community Allotment
 Consultant to Bolton Environment House Community Gardens Project
 Part-time horticulture tutor for Workers Educational Association
 Unstone Grange Garden volunteer
 Community composting
 Tends own 4 allotments

PERSONAL ACCOUNT. The following is a roughly chronological account of the range of activities and interests around organic gardening with which I have been involved while living in Sheffield.

In April 1985, jointly with a friend, I took on an allotment at Highcliffe Road, near Bents Green. Between the ages of about five and fifteen I had always regularly helped on my father's allotment in London: As such, I was not too daunted at the prospect of such an undertaking. The desire for some personal outdoor space, a burgeoning interest in wholefoods and vegetarianism, coupled with the idea of trying to achieve some independence from the commercial food chain, strengthened our will to proceed.

However, the new allotment presented many problems: a north-facing slope, heavy clay soil, a dense growth all over of couch grass, docks, thistles and brambles, and no shed or green-house. Our tools consisted of one digging fork, a trowel and a sickle. With little money and no transport, it was difficult to acquire materials, especially to make useful quantities of compost. Nevertheless, we were able to grow useful crops of the less ambitious vegetables, such as leeks, broccoli, beans, courgettes, spinach.

In 1989 we lost the plot after confusion over unpaid rent. By the time I approached the Council to pay the rent, it had been given over to someone else and I was not allowed to negotiate with the new tenants (there being plenty of empty plots around at the time). With ridiculous optimism, the new tenants proceeded to rotovate the plot, breaking the machine in their attempt to break through solid clay and were never to be seen again!

I proceeded to take on another plot nearby on my own. One of my jobs at this time was working in a wholefood shop, where conventionally and organically grown fresh produce was on sale. The quality of the organic fruit and veg was often high, but so were the prices. To me, this added incentive to grow my own more effectively than I had so far. With access to transport and access to all the unsold fruit and vegetable produce, I was able to start producing useful amounts of compost. By trial and much error, I learned how to convert the sloppy mess of putrescible waste into a reasonable, sometimes good, quality compost. This turned out, above all other things, to be the key ingredient in creating a healthy, fertile soil. Over the next two years, there was a significant increase in both yield and quality of crops as the compost conditioned the soil.

In 1992, I sought some formal qualifications and went to college through Sheffield Environmental Training, gaining a National Vocational Qualification in commercial horticulture. The formal and conventional nature of the course provided a useful contrast for me, who had up to this point, been to a large extent self-taught, exclusively organic and unversed in many basic aspects of gardening. Learning about modern commercial horticulture and meeting people in the industry saved me from the danger of developing a blinkered set of opinions.

My eyes were further opened than ever before, however, to the environmental implications of both horticulture and agriculture, and the growing of food in particular. For example, it was very clear to me how often the use of pesticides and chemical fertilisers created a vicious circle, the danger always being that the symptoms of a sick crop were treated rather than looking for original causes. And the 'cure' often led to further cultural problems. In 1993, with increased confidence in my abilities, I took on a second allotment, partly with a view to having space to grow fruit and partly to extend the scale and efficiency of my composting operation. Over the next few years, I regularly (every 1 or 2 weeks) used the shop's van where I worked to convey their unsold waste to my allotments. I also started collecting from a couple of households and from a restaurant. An occasional call at a local stables for manure was by now very important, as the light, strawy nature of the horse manure was useful in balancing out the wet, sloppy, acid properties of the veg. waste, plus it helped to heat the heaps, quickening and improving the process.

Also in 1993, I started to help out at the (Heeley Health Project) community allotment, by taking vegetable waste there and building compost heaps. Up until then they had managed to do very little composting, but had one rather neglected manure heap, which I soon absorbed into the composting process. Nevertheless, we were able to grow useful crops of the less ambitious and demanding vegetables that year and have since continued and expanded the outputs from this project. Working with other people on this allotment made me realise how much I had learned over the previous few years and that it was enjoyable as well as useful to share some of this knowledge.

In 1994, I took the opportunity to study again at Sheffield Environmental Training, this time for a level 2 NVQ in Environmental Management and Practical Conservation. Above all, the course helped inform me about how to go

about organic horticulture in a way that is sensitive to environmental considerations, as well as understand further the complex issues concerning the impact of horticulture and agriculture in general on our ecosystems.

Since at least 1994, I have collaborated with Richard Clare in collecting several tonnes of leaves each autumn, from sustainable sources. The resultant leafmould is an excellent conditioner for Sheffield's heavy clay soils, and can also be used as the main ingredient in home-made potting mixes. I grow more bemused each year that this free, local resource is not exploited by more people.

In 1995, I had the chance to be involved in regenerating the gardens at Unstone Grange, which I saw as an opportunity to expand and extend my own abilities and potentials at first, and now hope these can be presented as a positive demonstration of organic gardening for others in this region. It is possible that the Grange gardens could become an element of a scheme providing support and training to help more people develop their capacity to grow local, organic fresh produce.

During 1996, I tried to consolidate my existing activities by continuing at SET with a level 3 NVQ in Environment Conservation. As part of this course, I have designed and been developing a large wildlife pond for Whirlow Hall Farm, an educational trust and working farm that caters for visits by school children and people with disabilities.

I was employed by the Workers' Educational Association to teach a beginner's gardening course at Heeley City Farm, in which I was able to draw in many practical aspects of organic gardening and recycling. I learned a lot about the problems and limitations that many people experience when they try to garden organically. I have tried to take this understanding on board when communicating information to others. For example, it is clear that if people cannot grasp the basic techniques of organics, such as compost-making, they will find it difficult to attain success in growing their own food. I have tried to promote worm-bin composting as a solution on a domestic scale, designing an information leaflet and giving talks to gardening clubs on this and related subjects.

During 1997, I have taken on two more allotments, including two greenhouses. It is obvious to me now that, once a plot of land has been properly cultivated and the soil improved organically, the effort needed for its maintenance is greatly reduced, allowing one to expand further.

In the summer of 1997, I was approached by the Bolton Environment House for whom I subsequently provided an instructional document to help them start up a community composting initiative. I was impressed by the aims of the project, because the people involved are not only keen to make use of underused allotments for the purpose of growing organic food for the local community, but are fully aware of the positive effects this could have on problems of health, social exclusion and poverty.

Such community food-growing projects resonate closely with my own interests and aspirations. I believe that gardening, especially growing food, is a way of gaining some control over fundamental factors that affect our lives: the environment we have to live in, the kind of work and activities we undertake and the food we choose to eat.

4. PERSONAL ACCOUNT: DAVE MIDDLEMASS, COMMUNITY COMPOSTING NETWORK CO-ORDINATOR.

I am often surprised at how many people view composting purely as a means of dealing with the waste we produce. But if I go back to my original motivations for getting involved in the Community Composting Network, they had nothing to do with developing sustainable waste management strategies. In fact, I could quite easily have got more explicitly involved in promoting locally grown organic food [and could still yet!].

A few years ago I suffered from some pretty typical modern complaints; stress from work, reliance on money and stimulants for relaxation, boredom and a tendency to not prioritise people and relationships. This was not a situation that could last, particularly when I was unemployed and didn't have any money to gloss over the cracks. I began to perceive the over-used term *sustainability* in terms of my own physical and mental health.

The process of relying on my own resources became a source of comfort. I started eating healthier and cheaper food. I didn't have to go so far to buy it or spend time wading through packaging to get at it. I met friendly and interesting people on allotments and in shops supplying organic produce. I started dedicating more time to cooking which reflected a greater self-respect and meant that I was devoting more time to my own health. I got noticeably fewer colds or minor bouts of illness. All this activity also meant I was rarely bored.

Later, I found composting alone another easy way of expressing all these valuable principles. However, being one of the elements in the process of growing organic food locally remains one of the key justifications for Community Composting.

Community Composting and locally grown organic food share the potential of contributing to what I call the "social generation" of inner city areas like Sheffield. The process is as valuable as the outcomes to people whose lives cannot be "regenerated" because they have never been "generated" in the first place. Community Composting projects are vital in developing greater locally grown organic food capacity. As an individual and as a composter, I'm keen to help generate greater supplies of fresh, local food by producing more food-growing grade compost.

5. CURRICULUM VITAE: NICHOLAS PARK

D.o.B. 3/12/65 Age 31 Married 11, St Lawrence Road, Chesterfield, S42 5LH Tel: 01246 850326

EDUCATION

8 'O' levels / 1 'OA' level / 3 'A' levels / Degree class 2[ii] in Marine Zoology from Bangor University
Degree subjects: Biochemistry, Soil Science, Biology, Marine Biology, Zoology, Tropical and polar marine environments, Ecological diversity, Larval biology, Computing, Rocky shore ecology, Fish migration, Behavioural ecology, Endocrinology, Genetics of marine animals, Fish culture, Biochemistry of marine food chains, Ecology of river animals, study of the population dynamics of common mussel.

1989 Post-graduate Certificate in Education; main method Biology, second Maths. Nottingham University.

WORK EXPERIENCE

6/83-9/83 & 6/84-9/84 & 6/87-9/87 Matthews Norfolk Farms

7/85-9/85 & 7/86-9/86 Adventure Holidays: Instructor

8/89-1/90 Environmental education teacher at Lea Green [Derbyshire C.C.]

This post involved a teaching, pastoral and development role across the range of residential and non-residential courses, creating an interest and enthusiasm for the environment. I shared responsibility for course planning, evaluation and administration.

2/90-4/94 Seasonal lecturer and contract worker for Losehill Hall, including

10/91-1/92 Geographical Information System operator, Peak national Park

At Losehill Hall, the teaching involved five main subjects; environmental education, Peak National Park issues, geography, environmental science and biology. I have taught 7 year old to graduates these topics as well as developing many of the visitor facilities delivered by the centre.

With a working knowledge of computer packages used here, I taught various skills and acted as a troubleshooter if there were any problems. I also programmed some software used there.

Environmental Issues: As Chairperson for the Losehill Hall green group, I compiled the environmental policy and co-ordinated its implementation. I was involved with BS 7750 Environmental Management System pilot scheme and its implementation, which involved putting together a variety of decision-making tools, systems and action plans within the organisation. I also sat on the Peak District National Park green group.

4/94 - present day. Self-employed environmental consultant.

I have delivered environmental awareness training to the following local government councils: Lancashire, Gwent, Clwyd, Gwynedd, Newark, Sherwood and the Norfolk Broads Authority. I have also been involved in delivering environmental management systems training for Tarmac Plc., British Coal Opencast, the Y.H.A., Booker and open residential courses on EMS and environmental law. I have also developed and delivered team-building weekend courses for local businesses.

Much of my work now involves designing and implementing sustainable landscapes. The scale has varied from a 450 hectare site at the Earth Centre at Conisborough, where I developed project integration and helped put together the statement of needs for the sustainable landscape design, through permaculture designs for small-holdings, wildlife gardens and back gardens. I have recently completed a waste water treatment system for an arable farms enterprise park in Suffolk.

My work involves a wide range of subjects, including; waste water treatment, fish polycultures, invertebrate breeding, biogas generation, solar aquaculture, aquaponics, heritage vegetable varieties, orchards, soft fruit, composting, green woodworking and small animal management.

At present I am a house-husband, balancing home working with the demands of a one-year old.

COURSES ATTENDED

Environmental Policy and Audit. Clive Morgan & Bob Kenyan

Training Trainers. John Stannard & Clive Beard

Involving young people in the Countryside. Keith Clarkson & Suzanne Leckie

Institute of Earth Education advanced leaders. Steve van Matre

Sharing Nature with Children. Joseph Cornell

Permaculture Designers course. Rodney Everet

OTHER QUALIFICATIONS, SKILLS AND INTERESTS

I have a clean driving license. I am a sport diver, boat handler and compressor operator [sub-aqua]. Basketball coach, referee and player in the Sheffield league and a volleyball coach. I also do a lot of gardening and DIY. Member of the Soil Association, the Henry Doubleday Research Association, the Association of Environmentally conscious builders, the Permaculture Association and the Intermediate Technology group.

PERSONAL ACCOUNT: It is obvious to me that everyone should be interested in a sustainable future. The environmental emphasis on a sustainable future is essential, but to the vast majority of people appears to be lost in the hustle and bustle of everyday living.

My interest in sustainability started with a great interest in how things worked. As a child, I was forever trying to look under the surface and discover what really made things tick. This manifested itself in a fascination for taking things apart then rebuilding them. The real fascination was how and why things worked together and the excitement came from trying to replicate both engineered mechanisms and natural systems. As I learned more, I began to understand that the part humans play in this process is actually a very small element in a vast living system, which was most exciting to comprehend. Ever since then, I have explored the ever-increasingly more complex and intimate relationship humans have with the world they are part of.

The natural world provides us with every thing we need to live, develop and explore our own imaginations. Yet in doing so, we can undermine the systems which support the planet and jeopardise our own existence.

As my interests developed, I became obsessed with understanding the concepts and skills necessary to be part of self-sufficient living systems, which is how I relate today to many traditional ideas from the past. This developed in just about everything I did; from designing aquariums, breeding fish and invertebrates, growing trees or exploring the smallest ecosystem in a bottle, to looking at how oceans and forests flow in every conceivable way.

After completing my education, I was still working in very transient ways. Only when I was able to work with more permanent undertakings did I have the opportunity to realise some of these ideas and develop them further. I am still now, after seven years' working on my own back garden, beginning to experience, experiment, refine and enjoy the final products of this design process.

6. PERSONAL ACCOUNT: JOHN FRYER

I was brought up in the rural surroundings of Burniston, near Scarborough on the East coast, which gave me an in-depth understanding of agricultural practice from an early age. In my youth, I accepted many standard practices as just the norm and did not question their ethics or outcomes. I took it for granted that most farmers were obliged to dip their sheep, although this made me ill when I helped out. It seemed normal that produce at local agricultural shows was judged solely on its size and appearance, never its actual taste.

However, as I grew up and now with the benefit of hindsight and greater practical knowledge, I realised that the financial expediencies that dominated farming and obliged small producers to follow the dictates of the market as represented by large concerns such as supermarket chains, was detrimental firstly to the environment but also to the people who produced and consumed much of the output from agriculture. The degradation and deficiencies caused by the use of artificial materials was once graphically demonstrated by the effects of feeding waste confectionery to intensively-reared pigs, which resulted in a scare for the local beekeepers, who were perplexed to find that their honey had turned the bright colours of Smarties; the bees had used the sweets as fodder and seemed to prefer the red ones!

After completing a degree in Materials and Metallurgy at Sheffield University, I attended a full-time training course in conservation organised by the British Trust for Conservation Volunteers. I appreciated the opportunities this gave me to gain a new, broader perspective on the local region and meet several people with similar interest. This course, leading to an NVQ qualification, helped give me a focus and sense of direction, however, I became somewhat disillusioned by the menial and exploitative nature of this work, which often seemed to do little more than just provide cheap labour for large estate owners.

Whilst at BTCV, I was lucky enough to attend a course on Permaculture which opened my eyes to the theoretical potential of natural systems in symbiosis with human activity. For the past two years, I have been able to investigate this and related topics further in a practical context by helping in the activities of Sheffield Organic Food Initiative. I believe it is vital to provide working demonstrations and examples of good practice in order to learn oneself or explain the issues and techniques involved to others. The pattern of activity of SOFI suits my expectations, allowing me to work outdoors and in synchronicity with the seasons. SOFI has also meant that I have been able to access more sophisticated facilities and participate in greater achievements than would be possible just from my own resources and knowledge.

I have been pleased to find that these local organic food growing activities are complimentary to other interests, even when they seem to be at odds with humble gardening, such as computing. I have continued to study, attending a variety of evening classes in relevant subjects such as the medicinal properties of plants, herbalism, natural healing and traditional Chinese medicine. These interests became especially appropriate recently when I suffered an injury which resulted in having my spleen surgically removed.

I am now even more conscious than ever before about the quality of my nutrition, because my immune system is compromised. I have noticed that eating a uniquely organic diet, including fresh, locally grown organic produce, has definitely improved my rate of recovery.

In the light of all the arguments in favour of organic methods of food production, I find it incomprehensible that governments and decision-makers are either unaware of how or unable to effectively improve local and national provision of healthful, natural foods and instead continue to depend upon ecologically inefficient imports.

7. PERSONAL ACCOUNT: GAVIN PIETRONI

My interest and enthusiasm in promoting the ideals of local organic initiatives have their origin in asthma. As an eighteen year old, I was suddenly besieged by this debilitating illness and was taken to see one of the top specialists in respiratory disorders who, after a cursory examination, proudly bestowed on me the status of *asthmatic*. A ventolin inhaler was placed in my hand and our lifetime engagement blessed. I broke off that arrangement some years later having resolved to explore the most viable alternative to synthetic drugs available: the medicine that is our food.

I studied, learned and experimented with diet and explored the effects of excluding processed and synthetic foodstuffs, animal foods, using herbs, organic produce, fasting and balance of dietary elements on my body and disease. I found this form of disease control effective and continue to rely on it to this day.

I see many people around me who are suffering as I once did and fervently believe that the next generation in this country is facing an epidemic of degenerative disease exacerbated by appalling ignorance of the effects of poor diet and complete reliance on mass-produced food. Indeed, this has already begun. Adult men now stand a 50% chance of developing cardiac disease in their lifetime and, in the next 20 years, a 67% chance of developing cancer. One in eight women currently develop breast cancer and 1 in 10 children suffers from my erstwhile partner, asthma. Over a quarter of the population is dependant on drugs, prescribed by an NHS which costs £43 billion a year to run and which will continue to contribute more than its share to the staggering rate of use of antibiotics, which is set to rise to more than 50,000 tonnes annually by the year 2000.

At the same time, we have seen the U.K.'s annual use of artificial food additives and preservatives rise to 250,000,000 tonnes and its production of pesticides and herbicides rise to a massive 400 million litres. So, what you may ask, is your allotted share?

Agriculture, medicine and food retailing have changed enormously in the last fifty years. They now seem to represent a new Imperialism: their cartels, monopolies and multinationals have wrested the last vestiges of control from the democratic process and, with their inherent need for technological advance, lowering costs of production and maximising profit, have resulted in disastrous changes in farming practices, the availability of natural foods, transport policy, drug use and health status since the Second World War.

Taking retailing as an example, 70% of the food we now buy comes from supermarkets which have done little to support local producers, organic or otherwise, and merely dabble in graded and imported organic produce. This contrasts strikingly with the situation in France for instance, where recent excursions into food retailing by British supermarkets were ousted by the powerful oligopolies of local market co-ops, retailers and small-scale producers. British supermarkets now resemble their American hypermarket cousins, retailing all and sundry and requiring 50% more road transport than 20 years ago, contributing to pollution levels that are out of control in our cities and to the death of local communities. Next time you shop at one, look skyward, supermarkets now have spires on their roofs-- is this a subliminal religious reference-- the new cathedrals?

It is no surprise to find an incestuous relationship between supermarkets and the government, in which the wife of a MAFF minister is a senior advisor to the supermarkets. Food hygiene problems and the question of genetically modified food are posed not to primary producers but to supermarket magnates. We can begin to understand how BSE and food-poisoning can occur when any concept of wholesome, seasonal produce has been relegated in importance and subsumed to the profit motive.

Just imagine what our children will make of our governments' sanctioning of paint companies using their by-products to make artificial sweeteners for low calorie drinks companies, power companies using cooling tower scrapings to feed cattle, or the use of carcinogenic phthalates, by-products of the plastics industry, to line canned food, at a level 27 times higher than those known to cause breast cancer cells to proliferate. Faced with these facts, even the most obdurate advocate of technological progress must surely take note.

Some ten years ago, along with a group of friends, I helped set up a wholefood and organic retail business in Sheffield, which is still going strong today, if slightly abbreviated in the size of its operation and its name [Beansies]. This established a retail outlet promoting local ecological initiatives, social and political issues, which is now an important focus for the local organic movement. Paradigm shifts in awareness and action are slow and organic in growth, but it seems that with the advent of SOFI, distinct possibilities are now achievable.

My interests in the promotion of locally grown organic food as a viable alternative to the mass-produced rubbish and exotic, out-of-season produce that is often exploitative of cultures and ecosystems other than our own and offers little in the way of engendering knowledge of healthful eating, reflect both my long-term interests and my current studies; a 3 year Nutritional Medicine diploma based in London.

The Institute of Nutritional Medicine where I study, was established in 1984 as a charitable and independent educational trust for the furtherance of education and research into nutrition and provides the alternative to the pharmacological medicine which passes for the orthodox approach these days. It is the aim of the Institute to promote a return to preventative medicine through the promotion of natural nutritional practices, organic farming methods and explaining the links between health and the wider environment in the U.K.

What we are finding at the Institute is greater interest in alternative, holistic approaches to medicine and a deepening suspicion of food production methods that have led to the current epidemic of food-poisoning cases. We are also seeing the results of years of unhealthy eating in individuals who are presenting with diseases typically associated with advanced age; young adults with sub-optimal vitamin and mineral levels due to eating denatured produce grown in soil bereft of life and children with toxic levels of arsenic from vegetables oversprayed with pesticides.

Organic farming has achieved much in the 15 years since I first came across it as a lowly wholefood co-operative worker in Swansea, proudly selling diminutive, locally grown organic carrots. The need for small-scale, local community food initiatives is imperative, whether we reside in urban or rural areas. The best response to the paucity and expense of healthy food is to create our own supply and support local endeavours that emphasise redressing socio-economic imbalances to favour local, organic food producers, distributors and retailers. I believe we can all benefit on so many levels from this approach, and have found it to be true in my own case. Working with a group of friends to grow our own produce on a number of allotments has allowed me to reap all manner of unexpected benefits in terms of fitness, sense of achievement and awareness of natural principles that have put into perspective more profound ideas of balance and harmony within a unified whole.

The time I am able to spare is not great, but is a regular commitment, and I have seen what a difference can be made by the concerted and co-ordinated efforts of a small group of dedicated individuals. It is through this development from individual to group and hence community level of operation that realistic possibilities arise. Local organic food growing projects such as SOFI are at the heart of such changes.

If we are to reverse the descent into the damaging farming practices, food manufacturing and pharmacological-oriented, drug company-based medicine that have proven so detrimental to our health and interests in the long term, then it is through endeavours such as SOFI that such changes will originate.