

THE PERMACULTURE ACTIVIST

A Quarterly Voice for the Permaculture Movement in North America

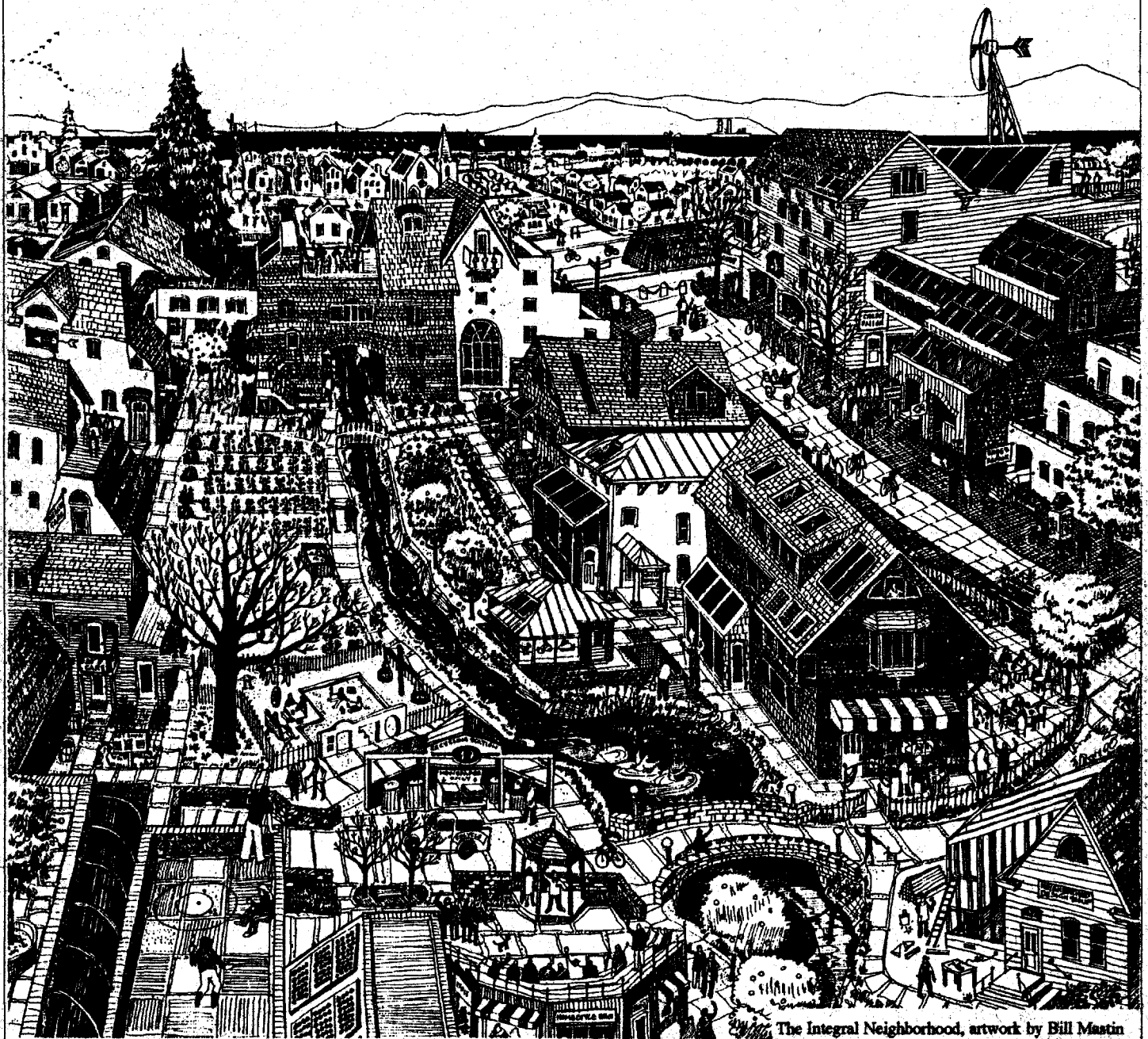
Principles of Ecocity Building

Richard Register

An ecocity is an ecologically healthy city. No such city exists. In the old European cities and towns and in the pueblos of the Indians of the American Southwest we see hints of the

ecocity: these were compact, lively settlements that wasted little land and consumed little energy. Using local building materials and changing only slowly over many generations, these towns weathered into the landscape and aesthetically merged with the natural rhythms.

continued, pg. 4



The Integral Neighborhood, artwork by Bill Mastin

Volume VI, No. 4, Winter, 1990

FROM THE EDITOR

Permaculture is a discipline of making connections between elements in the landscape and, increasingly, between humans and their environment. The term "permaculture" was coined by a man, Bill Mollison, who spent many years in the company of trees. His appreciation of the integrity of wild nature has imbued permaculture teaching with powerful perspectives: ecology as a model for agriculture; humans as an animal species with needs and yields; habitat designed for efficient browsing and sociability and for maximum exploitation of the richness of edges; yields optimized at the level of system stability.

From a voice "crying in the wilderness", design with nature has become the key formula for transforming our culture. It is inevitable then, that permaculture, the application of nature's design to productive human systems, should find itself headed downtown.

For nearly ten thousand years, cities have been our most intensely built environments. They have reflected our understanding that the edge between humans is one of the most powerful over which we have influence. While our capacity to build remained limited, Nature dwelt around and throughout the city. Fresh draughts of nature's bounty renewed the city with each influx of country people who brought with them the habits of the village and the products of the farm. As our power to build increased, our cities became the first areas from which we drove Nature. As our (Western) civilization advanced it drove nature further and further from the city until today, and in North America especially, city manners, city culture, and city patterns govern the lives of virtually everyone everywhere.

We have broadcast the city into the country, garnered the harvest of the country into the city and have failed, nearly destroying both nature and culture in the bargain. We must begin now to build the country into the city. City dwellers must cultivate self- and community-reliance before their hunger ravages all the earth.

As city need and rural degradation have gone hand-in-hand around the globe, so our most effective strategies for design in and with the city will increase the edges between natural and human environments and between the city and the countryside. Cities, like mandala gardens, will gain edges of park, farm, and wilderness running through and all around. We will learn to see buildings as new earthforms, and colonize them with our plant and animal allies. We will begin to capture and cycle the water which we now squander so profligately; by directing it through natural and sinuous channels, restoring its natural streambeds, reintroducing it to air and light and plants, we will make it once again clean and the source of life.

We will learn also to recycle wasted lives, putting people to work to shape their homes and neighborhoods into places of beauty and natural abundance. And perhaps having learned to care for the earth, some of those city dwellers can one day begin to make their homes in the country, which everywhere is deserted, given over to machines, and lacking the stewardship under which it could flourish.

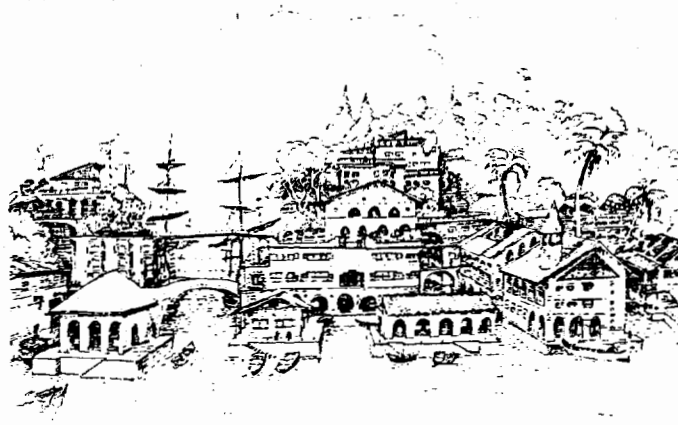
In urban permaculture work we will find the concentration of human energies to be our greatest resource for change. People have power and influence where they live. Today, they live in cities. Effective action for change stems from small groups of individuals who have learned to coordinate their work, their lives, and their exchanges. Networks of informed and committed activists exist and can be strengthened. City dwellers are adept at making connections. They have boundless opportunity for lively interaction. Only with mutual aid and support can we overcome the inertia of bureaucratic government, the deadweight of concrete, the poisonous film of oil which everywhere defiles the delicate membrane of life. Only with strong working bonds to our fellows can we overcome that fear which is the legacy of our removal from nature, from our true selves. Only with the clear breath of understanding our place in nature's design can we hope to turn greed into green.

We must therefore learn to understand the laws which produce wholeness in the city....

Christopher Alexander, et al, 1987

This issue addresses the current state of thinking about cities and city environments. It drew its inspiration from the Ecocity Conference held in Berkeley last spring, and appropriately the work of that conference runs through the pages of the magazine. We would have liked to offer more examples of working permacultures in the city. They exist, but few of them have been represented to us. Those we knew about are here, and for the rest, we have presented elements: theory, precepts, clues, reminders, stirrings, hints, and friendly powers. We leave open then the response from urban permaculturists in North America. Make the connections, tell us about your work. Send us your lively, your hopeful, your sprouting and vigorous reports of PC alive and well downtown.

We owe our assistant editors a great bow of appreciation for their unstinting patience and repeated helpfulness in entering and shaping the huge mass of material that went into this issue. To Beverly Winge, coping gracefully with a small tribe of house guests; to BJ Bane, learning to manage a brand-new daughter, Liberty Ka'ili'ula, born September 17, 1990; and to Pat Sullivan, sharing her vacation with a good cause, my heartfelt thanks. Δ



The Permaculture Activist

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Principles of Ecocity-Building

Richard Register, continued from Page 1

Cities could be rebuilt to fit gracefully, even regeneratively into their bioregions. Ecocities could replace the type of growth that now prevails—wasteful, ecologically unhealthy sprawl—by a development implicitly aware of its limits.

Without question the most destructive agent of social disintegration, ecological contamination, poisoning of people and environment, waste of energy, and even homicide (outstripping violent crime by more than two to one) is the automobile. Or, more accurately, it is the interrelation of automobiles and low-density land-use patterns: Auto Sprawl Syndrome. Its negative impact today is small compared to what we can expect in the near future.

The larger effects of the way we build cities and live in them may be difficult to see from our perspective in history, but the scattered city itself needs to be restructured so that more is available closer together with less need to move about, less required investment in transportation, less cost in wasted time, less expense in attempting to clean up. **Bioregion, Biology, and the City**

We can draw the borders of a bioregion according to types of living species, watersheds, winds, air drainages, geographic and geologic features, and climates. Nothing crisp or dogmatic exists to help us map bioregions, yet in the very differences of life from one place to another we find the richness and value of unique local offerings. This biological aspect of the ecocity is what some have called the "Green City".

Fundamental biological principles apply to the greening of cities.

- Diversity is healthy. The number of species, their variety of habitat, and the complexity of the connections between them are measures of an ecosystem's stability and, if disturbed, of its resilience.

- Fairly large natural areas are required to develop diversity of species. Generally, people should create settlements that, on a map, look something like "spots" against a background of natural and agricultural land.

- Land has a limit to the biomass it can naturally support in a particular climate, called its "carrying capacity". Given the climate and soils of an environment, plants and animals can extract only so much water, minerals, and energy in creating their bodies. Another limit to carrying capacity is the rate at which the total population can reprocess that biomass into usable resources through decomposition and soil building.

- It is easy for people thoughtlessly to reduce an environment's carrying capacity—to strip its forests or pollute its air and water. The complex living system of a bioregion degrades and may collapse, regenerating only over hundreds, even thousands of years (if ever). It is far more difficult to increase long-term carrying capacity. Sustained composting, rebuilding of soil, strategies to augment the supply of water, and reforestation can provide the resources that invite and sustain populations of different species.

- There is a green hierarchy in ecocity planting. Natural (native) and useful (food, medicine, fuel, and fiber) plants are much more important for ecological and social health than ornamentals,

though this rule is softened by the diversity principle. Lawns consume vast areas, waste water, energy, and time, and tempt people to apply expensive fertilizers and dangerous pesticides. Why not instead plant food gardens, ground covers of herbs and strawberries, fruit and nut trees?

- Make wastes into new resources: compost and recycle—soon we may even get back to root causes here, too, and curtail making and buying throwaway and contaminating products in the first place.

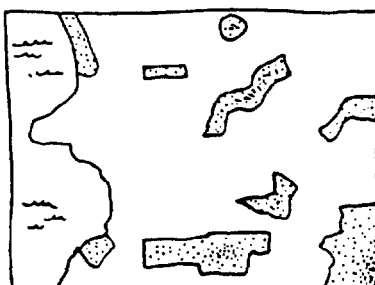
- Biological pest control and nutrients are preferable to chemicals.

We should preserve or restore urban creeks, rivers, shorefronts, marshes, and springs, and build structures in respectful, enhancing relation to the water. We can prevent excess runoff from damaging creeks, bays, and wetlands by collecting water in cisterns, sumps, and swales, and by using "permeable paving", and narrower sidewalks and streets. We can avoid contamination of the remaining runoff by reducing the acreage of parking lots and the number of cars and gas stations; and by limiting our use of poisons and chemical fertilizers. We can limit dogs as well as cars in the city—the waste products of both kill aquatic life when swept into the waterways via storm drains.

More gardening, urban orchards, solar green houses, rooftop gardens—all are important for ecocities.

We can re-establish and sustain wildlife and native plants by giving them sizable slices of their natural habitat within and around the city as greenbelt, in parks, along restored creeks and shorelines. These edges (forest/meadow, water/land, etc.) are among the most diverse and ecologically valuable parts of the natural habitat. Public and private funds should be established to buy and remove badly located buildings from sensitive areas. Zoning and tax incentives can assist in opening up the city to nature by shifting urban activity to more focused and diverse areas.

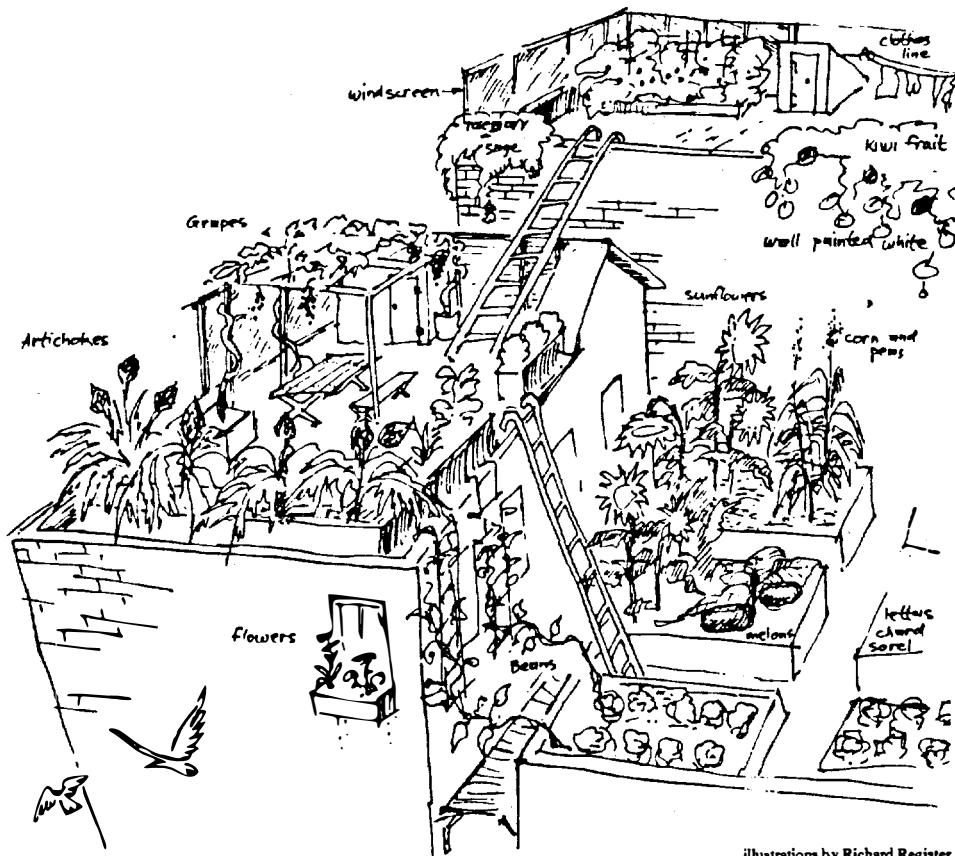
Individuals can provide habitat and food for birds and bees by planting nest and forage species, providing beehives, or allowing natural hives in parks and along creeks, with a buffer zone (about 30 feet) between hives and houses.



PARKS IN SPRAWLED CITY



COMPACT ECOCITIES IN NATURE
(SAME LOCATION)



illustrations by Richard Register

The Shape of Things to come— Three-Dimensional, Not Flat

We need to build our cities far more compactly than we do today. Instead of flat like a tortilla, cities should be three-dimensional—much more like the old cities of Europe, though not necessarily as vertical as Manhattan. And they can't, without great environmental damage, be narrow-mindedly dense like downtown San Francisco, which is almost exclusively office space.

Higher densities must be combined with mixed uses. Instituting mixed-use zoning and zoning that concentrates development rather than scattering it is an important part of the solution. Requiring developers to build apartments in or near tall buildings is helpful. Constructing buildings, even very large ones, with a smaller grain or texture, that is, broken up into different parts and shapes instead of built as simple giant boxes, also increases the number of social and ecological niches.

Diversity, which is healthy in ecological systems, is also healthy for the society and economy of cities. City plans can set quotas for new development. In a downtown neighborhood composed of 90% work space and 10% housing, future

building could be limited by zoning and ordinance to 30% work space and 70% housing until a better balance is reached. Just to imagine development in "spots" or small areas of great diversity is very

helpful—large downtown spots and smaller ones in neighborhood centers.

Neighborhoods

Even if downtowns and adjacent neighborhoods are made more attractive, many people will want to live in lower density areas; how low, how scattered, and how uniform is the critical issue. When increasing or decreasing densities, broad public efforts are required—zoning needs to be changed along with tax incentives, city services, streets, and more. Neighborhoods tend to be extremely conservative, so it's important to approach government first with the needs of the whole city in mind.

Generally, the following would be helpful steps moving the city toward ecological health:

- Preserve medium density neighborhoods while vitalizing their centers, adding population within two or three blocks of these centers. Bring back the corner store and add a few apartments upstairs. Add housing space near the centers by encouraging garage, basement, and attic conversions into bedrooms or complete living units, or by raising the house and adding a story.

- Withdraw from low density neighborhoods and areas of medium density in

Ecocity Conference 1990

Organized by Urban Ecology, the First International Ecocity conference was held in Berkeley, California March 29 - April 1, 1990. The conference was cosponsored by the City of Berkeley, Cerro Gordo (Ore.) Community, Planet Drum Foundation, and Elmwood Institute. Over 700 people attended more than 80 sessions. Conference speakers hailed from the United States, Canada, Mexico, Norway, Denmark, Germany, France, Australia, and India. On the following pages, we present highlights, excerpted from the Conference Report edited by Christopher Canfield. Look for the Ecocity logo.

EcoCity Theory

Peter Berg, bioregionalist

Director of Planet Drum Foundation

To start out, let me tell an ecocity story. In downtown San Francisco, secretaries and CEO's recently began to notice small explosions of feathers outside their high rise windows. These explosions were in fact peregrine falcons swooping down on pigeons for food. When they hit the pigeon with their talons travelling at great speeds, the pigeon's feathers would explode on contact. The building where the feather explosions were occurring was the "Mutual Benefit Life Building". The falcons live on the Bay Bridge framing below the roadway. They commute to work.

By the year 2025, there will be 100 cities of over 5 million population, three times as many as today. Urban areas have vastly overreached their local bases of support.

City governments need to recognize their location within a bioregion and their responsibility to restore and maintain natural systems within it upon which future self-reliance will ultimately depend. Rather than being passive recipients of urban benefits as in the past, city dwellers must become active in securing their resources and adept at a wide range of urban self-reliance and neighborhood self-government. They are new "pioneers" in what is quickly becoming an unmanageable urban wasteland.

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sensitive or rich ecological areas such as creeks and shorelines, steep slopes, beautiful rock outcroppings, and special views that should remain available to any citizen.

- In very large suburban sprawls, locate good potential centers and begin focusing development there while withdrawing from areas at greater distance from the centers.

- Make most streets narrower while adding garden space.

- Use positive incentives when limiting development in one place and increasing it in another. Public and private funds (tax money, bond money, endowments, land banking, non-profit donations, etc.) and other kinds of assistance should be available to encourage people to move. Transfer of development rights from lower to higher density areas would help developers build in the right places.

Many neighborhood changes can be initiated by individuals acting alone or in small groups. Establishing a garden or building a solar greenhouse is nothing out of the ordinary, but the cumulative effect of many individual actions can transform an area.

Tall Buildings, High Density

Height limits are often imposed as an anti-development strategy. In the negative view, tall buildings cast long shadows, make streets cooler, often increase winds especially on wide streets, add lots of people to an area, can appear alienating and ugly—and, in today's

development patterns, usually clog the streets with new traffic.

But when you look closely, these negatives become more conditional, less absolute. A windswept bluff overlooking ocean swells and exploding surf can be an inspiring place for many people—but few enjoy wind sweeping them down a city street. Many people enjoy shady forests and the subtle light that filters through spanish moss and ferns in deep canyons—but not as many appreciate cool streets with the sun glinting back and forth between glass curtain walls.

Some people like to live among or near tall buildings and many enjoy the lifestyles and the cultural variety that larger numbers of people make possible. What if instead of the dreary repetition of giant filing cabinets we had beautiful buildings. (Some exist.) Developed according to mixed-use guidelines and proximity policies, tall buildings would not cause tense, noisy, smelly, dangerous streets—cars would seldom be needed and could be barred altogether from large areas of town, creating, as Ernest Callenbach called them in "Ecotopia", "carfree zones".

And would it not be possible to create intimate, personal, even cozy spaces daringly sited 20 stories up in a sunny nook in a cluster of tall buildings? This is a new kind of border zone scarcely experimented with as yet, the edge between the subtle and the spectacular, the small and the large, the secure and

the exciting, the immediate, personal scale, and the scale revealed by a high-flying view of much of the bioregion.

Seen positively, construction of tall buildings and dense, diverse downtowns, compared to low-density, uniform development:

- saves vast acreage of land for agriculture and nature,
- promotes pedestrian, bicycle, and transit access, saving energy and cutting pollution,

- makes commerce, culture, and social diversity of all kinds easily available, and,

- can incorporate multi-leveled solar greenhouses, rooftop gardens, fruit trees in the streets, restored creeks, and other natural elements into the city.

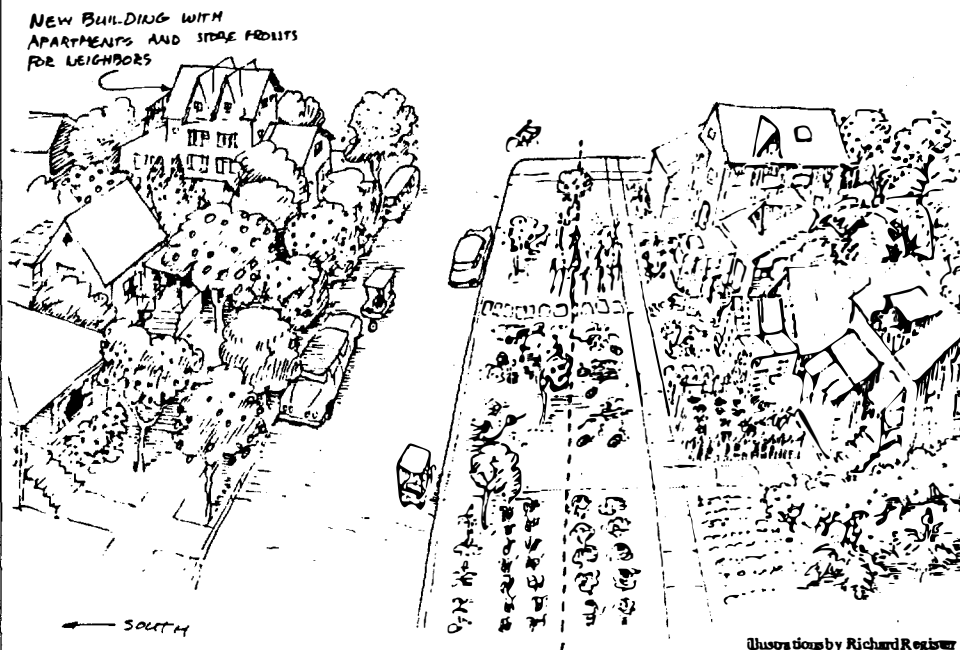
Influencing Public Action

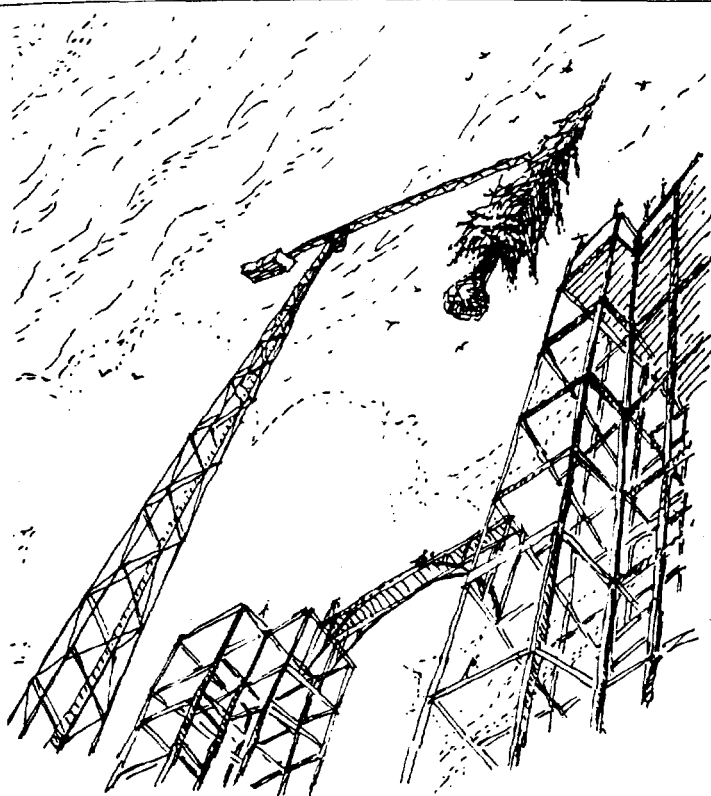
To promote the right kinds of tall buildings and oppose the wrong kinds, note whether they add or subtract from the diversity of an area, whether they overwhelm or fit into a particular location, and whether or not they are attractive. Appropriateness to a particular area and the aesthetic question are much more subjective than the impact on diversity and commuting, but in all cases, anyone can have an opinion and express it in any way available.

Speaking at hearings, writing letters, and organizing other people can all be effective—sometimes startlingly effective. Small local groups, and occasionally a single individual, can transform a hundred thousand square feet of office space into a hundred living units, or require that a developer restore a creek, relocate a whole cluster of buildings from a car-dependent area to a transit hub, or establish a new bus-route. It happens all the time! And it can have profound influence on the not-so-distant future.

The most effective two ways to influence what gets built are educating people to positive approaches and taking part in early planning. This latter includes zoning, master plans, long public hearings, and wrangling with the bureaucracy.

The creative approach that advocates better ways to build can piggy-back on any hearing: "why not build this instead of that...", followed by suggestions. At present many of the more novel ideas for making high densities livable, even





exciting, seem impractical, unrealistic, "visionary". But it's amazing how realistic things become when a lot of people and key decision-makers start talking about them. Foot-bridges between buildings, rooftop gardens—even ponds—several stories up are not only possible but have been built. Kaiser Center in Oakland, California, for example, has all of these features.

Access by Proximity, Not Transportation

Think of establishing desirable places close to one another. Transportation is what you have to do to get to places inconveniently located. If diversity is designed into the city, commuting can be minimized and other local travel can be reserved for special occasions. Cities that are easily navigated without the car—even difficult to manage in a car (Manhattan, downtown San Francisco)—encourage train and bus use between cities too.

- There is a hierarchy of healthy surface transport. Cars are worst, trains, buses, and ferries better, bicycles better yet, and foot travel best. The most serious efforts, then, should be made to help pedestrians, considerable effort made for bicyclists, significant support should be provided public transportation, and strong disincentives should be applied to automobiles.

- The principle of diversity should moderate the transportation hierarchy. Many modes should be available, with the greatest emphasis on the pedestrian and the least on the automo-

Ecocity Conference 1990

Ecocity Theory

*Floyd Stein, painter & architect.
Royal Danish Academy*

The Danish Building Development Board researches ecological solutions. The most promising ones have joined urban and rural areas, linking them with logistical support routes. The logistics are the critical aspect. City people have begun to farm. Vocational schools have begun to teach city farmers to develop productive ecological systems.

About establishing new laws and codes, I must say I prefer to find exceptions to the existing regulations—variances, use permits and the like—build small changes that others then adopt. As such changes become common the city moves in the direction of an ecocity.

Urban and Rural Permaculture

Declan Kennedy

professor & architect, Germany
With some examples, mainly from Berlin, I show what "permanent cultures" can look like in different urban areas.

Apart from the projects initiated with or by us, there are others on

their way in Germany, such as "Bio-model" by Adolf Hoops in Dueshorn near Walsrode, the "Okotop Heerd" project in Dusseldorf and the Rottorf near Helmstedt, all working with permaculture ideas and principles in the countryside. A few inner-city examples are materializing within the framework of the Intl. Building Exhibition - Emscher Park. New permaculture settlements are being planned in East Germany at the end of the Berlin rapid transit, and in the Ruhr Valley, an ecological new town.

The word "sustainability" (meaning permanence, stability and persistence) takes on a key role in the report of the UN World Commission on Environment and Development. The report shows that our common co-existence depends, finally, on how we build or renovate our rural and urban environments. Within this framework, we can imagine a wider use of the experience of permaculture.

The term, Permaculture, compiled by Bill Mollison, originally describes a permanent agriculture. Nowadays, the concept encompasses much more:

a planning and design method with the aim of creating stable self-supporting systems, a sustainable culture based on ecological principles, which supplies not only wholesome food for people but energy, warmth, beauty, and meaningful pursuits. Permaculture systems create a new sensual holistic relationship to the very elements of life.

We want to report on our experience applying the (permaculture) concept to the Federal Republic of Germany. The following four model projects demonstrate different sizes and points of departure:

- The Ecology Park in Dortmund with an area of 25 acres,
- The Permaculture Project Steyerberg on 7.5 acres,
- Refurbishing a single-family dwelling with a 20,000 sq.ft. garden near Kassel,
- Renovating small row-houses with 2000-5000 sq.ft. gardens, also in Steyerberg.

In all four projects, we have used the same basic principles which are part and parcel of every permaculture design.

1. Designs for a permanent culture presuppose that every element serves as many functions as possible to optimize the total

yield of the production process and be in harmony with nature. In contrast, "modern" design methods are aiming for a linear maximization of every single element in a system.

2. An optimization of the total yield will be assisted if each element in the system fulfills several functions and if each function is carried by several elements. It is only then that concurrently the highest possible stability and flexibility can be achieved while the input in energy and work can be minimized.

Permaculture restores the cyclical production and decomposition processes of nature. It stores rain water and solar energy, uses them sparingly and effectively, improves the fertility of the earth and recycles the waste of one animal or plant type as raw material for the next. It arranges plants and animals in such a way that little human intervention is necessary to fulfill their needs. In this system, people do not see themselves as masters of the earth, but as the custodians and stewards of a system which has come into being long before them and will operate long after them.

continued, next page

bile. Car-free zones, pedestrian malls, and transit malls (with as little adjacent parking as possible) are crucial—these features create quiet areas promoting convivial connections between people and, compared to auto-dominated streets, provide clean air, afford greater safety, and conserve energy. But some cars—for instance, taxis, certain delivery vehicles, and rental cars for getting into rural areas not served by public transportation—could fit into an ecocity context.



"Woonerf" is the Dutch name for a street that has become a place instead of a route. In hundreds of Dutch and German cities, selected residential and mixed-use streets have been turned into areas where cars may enter and park, but where the feeling is more like a floor than a street, and where pedestrians move among benches, trees, playground equipment, gardens, and sculptures. In fact, on a woonerf the speed limit is so slow that to pass a pedestrian is illegal!

In downtowns and neighborhood centers, bridges between buildings can link public areas above ground level such as rooftop cafes and shops, rooftop gardens, greenhouses, and sports areas. Arcades, awnings, and covered streets make businesses and residences in high density areas mutually accessible in the worst of weather on foot or bike. Covered bus benches and sheltered train stations are important.

Bringing about these changes will take time because of the entrenchment of the automobile, its hidden subsidies, and society's associated habits. Convincing people to rearrange transportation systems is typical of any political activity: new ideas will have to be introduced to the powers that be—and championed until an project is built, a

law is passed, a sympathetic candidate elected. The faster the change occurs, though, the more we will save of nature and resources for our children.

Notes on Strategy

Anyone who sets out to build ecocities can benefit by keeping several things in mind.

Appeal to people's interests, all kinds, both selfish and generous. In ecocity building it is also appropriate to appeal to interests in the deep future and of the whole Earth. We should never assume people don't care about these things. Many people simply haven't had enough positive exposure to such ideas. That's our job. And some people are mostly selfish—no point in being naive about that. Try to convince them only if it looks possible and worthwhile. Save energy for others more sympathetic.

Only serious commitment of time and money will build ecologically healthy cities. Vote for bond issues, taxes, assessment districts, and candidates who realize serious money is needed for change. Volunteer for organizations. Go to public hearings occasionally: they are an opportunity to exercise your sacred duty to speak out for a better future; citizen participation makes a very big difference. As Margaret Mead said, "Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has." Δ

Excerpted by permission from Ecocity Berkeley--Building Cities for a Healthier Future, by Richard Register ©1987. Register is President of Urban Ecology in Berkeley, California.

Ecocity Conference 1990

Kennedy, continued from Page 7

It is important that permaculture is not just understood as a new gardening technique. Books about technique are many (energy, water, air, landscape, ecological farming, mud construction, building biology, etc.). These, however, will be most useful and valuable within the context of an overall concept. In this respect, permaculture principles provide a guideline. Initial projects are just beginning to explore the incredible richness and depth which we experience in working with nature rather than against it.

1. Piecemeal Growth. The grain of development must be small enough, so that there is room, and time, for wholeness to develop. C. Alexander, et al

"Ecostroika"

—America Needs Restructuring

Jan C. Lundberg,

President, Fossil Fuels Action Institute

Ecostroika, as anyone familiar with Soviet perestroika and the planet's environmental ills should guess, must be the restructuring of our society for maximum conservation. A Conservation Revolution is practically upon us, yet our political and economic systems seem incapable of action. Environmentalism as we have known it, despite small victories, has failed to reverse ominous trends and offers no alternative to our "waste economy" or politics-as-usual. To help save our land, air, and water, a National Paving Moratorium is desperately needed. How else do we show Brazil that we practice what we preach? America's restructuring must also involve appropriating a huge piece of our military budget toward safe-guarding our economy from collapse due to resource waste.

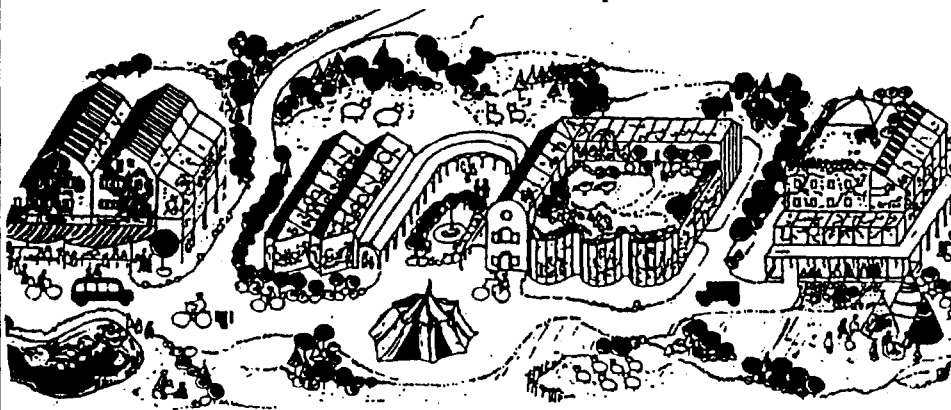
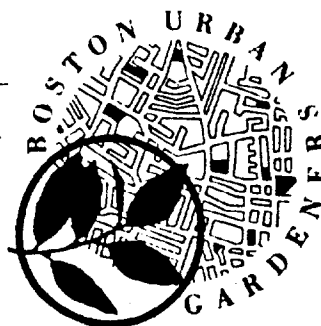


illustration by Margrit Kennedy

Boston's Community Gardens

Boston's gardeners began organizing 15 years ago in a city torn between its past and its future. The reunion of two such groups, one committed to a place and the other to an idea, show us how successful coalitions grow from the need to embrace both approaches and to include all elements of a community. Their aim to establish an urban environmental center as a model for communities nationwide is rooted in hard-won experience. There is a success on which we can all build.



Peter Bane

Boston Urban Gardeners (B.U.G.) merged with The Southwest Corridor Community Farm in Jamaica Plain, Massachusetts on April 1, 1990 and have consolidated their two operations into the site of the Community Farm. Both groups had their origins in Boston's redevelopment crisis of the late '70's when soaring energy prices, decaying infrastructure, and seething racial tensions focused on the public schools were tearing the city apart, driving long-time residents out of Boston at the same time that turmoil in the Third World was bringing waves of new immigrants from Asia, Latin America, and the Caribbean. Those who stayed struggled to make sense of their lives and to rebuild their fractured communities.

The Farm was established in 1977 as an interim use of state-owned vacant land. Originally cleared of housing for an interstate highway that never happened, the Farm began life a virtual wasteland of illegal dumping and elbow-high weeds. At a time when the neighborhood was burning down, when vacant houses were being given away because they had no value, the community came together to stop a major highway and to hold on to what little it had left.

A group of CETA (Comprehensive Education and Training Act) workers funded by a one-year federal grant cleared the Farm's first half-acre by hand and knocked on neighbors' doors in the largely Latino area to convince them that growing food in the middle of an urban wasteland wasn't crazy. Putting up a greenhouse, they invited the neighborhood children to feel the warmth inside on sunny winter days. With the adults skeptical of the idea of growing food in the city, recruiting their children was a key strategy. When the kids went home with hands full of carrots, tomatoes, and lettuce, their parents ventured out; many eventually signed up for garden plots.

After the Farm's federal contract ran out, it suddenly became an all-volunteer organization. The gardeners elected a board of directors who ran the place. While it was, and remains, typical for the community gardens to be run by volunteers, the Farm had a greenhouse and a dumptruck to manage. Its organizers also had a larger vision of an urban environmental center which could and should be used for demonstration and education. They applied for public and private grants, which by 1979 allowed them to hire staff. Expanding from one jack-of-all-trades up to ten employees, the Farm has become one piece of a larger organization that embraces projects as diverse as the annual spring "Wake Up the Earth" Festival, now in its twelfth year, the Jamaica Plain Farmers' Market, and a landscape crew

which maintains a number of community gardens and other public parklands (and which returns tree trimmings and mulch material to use on the Farm).

In 1981 began demolition of the old railroad embankment nearby and five years of construction of the new MBTA Orange Line through the Southwest Corridor. With it came displacement of the rats, long-time residents of the old railroad embankment, who moved into the Farm's greenhouse. By then some 50 gardening households endured the constant noise and dust to bring home tomatoes for canning, beans for freezing, and plenty of surplus to give away to friends and neighbors.



City Year youth corps members help with tree removal and groundbreaking for Aubrey Jacobs Memorial community garden in Dorchester

The greenhouse, which had survived the rats and slashing by local children (who later became friends and allies and learned to grow vegetables), went on to become the focus of demonstration and teaching. Local seniors gardened it for a couple of years. Experiments with Chinese vegetables proved that they would yield well even during bleak winter months. Later the same greenhouse sprouted a small seedling business which grew from a few hundred dollars to over \$15,000 in sales by 1987. The Farm could claim that it had the only organically-grown vegetable seedlings in the City of Boston and the support of hundreds of urban gardeners who bought them. While the Orange Line neared completion, debate raged within the Board of Directors about the relative value of new housing

in the area versus holding onto the Farm's well-tilled earth. In the end, the feeling of obligation to the community and the attachment to the gardens were both satisfied, for nearly twice as much vacant land surrounded the Farm in 1987 as had ten years before. Lobbying hard to include city- and privately-owned land in the formula for new development, the Farm eventually persuaded all parties of the wisdom of this more comprehensive approach.

In 1989 Urban Edge, a local non-profit, was designated as developer of the site surrounding the Farm—the Farm itself will be preserved essentially intact. With this assurance of permanence, and the greater economic strength stemming from their merger, BUG at the Farm have purchased a garage adjacent to the greenhouse and community garden, and are actively fundraising to build a new, permanent greenhouse, environmental center, and offices. The Jamaica Plain location, close to the area Food Bank and with easy access to many parts of the city, affords the newly consolidated organization an excellent position from which to continue to serve the Boston gardening community through the tough fiscal times ahead.

Julie Stone, BUG's garden organizer, shared with me her excitement about the next phase of growth, mentioning several projects: a community canning facility housing steam equipment with which gardeners can preserve their produce, a gardening/nature preserve which BUG, with the help of the Trust for Public Land, put together from eight different properties, fee-for-service planning and design services, landscape skills training workshops, and pilot composting programs.

Recently returned from a trip through several European countries, Julie elaborated on the new three-pronged approach BUG at the Farm is taking to compost in city gardens. Earlier compost efforts, which ranged from backyard piles to leaf mulching by the National Guard in Fenway Park, were, like the success of the group in the early years, hit or miss. Some open spaces were preserved for gardens, some were lost to the developers; some compost piles worked, some became rubbish dumps and breeding grounds for rodents. (The Guard's spring and fall earthmovers though, have become esteemed Boston rituals—Julie even has an honorary uniform.)

Stone is developing a model compost pile for the inner city based on a design she observed in centuries-old European granaries, where the structure sits on mushroom-shaped stilts. The flaring footings prevent rats and mice from climbing up into the building, or in this case, the compost heap. The new structures will become part of BUG's efforts to make composting work for three target groups: elderly and handicapped, where minimal effort is essential; school children, who need to learn the ropes of composting; and regular gardeners, for whom the improved design will aid in pest control.

A key element in BUG at the Farm's success over the years has been continuity of leadership. Augusta Bailey, founder of the Roxbury-North Dorchester Beautification program had been hard at work on it for more than a decade when in the spring of 1976 she sponsored a conference on the inner city environment at Robert Gould Shaw House. That conference drew together many people of similar vision, including BUG's later executive director Charlotte Kahn (now emeritus); and it spawned some creative projects, the South End Garden Project, the Boston Urban Gardeners, then the SW Corridor Community Farm.



Gardens in bloom at the SW Corridor Community Farm in Jamaica Plain

Current BUG president, Ed Cooper, now a hale 85, has guided the organization's board for the past twelve years, since its inception. He lives on Fort Hill in the city's Roxbury district. A hotbed of abolitionists in the antebellum period, from which many of its Greek Revival mansions date, and a haven of hippie communalism in the late 1960's and '70's, the area is now home to some of BUG's most successful gardens.

I took a particular delight in learning this because I lived in that same Fort Hill neighborhood on Thwing Street in the years when BUG and the Community Farm were poking their heads up out of the rubble. With no money and no hesitations, I teamed up with a street artist and set about repairing a 90-year old wreck of a house which we had bought from the city for \$300 and the trouble to apply for a deed. We chased demolition crews around the city, snatching window glass, doors, timbers, and trim from condemned houses, often on the very eve of their destruction. We were amazed and appalled at the wealth of goods which was being splintered and buried by a



city madly eating its own tail. I left Boston before the city had righted itself, but it gives me great pleasure to think that the same impulses to preserve one of America's oldest and most graceful communities took root through BUG's efforts and have flourished at the Farm.

Leroy Stoddard, new Executive Director of BUG at the Community Farm, has been with the group for eight years during which time he's worked with permaculture designers Dan Hemenway and Michael Talbot.

Leroy reflected on some areas of community growth. BUG has a number of orchards in gardens throughout the city, the oldest a 12-year plot. Most of these are accessible to neighborhood children who are in the habit of picking the fruit. This results in some misuse and some opportunities for teaching and no small amount of love. "Some little trees have been climbed roughly, but they survived," he said. "There is a growing respect for the trees now. The adult caretakers are teaching the children to pick only what they can reach and caution the older kids to leave fruit on the lower branches for the younger ones."

BUG is learning that in some places fences or other forms of controlled access are appropriate, and throughout the city a firm but kind attitude is being adopted to help instill a culture of care for the trees. The city's immigrants are increasingly from the Caribbean and other tropical areas where cultural attitudes toward street gardens are less proprietary than in this country. Adults often instruct the children in ways of climbing and picking.

"In the early years we made permaculture errors—all over the city," Stoddard continued, "we have less enthusiasm for *Rosa rugosa* than the planters did ten and twelve years ago. Our emphasis now is on simpler, less experimental gardens."

He went on to say that an open-space development policy is now accepted widely and a movement toward 'habitability' is working against previous patterns of high density. Once the gardens and orchards planted by BUG had been stepchildren or orphans, salvaged from bits of vacant land between abandoned buildings or along rights-of-way; now, BUG is asked to build gardens in new housing developments. Boston city

dwellers are increasingly oriented to self-help and are taking more responsibility for their own resources. Housing co-ops, for example are emerging in which

gardeners form 'an ethical core' which ensures maintenance of the green space.

"Boston has its share of ill-designed brickyards from the '50's," said the



Ecocity Conference 1990

Rooftop Gardens of the World

Theodore Osmundson, landscape architect

When a building is constructed, the area it rests on is lost as previous life-supporting land for many years. Planting roofs offers an opportunity for regaining at least part of the lost benefits of the land.

Roof gardens can have a substantial effect on the urban environment. Looking down on almost any central city reveals a mish-mash of buildings, parking lots, streets, and vehicles. Several features are notable in this scene. The first and most visually obvious is that there are no plants or earth. The second is that the buildings and paving allow no water to be absorbed into the ground. The third (and unseen) is the presence of both heat generated from this barren scene in the summer months, and heat and energy escaping from the structures in winter. Also important to consider is the energy drain in cooling the occupied structures during the magnified heat of summer, and the overworked heating systems struggling to overcome heat losses through the roofs of older buildings in winter.

It is obvious that the cost of land in these areas will prevent clearing any of it for open space and parks at ground level. The only reasonable way to replace this "lost" land is to plant the roofs of the buildings.

(Besides insulation) roof gardens have two other qualities. They retain part of the water which falls on them, and they support plant life which absorbs and uses carbon dioxide and releases oxygen into the atmosphere. These factors are of great relevance in planning the urban environment and determining the costs of dealing with some of its current problems.

The ability to retain water is significant. Rain on hard surfaces goes 15-20 percent to evaporation while the balance flows quickly into the drainage system. Retention of part of this water, released slowly, could reduce the necessary size of (expensive) sewer lines and storm water channels. In some cases, this could eliminate the need for concrete-lined channels, which often transform natural streams into open-topped concrete storm sewers. Roof gardens can hold as much as 15% to 20% of the rainfall for two months, releasing it gradually through the soil, plants and evaporation.

The simple but effective method of using rooftop planting to control flood water, along with its insulating effects in winter and its cooling effects in summer (a hectare of lawn can produce a ton of oxygen annually), have led Berlin, Mannheim, and other German cities to require "greening" on new buildings with roofs of 1% to 10% slopes, solely for these environmental and economic reasons.

director. "But now in the days of federal deficits and a growing shortage of state funds, " support for public housing depends very much on what the passing driver sees from the outside." Plants, tree, grass, and gardens present a positive image which attracts the necessary goodwill. This strategy is working, as "green-space development" has become a key formula in the writing of block grants.

Boston Urban Gardeners arose in the late '70's as a city-wide advocacy group for open space, play areas, and pocket parks. The Farm was one of its first successful projects. In 14 years as a non-profit, BUG's emphasis has expanded from preserving open space and guerilla planting to include research, conscious redevelopment of urban sites, and job training for new city immigrants in both interior and exterior plant care.

Working under a three-year grant from the Boston Foundation to develop and implement a 100-year plan for 100 permanent gardens throughout the city, BUG at the Farm aims to save open space where it can be saved, to improve existing gardens and parks, and to design new gardens and parks as part of ongoing redevelopment projects. They are networking with the parks, water, sewer, and city maintenance departments to ensure site-sensitive design, timely services, and the perpetuation of their hard-won legacy for future generations of Boston gardeners.

2. The Growth of Larger Wholes. Every building increment must help to form at least one larger whole in the city, which is both larger and more significant than itself.

A New Theory of Urban Design

With their merger in 1990, Boston Urban Gardeners at the Community Farm have come full circle. The Jamaica Plain neighborhood surrounding the Farm, once written off by real estate interests and the banks as beyond reclamation, is already a flourishing hive of community activity. It stands ready to receive new, cooperatively-owned housing. BUG, a group which began by guerilla planting has been given the nod to plan the next



hundred years of the city's green space. The combined organization, by embracing every facet of the community from children, seniors, immigrants and the homeless, to the Parks Department, the Bank of Boston, and the National Guard, has won the respect of all and the affection of many through its long and largely successful effort to renew the life of Boston's inner-city residents. Δ

Peter Bane arrived in the Commonwealth of Massachusetts on the eve of the nation's Bicentennial. He lived two eventful years in Boston, Somerville, and Roxbury neighborhoods. He now writes about permaculture and publishes The Activist from the island of Hawai'i.

Ecocity Conference 1990

Wild in the City

Nancy Morita

Director, Wild in the City Project

"Habitat" is born from a complex and interwoven evolution. But its repair can start with something as simple as one dish of clean water always offered in the backyard or on the balcony, for wildlife, until the creeks start to flow with regularity again. It can grow into urban creek restoration, hillside scotch broom removal, and plantings and fosterings of plants native to that exact place which then serves as an invitation to the wildlife that depends upon and belongs with that flora.

When a place, regardless of size, is accepted once again as wild habitat—say, visited by a monarch butterfly, or sung from by a white-crowned sparrow, or made love upon by gray foxes—its restorers would know that their efforts at habitat restoration have been worthwhile. Such a place can connect us to wild habitats in Mexico and Canada whence the monarchs migrate, to forests and alpine meadows which the sparrows yearly visit, and to snug dens underfoot where fox pups are raised. And, as for politics, no place is more formidable against "development" than a place that is well loved, restored (including native plants and animals, especially rare and endangered ones), and KNOWN to its real "owners."

Usual human pursuits sound but a tiny note in the symphony of languages, skills, and manners represented among the many animal nations. Without wildlife around us in the cities every day reminding us of this, we run the risk of becoming emotionally, spiritually, and socially crippled. It would be a shame if the most influential animals in our neighborhood were not fine dancers or singers,

disciplined, yet good-humored ones—ones who knew the time of day and season of year by the tides humming within them, the flowing colors on the hills, and the songs to which they awakened, informed, each morning.

The Ecology of American Indian Cities

Vernon Masayesva

Chairman of the Hopi Tribe

I am a member of the Hopi tribe in northeastern Arizona. We are the oldest continuing living descendants of the North American Indians. Some of our pueblos date back to 900AD and some of our oldest villages pre-date that period. Oraibi is the oldest continually inhabited community on the North American continent.

We can all learn from each other. The only message I can give you is what Hopis have accepted as their responsibility for the privilege of living on this earth. We are to be stewards of this earth. We are in everything that we do. We are to be concerned for all living things; our architecture reflects this spirit of reverence for what we call Mother Earth.

Hopi were the first known apartment builders—constructing pueblo houses about four stories high. The Hopi village always has a plaza, which is the heart. A village to Hopis is a living entity and so the center, the plaza, is the heart where all sorts of public ceremonies are performed and where children are entertained.

The old villages, old houses, were not necessarily built by men; many were built by women, because it was like giving birth to a house. The Hopi architecture was built by the people, for the people.

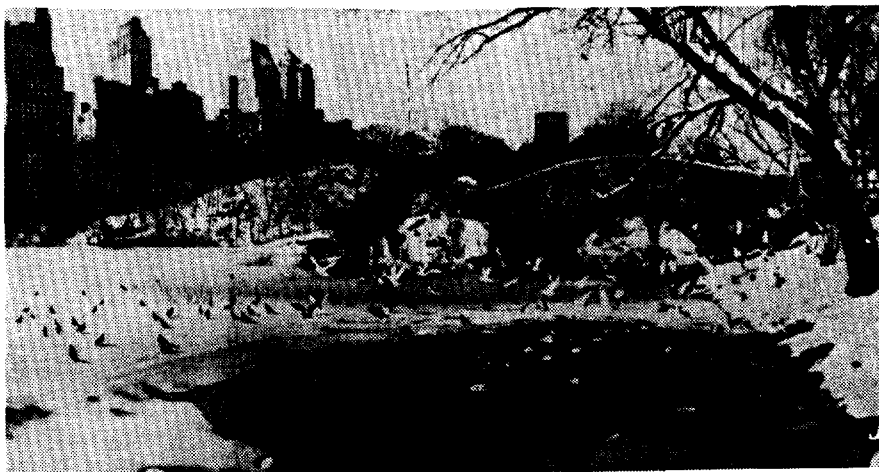
Urban Wilderness: Nature in New York City

Nature in New York City offers us many surprises. Jean Gardner and Joel Greenberg began in 1978 this effort to renew our vision of urban nature. Gardner's words remind us that cities are our largest and most powerful artifacts, that ideas shape our relationship to Nature, and that in America, the ideas of Frederick Law Olmsted and his contemporaries have largely framed that relationship. Holding prominent examples of Olmsted's work, New York has much insight to offer the nation. We learn too, that this great world city has a strong sense of place, a place with an enormously rich and varied edge, and that the canyons of Wall Street and the midtown skyscrapers are but an expression of natural phenomena only one of which is human desire. While attention to great edges may be the cause of cities being built, it is likely attention to the whole hierarchy of edges, large and small, which shall sustain them.

Jean Gardner

Mention New York City and most people picture the Statue of Liberty, Times Square, and the Empire State Bldg. Few see the magnificent natural environment of the city with its swiftly flowing rivers and meandering streams, its extensive falling-leaf forests with stands of evergreen trees, and its expansive tidal and freshwater marshes. Still fewer recognize that here live birds, butterflies, fish, frogs, lizards, snakes, turtles, and many mammals other than humans. A humpback whale and deer have been sighted within the city's limits.

These photographs result from a ten-year survey to discover nature where least expected—in the neighborhoods of New York. During the 19th century, landscape photographs helped make people aware of the spectacular land features of the American West and of the



The Pond, Central Park, Manhattan

need to preserve them. Now, in the 20th century, the photographs present us with an equally unfamiliar frontier—nature as part of the modern city.

Despite a population of over seven million, more than a fourth of New York's acreage remains city-, state-, or federally-owned parkland. These almost 50,000 acres offer unexpected opportunities to experience the Earth in the midst of one of the world's densest concrete-and-asphalt cities. Tidal marsh, hemlock grove, sandy barren—all are part of the rich complexity which makes New York's native natural environment the most varied found in any American city. Visible bedrock, valleys, hills, ridges, bluffs, beaches, woods, and meadows are complemented by an extensive water system that flows through, around, over, and under them. Springs, streams, rivers, lakes, inlets, coves, bays, estuaries, a sound, a fjord, and an ocean are all part of New York's natural endowment. Wondrous saltwater and freshwater marshes give the city transitional sites that merge land with water.

The Geologic and Botanic Design

Fire and water laid the city's foundations. Intense heat produced an extraor-

photographs by Joel Greenberg

dinary mountain range 360 million years ago. Today, when we encounter upthrust bedrock in The Bronx, in upper Manhattan, and in central Staten Island, we come into direct contact with the weathered and eroded stumps of these ancient mountains.

Water in the form of a 500-foot-high glacier four times buried the area that was to become the city. The Wisconsin Glacier, last of these icy masses, began to push southward from the pole about 75,000 years ago. A series of southwesterly-positioned low hills and shallow depressions, which geologists call a terminal moraine, mark its line of maximum advance in Queens, Brooklyn, and Staten Island. The outwash of the melting glacier created the flat, sandy, coastal plain that forms southern Queens, most of Brooklyn, and parts of Staten Island.

The glacier broke off chunks of bedrock during its advance, pushing and dragging the boulders many hundreds of miles to the south. Marks scratched in the city's bedrock by this glacial debris are visible today. When the ice melted, it dropped these boulders where many still stand like nomads given a permanent



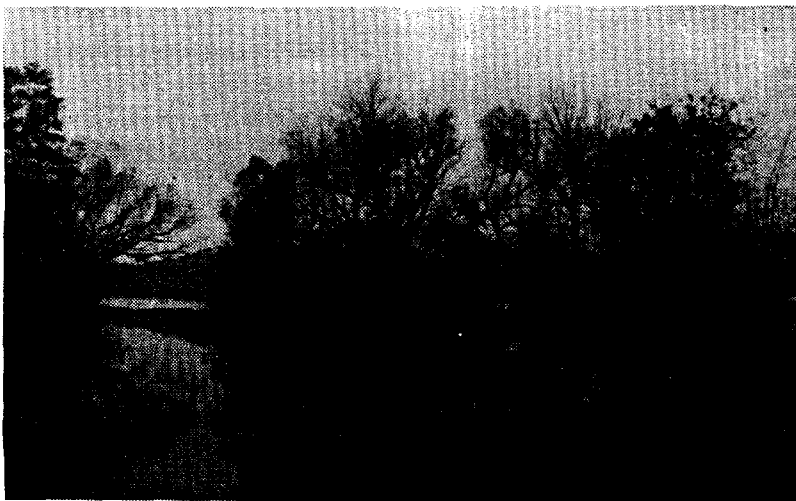
Richmond Brook, The Greenbelt, Staten Island

home—a silent testament to the powerful forces of change inherent in the cooling and warming of the Earth.

As the glacier melted, windblown seeds from the southern Appalachians and the extended Atlantic coastal plain landed here and took root. Northern plants predominate where the glaciers were, while plants associated with the Middle Atlantic states flourish in areas the glaciers never reached. As a result, the city's natural ecologies include the southernmost grove of hemlock trees near the Atlantic Ocean as well as scrubland similar to New Jersey's sandy pine forests. Other plants that grow in the city include ones native to regions as distant as Mexico or the prairie states.

The Human Design

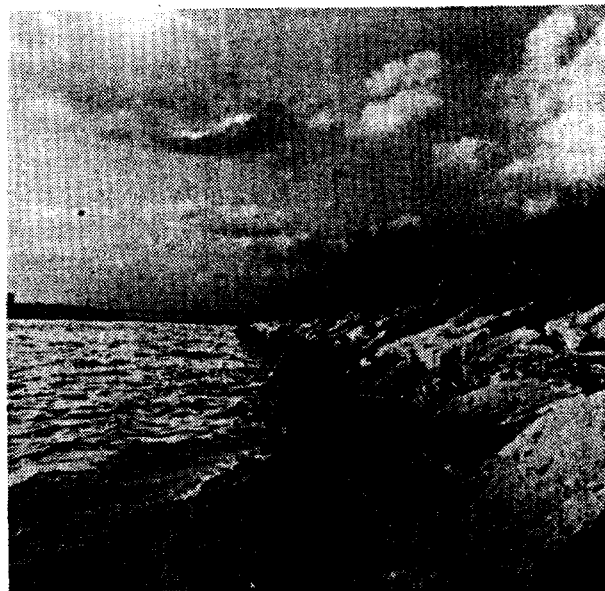
During the last 300 years humanity has also dramatically structured the city's landscape. These changes to the Earth in order to create an urban habitat are equal in magnitude to the earlier geological transformations. Sensing man's impending domination of the city's landscape, visionaries of the 19th century, such as the editor William Cullen Bryant and the landscape architect Frederick Law Olmsted, argued the need to incorporate green spaces into rapidly growing New York City.



Islands, Prospect Park Lake, Brooklyn

Olmsted considered green spaces to be an absolute necessity for survival in the modern city. He felt the human species could not sustain its current evolutionary phase without regular contact with nature. He also argued that as towns enlarged and as people developed urban habits, their craving for nature grew. Experiences of nature balanced the stresses of living in cities: "vital exhaustion," "nervous irritation," "constitutional depression," and "tendencies through excessive materialism to loss of faith and lowness of spirit" were lessened when people had regular contact with nature. Urban natural sites gave city dwellers opportunities to enter "into the life and movement of nature," which is "rooted in... (the same) intelligence which embodies and upholds... man."

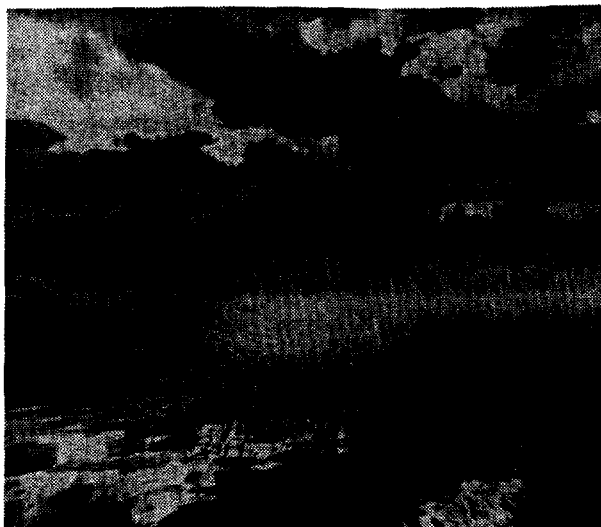
Olmsted and his followers imagined nature coexisting with urban architecture in several ways: by keeping urban shorelines and waterways in the public domain, by planting trees along roads that excluded commercial traffic, by using these tree-lined roads or parkways to connect the city's natural sites, and by providing for every human activity possible in three scales of urban open spaces. Strolling, children's play, flower displays, teenage athletics, and similar small-scale activities were to take place in neighborhood green spaces; recreation and contemplation were to be provided for in medium-size "scenic parks"; and experiences of wild nature were to be enjoyed in larger reservations.



Hudson River, Riverside Park, Manhattan

To a remarkable degree, this 19th-century vision of urban green spaces continues to shape the policies that create New York City's open space system, just as it sets policies for most American cities, for individual states, and for the nation. In fact, the very perception of nature, unchanged by the human species, as something to be fenced in and visited did not exist 200 years ago. Nineteenth-century observers of nature, like Olmsted, created that perception and then developed land policies to implement it—land policies that are still influential today—seen in such examples as Forest Park in Queens, New York State's Adirondack Forest Preserve, and National Parks such as Yosemite and the Everglades.

Currently the Olmstedian vision has new supporters who are, often unknowingly, implementing its still unrealized features. In New York City, the Audubon Society is working to keep free of highrises the 552-miles of coast in the city's four outer boroughs. The Neighborhood Open Space Coalition has proposed a forty-mile Greenway in Queens and Brooklyn which will link Long Island Sound to the Atlantic Ocean via thirteen parks. Many groups, like The Parks Council,



Udall's Cove and Ravine Park, Queens

envision more small neighborhood parks—a fulfillment of Olmsted's prediction that these small-scale, neighborhood sites would be needed to serve the everyday outdoor needs of humanity.

Regrettably, the 19th-century vision of nature is also responsible in part for the 20th-century deterioration of the urban natural environment. Many of the policies and designs fulfilling that vision needed a level of management and maintenance that today's modern city cannot sustain. The mid-20th-century degradation of parks designed by Olmsted attests to this situation. Nor has nature been able to maintain these parks because Olmsted's designs were not ecologically based. Little or no knowledge of how ecological systems work often



Tadpole Pond, The Greenbelt, Staten Island

Ecocity Conference 1990

Berlin: The Wall Comes Down, The Ecocity Goes Up?

Peter Beck, architect, Berlin

West Berlin was until October 1989 a city island in an East European country. This and the fact of the wall around the city have limited development in the extreme. All city resources, especially space for housing and open space for green areas, had to be handled with care. Politicians and city administrators had to learn to use the existing city in its limits. This situation may have directed Berlin toward introverted developments with new qualities of space use, and may have forced initiatives for a city ecology.

Now, after the wall comes down, exactly these experiences give the chance for ecologically oriented city developments beyond the existing borders. We have a unique possibility to plan a well-considered model of city extension, along the eight old city railway lines, which form a network with the surrounding public transport systems. These "city-fingers" can reach out into the landscape of the Mark Brandenburg, which vice versa could build wedges of green space — "green lungs" — reaching far into the dense city structure, providing for leisure, ventilation, and climatization. An optimal direct contact between city and surrounding nature could be realized. This model of an ecocity is at the present moment in discussion between the city administrations.

Remodeling Downtowns

Dennis Zane

Mayor of Santa Monica, Calif.

Several basic truths relate to downtown revitalization efforts:

- In any revitalization process, there will be things you gain and things you lose; for example, a formerly quiet area may gain noise and activity.

- Progressives shouldn't be afraid to undertake these efforts because, if they don't, someone else will. Progressives can come to the job with a vision of multiculturalism and ecological sensibility that others may lack.

- Density is important in downtown revitalization. There is a critical mass of density for a downtown to become self-

sufficient. In Santa Monica they want to provide the density necessary to support economic dynamism so that trips outside the city are unnecessary.

- It is necessary to accept a certain amount of market logic—understanding and encouraging market forces—in accomplishing revitalization goals where other resources are lacking.

Zoning for Ecological Cities: Regulating The New Environment

Kirk Peterson, architect, Calif.

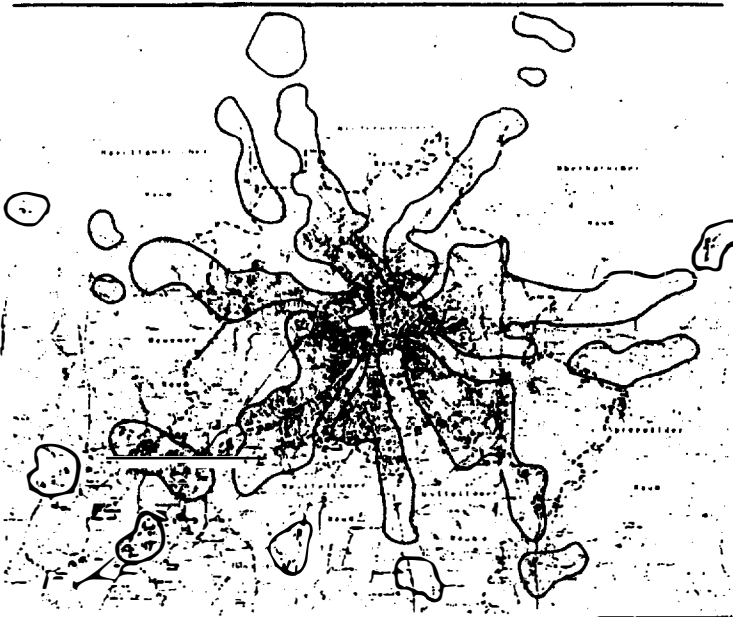
This talk focuses on two subject areas: the concept of an urban landscape that is an intentionally diverse and healthy ecosystem, and the task of creating an aesthetic, or a set of design guidelines based on this concept.

Historically, in most cultures cities have replaced or simply obliterated the natural landscape. Even gardens were highly controlled. Yet there are planned historic environments in which positive attitudes toward nature are reflected. The development of the romantic naturalist landscapes of eighteenth century England and the later garden city idea of the nineteenth century represent progress towards a human settlement pattern which can live with nature, albeit a tame, prettified version of nature.

The historically recent concept of ecosystems, and that of humans intentionally sharing their habitat with their fellow creatures, have yet to find any significant expression in the built environment. The fact that the ecocity houses a large biotic community should be reflected in its spatial and visual character. How do we develop an ensemble of forms, spaces and materials that will result in clear expression of the underlying meaning of the ecocity? Thoughtful and beautiful arrangement of the whole can result in the sort of heightened perception and enjoyment of the ecocity, that can promote and encourage continued growth and development.

3. Visions. Every project must first be experienced, and then expressed, as a vision which can be seen in the inner eye (literally).

Christopher Alexander, et al



Berlin and environs: proposed fingers of urban development

led to their misuse, even to their destruction.

Many plans and strategies to revitalize natural areas are now being employed throughout the city. They include the simulation of disappearing Long Island grassland ecosystems on suitable human-altered sites in nearby Brooklyn, the incorporation of existing natural wetlands into a much-needed storm drainage system on Staten Island, the replacement of exotic vegetation with indigenous species in Prospect Park, and the replacement of a black cherry monoculture created by neglect with a rich diversity of trees in Manhattan's Riverside Park. Removal of trails from sensitive areas of Van Cortlandt Park in The Bronx, rehabilitation of a salt marsh in Queens, and the reintroduction and cultivation of threatened and endangered native plants throughout the city's natural areas are all measures which strengthen the emerging urban ecosystem even as they make New York City more responsive to its place on the Earth.



Reflecting Waters, Brooklyn Botanic Garden

Letting Nature Return

The Bronx is the name given to a peninsular extension of the North American continent that forms New York's only mainland borough. A varied landscape of craggy heights and low valleys, rocky shores and coves, saltwater and freshwater marshes, bogs, swamps, meadows and forests, it is home to raccoon, opossum, skunk, muskrat, cottontail, and chipmunk. Mussels and green crabs live at the mouth of the Bronx River, the northern and southern sections of which are being restored. In Van Cortlandt Park, naturalists have verified that sugar maples are regenerating and that deer, as well as red-tailed hawks, can be seen.

Parks management plans today are increasingly allowing nature to take its course, for instance, by leaving dead, decaying trees in the forests to provide habitat and nutrients for soils, vegetation, and micro-organisms. Inventories of vegetation and wildlife have revealed rare and endangered plants such as golden seal, hitherto unrecorded in the area. Twelve varieties of fern, including bracken, cinnamon, Christmas, sensitive, and royal, are found in Van Cortlandt Park.

Within the 800 forested acres of Pelham Bay Park, letting nature take its course necessitates a certain amount of human cooperation. Native Americans and colonists cut most of the conifers from Hunter Island which is within the park. Today

restoration of the island's ecology means removing exotic weed trees such as ailanthus, and replanting native conifers. Planting conifers encourages the return of great horned owls, barn owls, and snowy owls which nest in these trees. The resulting forest will, of course, not be exactly the same as the pre-urban one. It is impossible to simulate precisely an ecology that has been disturbed. Instead, a new kind of forest ecology will emerge—one in which humans recognize reciprocity with the forest and work to strengthen it.

The natural features of the coastline of Pelham Bay Park resemble Maine's. Exactly. The firm bedrock of New England reaches down to the water's edge in The East Bronx. The park's 2,764 acres protect two and a half to three miles of the southernmost extension of that New England rock complex.

City-Building as a Force of Nature

A dense forest edged by salt marshes once covered the island that would become the center of New York City. Deer, bear, and elk fed on its abundant vegetation. Algonquian peoples called it "Manna-hatin" or "island of mountains." The mountains the Algonquians knew resulted from the first of two mountain-building eras that created the Manhattan of today. Weathering and erosion have worn those 360-million year old peaks down to the stumps that are now characteristic of present island bedrock. At their highest point in Fort Tryon Park, they reach 270 feet. Today, however, residents and visitors to Manhattan see an island in the midst of its second mountain-building era. Using stone quarried from all over the Earth, the force of nature that is creating these new skyscraping "mountains"—humanity—is debating heights of 2000 feet.

Seeing humanity as a natural force and city-building as a natural transformation of Earth's materials helps to clarify the relationship between the human species and the Earth. The buildings, streets, and open spaces of Manhattan, far from being extraneous to their island site, are actually integral to it. Such artifacts constantly add to and subtract from the Earth; they affect its air and water quality, vegetation, and inhabitants, just as all the other forces of nature do.

Manhattan's past can still be seen in Central Park. The southernmost exposure on the island of its 360-million-year-old rock foundation marks the boundary of the park at 59th Street. Below 59th, city streets and buildings hide the bedrock from view. At the north side of Washington Square Park, the bedrock dips to a depth of several hundred feet below the surface. At Chambers Street, it again comes back to within one hundred feet of the surface and stays there until the southern tip of the island. Thus, the greatest densities of skyscrapers, in Midtown and the Wall Street area, result directly from the closeness of bedrock to the Earth's surface.

Historic and Natural Preservation

Brooklyn's Gateway National Recreation Area also epitomizes how humans can make the biological and physical systems of the Earth a part of a city. Urbanization of Long Island is destroying its regionally unique grasslands, seen dramatically in the rapid disappearance of the Hempstead Plains. Grassland birds have begun to feed and nest at Floyd Bennett Field instead. A simulated grassland ecology there would preserve the flat, open landscape of the historic airport. Thus new natural functions can be incorporated into the city's structure while preserving a threatened regional ecosystem.



Waterfall, The Ravine, Central Park, Manhattan

Serving the Needs of All Species

More than half of Staten Island's nearly 50,000 acres were once marshes, swamps, bogs, wet meadow, or flats; now only 4,000 acres remain. For thousands of years, these transitional areas between dry land and open water drained the island by absorbing, storing, and slowly releasing melt and rainwater. Indiscriminate filling of these wetlands as well as the destroying of island forests that act as water regulators have hampered the island's natural drainage system. The resulting increase in water runoff, especially in the South Richmond section, floods buildings, lawns, and other human artifacts. One solution has been to bury streams and other remaining natural water systems in storm sewers. Although this does prevent flooding, it also destroys the homes of thousands of species of plants and animals. Such solutions typically protect the home of only one species—the human—at the expense of many others.

Staten Island's Protectors of Pine Oak Woods, a 15-year-old, 1,500 member community land conservation group, argue that the feeding and nesting grounds of waterfowl such as herons can become drainage systems that protect the feeding and nesting grounds of humanity, if the reciprocity between herons, humans, and water is understood. Ecologically functioning ponds can substitute for storm sewers by serving as retention basins for runoff water. The first step to enhancing wetlands is mapping their watershed so the entire system can be understood. Then stream banks can be dug, existing ones deepened, and pond and stream banks stabilized. This proposal sees the needs of many species of plants and animals, including humans, as interconnected within the natural patterns of a self-organizing entity—the Staten Island habitat. As a result, the problems with the feeding and nesting grounds of humans—flooded basements and lawns—can be minimized by improving the feeding and nesting grounds of herons.

Similar efforts to create an equilibrium for the habitat needs of Staten Island have led, over the last 20 years, to the idea of a Greenbelt Park in the center of the island. When fully assembled and mapped, this 2,500 acre nature preserve will protect one of the island's major landforms—hills that attain an elevation of 410 feet. The Greenbelt will also preserve five of

Staten Island's seven distinct ecologies—forests with native plants, freshwater and tidal wetlands, open fields, and areas where the presence of the human species has created new ecosystems. Because 80 percent of the Greenbelt consists of relatively untouched natural ecologies, major biological and physical functions of the island's ecosystem transpire here. These functions include cleansing and cooling air, making Staten Island a more comfortable place in the summer. Trees, plants, and forest soils act as a "sink" for airborne pollutants and dust, either filtering them through the leaves of plants as they breathe or providing a surface for them to fall onto. The Greenbelt, like the island's wetlands, prevents flooding by absorbing rain and regulating runoff. The natural lands of this preserve also provide a refuge for migratory birds.

Many of these vital natural functions are in danger of being crippled or destroyed. Current efforts to achieve a balance include obtaining protection for the Greenbelt's entire 2,500 acres. This entails demapping the Richmond and Willowbrook Parkways so that the New York State Department of Transportation has no legal claim to the land within the Greenbelt for a transportation corridor.

One of the principal tools humanity has invented to make uncongenial places habitable is urbanization. But as in the case of New York City, humanity cannot sustain urbanization in a particular place unless it balances human needs with those of the biological and physical systems proper to that place and its bioregion. Along the Atlantic Ocean and within the Hudson River Valley, earth, air, water, and life forms other than humanity have structured patterns more complex than that area's urban sprawl. If humanity intends to sustain New York City, it must enter into a reciprocal relation with these patterns. Δ

Adapted with permission from the book, Urban Wilderness—Nature in New York City, text ©Jean Gardner, photographs © Joel Greenberg. Jean Gardner, an environmental theorist and teacher of architecture and design criticism, is director and founder of Earth Environmental Group and helped found the Gaia Institute at the Cathedral of St. John the Divine. She is at work on a book about sustainable cities.



Honey Locust Trees, Riverside Park, Manhattan



Clouds Of Change

An official Vancouver, B.C. task force on global warming recommends actions the City should take.

"Atmospheric change is not just another environmental issue. . . atmospheric change means WE have to change," concludes the final report of a Vancouver, Canada, task force charged with researching the issues surrounding "global warming", gathering public input, and recommending specific actions the City can take.

The report points out that since the seminal Toronto conference "The Changing Atmosphere: Implications for Global Security," in June 1988, all subsequent high-level international meetings have confirmed that human activity is changing the atmosphere at an unprecedented rate and that these changes represent a major threat to both environmental health and geopolitical security.

How to respond to atmospheric change, however, is among the most difficult policy questions confronting elected officials today. There is great uncertainty over the likely public health and ecological impacts. Strategies to adapt to and reduce atmospheric change impinge upon many other environmental, economic, and municipal planning issues. From a political perspective, therefore, it may appear more expedient to do nothing. But is such inaction politically responsible at the risk of exposing society to unprecedented and irreversible environmental hazards?

Whatever the impact of atmospheric change per se, many corrective measures are socially desirable in their own right. For example, several governments' studies show that the economic benefits of reducing carbon dioxide emissions far exceed the costs. Thus, energy policies

to enhance efficiency and conserve resources are inherently responsible and also serve to reduce atmospheric change. Clearly, if the hazards associated with global atmospheric change are significant, and the benefits of reducing the risk exceed the costs, rational decision making favors action now. The bottom line is: Atmospheric change means WE have to change.

Local action to initiate and encourage thoughtful and resolute response can and will make a difference. Therefore, the Vancouver task force believes that the City of Vancouver should commit itself to achieving the following three targets:

- Target 1:** A complete phase-out of all uses of products containing ozone depleting chemicals within the City by the 1995;
- Target 2:** Immediately reducing emissions levels of sulphur dioxide and methane;
- Target 3:** A 20% reduction in 1988 level carbon dioxide emissions by the year 2005; and bringing all related atmospheric pollutants within federally determined acceptable levels.

The task force emphasizes that these objectives can best be met by an integrated combination of penalties and incentives which will encourage the most efficient solutions by providing a stimulus of price and regulatory changes.

This approach incorporates the "polluter pays" principle. Activities which damage the common good will become more expensive, or hindered, or even prohibited. Activities which enhance the likelihood of achieving the

targets for atmospheric improvement are encouraged by subsidy or by regulatory changes.

The following considerations influenced the task force in developing its recommendations:

- Solutions should work with nature, and not create or exacerbate other environmental problems.
- Strategies should be cost-effective, and wherever possible should address several problems at once.
- Research and development of new technologies and processes should be encouraged through government and corporate purchasing policies.
- An ongoing process of discussion and education must be developed so that the public and their decision-makers know how their activities and programs affect atmospheric change.
- The public must be involved in both developing and implementing solutions.

To reduce auto-related greenhouse gas emissions, air pollution, and congestion in Vancouver, the task force recommends: reduce the number of automobile trips in the City and the Region; increase opportunities for non-auto transportation, including bicycles, walking, rail, buses, and alternative vehicles; reduce the use of gasoline and diesel fuel in conventional buses, autos and trucks.

"What are we transporting?" asks the task force, quoting the following from S. Johnson in Portland, Oregon, *RAIN*, 1981: "Transportation is a communications issue; often what is carried is nearly invisible, at the very least intangible. We move paper, and we move people about in order to move paper. The Postal System is an example of an arrangement that employs internal combustion engines and human backs to lug around information, an essentially weightless commodity."

Why do we drive as much as we do? Our needs for transportation arise directly out of the way land is used in the community. Through zoning and other techniques, land-use patterns and densities dictate travel volume, directions, and modes to a great extent. To encourage people to use the transportation system more efficiently, we need to adopt land use policies which reduce our

needs for transportation and let us meet those needs in more energy-efficient ways. People who work in a given area should also have the option of living in that same area.

Finding the future in the past, the task force quotes from a 1989 Vancouver Planning Commission report: "Much of the urban form making up the City of Vancouver is little more than a coalescence of several villages. Each such village would have had an historical core and each such core has, in turn, generated patterns of growth and development around itself. . . . The Commission suggests that these traditional village cores may be the logical centers from which to effect zoning changes which can accommodate the city-wide need for new housing stock."

While a major focus of the task force's report is reducing the amount of carbon dioxide released into the atmosphere, the other side of the equation is to improve local and global air quality by increasing the absorption of carbon dioxide from the atmosphere. The best way to do this is by planting and nurturing trees. The following quote is from T.R. Oke:

"It is in some senses climatically very much more valuable to plant an urban tree rather than a rural one. The difference being, both take about six kilograms of carbon dioxide out of the air per year, but the urban tree has the extra benefit that it shades hot urban surfaces, which need energy in the form of air conditioning to cool them off.

"It turns out that the urban tree is worth 15 times as much as your rural tree. And that's a very important need for the planet right now. This city has to face up to the fact that we burn up 18 million tons of carbon dioxide per year. If we just let growth go on, we're going to be up to 26 million tons by 2005.

"The big picture is that if we continue along as we are now, Vancouver, in 50 years, will have the same air quality as Los Angeles does now. And that's when everybody will regularly start to get sick by breathing the air."

The task force recommendation on reforestation is to plant and nurture City forests and trees in City parks, on City streets, on private property, and to regulate the removal, damage or destruction of trees on private property in the City.

"If the power of government to effect change is determined by the will of the people," concludes the report, "perhaps it is fortunate that the issue of atmospheric change has come to our attention at a time when public concern for the

environment is higher than ever. Over and over again throughout our public process, we heard people express their desire for leadership in responding to the challenge of atmospheric change." Δ

Ecocity Conference 1990

The Truth About Cars & Freeways

*Peter Newman, Professor,
Murdoch University, Australia*

Coping with the automobile is one of the highest but hardest priorities for a sustainable city. A global comparison of 32 cities shows that automobile use is firmly embedded in the structure of low density cities. Excessive car use becomes imperative because distances are so far, transit is not frequent enough, high quality transit is not feasible, cycle and walk distances are beyond reasonable reach. Auto culture is derived from town planning.

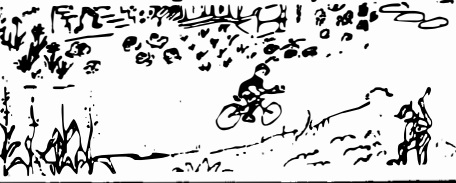
Freeways increase fuel use and emissions because they increase automobile use and decrease other modes. Traffic engineers still claim freeways are better for fuel emissions but the results do not (confirm this). Economically, they also appear to have failed. Our data show that, instead of people in cities with freeways saving time, and hence being more productive, they just spend more time in their cars.

Those cities which did not go for freeways, but instead built up transit and bicycle access, have gained economically and environmentally.

Our future is framed by the need to reduce gasoline use, clean up smog, produce less greenhouse gases and stop urban sprawl. Only transit can adequately cope with these problems; freeways will only exacerbate them.

Short term pain will be experienced as businesses and developers adjust their plans to a more transit-oriented city, but experience in other cities shows that the transition is worthwhile. The new, more compact city provides a range of economic opportunities.

San Francisco can be a world leader in the dismantling of freeways. Both the Embarcadero and Cypress freeways are symbols. The Embarcadero is a symbol of how a city can ruin its more important waterfront opportunities and it should be removed with a great celebration. The Cypress became a symbol of death around the world and should be put forever to rest in great solemnity.



Bicycles: World Class Vehicles

*V. Setty Pendakur, Professor,
University of British Columbia*

There are various myths perpetuated about bicycles. The first of these is that bicycles are less energy efficient. However, studies show that cars use 1860 calories per passenger mile, buses 920, rail 885, walking 100, and bicycles only 35 calories per passenger mile. The second myth says that road space used by bicycles is very inefficient. However, if you look at the number of persons that can be carried per hour in a meter-wide space, a car will carry 750, bicycles can carry 1500, a bus can carry 2700, and walking will move 3600 persons per hour. We can show that for shorter distances, walking is the most efficient mode of transport, and next comes the bicycle.

Rails to Trails & Back

*Peter Harnik, co-founder,
Rails-to-Trails Conservancy, Washington, DC*

Converting abandoned rail corridors into multiuse public parks is a new concept that brings together park planners and transportation planners. These corridors can become trails for hikers, bicyclists, horseback riders, and others. Most trails are flat, many follow rivers, while others pass historic locations or serve as wildlife areas. These trails tend to be purposeful, running by schools, shopping, work, libraries, and other cultural facilities, providing excellent safe, non-motorized transportation corridors for children, the disabled, and others.

These trails aid in cutting auto use, thereby reducing air pollution. They promote physical fitness and contribute green space. They can be leased to utility companies for underground cables. Additionally these trails maintain the corridors for potential reuse by rail.

Some difficulties in obtaining rail corridors involve disputes over how much they are worth, opposition to conversion by adjacent land owners, and uncertainty as to who owns a particular right-of-way. The biggest obstacle can be the lack of timely information.

Rail corridors converted to rail-trails can provide "transcreation" for a lot less than assembling corridors or parcels from scratch. These corridors are everywhere and each obtained corridor strengthens the system.

City Food

Isabel Wade

In the past, cities could rely upon their hinterlands and even, in some cases, farms within city limits for their food supply. Today, due to urban expansion and other factors, local food production near most cities has been sharply reduced. The dependence of cities on faraway sources for their food supply renders them especially vulnerable to shortages caused by political or economic conditions that are far beyond the control of local decision-makers.

The city need not be a human and biological wasteland. Significant quantities of food can be grown by applying thoughtful strategies, especially the careful selection of crops appropriate for tough urban conditions. Community-based production can meet most of the basic food needs of the urban poor. Agriculture can transform cities into more attractive, livable settlements.

Some Benefits of Urban Agriculture

- Urban agriculture produces an economic return from the unused or underutilized space that exists in many cities.

- Intensive, small-scale gardening is potentially more productive and efficient than traditional farming methods.

- Home food production is more likely to supply needed nutrients (essential vitamins, protein and calories) than the existing market system since the variety of food for sale is often limited and quality and freshness may be impaired.

- Many new migrants to cities come from farming areas and already possess agricultural skills.

- Food production can employ poor city residents, generating income and fostering a sense of achievement and hope.

- In addition to yielding nutritional and economic benefits, urban agriculture can improve city microclimates and conserve water and soil resources.

The potential benefits of urban agriculture are often ignored because most people are unaware of the tremendous food yields possible even from small spaces. For example, a model home garden in Puerto Rico yielded an average of .73 kg of produce per day during a 227-day growing season.

Experiments conducted in California by Ecology Action of Palo Alto using the biodynamic/French Intensive method of gardening yielded 15 kilograms per square meter. Comparable results were obtained in Hawaii using a raised-bed

method which produced 12 kilograms per square meter. These yields are the equivalent of 53 to 66 tons per acre. In comparison, world average yields for rice are only 1.1 tons per acre and for carrots 9.4 tons per acre.

Cities present special conditions to growers. Access to production space is often limited. The soil may be compacted from previous construction or suffer from lack of adequate drainage. The water supply may be insufficient because access to piped water is restricted. Air pollution or heavy metal pollution of urban soil may cause production problems in some locations.

At the same time, cities offer advantages for gardeners that rural settings lack. Dense housing and even high-rise construction can create microclimates that enhance food production. Houses or tall buildings can act as windbreaks or provide a warm surface against which many crops thrive. When the construc-



illustrations by Curtis Schreier

tion material used for building is substantial enough (e.g. concrete blocks), new production surfaces such as roofs and balconies may be developed. Scrap material for tools and fences is usually available. And more and larger markets provide urban gardeners with an important source of seeds for a variety of crops.

Growing space

The best growing areas are those closest to home. These include yards (even tiny ones), rooftops or balconies, alleyways between buildings, nearby vacant land, and underutilized land (e.g., school or church yards, government properties, and transportation rights-of-way).

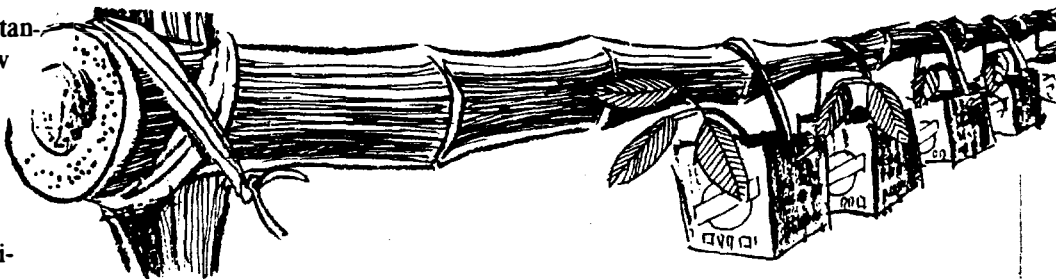
The value of small spaces may be enhanced through a coordinated community-production strategy. By assembling available small spaces under community control in the form of a land trust, joint decisions can be made about using the various locations. For example, garden produce can be divided and shared among members of the land trust, or the trust can simply be used as a method of sharing seeds, tools, and other resources.

A variety of land trusts have been initiated in North American and European metropolitan open areas. In many instances, where urban space is very limited, this type of community cooperation is the only way to develop meaningful food production. The other principal advantage of community land trusts is that they foster the growth of new leadership in the community and help to build local expertise in problem-solving.

Soil and Water

In many cities, high-quality soil may be hard to find. Urban soil may be depleted, compacted, polluted, unavailable or just too heavy to get up to the top of a high-rise for balcony or rooftop gardening. Careful crop selection can permit yields even from poor soil. There is no point in trying to grow a crop like tomatoes in a poor, parched soil that might produce a satisfactory or even excellent yield of sweet potatoes or squash.

If local soil conditions don't appear promising for good gardening, alternatives can be considered. These include: --container gardening using locally available materials such as rice hulls, shredded corn husks or cobs, or dried



Ecocity Conference 1990

Ecologically Responsible Livelihoods

Salli Raspberry

co-author, Seven Laws of Money

Work is central to our lives. As we rebuild our cities we must address the issues: what is the work that must be done, and what is our right livelihood?

If we are to improve the quality of life on our planet we MUST reduce consumption, not expand. Possessions are not security. In fact, they hinder us as we protect them and cling to the old paradigm of resource exploitation in order to amass them.

The more income we make the more resources we consume. Real security must come from self-confidence in doing our right work and living our values in service to family, friends, and community.

There are no quick-fix answers but there are some clues:

FIRST. Assess your life. Talk with your family. Are you as an economic unit living your values? What is important in your life, including the health of the planet?

SECOND. Keep track of the money you spend for two months. Could you spend less if you lived more simply? Are you shocked by how much it costs to work?

THIRD. Make a list of practices that can reduce your consumption and thus your income. Clothes swaps, potlucks, and co-op buying are helpful. Incorporate these practices into your routine one at a time. The idea is to liberate, not deny. Once you have included a practice in your routine, go on to the next one. Reward yourself. Tell others about what you are doing.

FOURTH. Physical exercise is important to clear your head, give you new insights, and get you out into nature. Once enjoying the birds and flowers, you will be reminded that you must heal yourself as you begin the healing of our planet.

FIFTH. Get support. We are in this together and we need one another.

Farmers & Farmers Markets

Kirk Lumpkin, produce retailer

Green markets benefit the consumer, the city and the general environment:

1. Farmer's markets centralize shopping so time and transportation are more efficient.

2. They reduce packaging because the product isn't transported commercially and containers are recycled back to the grower.

3. The food is fresher, healthier, and cheaper because the middleman and transportation links are not necessary. The food is really "farm fresh" so the customer buys peaches and tomatoes that were vine ripened and picked just the day before.

4. Markets strengthen the producer-consumer connection, which makes for a strong urban-rural exchange. Farmers bring some of the magic of the land and the seasons into the city and return with culture and art. It is hard to justify dumping a lot of poisons on your crops when you're face-to-face with someone who's going to pay to eat them.

5. They promote small-scale, ecological agriculture.

6. They provide a forum for local community bonding. As Lewis Mumford said in *The City in History*, "Not until the automatism and the impersonality of the supermarket were introduced in the United States in the mid-twentieth century were the functions of the market as a center of personal transactions and social entertainment entirely lost."

7. Farmers markets are a source of free food for organizations feeding the homeless.

Some steps to setting up a farmers market:

1. Find a sponsoring organization. Speak to local senior citizens groups, churches, Boy Scouts, business service clubs, or the American Friends Service Committee.

2. Have a volunteer base, especially for setup and cleanup.

3. Find a suitable site. It can be private or city-owned. Treat the market as a civic event.

4. Make contacts in the city for zoning and get health permits and permits for block parties, parades, etc. Cultivate bureaucrats, elected officials, and business leaders.

5. Find insurance. It will be the biggest single start-up cost. Try HOC grants.

6. You will need a market manager. Start with a volunteer but expect them to be a salaried employee as the market grows.

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leaves; only an inch or two of good soil is needed to cover these materials and create a growing medium.

- shallow-bed gardening using 2-4" of locally available materials such as grass clippings or compost to construct beds on top of existing soil or on adequately supported rooftops.
 - aquaculture using enclosed ponds or tubs to grow fish and vegetables together. These systems produce extremely high yields from limited space, water, material, and feed.
- When rainfall is the only source of water for gardening, the best food production strategies are to:
- use water-conserving techniques such as mulching to prevent loss of moisture. Compost is the most desirable mulch because in addition to protecting the soil from heat and reducing evaporation, it improves the soil structure and contributes important plant nutrients.
 - practice inter-cropping by cultivating larger and smaller plants simultaneously so as to shade the soil and reduce moisture loss. Indeed, any means of shading the soil (e.g. bamboo mats) during the hottest period of the day can be helpful in conserving soil moisture.
 - select crops that need less water (e.g., New Zealand spinach).
 - shade plants that don't need full sun, reducing evaporation.

Pollution

Air pollution can seriously retard plant growth and cause health problems for urban residents. Gardens located by roadways are especially vulnerable to heavy metal pollution (i.e., lead and cadmium) of the soil.

Studies in some industrial areas of the U.S. have shown that leafy plants such as lettuce, spinach, kale, and turnip greens accumulate more lead and cadmium than root crops or fruiting plants, which are the most resistant to heavy-metal absorption. Green leafy vegetables should therefore be planted furthest from the street to avoid air-borne pollutants or not planted at all in heavily polluted areas. Fruit vegetables like tomatoes, eggplants, melons, peppers, beans, peas, and tree fruits show the lowest concentrations of heavy metals. They can be planted closer to the street, but preferably not closer than 7.5 meters.

Aside from crop selection, there are several other techniques that reduce the dangers of heavy metals found both in the soil and on plant leaves. The addition of organic matter such as well-aged compost, by at least 25 percent volume, plus keeping the soil pH at levels between 6.5 and 7.0, prevent lead uptake by plant roots. Soil pH levels above 6.5 also inhibit cadmium uptake. If soils are very polluted, root crops should also be peeled before they are cooked or eaten.

Home or community gardeners with plots near busy streets should wash all produce before consumption in order to reduce air-borne lead from automobile emissions. However, washing with water alone removes only a small amount of lead from the leaves. Washing with diluted vinegar (1%) or dishwashing liquid (0.5%) is much more

effective. Finally, to help avoid air-borne pollutants, gardeners can shield their gardens from auto-exhaust by planting a "barrier crop" of trees or hedge along the street.

Vandalism/Theft

Investing effort into an urban garden only to have plants stolen or destroyed is very discouraging. Short of posting a full-time guard, there is little that can be done to prevent this entirely. However, steps can be taken to greatly lessen the incidence and intensity of damage. Probably the best method is to have the gardeners and adjacent residents act as a security force to protect crops. Seniors, handicapped persons, and children can often watch a garden during the day and nearby neighbors are the best guards for evening hours.

A second method of preventing some types of vandalism or theft is to include as many of the potential offenders as possible in activities relating to the garden to help them feel that they, too, have a stake in the effort. A special event, such as a tree planting, may work well.

Other measures that may be taken are: planting more vegetables than will be needed; repairing fences and the like immediately; planting unfamiliar varieties of plants or crops that require extra effort to pick (e.g., beans, potatoes, or taro); and harvesting crops at the earliest possible moment. The more isolated a plot is, the more likely it is to be vandalized or be a target for theft. Therefore, gardens should be located as close to people's homes or stores as possible.

Raised Beds and Shallow Beds

Raised beds were a universal feature of the model gardens mentioned earlier. Experiments in Florida with shallow-beds have also achieved excellent results. Beds 4-6" deep filled with a variety of materials (leaves, grass clippings, corn husks, woodchips), produced vegetables from tomatoes to spinach. This method can be used on rooftops or anywhere the soil is poor or space limited.

Other intensive techniques that can produce high yields per square meter include:

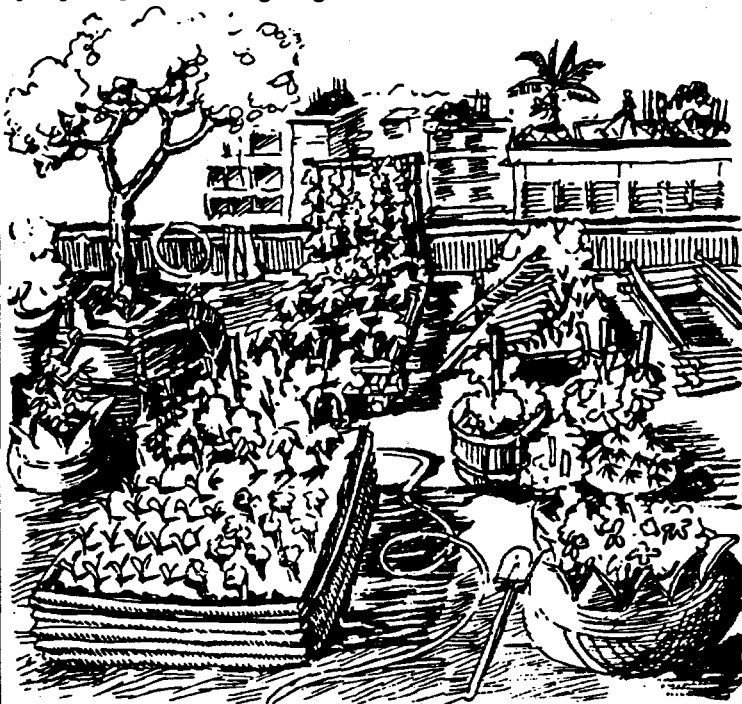
- close spacing: sowing seeds or placing seedlings at high density so that all surfaces are ultimately covered by plant canopies.
- intercropping: growing several crops in the same bed at the same time; as with close spacing, this method results in total soil coverage, which conserves moisture.
- succession planting: immediately replanting with young seedlings following the harvest of a crop.
- relay planting: planting fast- and slow-growing crops simultaneously to maximize use of space.
- stacking: planting crops of different structures together (e.g., tall plants with short, or root crops with shrubby or leafy vegetables) to obtain optimal production from a given area.
- vertical planting: training plants to grow on stakes, trellises, fences, or walls.

Balcony and Rooftop Production

Balcony and rooftop gardening afford a new dimension of space in cities; highrise agriculture



has the potential to expand urban food production enormously. The major limiting factor is the stability of the roof structure. Heavy roofs are usually made of concrete, and unless badly built, are unlikely to be affected by the extra loading if this is kept within reason. Light roofs are more problematic and should be considered unusable for rooftop gardening if they cannot survive a rough-and-ready test of being vigorously jumped upon without giving.



Roof Garden, San Francisco

illustrations by Curtis Schreier

Aside from the cost, other major problems for balcony and rooftop gardeners are transporting soil to the site and pot drainage (i.e., water dripping over balconies to the floor below). Both of these have been solved by California researcher Barbara Daniels. Her method uses lightweight soil substitutes (leaves, corn husks, rice hulls, even shredded newspaper) that can be scavenged locally. These are packed into a container which has no drainage holes and covered with two to three inches of soil or compost in which the seed or seedlings are planted. The water content of the container is carefully monitored with a wooden stick (Daniels uses a chop-stick) to prevent waterlogging. Thus the problem of containers dripping is avoided. (For more information on this technique, contact Barbara Daniels, Box 813, Fairfax CA 94930.)

Space requirements

Fruit and nut trees should be an integral part of all urban agriculture. Even though many of the poorest households may not have space for a home garden, fruit and nut trees can be grown along streets and highways, in parks and in community gardens. Dwarf varieties may be grown even on rooftops and balconies.

Larger fruit trees can be trained to grow against a wall or fence using

espalier techniques, thereby considerably reducing their space requirements. These techniques are most easily applied to dwarf varieties, but they can also be used with larger, multi-branched fruit and nut trees.

Most green leafy vegetables produce efficiently in minimal space. Multiple crops of greens such as spinach, Chinese cabbage, mustard greens, kale, and amaranth can be grown in small plots or containers, or intercropped with larger plants. Leafy greens are the most useful crops in year-round home production strategies for a variety of reasons: they mature quickly, require minimal space and produce the most nutritive value per square centimeter of space planted.

Key Considerations in Crop Selection

Economic Factors

Inexpensive to grow
Good market crop
Minimal cooking time
(to keep fuel costs low)

Environmental Factors

Suitable for local conditions
(drought- or cold-tolerant)
Cultural or growing habits
(e.g., plants that climb)

Taste/Nutritional Factors

High yield to boost food intake
Compensates for specific
urban deficiency (e.g., vit. A)
Palatability
Ease of preparation in cooking

Production Factors

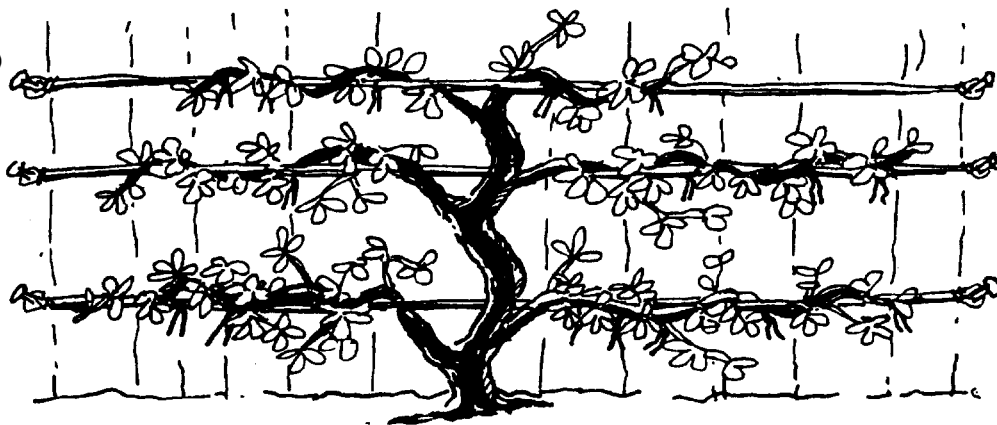
Availability of seed
and growing materials
Ease of growing (including
pest/disease resistance)
Length of growing season

Legumes, many of which fix atmospheric nitrogen in the soil, offer natural advantages in urban gardening. Because many of them are vines, they can easily be trained into whatever vertical space is available. Beans make a beautiful, shady canopy over a doorway. Peas, string beans, lima beans, and other vines can be trellised or trained to grow up the sides of buildings, fences, or trees. Even legumes harvested for their roots, such as peanuts, can be grown in small areas or containers.

Cucurbits (pumpkins, squash, marrows) can also serve several purposes since, in many varieties, the fruit, seeds, and leaves may be eaten. Also, since most cucurbits are vines, they can be grown in out-of-the-way locations and trellised to save space.

Year-round production

Year-round gardening requires large inputs of fertilizer, especially where heavy rains may leach the soils. This need



Espalier technique for fruit trees

may be met through home composting or by manures from local animal husbandry. Manure is often expensive or difficult to obtain within cities, but even one chicken can provide useful amounts of fertilizer for small gardens. Animal production on flat roof-tops is common in traditional societies (bees, pigeons, quail, rabbits). Human urine, if treated carefully, can also be a good source of fertilizing nitrogen.

There are certain universal requirements for successful high-yield gardening in small spaces:

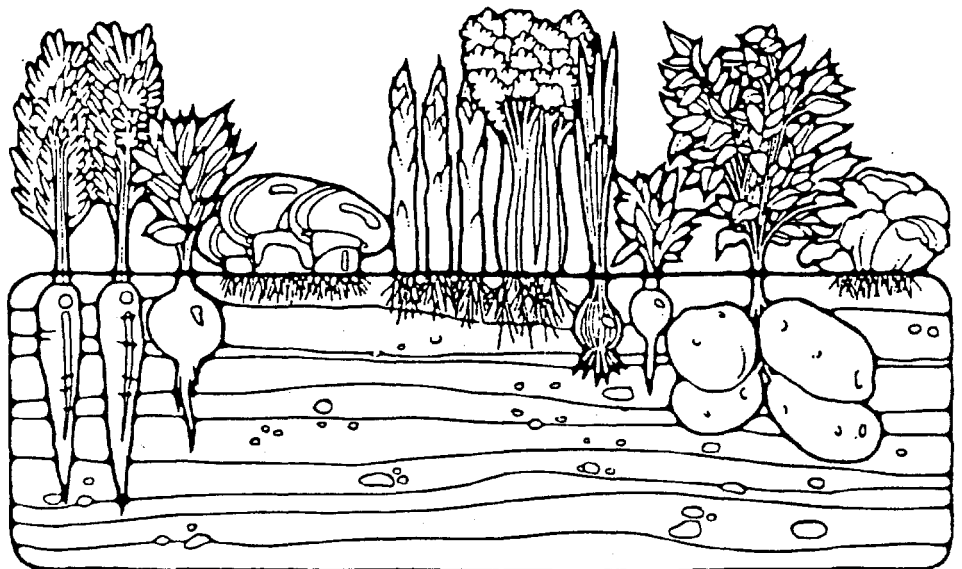
- a steady supply of seedlings as well as seeds, bulbs, and tubers so that crops can be planted and harvested in cycles throughout the growing season rather than all at once;
- garden design that considers the path of the sunlight and the size of the plants, using tall plants to shade seedlings in some cases or, spacing them so that they do not block the sun for their smaller neighbors;
- fertilization of the planting area (soil, shallow bed, or container) after every harvest and before replanting; the least expensive fertilizers are compost and green manure (the turning of live plants such as legumes into the soil);
- crop rotation in which different classes of crops are alternated (e.g., legumes and fruit vegetables); this practice helps to control the spread of plant diseases and prevent soil deficiencies;
- vertical growing using trellises and frames for vines and any other crops that can be trained to grow upward (e.g., tomatoes);
- careful selection of seeds for subsequent planting by allowing a few of the best plants to set seed, which can be gathered for future gardens.

Just as it requires more than one ear of corn to produce a crop, urban gardening efforts will also be more fruitful if developed as part of a city-wide strategy for greater self-reliance. City policies are needed that encourage food production in all available spaces and that help urban dwellers pool limited resources. Food production policies must also be integrated with other aspects of resource management with direct links to agriculture such as solid waste recycling and urban forestry. By maximizing the

potential of urban spaces and assisting community-based self-reliance efforts, cities can play a critical role in improving food security everywhere. Δ

Excerpted from City Food, Crop Selection in Third World Cities, ©1986 by Urban Resource Systems, Inc. Isabel

Wade is the director of California Re-Leaf, a project of the Trust for Public Land. She has written extensively on development issues. City Food is available from Urban Resource Systems, 786 Buena Vista West, San Francisco, CA 94117 or from The Permaculture Activist (see pg. 44)



Soil Pesticide Detoxification

Brian Baker

Pesticide residues in soils are a principal concern for transitional growers. When a pesticide is applied, it can evaporate into the air (volatilization), move downward into the groundwater (leach), or stick to the soil (adsorption). Organic food can be contaminated by pesticide any of these ways. Growers need to take into account the risk of background contamination in order to meet the stricter tolerances for pesticide residues in organic crops. This article will focus on management practices to reduce risk from pesticide residues in soil.

How long the pesticides stick to the soil depends on how stable they are, usually measured in half-lives. Those pesticides most likely to be found in soil are those with the greatest adsorption capacity and the longest half-lives. Of the hundreds of pesticides used in agriculture, those most likely to be found on organic soil, even soil where pesticides have not been used for decades, are

the organochlorine family.

The half-life of a particular pesticide depends not only on how stable its molecular structure, but also upon a number of biological, physical and chemical factors of the soil, including soil texture, structure, organic matter content, aeration, pH, cation exchange capacity, temperature, crop history, and soil biological activity. It is impossible to generalize characteristics for all pesticides, with two exceptions: 1) Soils high in clay and organic matter have a greater adsorptive capacity than sandy soils; 2) Increased biological activity will cause pesticides to break down faster.

There are a number of practices available to growers who seek to reduce the pesticide uptake by crops and eventually reduce the pesticide levels in their soils. The process by which persistent pesticides break down is slow. There is no one magic solution that will cause them immediately to disappear. Use the following rules to reduce

contamination by pesticide residues in soil: don't harvest crops that accumulate pesticides; increase soil organic matter; increase soil biological activity; increase carbon content of the soil; and, put cover crops into rotations.

Don't Harvest Crops that Accumulate Pesticides

The surest way to avoid a pesticide's residue in the soil showing up over-tolerance is not to plant those crops likely to accumulate it. Different crops accumulate different pesticides at different rates. The process by which these are taken up and distributed through the plant is called translocation. Some pesticides are more likely to translocate in plants than others. Systemic pesticides, such as aldicarb and carbofuran, translocate in a wide variety of plants. Organochlorine pesticides translocate in fewer plants, primarily root crops and oilseeds. Alfalfa (mainly the oily tops) and spinach also translocate organochlorines. If your soil test comes back with high levels of DDT, toxaphene, heptachlor, or other organochlorines, then plant crops other than potatoes, carrots, onions or oilseeds. Fruit, fruit vegetables (tomatoes, peppers, squash), leafy vegetables (other than spinach), or grains are the best options.

Increase Soil Organic Matter

The most influential soil characteristic found to reduce pesticide uptake across all pesticides, crops, conditions, and soil types was soil organic matter. Organic matter reduces the translocation of pesticides by causing them to bind to soil colloids. Organic matter offers pesticides more sites to be adsorbed than mineral colloids such as clay particles. Farmers can increase organic matter through the addition of compost and through planting and plowdown of cover crops. The selection of cover crops can make a difference in the rate of pesticide degradation.

However, research has shown that, contrary to what many long-time organic farmers think, organic matter does not accelerate pesticide degradation. In fact, pesticides break down more slowly in soils with high organic matter content. Even though organic matter has been shown to prolong the half-life of some pesticides, the benefits of reduced uptake by plants appears to outweigh the slower breakdown.

However, growers must do more than add organic matter to the soil. Increased organic matter by itself will not detoxify soils. In fact, by itself, increased organic matter may be worse in the long run. To remove pesticides, an increase in organic matter must coincide with increased biological activity. Depending on the characteristics of the soil and pesticide, the grower may want to increase the carbon content of the soil or modify tillage practices and rotations.

Increase Soil Biological Activity

The process by which organisms break down pesticides is called metabolism. Pesticides are metabolized at different rates, again affecting their half-lives. A dead soil will not metabolize pesticides; a living soil will. A great number of experiments have shown that specific microorganisms can detoxify particular pesticides. Earthworms, fungi, actinomycetes, and algae also play an important role in pesticide detoxification. There is no single organism that will serve to break down all pesticides.

Researchers have examined inoculating soils with microbes that have accelerated metabolism in laboratory conditions. Some microbiologists are culturing bacteria from the guts of pesticide resistant insects. Given the ability of these microorganisms to detoxify the pesticide for their host, it seems possible to introduce them in a contaminated environment. However, the environment in an insect's gut is far different from the soil environment. While laboratory results are promising, research has shown relatively little benefit from inoculation in field conditions. A great deal more research needs to be performed before microbial products can be developed.

A more cost-effective way to reduce contamination is to provide a habitat in which native decomposing microbes can thrive. Some of the more active microbiota that decompose pesticides are among the more common in soil environments. These include the different *Aerobacter* and *Pseudomonas* species. Many pesticides not only kill

their target organisms, they can also destroy soil organisms that help degrade pesticides. Chemical fertilizers also depress bacteria and earthworm populations. By eliminating these chemicals, organic growers can restore soil life.

Increase Carbon in the Soil

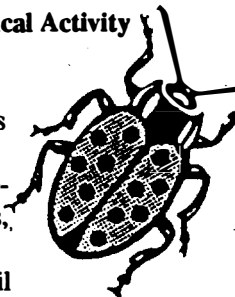
Most pesticides can be chemically degraded and soils detoxified by increasing the carbon to nitrogen and carbon to pesticide ratios. There are several ways to do this: by planting and plowing down cover crops that would increase carbon in the soil, or by actually applying charcoal.

Research going back to the '50s has shown a significant decrease in plant uptake of pesticides with soil applications of activated charcoal. These treatments are particularly effective for organochlorine pesticides. While activated charcoal gives more dramatic results, it is expensive. Cover crops that increase the carbon to nitrogen ratio can immobilize organochlorine pesticides so they are not adsorbed or translocated by plants. Growers can increase the carbon ratios and organic matter at the same time by planting the right cover crops. For instance, grains and grasses that increase soil carbon, also accelerate chemical decomposition faster than legumes.

Cover Cropping, Fallowing and Tilling

In some extreme cases of background contamination, growers may not be able to harvest certain crops as organic for several years. In these cases, it may be best to fallow the land. For some pesticides, most notably the triazines, fallow land does not necessarily accelerate the breakdown of pesticides. Pesticides can be metabolized by cover crops. Other pesticides may be more persistent where a cover crop is grown. For example, organochlorine pesticides were more persistent in fields where alfalfa was grown than in fields of corn. Planting crops that accumulate pesticides and removing those crops does not appear to be effective.

Some pesticides break down faster in aerobic conditions. For example, triazine herbicides (atrazine, simazine) were shown to break down faster on tilled and cropped land than on fallow land. On the other hand, organochlorine pesticides were shown to metabolize more rapidly on fallow land, possibly because of



greater heat and light. Degradation of organochlorines also occurred more rapidly in flooded fields, where conditions were more anaerobic.

Organic farmers can and should work to reclaim contaminated soils. In doing so, they should not expect any quick fixes or instant results. Growers should be patient, and should be suspicious of people who offer fast, easy remedies. Detoxification can take many years. More research is needed to develop practical techniques for detoxification. At present, the practices used to detoxify

pesticide-laden soils are generally the same as any sensible, strong soil-building program. Through careful selection of crops and rotations, background contamination of organic crops can be reduced almost to zero.

Sources:

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Brian Baker is a staff writer with the California Certified Organic Farmers Statewide Newsletter. This piece is reprinted by permission from their Spring, 1990 issue.

Empowering Our Local Political Economy

Clear Marks

At least four economic projects could help free our communities from combinations of economic and political oppression: 1) Financing worker-owned cooperative enterprises following the successful Mondragon model; 2) Correcting property taxes which subsidize speculators and owners of highly valued land; 3) Promoting a local currency—a community-controlled money supply; 4) Encouraging mutual reliance among our destitute—not keeping them dependent on government agencies.

1) CO-OPS. Unemployed and unhappy wage-slaves can become self-employed by community organizing for a cooperative bank, as in the Mondragon movement of northern Spain. That bank finances worker-owned industries. It puts "relationships first" by loaning only to persons who've already become friends. As their partner, it sees that they learn business skills so well that they rarely fail. This 30-year old movement has built 85 co-ops with 20,000 worker-owners. See "Mondragon" In Context, Spring '83 and "Mondragon Cooperatives" Tarrytown Letter Aug. '84 (Copies from me). More info: Trusteeship Institute, Baker Rd., Shutesbury MA 01072.

2) PROPERTY. One gentle land reform can open lifestyle choices to tenants and homeless persons. Perhaps they could even build their own homes without threatening land-owners. Henry George showed that society's neighbors,

utilities, roads, and markets contribute to land values. Hence he proposed that society deserves continued repayment (as rent) for such contributions. Thus Pittsburgh and Scranton prosper by collecting more of land's "rent-value" while reducing taxes on buildings. Landowners hired workers to build on highly-valued land while speculators sold off idle land usable by the needy or the public. With policies of taxing land and improvements equally, the comparable cities of Philadelphia and Wilkes-Barre remain depressed. See my Chap. 11, pp 3,4* and *Fortune* article Aug. 8, '83. More info: Schalkenbach Foundation, 5 East 44th St., NYC 10017.

3) COMMUNITY MONEY. A local exchange system raised employment and living standards in one town for three years. Having debugged his system, inventor Michael Linton has introduced it in various American cities. He's at 576 England Ave. #304, Courtenay, B.C. V9N 5M7 Canada.

4) DESTITUTE. With strength of affinity-chosen families, the homeless can squat in unused houses or live in vehicles. Would we prefer such civil disobedience to taxing the "haves" so as to provide shelters for the "have-nots"—often keeping them dependent? Such forced "charity" weakens both. For community cooperation between haves and have-nots, we would support those who practice self-help and mutual reliance as they house themselves.

Our Possible Conclusions

Do we feel related as life-loving Earth-Natives? Is tolerating hostile institutions

4. Positive Urban Space.
Every building must create coherent and well-shaped public space next to it. We may state this rule simply as follows: "Buildings surround space," NOT "Space surrounds building."

Christopher Alexander, et al

riskier than organizing to tame them? Do we see our local society and world society as injured living systems which need healing agents to rebalance for communities of mutual benefits? Who would you join for dear life? Δ

*Excerpted from *Friendly Shared Powers: Practicing for Dear Life!, with Clear Marks ©1979 - 130 pp., \$7 from: School of Living, Rt 1, Box 1508AA, Spring Grove, PA 17362 (10 miles SW of York, PA) For many years associated with the School of Living, Clear and True Marks now live at the Gaia Community near Mauk, Georgia.*

Ecocity Conference

Farmers Markets

Lumpkin, cont'd from pg. 21

7. Income will be generated through stall fees. The Derby Street market charges \$10 to \$15 per stall.

8. Study your state agricultural rules pertaining to direct marketing of farm products.

9. Solicit farmers. State or county agriculture services, other farmers markets and organic farming associations will have plenty of information.

10. Promote and advertise heavily. Get the message out any way you can.

Recycling

An Engine for Regenerating Communities

Dan Hathaway

Attending a conference on recycling held this October in Philadelphia gave me my first view of that historic city. Balmy weather had kept fall foliage hanging on the trees, and I was delighted. I had never seen the sights, the Americana, museums, scullers and rowers on rivers, statuary, parks—a beautiful city by anyone's standards.

Of course, some of the streets look more like the bombed-out buildings where we had lived in Germany after the war of the 1940's, but I saw beauty there too. Just like Germany, North Philadelphia is rebuilding itself.

I saw rows of houses a block long, all rebuilt by community interest groups; public gardens in between buildings and on empty blocks. People using legislation passed in the '60's, working since the '70's, have wrought visible change to the faces of Poverty and Hope.

But they don't see yet what I see. They haven't seen the shambles of world war rebuilt. They are just now living through it—an economic chaos equivalent to war from the looks of some of those houses. Nobody told them that one-third of the food Russians eat comes from dooryard gardens—just like their own gardens, set between the row houses and in empty lots across the street.

The families, the friends, the churches, and the neighborhood groups had each decided to bootstrap themselves out of the mess that had come about around them.

One of those community action groups is called National Temple Recycling Center. They began 22 years ago in a neighborhood church with an emphasis on housing rehabilitation; their operations now include a successful recycling business, a single-room occupancy hotel providing shelter for the homeless, community food banking, and a human services department which screens applicants for job referrals. They have also been awarded responsibility for planning one of the major commercial

zones in the North Philadelphia Redevelopment Plan.

National Temple Recycling Center's director, Mjenzi K. Traylor, spoke to the "In Business"-sponsored conference about their experience:

"Recycling on a massive scale is not going to work until there is full commitment not only from citizens but also from the governmental and business sectors. The risks of a pioneering venture must be shared in order to maximize the rewards. To have more balanced, predictable markets and clearer economic process, we need procurement policies that encourage the use of recycled products and businesses that are willing to adapt their production processes accordingly.

"Recycling is no longer the sole domain of tree huggers and UC-Berkeley types. The mega-companies have seen the opportunity and are here to stay. Economic forces and public pressure have forced recycling to the forefront of solid waste management policy across the country. We are witnessing a veritable revolution in the waste management field.

"This, of course, represents tremendous opportunity for those who can find their own unique market niche or remain flexible enough to wait out the policy and regulatory changes and market fluctuations that are bound to continue.

Generating Capital in the Community

"National Temple chose the recycling business for a unique set of reasons. Recycling is one of the few areas of industrial growth that are labor-intensive, require modest capital investment, and are also environmentally friendly. In NTRC's case, recycling has provided an avenue to bring positive economic activity and employment back to an area that had been neglected for many years. We maintain as a principal goal the enhancement of economic opportunities, particularly for entrepreneurs, small or community-based business, and the unemployed or underemployed.

"We are part of a non-profit organization, but lest you misunderstand that

term, let me assure you that non-profit does NOT mean losing money (although we've had our share of that). It does mean, in our case, that revenues generated are reinvested back into community development efforts rather than as owner's profits or stock dividends. Like any business, we are very much concerned with the bottom line.

"Recycling represents a major investment—of time, capital, and most likely a great deal of personal effort. Although it is a relatively labor-intensive and "low-tech" industry, a business can no longer get by without adequate covered space, startup, and working capital, technical and market savvy. Local ordinances and environmental regulations may add substantial costs and require hiring specialized consulting services before startup. It may not be easy to find investors or banks to back you, although the financing community is beginning to realize that recycling is a legitimate, almost mainstream business.

"National Temple was able to occupy a formerly abandoned warehouse building, but we had to sink considerable sums into repairs and major systems overhauls just to make it usable."

Traylor went on to explore some growth opportunities in recycling.

"Look at opportunities to deal directly with small haulers or commercial buildings for mixed recyclables. Composting or mixed paper and yard wastes are other potential areas to develop.

"The commercial/corporate sector has enormous potential. The waste from this sector often constitutes more than half of the waste stream and is better segregated than residential waste. In many areas, the commercial sector is just beginning to take recycling seriously, due to regulatory pressure or economic realities. The recycling entrepreneur can pick and choose customers and customize the materials mix to meet market specifications and the customers' needs. Services can range from full-service to very specialized—provision of containers, employee education or public relations, hauling or shredding services, etc. Recyclers can offer businesses an opportunity to save on hauling costs and maybe generate revenue as well. Laws are likely to be more and more in favor

of recycling, and may provide tax and other incentives to businesses that recycle.

Remain Flexible and Adaptable

"One last note on competition from the 'big guys'. The greatest advantages small business have are their ability to move quickly and to adapt to specific market situations or to specialize. So don't be scared off by the powerhouses—while they may be able to achieve economies of scale that smaller businesses cannot, at the same time, their size puts them at a disadvantage in providing specialized or customized services.

"Solid waste management policies are bound to continue changing. Recycling is affected by numerous factors—the economy in general, specific commodities markets, ordinances, new disposal technologies. Flexibility & adaptability are key. For these reasons in particular, unless a business is extremely confident in a certain market niche, it's probably better not to put a major investment in only one area.

"Do get involved enough in local policy to know what to anticipate and see potential new opportunities, and perhaps to protect the interests of your businesses.

Waste Diversion Credits Needed

"One particular policy area deserves mention here. We, along with other recyclers, have been struggling to have the City of Philadelphia adopt a policy which by any calculation could save substantial public dollars. Right now each ton of Philadelphia's municipal trash requiring disposal costs at least \$150: \$65/ton tipping fees, plus the costs of collection and transport, sometimes across the state. We argue that every ton recycled through private means is a ton not requiring handling by the City—hence, a \$150 per ton savings, minimally. Therefore the City should be glad to provide a financial incentive to private recyclers to increase the tonnage removed from the waste stream by paying them a certain price per ton. The price paid could be commodity-specific or pegged to market conditions to ensure that low market prices do not eliminate recycling of certain materials. No matter what the formula, it is clear that such incentives could increase the recycling

rate and save public dollars.

"We've tried on several occasions to drive home this point by sending a bill to the City of Philadelphia based on the tonnages recycled through National Temple that would otherwise have gone to landfills at City expense. At this point, the cumulative tab is well over one million dollars!

"In closing, I'd like to emphasize our

conviction that small and community-based businesses can use recycling as a part of their economic development strategies. But the approach should be both cautious and flexible." Δ

Dan Hathaway writes, travels, and consults for the Urban Forest Institute. Between ventures he makes himself at home on the island of Hawaii.

5. Layout of Large Buildings. The entrances, the main circulation, the main division of the building into parts, its interior open spaces, its daylight, and the movement within the building, are all coherent and consistent with the position of the building in the street and in the neighborhood. Alexander, et al

Ecocity Conference 1990

Designing for Total Recycling
Daniel Knapp, President,
Urban Ore Recycling Company

The 12 Master Categories for Recycling

1. Reusable goods: intact or repairable home or industrial appliances; household goods; clothing; intact materials in demolition debris, such as lumber; building materials such as doors, windows, cabinets, and sinks; business supplies and equipment; lighting fixtures; and any manufactured item or naturally occurring object that can be repaired or used again as is.
 2. Paper: newsprint; ledger paper; computer paper; corrugated cardboard; and mixed paper.
 3. Metals: both ferrous and nonferrous; cans; vehicle parts; plumbing; fences; metal doors and screens; any other discarded metal.
 4. Glass: glass containers and window glass.
 5. Textiles: nonreusable clothing; upholstery; and pieces of fabric.
 6. Plastics: beverage containers; packaging; cases of consumer goods such as telephones or electronic equipment; and tires.
 7. Plant debris, leaves, grass cuttings, trimmings from trees.
 8. Putrescibles: animal, fruit, and vegetable debris; and offal.
 9. Wood: nonreusable lumber, and pallets.
 10. Ceramics: including rock; ceramic; brick; and concrete.
 11. Soils: excavation soils from barren or developed land; and excess soils from yards.
 12. Chemicals.
 13. Garbage—this category is reserved for unrecyclable mixtures of recyclable materials.
- (Excerpted from *Total Recycling*, © 1988, 1990 by Daniel Knapp and Mary Lou Deventer)



CoHousing: A Contemporary Approach to Housing Ourselves

Kathryn McCamant & Charles Durrett,
authors of Cohousing

Cohousing communities respond to the basic needs of today's households—child care, social contact, and economic efficiency—by combining the autonomy of private dwellings with the advantages of community living. Pioneered primarily in Denmark and now being adapted in other countries, the co-housing concept reestablishes many of the advantages of traditional villages within the context of late twentieth-century life.

Cohousing communities offer a safe and supportive environment for children while supporting a practical and spontaneous lifestyle. They create intergenerational neighborhoods using environmentally-sensitive design which emphasizes pedestrian access and open space.

Cohousing also provides societal benefits such as greater resource efficiency (in terms of both material and energy) and enhanced security for the community and surrounding neighborhood. Furthermore, by taking advantage of the benefits of clustering dwellings, this type of development makes higher densities more attractive, an essential element in reducing urban transportation and suburban sprawl. The scale of cohousing communities - 15 to 35 dwellings - makes them ideal for urban infill sites or conversions of existing buildings.

The Urban Cooperative Block

People who want to make village cluster/cohousing communities work in the city are getting excited these days about what's known as the Urban Cooperative Block concept—an idea refined and facilitated by the Shared Living Resource Center in Berkeley, California.

Ken Norwood

Good cities function as stimuli, full of resources, cultural events, and a diversity of minority cultures. Well-designed cities also provide an identifiable order and sense of place for the inhabitant. Using the Urban Cooperative Block concept, an existing single-family block can be transformed from a collection of socially isolated, underutilized, often rundown individual houses into an urban village/cluster/cohousing community, complete with community house, common back yards, common parking, and common resources.

Many variations of the concept are possible. One is the Cooperative Home-Enterprise Community. This is a community organized around one or more home businesses in which all members participate, or around a cluster of self-

employed artists and craftspersons. Community members can live and work within a cohousing complex complete with a central house, private units, workshops, studios, retail shops, offices, and possibly a restaurant or grocery store.

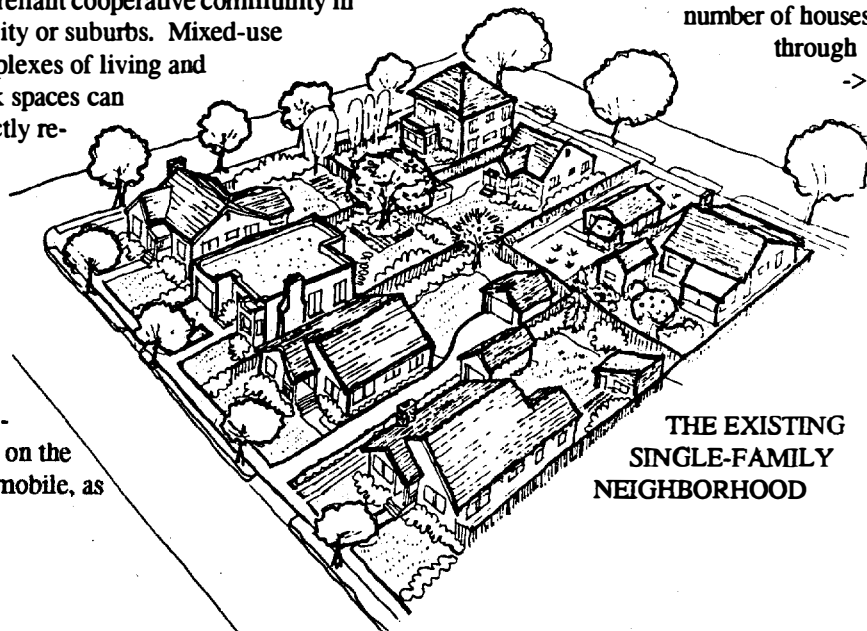
Another is the Urban Mixed-Use

Cooperative in Recycled Commercial and Industrial Complexes. The recycling of obsolete corporate/industrial parks, shopping centers, and office complexes can be a source of alternative housing for core groups seeking a diversified and self-reliant cooperative community in the city or suburbs. Mixed-use complexes of living and work spaces can directly reduce

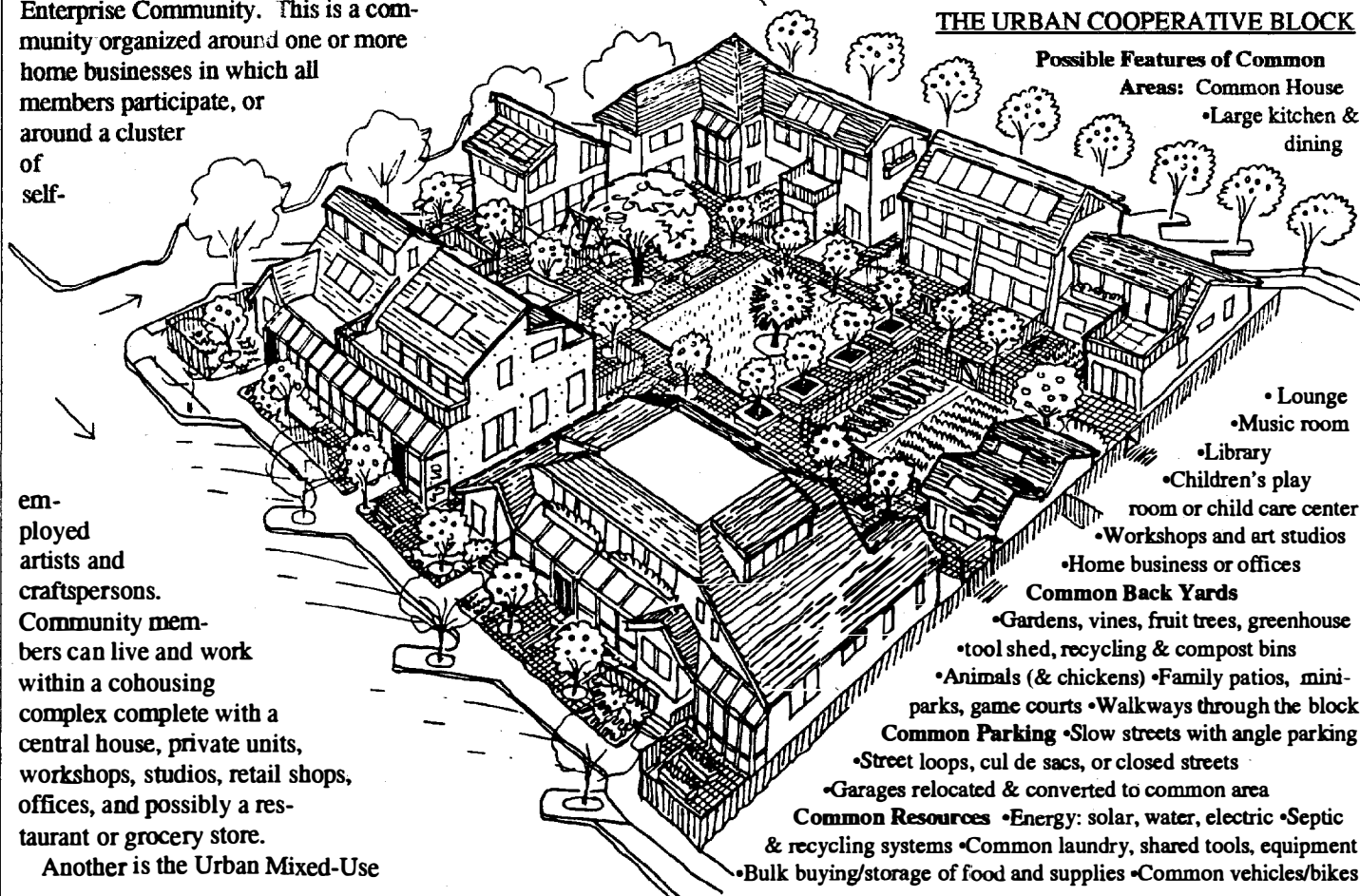
dependency on the automobile, as

well as serving affordability needs.

The Voluntary Cooperative Block happens when adjoining neighbors open up their back yards as a prelude to the sharing of common resources. With discussion groups and block meetings, participation can increase and gradually expand the number of houses through



THE EXISTING SINGLE-FAMILY NEIGHBORHOOD



THE URBAN COOPERATIVE BLOCK

Possible Features of Common Areas: Common House
• Large kitchen & dining

• Lounge
• Music room

• Library
• Children's play room or child care center

• Workshops and art studios
• Home business or offices

Common Back Yards

• Gardens, vines, fruit trees, greenhouse
• Tool shed, recycling & compost bins

• Animals (& chickens) • Family patios, mini-parks, game courts • Walkways through the block
Common Parking • Slow streets with angle parking

• Street loops, cul de sacs, or closed streets

• Garages relocated & converted to common area

Common Resources • Energy: solar, water, electric • Septic & recycling systems • Common laundry, shared tools, equipment

• Bulk buying/storage of food and supplies • Common vehicles/bikes

cooperative agreements, and the leasing or buying of available nearby lots.

The Urban "village cluster"/"cohousing" Community is an intentional urban community of adjacent lots and houses owned or leased by a group of residents or a non-profit corporation. It can be achieved in a number of financial and legal ways. This form of an urban cooperative block is typical of popular Danish models of cluster communities. They are complete with a central house full of common amenities, and new and remodeled infill units, resident control and participation, and sharing of resources, tasks, meals, child care, tools, and cars.

There are many economic advantages

to urban cooperative blocks. Ownership can be by a profit or a non-profit corporation with resident control, limited equity cooperative, community land trust, or mutual housing association. Housing costs can be lowered through additional infill units and added bedrooms, co-ownership, renting of rooms and units, cottage industry, or home business.

Socially, urban cooperative blocks can be more affordable by serving a diversified and intergenerational cross-section of the population, from low- to moderate- to higher-income persons, beginning the end to homelessness. They may consist of university students, young people just beginning their working lives, single

persons of all ages, young families, larger families with older children, retired and working older persons and couples. They would also assist persons with special needs or interests to revive cultural roots and spiritual practices, and create a supportive environment for the differently-abled, post-homeless, and those in the transition of dying or giving birth. Δ

Ken Norwood directs the Shared Living Resource Center in Berkeley, California. He invites inquiries from permaculture readers in the Bay area. SLRC, 2375 Shattuck Ave., Berkeley CA 94704. (415) 548-6608.

Suburban Permaculture

Kevin Wolf

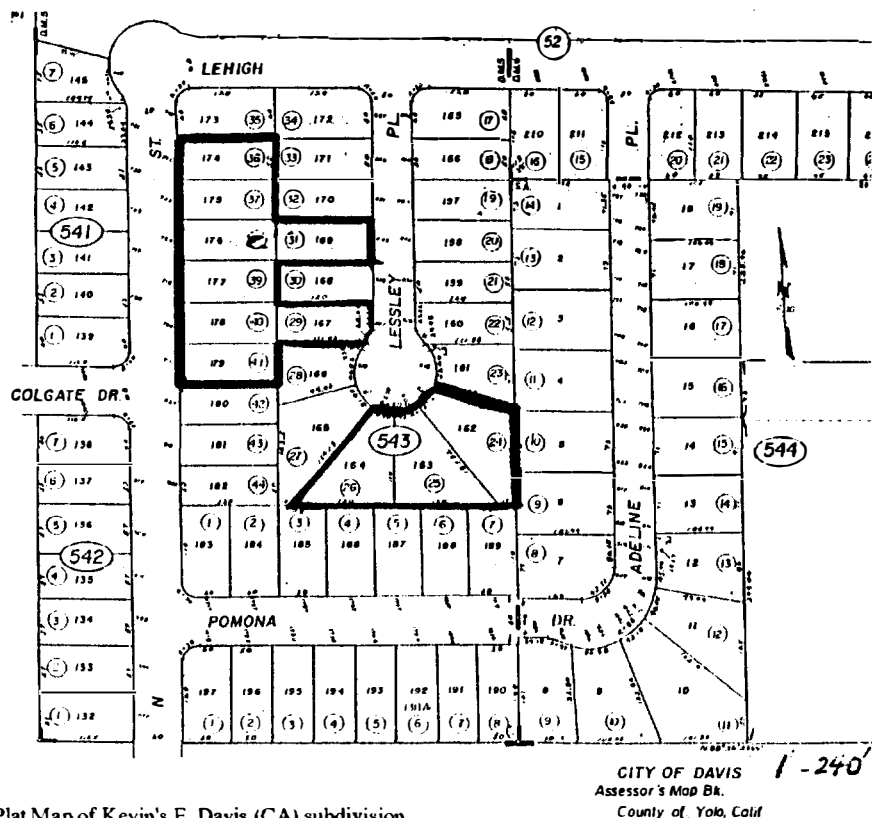
In 1979, when Guy Baldwin and I rented the five-bedroom three-bath house at 716 N St., Davis, CA we couldn't begin to dream of what it would become. Our goal then was to set up a cooperative, co-ed house with friends, attend the university, and maybe put a little garden in the backyard. Now, that house is firmly on its way to becoming the "common house" for the surrounding block in which all the backyard fences have been removed, and a new experiment in "co-housing" and "permaculture" has begun.

Ideas are powerful agents for change. Guy started reading Bill Mollison and our backyard underwent a transformation. First a tire pond. Then an "instant" garden that eradicated the bermuda grass. Eventually 40+ species of edible plants that have made their permanent home in what is now a much more unruly and beautiful garden.

Barking dogs, invading snails, a bad rock-and-roll band and a platform high enough to observe the cacophony and chaos emanating from our neighbor's yard and we had another powerful agent for change. Wouldn't it be great to tear down the fence between the two yards, and get rid of the neighbors and their snail-infested periwinkle at the same time?

Capital, too, is an agent for change. On an annual lease, we were faced with the possibility of losing our home every year. One year, everyone moved out but me—the landlord was fixing up the home to sell it. It was this minor disruption that launched the effort to buy the house, then the block. All that stood between us and the future was \$4,000 and someone to cosign a loan.

My landlord, Lynn Marchand, turned out to be a great guy. He explained a principle that has been a guiding light ever since. When I negotiated to buy our house from him, he told me, "The system was designed by and for the rich. The bankers and the upper class bought access to Congress which wrote the laws on interest rates and banking. What you need to do, Kevin, is to figure out how the system works, and make it work for the ideals you believe in." Lynn arranged for me to assume the first and second



Plat Map of Kevin's E. Davis (CA) subdivision

CITY OF DAVIS
Assessor's Map Bk.
County of Yolo, Calif.

mortgage on the house, and loaned me the rest himself. And so began our adventure into capitalism, co-housing, and permaculture.

We are at eight houses now—fenceless but strong. The most recent two were brought into the community on two-year leases with options to buy. The house that closed in February of 1990 was purchased by seven of the tenants in the community—talk about figuring out the system and making it work for our ideals. Complicated, idealistic, with only a slight bending of the system, this most recent purchase has done the most to create our identity. Essentially, that is one of belonging and permanence, of home, community, and maybe someday—tribe.

A Turning Point

We are on our way to becoming a co-housing community—the only one we have heard about that takes an existing suburb and transforms it. The center of our co-housing community will be the common house. The big five-bedroom house will be converted to accommodate community evening meals, childcare, guest bedrooms, a workshop, community kitchen, and more for what we hope will eventually be 12 houses. Owned by all through our own limited equity cooperative corporation, the common house will provide the space that centers and bonds. With it, in it, but not because of it, we know our community will grow together, bond together and become an extended family together—like humanity was for millennia before the industrial revolution's need for the mobile nuclear family.

Where does permaculture fit into the community? It is still part of individual dreams and visions, not yet defined by the all, and therefore not yet perfectly clear to the individual.

Permaculture is more than a garden that takes little effort; a landscape that is rational yet chaotic; a yard that is productive but wild. Permaculture for me is a concept of growth and belonging. Over time, the edibles and aesthetics that belong here, and the animals that are part of this home will develop into a harmonic, natural ecology that fits our biome. We will be part of a larger community in our bioregion; seasonally ordering our major produce and food needs from our organic farming friends. Our permacul-

ture garden will not provide all for the community, but it will provide a great place to observe, interact, admire, taste, work, play, and grow.

I hope our co-housing community develops in a similar way—a little chaotic, definitely diverse, yet in a wild and loving harmony; a place of awe, of work, of belonging, of growth, of

spirituality; a place in which to be born; a neighborhood in which to grow old and die; a community to know as home.

Kevin Wolf and Guy Baldwin first wrote about this scheme in Vol. IV, No. 2 of The Activist. It gives us great pleasure to report the continued success of this generous-hearted community.



Kevin and daughter, Kelsey, in their back yard garden, early 1989. There were only four houses then.

Ecocity Conference 1990

Farallones Institute:
From Crisis to Curriculum
Sim Van der Ryn, architect, planner

The idea of Farallones Institute was born out of three beliefs:

1. People learn best by participating in doing;
2. Ecology needs to be integrated with design; and
3. Community change comes about when people experience examples.

How We Screwed Up:
A Primer for Eco-Groups

Rocky Rohwedder, professor of environmental studies at Sonoma State Univ. and a former Farallones board member, studied a number of environmental non-profits, including Farallones, that were born after the first Earth Day. His dissertation points out that our problems were not unique. And so, a brief assessment might keep new groups in the Nineties from repeating the same mistakes. Five factors contributed to

Farallones' inability to adapt to its changing environment:

1. **"WE-THEY":** People with a burning mission often lack compassion and a sense of humor. They easily become self-righteous and judging. Disdain for others never wins new friends. We become reduced by our own rhetoric and alienated by our own jargon.
2. **BURN-OUT: LIVING AND WORKING COOPERATIVELY:** I used to think that integrating my life had to mean carrying on all aspects of it in the same time and space. Combine this with cooperative living, a constant flow of visitors, and outside demands, and you have a seething nuthouse instead of ecological sanctuary.
3. **LACK OF ORGANIZED FORM AND MANAGERIAL SKILLS:** We used to think because we shared values, we could improvise organization and everything would work out. We had a lack of workable non-hierarchical models. I see no substitute for committed leaders who manage sensitively,

continued, next page

Facilitating Group Genius

A Conversation with Clear Marks

Facilitate means make easier. How will our group make a decision after we listen to opposing proposals? Will we: (1) Impose majority rule on losers who suffer government-by-others? (2) Settle for a compromise which half-satisfies us and half-dissatisfies others? or (3) Create a mutually-satisfying agreement better than any previous proposal? For this third choice, we needn't be likeminded. Indeed, when cooperative procedures are facilitated, diversity increases our creative potential. Then we can celebrate agreements oftener, as illustrated below.

To become self-governing, an assembly requires control of its own program as practice for community control of wider policies and resources. We need all the practice we can get! So at conferences, let's first work for a community of purposes which, hopefully, include aims of the conveners. Then let's feel free to modify conference programs to achieve our purposes.

Distributing Leadership & Sharing Responsibility

Clear, as Facilitator: "Before we plan for action, we need to agree on the precise purpose we are to plan for. To formulate this, I invite you to nominate various wordings which we may consider.

"After agreeing to a purpose-proposal, we're ready for action-proposals which specify who is to do what—and when. When stated in the fewest most understandable words, proposals save us from time-wasting hassles. Let's try to make them *responsible, simple, and brief*. If any wording does trouble us, let's offer the proposer time-out to edit the text privately with her or his chosen consultants.

"Sharing leadership roles helps group genius to emerge. We can start distributing these opportunities by insisting on understanding one proposal before hearing another. When in doubt, let's first ask volunteers—not the proposer. Let's each feel free to clarify complexities, to summarize the state of our deliberation, or to comment on likely consequences of adopting a proposal. If any unclearness remains, any member may call for moments or minutes of

silence until we see how to bring light. The asker, the clarifier, the summarizer, and the commenter on outcomes, each is sharing leadership with the proposer.

"Such shared *responsibility* includes initiatives as well as responses. Shared

power cuts down followership. The sooner members practice the roles, the sooner I fade out as *the* facilitator and *collective facilitating* emerges. Members won't wave hands to be recognized, but will facilitate spontaneously whenever they sense a need." (This replaces "stacking" to take turns. Instead of giving full attention to previous speakers, stacked members often think of what



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van der Ryn, continued from Page 31

humanely, and responsively. Behind every project that has any staying power, no matter what the rhetoric, you find someone in charge.

4. "VOLUNTYRANNY": Every righteous non-profit project attracts lots of well-intentioned people. People wind up working for sub-standard salaries or as volunteers. People then feel that the lack of monetary rewards should be balanced by psychic rewards, such as using the context to work out their own agendas; or by not accepting any critical feedback, because, after all, they aren't getting paid much. No organization can survive rampant voluntyranny.

5. DIVERSE FUNDING: Our Achilles heel became the attractive, well-paying Peace Corps contract. As a semi-wild critter, we violated a basic law of ecology by changing our feeding pattern, from grazing many lean pastures to crossing the fence and munching contentedly like a domesticated animal in the irrigated pasture. All was well until the water was turned off and then we starved.

Regeneration

In 1988, the board was reorganized and we began to regroup and refocus. The highest priority was to become economically sustainable.

Our main asset was our unique site, and the facilities, which were badly in need of maintenance. We had built quickly but often not well. We decided to borrow against the land and improve our facilities so that we could accommodate participants in simple comfort, rather than camping out. Initiating a new weekend workshop series we began last summer with Amory Lovins and Denis Hayes, and this summer will host weekends with Richard Register, Christopher Alexander, Len Duhl, and other leading figures in the arts, sciences, and design.

Some say man is a plague species and his works a cancer on the planet. Many people still believe material progress can continue by burning up the house of life that is our biosphere. We believe new approaches are needed to transcend these opposing views. We need to find ways to integrate human potential with ecological reality. That is what Farallones will be about in the Nineties.

each wants to say.)

Facilitating License

After we've agreed to sharing of leadership, this license is good for frequent spontaneous facilitating. This gives no permission to interrupt the flow with a new proposal and no permission to criticize which does not facilitate.

Optimizing

Participation in Big Groups

Frequent participation in planning programs and projects helps us enjoy self-rule. (Those who participate less tend to invest less energy in group efforts.) Sitting in circles helps us see, hear, and speak easier than in rows. The big assemblies called *plenaries* need not choke off our active involvement.

Examples of Mistakes: A circle is *too big* if numbers keep one from responding soon to what others say. Many more than six can be too many. Equalizing participation by passing around a permission to speak object (such as a stick) actually discourages participation. Equally unfree to respond, listeners become a captive audience.

How can we achieve small group benefits in oversize groups?

Example: When the Six Nations Grand Council plans actions, over 50 Iroquois chiefs sit around a fire in six sharing circles. Each can participate six times oftener than if seated as one mass meeting. Or each can weigh precious ideas in silence. Nobody speaks to the plenary but spokespersons for sharing circles. These spokes report agreements but waste no community time narrating what lacked agreement. (On a visit to Iroquois land, I witnessed this participation invention.)

With similar sharing circles, a much larger conference, networks of task committees, and affinity groups practice community self-rule. Established leaders sometimes resist this pattern which they can't control. So let's talk with them before we suggest it. Then to others: "Let's *form* sharing circles so we can all participate more."

Semantics Mistake: Very often, newcomers to group skills felt threatened when we phrased it: "Let's break up into sharing groups." "Splitting" or "dividing" up produced similar resistance.

How can we speed up our process of making plenary decisions? Sitting in sharing circles, we listen to or read each

proposal.. Each circle may: 1-Support it, 2-Block it with a major objection, or 3-Add a *friendly amendment* (It's friendly if proposers accept it.) The first circle to agree on one of these choices rehearses a spoke who stands and reports to all. The other circles continue deliberating and reporting on their agreements. When a major objection blocks action, a friendly amendment may win approval. We may refer a blocked proposal to a committee.

Practicing: Let's discuss lectures and films in sharing circles.

Responding to Facilitate

Full Understanding:

A message is fully communicated only if it is received, understood, and responded to. We *contribute* as we say what we want our group to do or suggest ways to do it. We *respond* as we acknowledge contributions to focus attention on them and as we clarify them. Acknowledging and clarifying facilitate full communications. Such responding can be helpful fun, even when we have nothing else to contribute.

Contributing Unified Messages

Listeners can digest and evaluate single "message units" easier than a series of units. Even if well organized, long speeches often erase their earlier points from memory. Overdosed listeners rarely focus on what speakers consider important. Question: Will our group favor SHORT contributions, unified enough to be summarized into one sentence?

"The group creates a tapestry
When we each add our own best thread,
Agreement comes by sharing clues,
So let's not sell whole rugs, instead."

Responding Before We Switch

We usually remember contributions we have responded to—and may forget those we fail to respond to. So before we switch subjects, let's at least acknowledge the previous contribution. Without this courteous indication of listening, we may "wipe out" the contribution.

Example of An Unkind Switch: After I spoke, members talked about something else. Supposing they misunderstood, I explained until they shut me up for talking too much.

Clarifying and Testing for Clarity

It's up to us listeners to clarify every misunderstandable contribution. Asking "Do you mean A—B—C?" (in simpler fewer words) clarifies sooner than asking

"What do you mean?" Such a brief *paraphrase* indicates *active listening*. It enables the speaker to correct omissions or distortions promptly. By such "instant misunderstanding tests," listeners make full communication possible. Δ

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Ecocity Conference 1990

Ecovillages in Denmark

Floyd Stein

The community or village is a basic social unit. Viewed from the outside it has a zoological/biological function. Bees, ants, and beavers all flock together. Like these creatures, humans are also flock animals. Apparently we have a basic need to be close to each other.

While not villages per se, the Folke High Schools are a strong Danish example of an alternative community. People live there for a year and they form the basis of a small village. These communities have started many innovative ideas including the co-op movement, renewable energy, alternative/integrated medicine, organic farming/gardening, algae and plankton waste water treatment plants, new education focuses, political movements, and relationships with the Third World. The Folke High Schools are one reason why Denmark has never had a revolution.

Appropriate Technology in Mexico City: Xochimilco

Alfonso Gonzalez Martinez, co-founder, Grupo de Estudios Ambientales, Mexico

Xochimilco is a Nahuatl word that means *seed*, or cultivated field of flowers; it honors appropriately a lacustrine-and-agricultural area in the south of Mexico's Valley. This water garden extends about 2,000 hectares (20 sq. kilometers). It is the workfield for some 10,000 urban-peasant families that grow, besides vegetables, flowers and ornamental plants for market, and corn for subsistence.

The old Xochimilco dominion has for centuries shown a marvelous ability—as a community—to grow diverse plants, making "gardens on swamps"—as they described the "chinampas" (hand-cultivated plots, settled in the shallows of the lake, near the shore).

As part of metropolitan Mexico City, with 18,000,000 inhabitants, Xochimilco people remain, a living witness of precedent cultural patterns. By harmonic and sustained forms of relations with a natural-and-transformed environment Xochimilco offers its millenary experience as an inspiration and also—as far as it has survived until now—as an example to take if we want to re-inhabit our Mexico City valley sustainably and with a progressively improved quality of life. Δ

Book Review

Beverly Winge

A Pattern Language

Christopher Alexander, et al, Oxford University Press, N.Y.

Have you ever wondered why some places make you feel good, others make you uncomfortable? Why some people's homes charm you, others leave you cold? What is this thing called ambience? Must one be an artist to create the kind of space that invites you in, and makes you loath to leave?

If you are curious about such mysteries, there is a strange and wonderful book you'll want to investigate, a book that not only suggests a myriad of solutions to human spatial problems, but will provide you with a lifelong source of inspiration for any planning, building or construction project you involve yourself with.

This magical tome is "A Pattern Language" by Christopher Alexander and five others from Berkeley, California's Center for Environmental Structure. It's not new: first published in 1977, it has become an important part of an alternative movement in architecture that emphasizes the idea that people should be designing their own houses (and gardens, and communities). This idea comes from the observation that most of the wonderful places of the world were not made by architects but by ordinary people.

Although the book stands alone as a most valuable resource for your library, it is only one of a series that by 1987 had reached six-volumes: I. *The Timeless Way of Building* presents the fundamental theory; II. *A Pattern Language* supplies the practical knowledge; III. *The Oregon Experiment* describes implementation of the theory by the University of Oregon in planning for a community of 15,000; IV. *The Linz Cafe* follows the designing of a single building in Austria; V. *The Production of Houses* centers around the building of a group of houses in northern Mexico; and VI. *A New Theory of Urban Design* attempts to recapture the process by which cities develop organically.

The format for this book is most unusual. Basically, there are 253 separately numbered patterns — descriptions of common spatial problems which occur over and over in our environment, amply illustrated with photos and diagrams. Each problem is followed by a description of a core solution, plus a list of the related, smaller patterns also bearing on the subject. Collectively, these patterns give us a kind of "thinking" language we can use when we design something for ourselves, and a "speaking" language for communicating and working with others.

Each pattern is a nugget of wisdom. Together, they represent eight years of research and writing by Alexander and his colleagues. They cover regions, towns and communities, grouped and individual buildings, and actual construction technique. They have intriguing titles: *Country Towns*, *Magic of the City*, *Sacred Sites*, *Access to Water*, *Common Land*, *House for One Person*, *Courtyards Which Live*, *Communal Eating*, *Small Work Groups*, *Light on Two Sides of Every Room*, *Tree Places*, and *Garden Growing Wild* are a few.

A single example will give you the flavor. Here's an excerpt from the pattern, "Windows Which Open Wide".

"Many buildings nowadays have no opening windows at all; and many of the opening windows that people do build don't do the job that opening windows ought to do.

"It is becoming the rule in modern design to seal up windows and create 'perfect' indoor climates with mechanical air conditioning systems. This is crazy. A window is your connection to the outside. It is a source of fresh air; a simple way of changing the temperature, quickly, when the room gets too hot or too cold; a place to hang out and smell the air and trees and flowers and the weather; and a hole through which people can talk to each other...

"Decide which of the windows will be opening windows. Pick those which are easy to get to, and choose the ones which open onto flowers you want to smell, paths where you might want to talk, and natural breezes. Then put in side-hung casements that open outward. Here and there, go all the way and build full French windows,"

6. Construction. The structure of every building must generate smaller wholes in the physical fabric of the building, in its structural bays, columns, walls, windows, building base, etc.—in short, in its entire physical construction and appearance. A New Theory of Urban Design

Casual readers browsing through this volume without a particular project in mind may be startled when they emerge a couple of hours later, look at the clock, and wonder what happened. The format is tricky. It will grab your attention and not let go until you're weary of page-flipping and overwhelmed by stimulating ideas.

However, for more serious readers the authors suggest a procedure for choosing a language for one's own project. It consists of taking patterns from the book and adding patterns of your own. You copy the master sequence (index), choose the pattern which best describes the overall scope of your project, tick off a list of other patterns that are relevant, then make adjustments and add your own ideas for any problems the book doesn't cover. This list is your "language." To make a design, you are encouraged to plan on location, not on paper. So you may soon find yourself standing at your site, eyes closed, trying to imagine, one at a time, how each pattern will look when built, then marking the space with bricks, sticks or stakes — a process that may prove difficult for paper-oriented people. Which brings up a point: this new "language" could be the very thing for helping us linear folks to deal with the archetypal solutions that artists and old-time craftsmen seem to come up with intuitively.

You may find a subtle similarity between *A Pattern Language* and Mollison's *Permaculture: A Designers' Manual* — both in the way they are presented and the way they are meant to be used. In both systems, the more "solutions" you can incorporate into your planning, the richer, more meaningful, more "organic," your final product will be. (And, says Alexander, with greater

density, lower cost, and more successful building.)

However, there is a definite difference in focus. *The Designer's Manual* describes a system for integrating plants, animals and the elements to work together as Nature intended. *A Pattern Language* defines what works best for people. If Permaculture is a back-to-nature movement, *A Pattern Language* heralds a movement towards enhancing human nature. Δ

A Pattern Language
Towns • Buildings • Construction
Christopher Alexander
Sara Ishikawa • Murray Silverstein
with

Max Jacobson • Ingrid Fiksdahl-King
Shlomo Angel
\$49.95 --Oxford University Press —1977

7. Formation of Centers.
*Every whole must be a
"center" in itself, and must
also produce a system of
centers around it.*

...
A New Theory of Urban Design,
Christopher Alexander, Hajo Neis,
Artemis Anninou, Ingrid King.
Oxford University Press
New York, 1987.

Permaculture Training

Advanced Permaculture Courses

and the Permaculture Services Apprenticeship Program:

A response to a shift in global public opinion

and a local organizational need

Lea Harrison

The function of Permaculture Services is to link permaculture graduates who want to work as teachers and designers with available teaching and designing jobs.

In the past individual consultants have each operated independently in finding and generating work. At this point in time the number of design course graduates and the amount of work being offered has reached a critical size where an organizational structure is necessary to provide effective linkages.

To assist with this Permaculture Services is now holding Advanced Courses in Design and Teacher Training. These two, seven-day courses have been designed and are being taught by Max Lindegger and myself, with some input from Bill Mollison. They are based directly on the experience we have gained from ten years of working as permaculture consultants.

The Advanced Design Course concentrates on the practical "how to's" of designing: finding work; dealing with clients and councils; site assessment and mapping; practical designing; on the ground layout of house sites, roadways, water systems, windbreaks, etc; financing and the differences and similarities associated with the scale of jobs from small sites to complete village design. Practical work forms a high percentage of the course.

The Teacher's Course looks first at permaculture principles which are constant in all situations of climate and culture and the adaptation of techniques to these differing conditions. It continues with teaching practice and techniques as they relate to permaculture subjects; curriculum design for public lectures, short workshops, introductory courses, and design courses; teaching special interest groups (e.g. farmers, children, urban dwellers); teaching in another culture; course organization; troubleshooting; funding, and how to get work. During the course each participant prepares and teaches a short section from the design course curriculum, and gets feedback from the whole group and from watching a video of their teaching.

The first Advanced Courses were held in 1989 in Australia and New Zealand. This year Max and I have held further courses in the U.S.A., Denmark, Britain, and Australia.

These courses are a response to two conditions. Firstly, to requests of design course graduates for further training to enable them to become active designers and teachers at a professional level. In the past, design course graduates have been expected to do two years' practical work of their own choosing and then apply to become a permaculture consultant on the basis of this work. Often people were working in isolation without any support or guidance. It has been a bit like being pushed into a swimming pool

at the deep end after a two-week, pressure-cooker course in the theory of swimming, with one or two short practical classes at the end. Some people have swum well—others have sunk without a trace.

Secondly, advanced courses are a response to a recent apparent shift in public opinion. Suddenly the belief that we must change the way we live so that we can stop the destruction of our environment has moved from a minority to a mainstream view. Among people who have been working for years to achieve this there seems to be a sense of surprise and uncertainty as to how this affects them and what they should do now. Although the public knows they must act to protect and repair the environment, it appears to me that people are unsure *how* to act and are looking around for information and example. It is now that the skills of the people who have been plugging away without much support, sometimes with opposition, are in demand. Therefore, permaculture is in a phase of rapid expansion. We urgently need more designers and teachers of a professional standard. The first Advanced Permaculture Courses have made a start to achieve this.

Permaculture Services has planned an apprenticeship program as a follow-up to these courses. Whenever possible, all future Permaculture Services courses and design projects will take one or two trainees so Advanced course graduates can gain further skills from working with experienced consultants. Δ

Lea Harrison and Max Lindegger will offer Advanced Design and Teacher Training Courses in Hawaii in September 1991. See details pg. 37.

Hands-On Workshops:

Our Experiences at Linnaea Farm

Rick Valley

A constant criticism of design courses I have been involved in as teacher and participant here on the west coast of N. America goes like this: (chorus) "NOT ENOUGH HANDS-ON!" I sympathize with these sentiments, but it's hard enough to fit an adequate curriculum into a two-week design course, and hands-on eats up time rapidly. Usually we have managed only one half-day project. I've heard tell of three-week design courses with lots of hands-on, but we've found many people can't afford more than 14 to 16 days out of their lives, especially those with work who can afford tuition rates that make a course affordable for poorer students, and paying for teachers.

Two years ago, during the "where do we go from here" session at the close of the first design course in British Columbia, I proposed a hands-on workshop/course reunion for the following summer. The first attempt, in '89, was not an unqualified success, though better than just a "learning experience"! So, we tried again in August '90, and it looks like we've got a good thing going. I feel we've developed a type of educational experience that adds to the diversity of what's being offered by permaculturists, and I feel it probably can be done by other people in other places. So, here's what we've found—maybe you can use it, too.

Cortez Island, BC is off the beaten track, and Linnaea farm has adequate facilities to host a group, so we have adhered to the concept of a residential course, and the length of a full week with an added weekend, or 9-10 days. This proved to be long enough to promote the same positive social effects that occur in a design course: group spirit, a bit of perspective and separation from "back home," and, in many cases, ongoing friendships and work relationships. We've also received thanks for the shorter time, which is less disruptive of schedules than a design course.

So what's the difference from a design course? Are we giving people the idea that they've done one, but given no

certificates? As far as classroom time, we are basically covering the same ground as in a weekend "Intro to PC" workshop, (although at a slower pace) and we describe design courses and how they differ. Workshop participants fall into the following categories:

- 1) Never going to do a design course: "I hate classrooms, too many words."
- 2) Working up the courage/enthusiasm to take a design course: "I'm beginning to see what PC has for me."
- 3) Post design course, still digesting or just wanting more.

The general day's schedule is work in the morning, afternoon a mix of class, demos, short work periods, and time off, and evenings rather like at a design course: slides, presentations and parties. One full day is off-farm, working at a friend's oyster lease, learning about another part of the island economy while providing ingredients for several dinners. Two afternoons are spent on field trips, one by canoe and rowboat.

The hands-on work part of the workshop is as varied as we can make it. Generally, we use few power tools, and don't go to one job day after day, though we have found that participants crave completing tasks. Modern North Americans are often empowered to find they can move a large stone or tree with simple tools and techniques. Projects we've done have included stone wall terraces, a greywater system, an instant garden, preparing tree sites, stream enhancement, erosion control, and pole fence building. We emphasize an easy pace as the first step towards safety, and make sure that we show how each project fits in the somewhat informal, evolving permaculture design for Linnaea farm. Frequent breaks are called to explain tricks of the trade, techniques, or to conjure up the "Vision" (as in the case of a stone wall where there's no precise plan, but a number of desired functions, and actual design is left to the builders).

Lectures and class time cover permaculture basics, to give the reason behind the tasks, and also give people the basics of the place, Linnaea farm, and what

goes on there among all the inhabitants. Evening presentations cover these subjects, and also we do one or two of interest to off-farm islanders to broaden participation, such as this year's presentation on forestry from a permaculture perspective. Participation in the discussions by the islanders was valuable for the workshop participants, giving them a sense of the community feeling on the island, and of the unity in struggle for ecological management of forests worldwide.

We have also spent one evening at each workshop with participants presenting their own designs, properties, and problems for group feedback and consultation. This evening is announced at the start, so people have a chance to prepare and steel their courage. We experts are going to get asked for advice anyway, so we turn it into an exercise for all, and participants get to see other possibilities and have a chance to see how highly trained, keenly perceptive PC designers approach a problem. This evening tends to go late, and dissolve into "wild designing."

Here's a partial checklist of things we've found most important in our evaluation sessions.

- Send prospective participants a good list of what to bring: water bottle, gumboots, work gloves, pruning shears, etc.

- Send participants a sheet detailing proposed projects and presentations and request feedback on their particular interests, so you can determine priorities and tailor things a bit to their wants.

- Linnaea has received praise for holding costs down, so that low income people are not excluded, but participants have urged a higher end on their sliding scale (\$250-\$350 Canadian in 1990).

- Plan projects that can be completed. This may not be necessary in some cultures, but here achievement is very important.

- Lead time for promotion is important for filling any course, and it's important to publicize presentations open to the local community in advance, too.

- Flexibility in scheduling can be very necessary. Having short demonstrations and the like ready to throw into a gap can provide continuity. A few extra slide shows or videos in reserve can be very valuable in case of bad weather or

cancellation of a presenter.

- Budget a bit more for food for obvious reasons.

- Though they've not been needed, we make a point of identifying the locations of first aid kits, and introducing those with special first aid skills.

- We make an effort to show participants the plan behind the tasks and projects. A reasonably complete design for the site is definitely desirable.

- A workshop of this sort is also a fine time for a new permaculture teacher to gain classroom experience in a slightly less formal, less demanding situation than that in a design course.

Teaching hands-on is a pleasant change for me from classroom and lecture-type teaching. The complexity of the situations that develop never fails to keep my interest. Within a few minutes I might show one person how to swing a pick, ask another to lead a small team to fill a section of trail, and then give a mini-lecture on energy and nutrient flows, as evidenced in the scene at hand. Getting it in the muscle memory is the thing, so leading by example is very important. Having some teachers experienced in labor is important for maintaining pace, and delegating tasks, but it's also a great opportunity for reinforcing knowledge of permaculture laws and principles, and teaching in the "cyclical learning" style that Jim Tyler (New Zealand) told of at the convergence there. (Have you written about it yet, Jim?) When it gets good, there's soon a lively banter of jokes, buzzwords (*lingua perma*), and wild designing going on as we go about our work.

I think we have a way here to teach Permaculture that complements a design course, and does so in a way that reaches some who don't find a design course palatable.

MANY THANKS TO ALL WHO'VE PARTICIPATED AND MADE IT HAPPEN! Δ

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Permaculture Educational Programs

These programs are funded, organized, and taught by independent regional groups and individuals doing permaculture work. Publication here does not imply certification or endorsement by *The Permaculture Activist*. We encourage all groups to contact us with news of upcoming events.

Basic Design, Advanced Design, and Teacher Training 1991 Permaculture Courses in Hawaii

Max Lindegger and Lea Harrison will return to Hawaii in September, 1991 to give a series of permaculture courses at the Wood Valley Retreat Center. The three-course series will begin on September 7th with the two-week Basic Design course. It will be followed by the one-week Advanced Design and Teacher Training Courses.

Lea Harrison took the second-ever design course from Bill Mollison. She taught the third and has been actively teaching ever since. Max Lindegger, principal architect of Australia's Crystal Waters permaculture village, has executed well over six hundred PC designs in a global range of climates and conditions. Between them they hold over twenty years of permaculture experience. Their cooperative venture, Permaculture Services Ltd (Australia), have developed to a high degree the curriculum which has resulted in the emergence of Advanced Design and Teacher Training Courses. They have now jointly taught the two advanced courses in all major regions, the U.S., Europe, and Australia.

This will be Permaculture Service's third appearance in Hawaii. Lindegger and Harrison's teaching work is increasingly concentrated on the advanced curricula. Their offering of a Basic Design course in the United States is thus an unusual opportunity for well-qualified students to initiate permaculture training at a high level. The Basic course will emphasize design for tropical and sub-tropical regions and will include a number of guest speakers from the Hawaiian Islands introducing cultural and botanical material from this bioregion.

The course site is a Buddhist Retreat Center located on the south slopes of

Mauna Loa in a small, wooded, subtropical valley. At 2,000-foot elevation the area enjoys sunny mornings, frequent afternoon showers, and cool evenings. Apples, peaches, bananas, and figs grow within walking distance of the facility which is situated on the edge of a large sugar cane plantation. The remote rural area is splendid for walking and lies eight miles from the nearest public beach.

A range of accommodations will be available including camping, dormitory lodging, and a few private rooms. Private rooms will be available preferentially to couples and on a first come, first served basis. A deposit of \$100 will be required for registration. Early registration is requested. Payment in full prior to July 1, 1991 will entitle the registrant to a \$50 discount from the total fee.

1991 Dates:

Sept. 7-21 Basic Design Course
Sept. 24-30 Advanced Design Course
Oct. 3-9 Teacher Training Course

Location: Wood Valley Retreat Ctr.
Island of Hawai'i

Cost of Instruction & Meals:

Basic Design (14-days) \$675
Adv. Design (7 days) \$375
Teacher Training (7 days) \$375

Lodging:

Camping on Site \$50 per week
Dormitory charge \$100 per week
Private Room (limited availability)
\$140 per person per week double-,
\$185 per week single-occupancy

Contact: Carl Winge 808-929-9028
or Peter Bane 929-9463
Permaculture Hawaii
PO Box 5167
Kailua-Kona HI 96745

Guatemala Sustainable Development Study Tour The Aprovecho Institute

Dates: Feb. 5-17, 1991
Location: San Lucas Toliman on Lake Atitlan

Description: Renews the connection between land and people which exists in traditional societies, by using organic farming, appropriate technology, careful land use planning and sound economic principles.

- organic gardening methods
- solar energy
- integrated aqua/agriculture
- social and economic strategies
- sensible landscape planning and permaculture

Instructors: David Hammond has worked with campesinos in permaculture techniques for 3 years; Ana Marie Xet, Quiche Maya microbiologist, specialist in composting and hygiene; Mark Dupont, specialist in integrated pest management.

Cost: \$700 includes meals, accommodation, course materials, and field trips. Half the fee provides scholarship for participants from less industrialized countries, encouraging international exchange. Work trades available (ten-person limit)

Participants are responsible for their own transportation to the site. \$100 deposit by Jan.1, 1990 reserves a place (refund if course cancelled)

Contact: The Aprovecho Institute
80574 Hazelton Road
Cottage Grove OR 97424
(503) 942-9434

Runoff Homestead Workshop

Dates: April 6-7, 1991
Location: Datil, N. Mexico

Two-day intensive course of water harvesting techniques and related permaculture systems for drylands, includes hands-on swale project.

Contact: The Running Rain Society
PO Box 74
Datil, NM
(505) 772-2634

Reports from Regional Groups

*A Bulletin Board of Permaculture news and events from across North America. Send reports of your group or project to
Editor, The Permaculture Activist
P.O. Box 3630, Kailua-Kona, HI 96745.*

Permaculture in the Oregon Coast Range

"Invitation: To live in a beautiful forest for a while, learning and helping with projects."

Chip and Clara Boggs, and cousin Alfredo Martinez, now living on their homestead at Coquille, Oregon, are currently offering short-term room and board in exchange for about 30 hours work per week, skilled or unskilled, ranging from brute labor to office work. Write to them at HC-83, Box 402, Coquille, OR 97423.

The Boggses have found homesteading "exciting, frustrating, delightful, annoying, hard work, relaxing, fun, challenging ...but never boring." After an extensive search, they found their land in 1988—360 acres situated in a long, forested valley on the western watershed of Oregon's Coast Range, 13 miles from the sea. Negotiation took another half year. A substantial bridge of used railroad timbers had to be built over a ravine to get access to the property. Then, one-third mile of hand-built gravel road was necessary to reach the cabin site. On the land since last February, they now have a pole frame hexagonal cabin, an earth-floor shop, a PVC and plastic greenhouse and a large garden. Current projects—to allow for comfortable self-sufficiency—are cabin expansion, a cabin for Cousin Alfredo, ferro-cement watertank, garden sprinkler system, attached greenhouse, compost toilet and guest cabins. Next year, 1991, will be dedicated to researching the land and developing a permaculture plan, to be implemented in 1992.

This homestead may be unique in its strong involvement with Mexico (Clara's family). Friends and relatives are encouraged to travel north to attend Aprovecho's "Permaculture for the Third World" courses, where Clara translates, and everybody is committed to learning old (pre-industrial) skills and to passing on knowledge to others.

Help Sought for Florida PC Demonstration

Jacksonville, Florida — Elfin Permaculture is seeking an intern to take major responsibilities in the development of a Permaculture demonstration project at a health food store in Orange Park, Florida, near Jacksonville. The intern will have opportunity to participate in the design process, and will have major responsibility for implementation of the design, documentation, and management. Depending on qualifications, there is also a possibility that s/he can receive training and experience in leading permaculture workshops. The intern must be self-supporting, with a possibility that housing can be provided.

There is a good opportunity for a reliable person to develop a profit-sharing business out of the demonstration project. Candidates must be self-motivated, have demonstrated follow-through on projects, and be able and willing to take direction. Skills in gardening, writing, public speaking, research, illustration, and plant propagation are a plus. We highly prefer a permaculture design course graduate. Enrollment in the Elfin Permaculture APT (Advanced Permaculture Training) program can be part of this internship.

For further information send resume and one typed page stating why you wish to intern and what you will do with the experience to:

Dan Hemenway,
Elfin Permaculture
7781 Lenox Ave.
Jacksonville FL 32221 USA.

If you're a design course graduate, specify when you took the course, its duration, principal instructor, and what you have done with that training as part of your one-page statement. Send SASE or international return mail coupons for a reply. Do not telephone.

U.S. Permaculture in the International Picture

Michael Pilarski

What can the United States contribute to the international permaculture movement?

There were about 20 US Permaculturists at the Third International Permaculture Conference in New Zealand in 1989. I was one of them. We had big plans about how we would help IPC4 in Nepal, such as: raise funds, get Third World people to attend; line up computers and equipment for better communications; better conference organization and better participatory dynamics. Big dreams. But what have we been able to accomplish?

It is interesting to note that people in other parts of the world are looking to United States permaculturists to raise large amounts of money. After all, the U.S. is rich isn't it? We also have somewhat of a reputation as organizers and entrepreneurs. But what do we have to offer at this time?

Is anyone planning on attending who can help with conference communications? Computer operators, writers, telecommunications experts? If you cannot attend IPC4, you can at least send a message. You are encouraged to send your messages for IPC4 to Peter Bane,

c/o *The Permaculture Activist*. Peter will be attending IPC4 and can take our messages for presentation to the convergence and conference.* We may not be able to make a united statement, but perhaps we can at least send a potpourri to show that we do care. Permaculture has so much to offer the world. How can we help IPC4 to meet some of this potential?

Contribute some travel funds to get a few more US permaculturists to Nepal or to fund Third World people attending. Donations can be sent to Friends of the Trees Society. Call if you would like to discuss where you'd like your donations to go or to nominate people to fund.

Your comments are invited. I am willing to help field inquiries, recommendations, messages, funds, material aid to IPC4.

Michael Pilarski
PO Box 1064
Tonasket WA 98855
509-486-4726

** Ed. Note: Messages to be conveyed to IPC4 by myself must be typed or neatly handwritten and must arrive in my hands in Hawai'i by January 25, 1991. We cannot receive FAX's, so plan ahead. Express mail arrives in two days from anywhere in the United States. Regular mail takes about five days—three days from California. Make your words count—PB.*

Friends of the Trees Returns to Central WA

After a five-year absence, Friends of the Trees has moved back to Okanogan County in Washington State, where it has done most of its local work, and has the most tree-roots support.

FOTS is inviting travellers in the vicinity of Tonasket, Washington, to stop by and see them in their new office. Call the new number first for directions: (509) 486-4726. Our new mailing address is:

Friends of the Trees Society
PO Box 1064
Tonasket WA 98855.

With the current increase in effort, FOTS has an increased need for funding and is seeking donations to accomplish the following goals:

- To promote reforestation and Earth-healing activities throughout the world.
- To encourage self-employment and right livelihood using local, renewable resources and based on harmonious, non-oppressive relationships vis-a-vis nature and other people.
- To directly assist people in Earth-healing activities by distributing seeds, plants and horticultural information.
- To act as a network center for information on the worldwide "Green Front".

An Open Invitation to U.S. Permaculture: Pre-IPC4 Conference in Hawai'i

Dear Friends,

We are sponsoring an Administrative and Organizational meeting for Permaculture Design Course graduates from the United States to formulate a USA proposal to present to the Nepal Convergence in February.

This meeting will be held on the Big Island of Hawaii at the Wood Valley Retreat Center from January 20 through January 27, 1991.

Formal discussions will be held Monday, Jan. 21, Wednesday, Jan 23, and Friday, Jan 25. The balance of time will be for informal discussions at the beach, bar, or wherever.

As you know, it is becoming increasingly urgent to publicize a positive approach to solving the global environmental crisis.

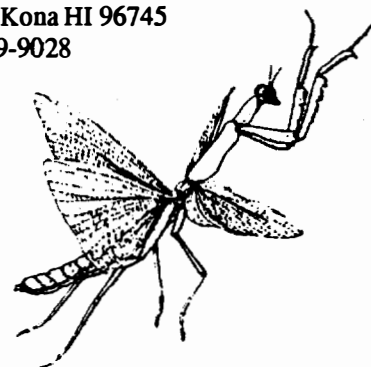
We all feel that Permaculture is vital to this process. We need funding locally, nationally and internationally. In order to get this funding, it is necessary to project ourselves as a solid organization that is capably administered.

We need to devise a workable plan for ourselves and for the international coordination of all groups. We need your help. Please be there.

Our next letter will include an agenda and conference details.

Aloha!

Carl Winge
EPICenter Hawai'i
PO Box 3553
Kailua-Kona HI 96745
808-929-9028



IPC4 : Conference, Convergence, Courses

The Institute for Sustainable Agriculture Nepal

GPO Box 3033, Kathmandu, Nepal. Ph: (977) (01) 220448; Fax: (977) (01) 524509; Cable: INSAN; Telex: 2439 ICTMOD NP.

Permaculture Conference

The aim of the conference is to provide a forum for discussion on and action by permaculture in cooperation with the policy makers, planners, aid workers, press and members of the public who will be attending.

People from all over the world who are involved in sustainable agriculture systems and research, development organizations and policy and other related fields will be invited as guest speakers. They will be speaking on a variety of topics including:

- Sustainable farm systems;
- Energy efficient housing;
- Ecologically sound village and urban design;
- Cooperative economic systems that foster community self-reliance;
- New directions for aid projects.

Time: Opening ceremony - 10 AM February 10, 1991

Closing function, Feb. 15.

Cost: (includes lunch, morning and afternoon tea) - rates in US \$;

Paid before 1/8/90 \$240
paid between 1/8/90 and 1/2/91 \$270
paid after 1/2/91 \$300

To Register: The best method to send money is by telegraphic transfer to INSAN's current account No. 30056 Nepal Bank Ltd., Kathmandu. Please mail a copy of the bank slip to INSAN's office with your registration form. Accommodation is available at a variety of local hotels at rates from \$5/night to \$35 or more/night.

Permaculture Designer's Convergence

Immediately preceding the International Permaculture Conference, the convergence is an informal gathering where permaculture design course graduates can exchange and update information and decide organizational policy. People who are not design course graduates are welcome as observers only.

Time: Starting 9 AM on Feb. 2, 1991, Closing, Wed. evening Feb. 6.

Place: The Permaculture Demonstration Farm near Biratnagar, Nepal in the sub-tropical eastern Terai, 450 km east of Kathmandu. The farm has recently been purchased by INSAN and any profits from the conference will aid in the development of the farm. There will be an opportunity to join in on-site tree planting and to have design input. We hope the convergence will foster understanding and appreciation of Nepali village life.

Accommodation: will be on-site in simple but comfortable buildings made from traditional local materials. The food will be grown mainly on site. As there is no electricity in this area, power for audio visual equipment will be supplied by generators.

Cost: (including food and accommodation)

Paid before 1/8/90 \$240
paid between 1/8/90 and 1/2/91 \$270
paid after 1/2/91 \$300

Transport: from Kathmandu to the convergence site near Biratnagar

Chitwan Bus Tour \$145 approx.
Direct Bus Travel \$10 each way
Plane \$85 each way

Chitwan Bus Tour (29th January - 1st February) is an opportunity for convergence participants to visit three local farms in Chitwan district, as well as a visit to Royal Chitwan National Park, famed for wildlife such as the Bengal Tiger and the one-horned rhinoceros. This tour is limited to the first 40 people who register for it.

• Permaculture Design Courses - Nepal

Pre-Conference Design Course: January 13 - 25, Kathmandu.
Lea Harrison, Andy Langford, & others.

Post-Conference Design Course: February 21 - March 7, Kathmandu.

IPC4 Registration Form

I will be attending the conference only []
I will attend both conference and convergence []

Dietary preference Vegetarian []
Non-vegetarian []

Do you wish to have hotel bookings arranged by INSAN? Y/N
If yes, please indicate date(s).

From To
From To
From To

also indicate hotel preferences (rates are per night):

Basic Guesthouse (room & common bath) \$ 5-10 []
Basic Hotel Room (room & attached bath) \$ 10-15 []
Medium-Priced Hotel \$ 15-25 []
Luxury Hotel \$ 35+ []

For Designers' Convergence Participants Only:

Travel to convergence site via Chitwan Bus Tour []
Direct bus travel to convergence site []
Direct Flight to convergence site []

Amount of money enclosed (US\$):

Conference Registration \$

Designers' Convergence \$

Travel to Biratnagar:
Chitwan Bus Tour \$
Direct Bus Travel \$
Direct Flight \$

Permaculture Design Course 13-25 Jan. \$

Permaculture Design Course 21Feb-7Mar \$

TOTAL AMOUNT ENCLOSED \$

A Note from IPC4 Organizers: There will be a limited amount of money available for direct mail promotion of IPC4. Please photocopy or reprint these pages and distribute the information to as many people as possible. Thank you for your help!

PERMACULTURE COMMUNICATIONS

Permaculture I & II: \$16.50 each

Permaculture: A Practical Guide For A Sustainable Future A new iteration of Bill Mollison's definitive permaculture design manual with improved cloth binding and a new price, covering all aspects of property design and natural farming techniques. It includes: Trees • Microclimate & broadscale techniques • Species selection, placement & management • Multipurpose shelterbelt, forage woodlot & orchard systems • Plant succession & Ecology • Home gardens • Zone & sector design • Revegetation and Afforestation • Arid- & humid-land methods & strategies • Wildlife and Rangeland mgmt • Soil conservation & rehabilitation of degraded lands • Water & irrigation systems • Earthworks: terraces, swales, dams & canals • Recycling/waste disposal • Bioregional organization • Land access strategies • Community finance • Village development • Business strategies • Ethical values for a new world--and more! **\$34.95 + \$3 p & h per book.** Cloth, 576pp w/ 130 color photos & hundreds of illustrations.

Permaculture, Journal of the International Permaculture Association - Back issues--an incredible reference on permaculture! Issues #7 - #35, \$5. ea. #31 indexes all back issues.

Subtropical Fruits - A Compendium of Needs and Uses, 2-color poster, 26"x30", lists 100 species/varieties of subtropical fruit trees, vines, and shrubs. Great for nurseries, farmers, and home orchardists. Info on fruit characteristics, climatic tolerance, plant uses, cultural requirements, maturity times. **\$14.00**

Permaculture Designers Directory, 1987 edition lists 450 graduates of Permaculture Design Courses in N. America with bio info, skills, resources, svcs. offered. Cost: **\$6.00.**

Perspectives on Plant Symbiosis \$2.50;

Symbiotic Inoculation Strategies for the Nursery \$3.50. Both: \$5. Michael Crofoot. Covering: • nitrogen-fixing bacteria • mycorrhizal fungi • their symbiotic interactions w/ plant roots • methods for the plant propagator

Other Titles:

Designing your Edible Landscape	
Robert Kourik	16.95
Ferrocement Water Tanks, Watt	11.25
Fireplaces (Kern, Magers)	7.00
1988 Int'l Green Front Report, Pilarski	5.00
More Water for Arid Lands (N. A.S.)	8.50
Stone Masonry (Kern, et al)	8.95
The Earth-Sheltered (Kern & Mullan)	9.95
Owner-Built Home	
The Natural Way of Farming, Fukuoka	15.95
The Road Back to Nature	17.95
The Ohlone Way, Malcolm Margolin	6.95
The Owner Built Homestead, Kern	9.95
The Owner Builder & the Code	
Kern, Kogon, Thallon	5.00
Water for Every Farm, P.A. Yeomans	20.00

**Permaculture Communications,
P.O. Box 101, Davis, CA 95617**

Please add 10% postage
CA residents add 6.25%
sales tax

Reports from Regional Permaculture Groups

Permaculture Institute of Europe

The aim of the association "Permaculture Institute of Europe" is the support, dissemination and development of the permaculture concept. This is done by practicing and experimenting in different local conditions and climatic areas and in the dissemination of the experience learnt in these processes.

Permaculture Education: The Institute runs at least three introductory courses per year, advanced courses (once a year), as well as a nine-months apprenticeship, which will cover all the various areas practiced in the Steyerberg Permaculture Project—architectural design, landscape design, the building of a lean-to solar heated greenhouse with solar collectors and grey-water system, aquaculture, rush

and reed water treatment plant, poultry keeping (hens, ducks, geese), tree cropping, bee keeping, seed collecting, mulching, soil improvement, orchard husbandry, herbs, vegetable and grain crops. It will finish with a certificate in Permaculture Design.

The introductory courses in German are offered in Northern, Middle and Southern Germany each year, whereas the advanced course takes place in Steyerberg each autumn. Regular courses are being given in English and French in the Pyrenees, organized by Emilia Hazelip and others, Assn. Las Encantas, 11300 Bouriege, France, Tel: 68 31 51 11.

Permaculture Institute of Europe
Ginsterweg 5
D-3074 Steyerberg
Germany

Overland Travel to Nepal

Trees Overland, an eight-person bus with beds and kitchen facilities, operating between Europe and the "top of the world", Nepal, is dedicated not to travel as usual, but to active tree planting. Inspiration for the bus was Bill Mollison's declaration that "one can plant in one day enough trees to have sufficient food for the rest of your life".

Itinerary for the trip includes Fall 1990 departure from Germany, then Austria, Yugoslavia, Bulgaria, Turkey, Iran, Pakistan, India, and Nepal. In all these countries the plan is to get in touch with local groups involved in Earth care activities, to collect seeds and saplings, to plant trees where they are needed, and to observe natural and traditional systems and allow them to demonstrate their own evolution.

The bus is seen as a link between the different Earth care activities. To get in touch, write:

Trees Overland
Prinzenstrasse 69
8000 Muenchen 19, Germany.
or telephone 089-178-3423.

Aprovecho Announces Two Openings

Aprovecho Institute is currently seeking people to fill two positions.

An Office Manager is needed to run the office, answer correspondence, maintain the library, coordinate volunteers and interns, attend staff meetings and submit reports to the board of directors. Applicants should have office experience and be committed to the ideal of deconsumerizing, be proficient in word processing, and have strong social and community skills. For 20 hours a week (9-12 Monday-Friday) the stipend is \$100 a month plus room and board (rustic) or equivalent compensation for off-site staff.

The other position is Newsletter Editor, for production of *News From Aprovecho* five times a year. Previous newsletter experience is required. For 50 hours a month, room and board or equivalent compensation are offered.

Send letter of inquiry and resume to:
Aprovecho Research Center,
80574 Hazelton Road
Cottage Grove OR 97424.
Phone (503) 942-9434.

Eastern Permaculture Conference Held in Maryland

From a report by Jo Clayson

More than 50 people coming from points as distant as Ontario and Georgia attended the 5th Annual Eastern North American Permaculture Conference held at Heathcote Center, Maryland this October.

An early-bird first-day workshop provided the Introduction to Permaculture, led by David Jacke and Cynthia Edwards. The purpose of the workshop was to inspire people to build a local network near Heathcote. Thirteen participated in brainstorming on sustainable systems, and reviewed Design Methods.

Highlight of the second day included presentation by Dr. Jim Duke on Edible and Medicinal Plants, followed by a walk led by Dr. Duke and Adam Turtle to help participants identify species and learn common uses.

In the Agro-forestry workshop, Andy Wilson shared resources, diagrams and slides of his ongoing research at Springtree. The thoughtful planning there integrates perennial crops with the establishment of nitrogen-fixing and accumulator plants, lots of edges for maximum productivity, undisturbed habitat for micro-organisms, and keyline placement for more efficient nutrient pickup. Andy also spoke to Voisin's method for concentrating and moving livestock to prevent overgrazing, now called holistic resource management (HRM). Allan Savory has taken Voisin's fencing techniques and used observation (vs fixed rotational formula) to manage cattle in dry grasslands.

Going to the Root: Facing our Addictive Society, led by Cynthia Edwards, focused on issues of addiction in our culture, especially consumerism, which is the underlying basis for environmental destruction.

Edible Landscaping, presented with color slides by Stewart Wilson, contained a wealth of detailed information about specific varieties and cultivars with their advantages and limitations. Questions from the group brought out additional information on sources and techniques of cultivation.

Microclimate Design, by David Jacke, reviewed the major components of microclimate design, providing a framework for his discussion on specific techniques used to modify microclimate in a permaculture. The talk was generously enriched by David's personal observations and antidotes, and served as an excellent general guide to this important part of permaculture design.

Paul Goland of Hardscrapple Enterprises shared with us his experience in growing and marketing shiitake mushrooms. The specifics presented would enable one to grow these tasty, healthy, and profitable mushrooms. A sample taste of a dried mushroom lured many into buying the bags of dried shiitake or the kits for growing their own.

Little Known Fruits in Permaculture Design, presented by Andy Wilson of Springtree Agroforestry Research Project, introduced the possibilities of using persimmons, mulberries, paw-paws, elderberries, and passion fruits in permaculture design. The various growth zones and adaptability of the plants were discussed. This was followed by information concerning successful grafting techniques, species that are available, and the uses of the fruits and the plants. Success and horror stories were shared, as well as ideas to incorporate these fruits into permaculture design.

After a brief review of how to read a contour map, David Jacke led us through the process of Topographic Mapping. The process for obtaining and using site levels, A-frame levels, water levels and transits was followed by hands-on practice with the transit. A demonstration of the drawing tools needed for mapping utilized data obtained from surveying to create a topographic map.

Patty Ceglia's presentation on The Design Process was very organized and complete. Her architecture background, combined with her interest in Permaculture Design, was very helpful. She led us through a series of concrete steps in the design process, beginning with defining our purpose (goals, objectives of the design), defining the functions of the site

and analyzing these functions. She stressed the importance of research in the beginning stages of design, in order to understand the needs of the site and the client fully while doing the design. She then went through a detailed description of the actual design process, and gave rules of thumb from her own experience as to how to keep the process creative and fun.

The Wetlands Roundtable, held by the stream flowing past the stone mill, was led by Charlie Davis and David Jacke. This comprehensive overview was enriched by Chuck and David's personal experience with wetlands. The problems surrounding the definitions of wetland accompanied the descriptions. Management objectives and wetland creation were explained, with reference to a number of constructed, modified, or protected natural wetlands. Samples of soils from near where we sat, and a list of plants found in the area assisted in conceptualizing the information presented. A number of resource books were on display.

A tree was planted in memory of Bob Macoskey, a fellow permaculturist who died in May of this year. Some met Bob first at Heathcote at the second permaculture conference. Some, as students, knew him at Slippery Rock University, while many others had contact with Bob in other ways. Like Bob, the ceremony was informal, earthy, full of vitality, laughter, tears, insights, memories, and visions. Also, like Bob, the tree, a thorny orange, *Rutaceae poncirus trifoliata*, is a tenacious, adaptable, fruitful tree that is the only species in its genus.

NETWORKING

From our networking session, some bits and pieces of information:

1) 6th Annual Eastern Permaculture Conference October 12-13, 1991, in Tennessee. See Notice pg. 43.

2) *Garbage Magazine*: If your groups holds a 501.C.3 status, and can sell 20 or more subscriptions, a 50% profit can be earned.

3) Contact Michael Panella, 1027 Center Ave., Ellwood City, PA 16117, with information on replacing urban lawn grass with more useful species. It's for his Masters thesis.

continued, page 43

Permaculture Institute of Southern California

The main objective of the Permaculture Institute is to develop permanent ecological systems that support a sustainable future. It is necessary to combine the thinking of architects, engineers, planners, developers, and consumers. We are combining these attitudes and expectations in workshops, tours, publications, and networking with other groups to further our combined vision.

We've been expanding our regional contact network to include centers in Santa Barbara, (Community Environmental Council), Los Angeles, (Eco-Homes), San Diego (Ecological Life Systems Institute), Pomona, (Institute for Regenerative Studies), and our base, Orange County, (Sprout Acres). We hope to bring our advisory boards together to promote ecological development programs for all urban areas. ->

"Gifting One Another": 1991 Eastern PC Conference

The 6th Annual Eastern U.S. Permaculture Conference will be held at Standing Stone State Park in Celina, Tennessee, October 12-13, 1991, with pre- and post-conference events October 11 and 14. The theme will be "Gifting One Another". The conference organizers are issuing a call for papers on insights, techniques, and strategies relating to permaculture.

Contact: Adam and Sue Turtle,
Nobody's Mtn.
Rte. 3, Box 624,
Livingston TN 38570.

Please send SASE when you write.

Networking, continued from page 42

4) If you have had a reaction to lawn chemicals or pesticides, contact
Joldine Lee,
Pesticide Action Program
92 Euclid Ave.

Waterloo, Ontario, Canada N22 1Z4.

5) If you know of any educational institutions offering programs in sustainable systems or programs appropriate to permaculture, contact

Chuck Marsh, Box 509,
Dillsboro, NC 28725,
(704) 586-5186.

Reports from Regional Permaculture Groups

Sprout Acres, our main demonstration site for integrated planning and field studies, located in Laguna Beach, gives tours weekly for various civic and educational groups as well as design workshops on permaculture concepts. We hosted a summer pruning and grafting workshop for the Rare Fruit Growers with Tom Del Hotel from Pacific Tree Farms. During the last three months the Institute has hosted the Green Party, Tree People, California Organic Gardening Club, the Vegetarian Network, Quakers, school groups, Girl Scouts, the Waldorf School, Unitarian congregations, the Community Learning Center, as well as interested individuals.

On-going research using resource recovery techniques for yard waste and sewage sludge has been instituted on the swaled lot next to the field-station. The implications for urban planning are significant. The total rain runoff on the hill is harvested and absorbed into the layered yard waste and sludge which forms the base of the experimental agroforest system. These experiments are lessening landfill impact by 40% and adding a carbon storage system to our urban forest. Water conservation and soil fertility are added benefits to these nutrient-cycling experiments that are taking waste and turning it into an asset.

Small-scale gardening plot demonstrations are giving those of us that need to design in limited areas, strategies, and examples to duplicate around our homes, condos, and apartments. Steve Koenigsburg, one of the researchers at Sprout Acres, has created a variety of experiments in 200-sq.ft plots that are exciting to urbanite living. These ideas are being carried out in a variety of public schools. In fact, Avco Financial Services has given the Permaculture Institute a Community Involvement grant to do an agroforestry/tree planting program as an example of an outside science classroom for a public school.

Curriculum and video documentation is on-going to spread the word on turning our playgrounds, parks, tennis courts, and golf courses into productive landscaping for the ecological wealth of our community. The Laguna Beach Unified School district, its Community Learning Center, and the Educators for Social Responsibility are cooperating in the project.

Presently Sprout Acres has run ten workshops for primary school classes in applied ecology over the last three months. The Girl Scouts are using Sprout Acres demonstrations and work projects for merit badges in home energy efficiency. "The times they are a changin'."

LETTERS

Nuclear Waste to be Discharged

Greetings,

I got some very disturbing news recently and am passing it on to any groups seeming likely to be concerned. I don't know if this is already publicized in media, or not, as I have little time to see newspapers, and no TV.

Very briefly—and without every detail—our federal government has a plan to declare low level radioactive wastes ("rad wastes") as "below regulatory concern" ("BRC") and let them go wherever municipal trash goes now, i.e., into sewer systems, landfills, and as recycled materials, which will then be radioactive. This saves the nuke industries

billions of \$\$ they'd spend for isolation and containment otherwise. Seems politicians then hope for large campaign funds in return for this billions of \$\$ gift.

Meanwhile, respected and well-done statistic work, including two new books, are showing that low-level rad wastes generate a lot of cancer, which most generally attacks younger people. This seems dangerous enough to destabilize society, to me. Our society has so many serious imbalances now, that the added costs alone of a new rise in cancer, striking young people, could put a serious dent in any work towards a better world. Our permaculture movement—so small percentage-wise and so vital to earth healing—how many could we afford to lose in this way? How many people will have time to explore permaculture, if they are struggling through cancer?

For the earth,
Janice Blue
201 Rd 3100

AZUL NM

Permaculture Books

Permaculture I: A Perennial Agriculture for Human Settlements, Bill Mollison & David Holmgren (1978). 127 pp. paper. illus. An elegant statement of principles; extensive species lists—selected for temperate to subtropical climates. 16.50.

Permaculture II: Practical Design for Town and Country, Bill Mollison (1979). 150 pp. paper. illus. Design criteria; landscape analysis; broadscale techniques, plant/animal interaction, soil improvement, arid and humid climates, waterworks, aquaculture, forages. 16.50

Permaculture: A Practical Guide for a Sustainable Future, Bill Mollison (1990) 576pp. cloth. 450 illus. + 130 color photos, N. Amer. reprint of *The PC Designers' Manual*. with a new appendix of Permaculture groups worldwide. A global treatment of cultivated ecosystems. A sourcebook for design in all landscapes and climates. 35.00

The Best of Permaculture: A Collection, Max Lindegger & Robert Tap, eds. (1986) 136 pp. paper. illus. Choice examples of permaculture and related disciplines from around the world: building biology, urban forestry, land restoration. 15.00.

Conceptual Permaculture Report: Crystal Waters Permaculture Village, Lindegger & Tap. (1989) 80pp. paper. b/w photos. Advanced proposal for the development of an agricultural economy at the first permaculture village in Australia. Excellent documentation. 22.50.

Crystal Waters Permaculture Village Owner's Manual, 2nd ed. Nascimanere. (1990) 54pp. paper. line drawings. Intermediate technology for the homeowner/builder, framed by practical experience. Passive solar design; hard-to-find info on rammed earth, sod roofs, pole construction, building biology. Emphasizes subtropical needs. 11.00.

Designing and Maintaining Your Edible Landscape Naturally, Robt. Kourik. (1986) 370 pp. paper. illustrated + 19 color photos. Permaculture concepts applied to the home garden. Mulch gardens, root zones, pruning trees, companion crops, natural pest control. 17.00

City Food, Crop Selection in Third World Cities, Isabel Wade. (1986) 54pp. paper. line drawings. Economic and efficient food production with limited resources. Treats many tropical fruits, nuts, and vegetables not familiar to most N. Americans. Growth requirements, food values, planting calendars; list of common and botanic names and uses for over one hundred crops; extensive bibliography. 7.50.

Ecocity Berkeley: Building Cities for a Healthy Future, Richard Register. (1987). 140pp. paper. illustrated by the author. Valuable and visionary view of Berkeley and the Bay area 25, 50, and 120 years in the future. Scenarios of city transformation along ecological principles. Design for city regions. 11.00

EcoCity Conference 1990: Report of the 1st Intl Conference, Urban Ecology. 128 pp. paper. illus. Over 150 presenters on 80 topics. Communities, design, transport, workplace, wilderness, cohousing, recycling, traditional cultural models, new towns, green city programs—a feast of ideas, proposals, and, examples. Includes a directory of resources. 7.00

The Man Who Planted Trees, Jean Giono. (1985) 56pp. paper. 20 woodcuts. Beautifully illustrated by Michael McCurdy. 6.95

Add 10% shipping to all orders, minimum \$2.
Hawai'i residents add 4% sales tax. All orders shipped airmail.

The Permaculture Activist
P.O. Box 3630
Kailua-Kona HI 96745

When the Wind Blows...

Dear Peter,

A friend of mine who is an ecological consultant in New York sent me a copy of Vol. VI, No. 3, of *The Activist*. I was very enthused and inspired by Bill Mollison's lead article, "Forests and the Atmosphere".

At the end of the second paragraph, Bill writes "Certainly the energy of the wind is being converted within the forest to something; I'm not quite sure what." I'd like to offer two facts and two speculations.

Fact #1: According to the laws of thermodynamics, movement always involves friction, which produces heat. Therefore, wind moving through a forest serves to bring some heat to that forest.

Speculation #1: When energy is put into a system, it is sometimes possible to produce a chemical compound that has a higher potential energy than the sum of its parts. This occurs when animals eat food and store some of the calories as fat—the energy can be released later as needed. Because plants also are able to store energy (as starches), we can speculate that wind energy assists in the production of some high-potential-energy compounds.

Fact #2: If you put a stick into the ground and "twang" it, you widen the hole which surrounds the stick. The force of wind on a forest vibrates the trees down to their roots, thereby loosening their grip on the soil. Another way to look at this effect is to see it as an opening of space around the roots—widening the "conduits" Bill describes under the heading of "Subsoil Effects".

Speculation #2: A heavy truck passing on a nearby road produces subsoil vibrations that we can feel through our feet. Is it possible that one tree can "understand" the vibration of another in the forest as an indicator of the strength of the wind?

Keep up the good work,
Martin Schell
45/31 Moo 9 Bangpood
Pakkred, Nonthaburi
11120 THAILAND

Mollison Sweeps California

Dear Peter,

The issue of *The Activist* that you sent was superb and so timely for us; we have been trying to get some information to our network and the public and media about the role of trees and

water since many folks are afraid to plant trees due to the drought, or have even cut them down! Mollison's piece was the best thing I have seen on water cycles and trees and I have sent it around the state!

Isabel Wade
Urban Resource Systems
783 Buena Vista West,
San Francisco, CA 94117

Envisioning the Urban Village

Dear Peter,

Very briefly, we are setting up an exciting new "visioning" program inside ROMA, a sophisticated urban planning firm here in San Francisco. The purpose is to better utilize a state of the art computer system to assist communities in visualizing their urban futures. We utilize participatory workshops with our key designers coupled up with the computer lab. It's difficult for me to explain too much more without pages and pages. I'm enclosing a couple of different papers and articles which should help fill in the gaps.

I enjoyed reading *The Permaculture Activist* which touches on so many of the points we believe in, but from the other end of the spectrum. For us, the urban village is a relatively dense pedestrian precinct reclaimed from within the fabric of the existing city. The village offers all the basic urban services required to avoid a car trip out. It is conceived as part of a larger network of urban centers organized in a cellular fashion on a regional basis. The numbers are probably closer to 5,000-10,000 as opposed to your model at 500.

The most exciting part of a true "post industrial" urban village would be the reclaiming of small agricultural blocks and the application of permaculture strategies with roof top gardens, solar applications of all kinds, urban orchards, etc. Perhaps we could get together sometime and brainstorm the integration issues. How urban can you be?

We are beginning to offer urban Visioning Workshops around the greater Bay Region and some interesting opportunities will probably emerge.

Ronald Morgan
ROMA Design Group
1420 Sutter Street
San Francisco, CA 94109

A Grant for INSAN?

Dear Guy:

I would like to put in a proposal per your letter in the February 1990 Activist. I agree with many of your points, but I guess I am a bit biased and I would like people to come and participate in IPC IV. But, if this is the way you feel, INSAN, as a member of the international PC movement, an organization existing hand-to-mouth, would like to apply for your \$2,000 grant. We like to work with donors and the people and would be happy to apply the funds to the organization of IPC IV, or if you prefer, to one of our demonstration farms, or to starting a nursery for the distribution of seedlings and outreach/education, or to help with our internal costs (i.e. it would provide two people with their salaries for a year), etc. I'd be happy to pull together a formal proposal for you. \$2,000 goes a long way in Nepal.

For the Earth,
Badri N. Dahal, INSAN
Baneshwore-10, GPO Box 3033,
Kathmandu, Nepal

Puerto Rican Tree Project

Dear Activist:

First a quick thank you for your efforts in publishing such a useful and necessary quarterly.

During the winters we are involved in a project on a mountain farm in Puerto Rico to establish a multi-story cropping system (5 acres) as a demonstration for neighbor farmers in the mountain valley of Barreal where destructive mono-culture farming and grazing is the norm encouraged by the government.

To support our effort, I would like to find a source for planting stock of macadamia (*M. integrifolia*) and Neem (*Azadirachta indica*) which would be excellent additions to the system there. If you know of a mail order supplier in Hawai'i or elsewhere, please let me know.

Also, we are involved in an ongoing reforestation project in the mountain valley. So far we've planted 3 acres of degraded grazing land (30° slope) and hope to involve interested neighbors. Please let us know of any possible financial support you know of; i.e. tree tax fund etc.

Thank you
Gary Nickel,
PO Box 13,
Whitingham VT 05361

Seed for Under-Exploited Crops

Dear Sir,

We are a very small group working towards sustainable systems of farm and community forestry in southeastern Sri Lanka. We have informally campaigned for planned tree planting since 1974 and in 1988 opened a centre in a dilapidated old building which we restored, began a research program to determine the species of trees required by the local population for their farms and community forests and established a nursery to supply them.

The pioneer work we have done so far is bearing fruit among a wider public than was planned for. A coalition of NGO's has emerged with its Secretariat at Bandarawela. Forests for People fits into the overall framework of the program now shaping up.

We had hoped to introduce *Leucaena* as a useful tree for fodder, fuel, and fertilizer; but there is resistance to it from the local population who consider it a weed. This is probably due to ill-planned and badly maintained efforts at planting it. In any case, *Gliricidia* and *Erythrina* have done better in trials and are better accepted by the population.

We would be extremely grateful if you could let us have small quantities of seed of *G. maculata*, *E. variegata* and *E. uthosperma* or of any other closely related species which will do well under local conditions. Details of the environmental characteristics of the area follow.

We would also be interested in unusual food plants with exciting possibilities and would like to co-operate with your efforts wherever possible.

Thanking you in anticipation of your co-operation.

Yours sincerely,
Peter Wise
Co-ordinator, Forests for People
(mbr, Nitrogen Fix'g. Tree Assn.)
35/32 St. Rita's Rd, Mt. Lavinia
Sarvodaya Road, Tanamalwila
Sri Lanka

Environmental Characteristics

- Vegetation: Degraded monsoon forest and savannah.
- Rainfall: annual, 1275-1900mm Sep-Fb, 825mm.Mar-Ag 455mm
- Soils: Red-brown earths, organic matter, N and P low; K med. to high; Ca, Mg well supplied; good cation exchange; pH- neutral; depth, texture, and drainage satisfactory; consistency poor.

Temp: Mean annual max, 30C; min, 24C. Humidity: Mean annual max, 83%; min, 74%.

Back Issues of The Permaculture Activist

Issue#	Date	"Theme"
I, 1	July '85	Permaculture In Oz
I, 2	Nov. '85	Fruit & Nut Trees
II, 1	Feb. '86	Garden Design
II, 2	May '86	IPC II & PC Design Courses
II, 3	Aug. '86	Int' PC Conference Program
II, 4	Nov. '86	Conference Wrap-up #1
III, 1	Feb. '87	Conference Wrap-up, #2
III, 2	May '87	Sustainable Ag, For Whom?
III, 3	Aug. '87	The Annual Planting Cycle
III, 4	Nov. '87	Trees for Life
IV, 1	Feb. '88	Marketing the Products of Permaculture
IV, 2	May '88	Economics and Community Development
IV, 3	Aug. '88	Social Forestry
IV, 4	Nov. '88	Multi-Story Tree Crops System for the Dom. Rep.
V, 1	Feb. '89	Permaculture: A Designer's Manual
V, 2	May '89	Plant Guilds
V, 3	Aug. '89	Rainforest Conservation in Ecuador
V, 4	Nov. '89	PC Definitions/PC Water Designs
VI, 1	Feb. '90	Household Greywater Systems + more
VI, 2	May '90	Insectary Plants; more Greywater
VI, 3	Aug. '90	Forests & Atmosphere; Catchment; Nepal; Ponds
VI, 4	Nov. '90	Urban Permaculture; Ecocity Conference

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The Permaculture Activist

P.O. Box 3630

Kailua-Kona HI 96745 USA

Resources Now Available--

Permaculture Drylands Institute

Permaculture: A Practical Guide for a Sustainable Future, by Bill Mollison (1990). Weight: 5 pounds. \$34.95

Permaculture I (1978) & II (1979), David Holmgren & Bill Mollison \$16.50 each/ Weight: 1 pound.

"How to Incorporate as a Non Profit", by Scott Pittman: This 100-page manual leads you through the procedures for applying to your state for corporation status, and to the federal government for tax-exempt status. These materials will help any would-be non profit organization save possibly thousands of dollars as well as many, many hours of eye-blearing work. Weight: 1 pound. \$35.00

Back issues of "Sustainable Living in Drylands" newsletter.

Issues 5-11 Postpaid. \$2.50 each

Shipping: Enclose \$1.50 for the first lb, and 30¢ each add'l lb. Orders shipped UPS where possible. Orders to P.O. boxes will be sent via U.S. Mail, 4th class, and may take 4 weeks to arrive.

Permaculture Drylands Institute

P.O. Box 27371 • Tucson AZ 85726

(602) 623-0054

- Land use-Tanamalwila div'n: Sparsely used cropland, 39%; Dense forest, 34%; Open forest, 7%; Rangeland scrub, 6%; Homesteads, 3%; Rice, 3%; Other cropland, 2%; Inland water, 3%; Monocultural tree plantations, 3%.
- Crops: Rice, groundnut, chillies, capsicum, onions, vegetables. Livestock are not normally kept in the average homestead family, but in order to improve sustainability this needs to be introduced.

Socio-economic factors

- Sources of income: Rainfed agriculture and farm labor.
- Population: 43 per sq. km. with 52% below age 18.
- Schools: 10 per 10,000.
- Doctors and nurses: 15 per 100,000.
- Use for wood products: Fuel, housing construction, and furniture making, but the latter is decreasing due to lack of wood supplies.

Allied Groups

Ecological Gardening Program at Linnaea Farm

Linnaea Farm, located on Cortez Island, British Columbia, offers an eight-month program in ecological gardening and small farming beginning March 4, 1991.

The program includes theory and practical experience in growing vegetables, fruits, herbs, and ornamentals. Training covers basic plant care, with emphasis on British Columbia coastal conditions, year-round cropping, specialty marketing, and regenerative soil management.

The farm has five acres of gardens and orchards set in a 300-acre ecological land trust under Turtle Island Earth Stewards Society.

Completion of the course provides a thorough grounding in sustainable garden craft. Another benefit of participation is exposure to fulfilling alternatives in food production, livelihood, and lifestyle.

Tuition for the term is C\$850. For further information contact: David Buckner, Linnaea Farm, Manson's Landing, BC, CANADA V0P 1K0, Phone (604) 935-6717 - evenings.

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Solar Box Cookers International

"New ideas become useful to people through participative local efforts - usually through a grassroots organization where people pool their resources. It is important to adapt the versatile solar box to local cooking needs and customs as well as locally available building materials, and to involve people who do the daily cooking—usually women.

We are more certain than ever that solar box cooking compares favorably to fuel-efficient stoves and biogas in cost, convenience, and practicality. Unlike these others, solar cooking requires little technical skill, uses effortless fuel, and can be spread mostly by education."

SBCI distribute a manual, "The Solar Box Cooker Manual", and a 10-min. videotape, "A Bright Future with Solar Cookers".

Solar Box Cookers International

1724 Eleventh Street

Sacramento, CA 95814 (916) 444-6616

Travellers Earth Repair Network

Would you like to share your knowledge with others? Could you use some extra help around the farm?

Travelers Earth Repair Network, TERN for short, is a network to serve people doing positive things for the planet—an international placement service for practitioners and apprentices of sustainable agriculture. It is a way to meet folks from all over the world, or maybe just from the next county, to allow them into your life space, and to share with them and learn from them, too.

TERN seeks Earth-restorers, individuals, families, co-ops, action groups and communities who will open their circles to travelers.

"Direct personal interaction between individuals is the most basic unit of the global brain," reads a TERN information bulletin. "Travelers are universal emissaries, vital links between all peoples and places. They often go where other information media are restricted. Singing, story-telling, and networking, as well as dancing, touching, and toiling together will bring more grace to all of us. Not only will vagabond globe trotting change the way you look at yourself and the world, but also the way the world sees itself."

Anyone travelling abroad, interested in contacts and TERN hosts worldwide, may obtain more information by writing: TERN, Friends of the Trees Society, PO Box 1064, Tonasket, WA 98855, (509) 486-4726.

Community Gardening Resources

For methods of saving land for community gardens and parks in N. America, write to the Trust for Public Land (666 Broadway, New York NY 10012) for details of its National Community Garden Preservation Program; other aids are "Open and Green Forever", free from the Boston Natural Areas Fund (73 Tremont St., Boston, MA 02108)... "Community Land Trusts: Ownership Through Cooperative Action", free from ISLES (126 Montgomery, Trenton, NJ 08608.... and "Struggle For Space" (Island Press, Box 53406, Washington, DC 20009; \$15).

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1990 Guide to Unusual How-To Sources. Portable dwelling info-letter: about camping, hiking, bicycling, travelling; and living in tent, tipi, wickiup, van, trailer, boat, remote cabin, etc. Reader written. Frank discussions. Sample \$1. *Message Post*, PO Box 190-PA.

Sundew Gardens Reports: A newsletter for year-round vegetable gardeners living in warm climates. Subscription: \$15/year. Sample: \$2 and SASE. PO Box 214, Oviedo FL 32765.

Stationery and cards made with 75% recycled paper. Assorted colors with laminated designs (trees, animals, native art, Thank-you, birth announcements, party invitations, etc) Sample \$2. EARTHSONG, RR2, S16, C16, Prince George, BC, CANADA V2N 2H9.

"Permaculture is Caring for Our Earth Mother": Long Sleeve T-Shirts, Ash grey or White, Lg or XL. \$15 + \$2 shpg. in USA, \$5 shpg overseas. Med. and XXL \$1 more. \$2/shirt supports permaculture work through Eastern N.

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The Land Newsletter - Permaculture Settlement. 10 private acres each. 220 shared acres. Lake site, bottom lands, and woodlands. \$1. PO Box 849, Glenellen CA 95442.

Hawaii Real Estate: affordable, tropical, American paradise! Grow papaya, avocado, lettuce year round. I'll help you make your dream possible. Margaret Martin (RA) South Coast Realty, POB 6283, Captain Cook HI 96704. 808-929-9637H, 929-7311 W.

Aprovecho Institute staff and intern openings for evolving small community education center. Focus on office, land/forest/water/bamboo, AT/facilities, or garden. 80574 Hazelton Rd, Cottage Grove OR 97424. 503-942-9434.

Developing permaculture community - multi-racial and located in resourceful beautiful semi-arid central Georgia. Seeking resident builder for biotecture housing, strawbale, indigenous, and

other alternative shelter construction and other building projects. Offering 99-year community trust lease. Open to all, with first opportunity offered to (females) Native American/Third World/Others and Native American/Third World males and others. Contact: Gaba Community, Attn: "Dee" DeVille, PO Box 1475, Columbus Ga 31902.

Agriculture manager for 1600-acre farm and wilderness preserve. Skills: animal husbandry, organic gardening, horticulture, teaching, work well with volunteers and children. Full-time \$20,100 plus house, medical insurance, paid vacation. Resume and cover letter to Ann Warren Smith, Exec. Dir., Trust for Hidden Villa, 26870 Moody Rd, Los Altos Hills CA 94022.

Permaculture community to share my experience in workshops, therapy, construction, the metaphysical and holistic. I'm 50 and want to 'happily ever after'! Gary N. Paul 3672 E. Drummur Rd. Clinton WA 98236.

Individual with non-profit Directorship experience seeks part- or full-time position involving administration, fundraising, marketing, desktop publishing, community organizing. Peter Brown, PO Box 1298, Truckee CA 95734.

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18 years in Kona, Hawai'i. Well-known indoor agriculture hydroponic business. Good income with potential to grow. Lease, equipment, and inventory. \$97,500. Karen Peterson (R/GR). 808-328-2513.

Room available certain months of the year for permaculture activists.
Constance Fay, Oakland CA. 415-654-7567. Leave message.

Discount Air Fares to Asia. Asian Sky Travel Service, Wallingford Center, 1815 N 45th, Seattle WA 98103, 206-547-ASIA, 800-933-ASIA.

Overnight accommodation for Permaculturists newly arrived in London. Contact Ian Lillington (in advance if possible), 128 Bethnal Green Rd, London, ENGLAND E2 6DG. ph.071-7399-2301.

Astute readers will notice that our rates have risen. With a postal increase in Feb. 1991 and the rising cost of transport fuel, we must adjust. Longer-term subscriptions reflect the added value we place on loyal readers. We will honor all prepaid issues. New rates take effect upon publication.

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CALENDAR

December 1-14, 1990. Maritime West Coast Permaculture Design Course. Dexter, OR. Michael Pilarski and Rick Valley. Contact Lost Valley Center, PO Box 111, Dexter OR 97431 (503)937-3351.

January 12, 1991. People's Water Conference: Integrating Water and Land Use Planning in Hawai'i. Hawai'i State Capitol Auditorium, Honolulu, HI. Contact: Martha Black, Chair, 229 Poipu Drive, Honolulu, HI 96825, (808)395-2127.

January 13-25, 1991. Permaculture Design Course. Kathmandu, Nepal. See information for INSAN below. See also pg. 40.

January 16-18, 1991. Eleventh Annual Ecological Farming Conference. Asilomar, CA. Contact Committee for Sustainable Agriculture, POB 1300, Colfax, CA 95713, (916)346-2777.

January 20-27, 1991. USA Permaculture Convergence. Island of Hawai'i. An organizational meeting of USA PC graduates en route to Nepal and IPC4. Contact Epicenter Hawai'i, PO Box 3553, Kailua-Kona, HI 96745, (808)929-9028. See pg. 39.

February 2-6, 1991. Permaculture Designers Convergence. Biratnagar, Nepal. Sponsored by Institute for Sustainable Agriculture, Nepal (INSAN), GPO Box 3033, Kathmandu, Nepal, ph: (977)01-524-509. Details pg. 40.

February 5-17, 1991. Sustainable Development Study Tour. Lake Atitlan, Guatemala. Contact Aprovecho Institute, 80574 Hazelton Rd, Cottage Grove, OR 97424, (503)942-9434. Details pg. 38.

February 8-10, 1991. San Diego Farming Conference: "Farmers as Innovators". Sponsored by UC Coop Ext., PC Inst. of So. Cal, and others. Contact Shirley Humphrey, UC Small Farm Ctr, UC-Davis, (916)757-8910 or Faustino Munoz, (619)694-2846.

February 10-15, 1991. Fourth International Permaculture Conference. Kathmandu, Nepal. Sponsored by INSAN, (information above). Details pg. 40.

February 11-16, 1991. Training: "Use of NFT's for Animal Production in the Tropics". Guatemala. Sponsored by Nitrogen-Fixing Tree Assn. and Heifer Project Intl. Contact NFTA, PO Box 680, Waimanalo, Oahu, HI 96795, (808)259-8555 or FAX same # for details.

February 15-16, 1991. Third National Conference on Organic/Sustainable Agriculture Policies. Washington, DC. Center for Science in the Public Interest-Organic Conference, 1921 Florida Ave., NW, PO Box 53061, Washington DC 20009.

February 21-March 7, 1991. Post-IPC4 Permaculture Design Course. Kathmandu, Nepal. Sponsored by INSAN. Details pg. 40.

March 1-2, 1991. Pacific Northwest Symposium on Sustainable Agriculture: Farming for Profit and Stewardship. Portland, OR. Sponsored by Oregon State, Washington, and Idaho Universities. Contact Helene Murray, OSU, StAg 202, Corvallis, OR 97331, (503)737-2441.

March 21-26, 1991. Training: "Use of NFT's for Animal Production in the Tropics". Indonesia. Sponsored by Nitrogen-Fixing Tree Assn. and Heifer Project Intl. Contact NFTA, POB 680, Waimanalo, Oahu, HI 96795, (808)259-8555 or FAX same # for details.

Early Spring, 1991. Sustainable Forestry Conference. University of Victoria, British Columbia. Contact Mike Sheehan, Box 5384, Sta. B, Victoria, BC, Canada (604)598-0989.

April 6-7, 1991. Two-day Intensive. Datil, NM. Water harvesting techniques and dryland permaculture systems; hands-on swaling. Contact The Running Rain Society, PO Box 74, Datil NM 87821, (505)772-2634.

May 31-June 16, 1991. Women's Permaculture Design Course: "Grounding the Metaphysical" Jo Clayson and Dawn Shiner. Contact: Dancing Green, PO Box 157, Cochran PA 16314.

Mid-September, 1991. Five-day Training: "Use of NFT's for Animal Production in the Tropics". Uganda. Sponsored by Nitrogen-Fixing Tree Assn. and Heifer Project Intl. Contact NFTA, PO Box 680, Waimanalo, Oahu, HI 96795, (808)259-8555 or FAX same # for details.

September 7-21, 1991. Permaculture Design Course. Island of Hawai'i. Max Lindegger and Lea Harrison. Contact Permaculture Hawai'i, PO Box 5167, Kailua-Kona, HI 96745, (808)929-8028, 929-9463. Details pg. 37.

September 24-30, 1991. Advanced PC Design Course. Island of Hawai'i. Max Lindegger and Lea Harrison. Contact Permaculture Hawai'i (see above entry). Details pg. 37.

October 3-9, 1991. PC Teachers Training Course. Island of Hawai'i. Lea Harrison and Max Lindegger. Contact Permaculture Hawai'i (as above). Details pg. 37.

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