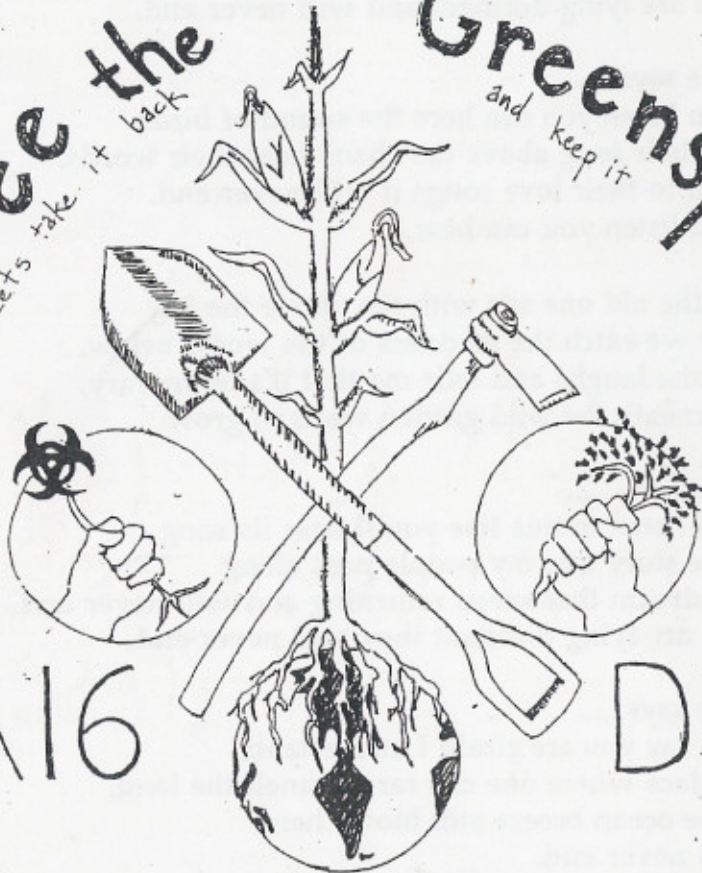


GUERRILLA GARDENING

Free the Greenspace
Let's take it back and keep it



A16

DC

bring hoes, shovels, seeds, saplings,
and green thumbs as we turn toxic lawns
into organic community gardens
Green the Free Space

GUERRILLA GARDENING

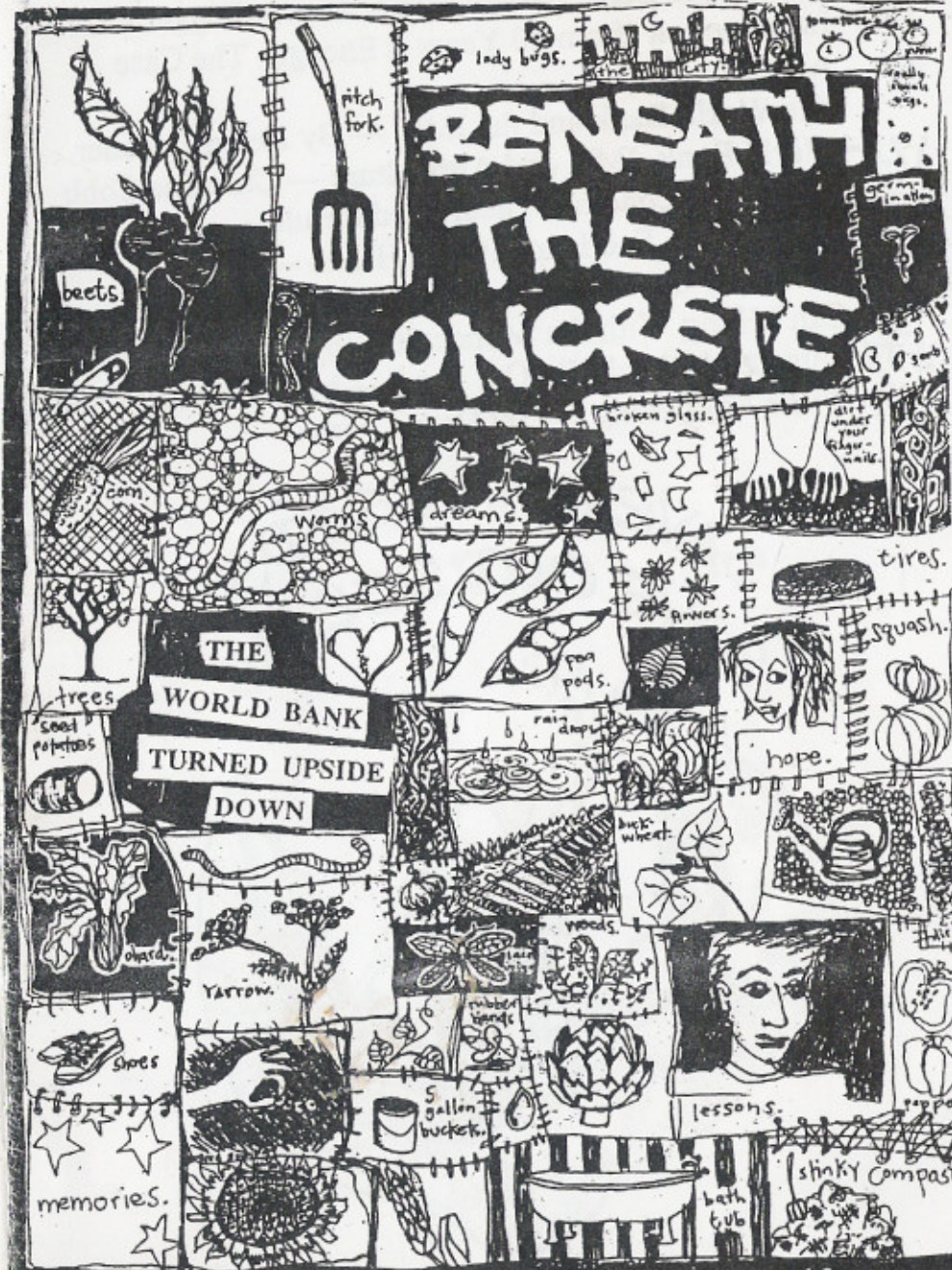
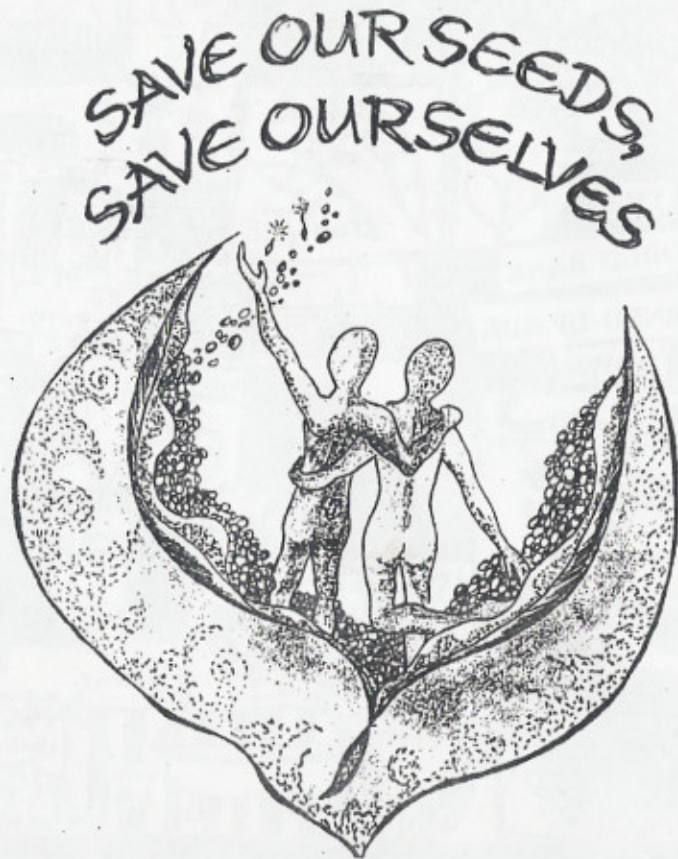


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Willie Says by Dana Lyons

Willie says.....

Here's a story that you may not comprehend but the parking lots will crack and bloom again. There's a world beneath the pavement that will never end, seeds are lying dormant and will never end.

Willie says.....

If you listen you can here the sound of birds hear their song above the chaos hear their words. Listen to their love songs it will never end. If you listen you can hear.

And the old one sits with me above the city while we eat the madness of the world below. And she laughs and tells me that it's temporary, underneath the wild garden waits to grow.

Willie says.....

If you listen to this tree you'll hear its song it's the story that my people pass along It's a dream that keeps returning and will never end. Seeds are lying dormant they will never-end.

Willie says.....

If you say you are afraid I understand. In a place where one can rarely smell the land, but the ocean breeze still blows here, it will never end.



in the eyes of the state, and all its unfortunate lackeys, we are weeds. But they simply can't see the benefits of working together, being creative, and learning from the plants, who teach us many things when we pay attention.

Guerrilla Gardens: Our kind of warfare.

We were born into a war society. We were raised to perpetuate the war against ourselves and the people we love. I was raised in a society of hierarchy, domination, and oppression, in which my own habits continue, at times, to oppress myself. The way to end this war is to refuse to participate. The way to cease war is to create the elements of a non-warring society, where land, food, air, water, gender, sex, color, cannot be used to do harm. For this reason, we are guerrilla warriors who do not carry guns. We are guerrillas—warriors—of creativity and vision.

So here's some vision: what if land could not be owned, not privately nor publicly? Land was simply there, to be used for things we need to live, and beyond that only if it didn't infringe on someone else's attempts at survival? What if land were "owned" only by the act of using it, and slipped back into universal availability as soon as it fell out of active use? This is the concept of usufruct. Never heard of it? Even the idea sounds pretty peculiar, in these days of private property. Imagine now if this idea of usufruct applied to all things: water, air, food, forests, plants, bicycles, books. The idea can extend to nearly anywhere.

Usufruct is not just another way to own things; it is a fundamentally different way of viewing the world. It challenges us to look around us in a revolutionary way. We can look at the lawn of any pompous building in D.C. and say, this lawn is not only useless, it is robbing this environment of the diversity of survival, it is denying people food, medicine, and a healthy surrounding. It is stealing water that the world needs for infinite other purposes, and soaking a sickly amount of chemicals down into the earth. By transforming this manifestation of the warring society, by removing it and replacing it with holistic, liberatory relationships between people, plants, and the land, we are raising a victory for the free world. It is small, but it is fertile. Seeds crack concrete and bust up through lawns. We too are seeds, and we're busting out, scattering to sprout in the world.

GUERRILLA GARDENING

Guerrilla Gardening - The Seeds of the Future

In this day and age, growing your own food and saving your own seeds has become a revolutionary act. Creating and maintaining local autonomy free from the clutches of global financial institutions and agri-chemical "Life Science" corporations is the only alternative we have if we are going to save the planet and ourselves from extinction. We rely on large corporations for so much of the basics of our livelihood and it is time to show that there are alternatives to industrial agribusiness and that, given the opportunity and the resources, we are ready to put them into place.

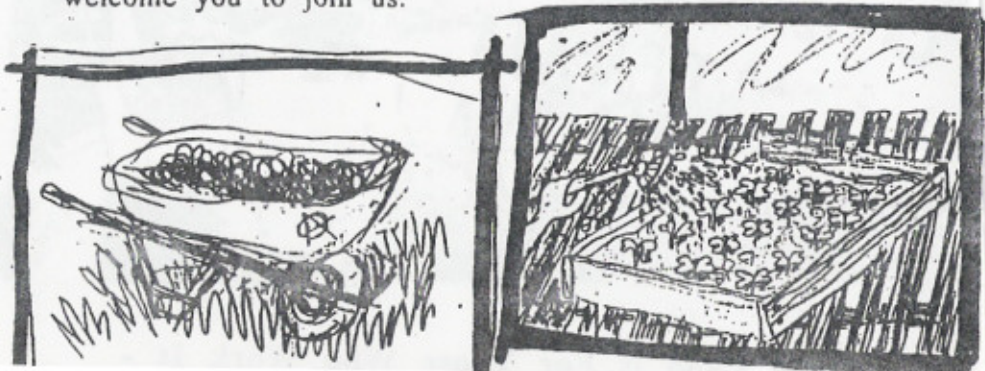
We are a group of urban community gardeners in solidarity with the millions of poor farmers in the world who are being driven from their land and forced to grow cash crops by the policies of the World Bank and International Monetary Fund. We are visionaries who see a future free from this corporate slavery that defines our global economy and are working daily in our communities to take back local control of our lives -- beginning with the food we eat.



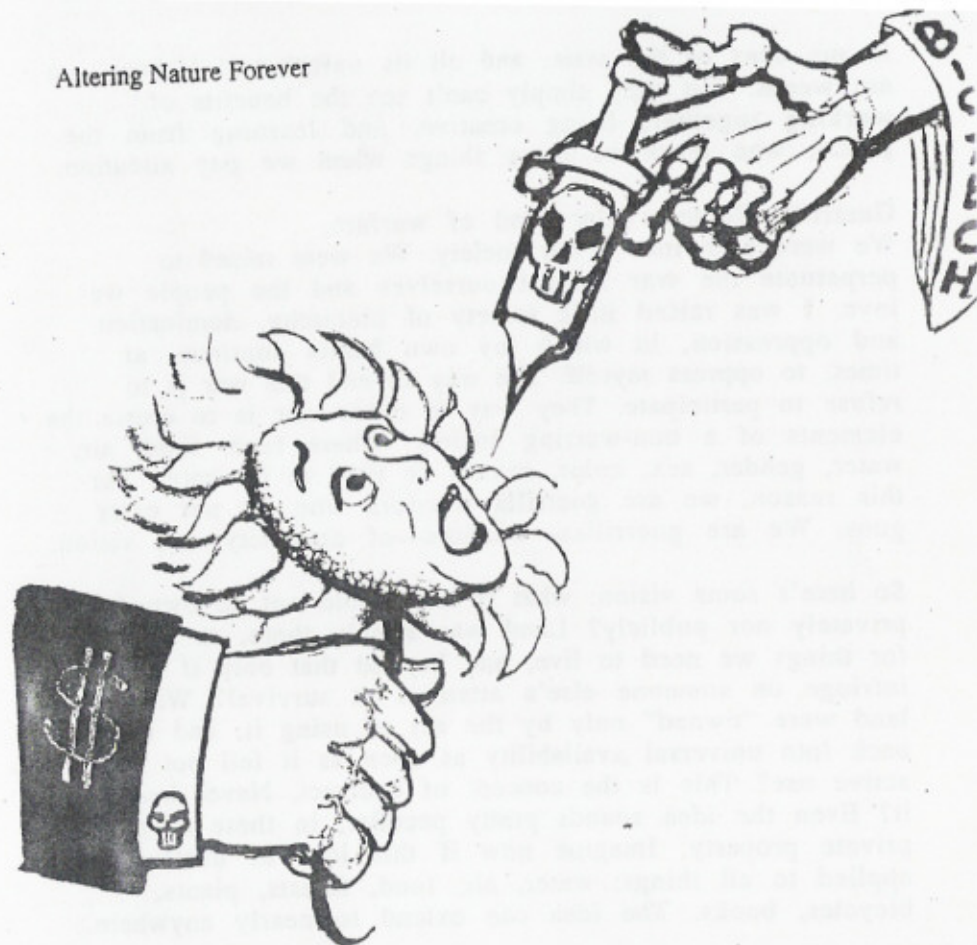
"The Land is For Those Who Work It -
Liberty is For Those Who Take It."

As agriculturists, we recognize that the reasons we don't want monocultures of chemical industrial agriculture on our land are the same reasons we don't want a monoculture of Coca-Cola, Starbucks, and McDonalds in our cities. Global commodities cannot afford to be different and local communities and businesses are unable to survive in a world of chain stores, sweatshops, and plantations. Diversity gets in the way of profits and control. The will to dominate and control nature sees diversity as a disease and deficiency. But diversity in our lands and in our cultures is what keeps us alive and makes our lives rich. As we stand our ground we must remember that we are fighting to keep the bankers from turning the planet into a big strip mall.

It is up to us to take the future into our own hands. If we leave the responsibility of healing this world up to institutions like the World Bank and the International Monetary Fund, we are dooming ourselves to a future of corporate feudalism and ecological catastrophe. For more than fifty years the record is plain and simple: the people who design the policies at these institutions are not interested in alleviating poverty and creating an equitable distribution of wealth: they are only interested in integrating people from all over the world into the market economy without regard to its impact on people's lives. Their skewed development policies kill people everyday day. The World Bank and the IMF have created a system of modern day colonialism that make the people in the developing world poorer and the multinational corporations richer and take the power away from all of us. It is time to take a stand and say "no more!" This week, as Guerrilla Gardeners, we are creating our vision of the future as we want to see it, and we welcome you to join us.



Altering Nature Forever



we grow so many different things that corporations can never monopolize them all, we are not only defying their attempts to take over the world via the food supply, but we are supporting the world's inclination toward diversity and specific function in each unique place. We are paying attention to places and how they can complement each other by being different from each other.

A weed is nothing in itself; it exists as such in the judgment of the world around it. A plant that someone wishes weren't growing; a people that someone wishes weren't thinking. In organic farming, weeds are often called volunteers, because every plant is useful and grows for a reason. Likewise, we are volunteers, offering ourselves where we can be used best, in this lifelong pursuit of a world that makes sense according to our long history, the one that predates the divided and muddled society.

This land should be our land.

This land ain't your land, this land ain't my land,
Could be a rich land, but it's a poor land
Cuz it is private property for profit gain
A weapon of the Bank to cause great pain

by
ANDREA
DEL
MORAL

What is a weed?

In the 1/2 acre permaculture orchard in the hills of Vermont, ground cherries are intentional. They provide root structure and ground cover, and food for people, birds, and small animals. Transnational corporations do not own ground cherry seeds. They're not a good market because people don't eat them in large quantities. There are thousands of plants out there like this. Foods and wild plants that we could be growing and eating, and all we have to do is look around at the native habitats where we live to get a clue as to what we should be nurturing. When



IN THE INDUSTRIAL MODEL WE'VE BEEN
CLEAVING NATURE OUT OF THE WAY. WHAT
WE DIDN'T RECOGNIZE IS THAT FARMS
AREN'T FACTORIES. THEY ARE ECOSYSTEMS.

SEEDS OF
LIBERATION

All creation is sacred.

Seeds, plants, animals and
micro-organisms are our
common heritage and not private
property. Any claim to own or patent
life is a theft from and a cultural
assault on indigenous people.

Indigenous peoples, farmers and
women seed-keepers have the right
to save, share and exchange seeds
and medicinal plants.

Seeds are the source of life.

**People's movements are
the source of resistance.**



Adapted from the Indigenous Peoples' statement
on the Trade-Related aspects of Intellectual
Property Rights of the WTO agreement.

THE WORLD TURNED UPSIDE DOWN

In the year 2000
Washington D.C.
A ragged band of Green Guerillas
Came to set the lawn space free
They defied the World Bank
They defied the cops
They were the dispossessed
Reclaiming garden plots...

THE ORIGINAL →

In 1649
To St George's Hill
A ragged band they called the Diggers
Came to show the people's will
They defied the landlords
They defied the laws
They were the dispossessed
Reclaiming what was theirs

We come in peace, they said
To dig and sow
We come to work the land in common
And to make the waste land grow
This earth divided
We will make whole
So it can be
A common treasury for all.

The sin of property
We do disdain
No one has any right to buy and sell
The earth for private gain
By theft and murder
They took the land
Now everywhere the walls
Rise up at their command.



Further Resources

WWOOF Willing Workers on Organic Farms is an international network of farms that rely on volunteers to help out in the fields. In exchange for a hard days work you get 3 meals and accommodation and as much practical experience as you want learning about farming. Usually how it works is that if you're over 16 you can pay like \$20 for a listing of hundreds of farms and an ID number. Then you call up or write to specific places to find out more details. I know a slew of people who've worked their way around the country acquiring skills, getting strong, and living well from hooking into the WWOOFing network. It's an incredible resource and working on a farm sure beats hanging out on the street drinking with your smelly friends and talking about how much it sucks in the city.

The Permaculture Activist PO Box 1209 Black Mountain, NC 28711 USA

Published 3 times a year and always full of good articles and contacts. The classifieds always have interesting offers for work and trade. The latest issue is about patterns in nature and has been keeping me up at night spellbound.

Intern/Apprenticeship Directory

Northeastern Organic Farming Association (NOFA)-Mass 411 Sheldon Rd. Barre, MA USA 01005 - found this ad in the back of the Permaculture Activist

Write to Eric Toensmeier and ask for their Directory of Organic Farming Apprenticeship programs for farms all over North America and internationally.

ATTRA (Appropriate Technology Transfer for Rural Areas)

This group is based out of Fayetteville, Arkansas and they put out a 23 page list describing internships and apprenticeships for organic and sustainable farms across the United States. You can order a free copy by calling 1-800-346-9140.

That should get you started, punk. Get out there and grow some food. If you're interested in this sustainable agriculture program I keep talking about, address your queries to David Buckner at the same address. The farm accepts 5 to 10 students every year and they need hard working, dedicated people. Good luck out there.

Linnaea Farm
PO Box 98 Manson's Landing
Cortes Island B.C. VOP1K0 Canada

Information and Imagination Books to Check Out:

The thing about all this stuff is that it's a lot more information and imagination intensive than capital or energy intensive - we rely on each other, our observations, and the thousands of years of accumulated knowledge from peoples experience, ideas, and experimentation.

There are some really good books out there that cover a lot of the basics of food cultivation and sustainable agriculture. Here are a couple good ones. I've included the ISBN numbers because I used to work at a bookstore and I know how much easier it is to look shit up that way if you have a computer.

Introduction to Permaculture by Bill Mollison with Reny Mia Slay 1991 Tagari Publications 0-908228-08-2

Everything I've just been rambling on to you about is all covered in detail in this book. It's changed my life. Nuff said. Check it out.

Start With the Soil by Grace Gershuny 1993 Rodale Books 0-87596-567-9

Very eloquently lays out the basics of building soil: humus and compost and moisture and nutrients and basic chemistry. Beautiful tables and diagrams of indicator weeds, cover crops, organic amendments, acid and alkaline tolerant plants, etc. Really good chapter on dealing with fucked up city soil.

Designing and Maintaining Your Edible Landscape Naturally by Robert Kourik 1986 Metamorphic Press 0-9615848-0-7

Incredibly thorough manual on creating gardens and orchards step by step next to your house. Great chapters on tree crops and reclaiming the suburbs with vegetable gardens. Full of useful photos, drawings, and charts.

How to Grow More Vegetables(then you ever thought possible on less land than you can imagine) by John Jeavons 1974/1995 Ten Speed Press

All you need to get started learning how to feed yourself and your community. This book has been translated into a bunch of different languages and is used all over the world in successful sustainable agriculture projects. Really good sowing charts and illustrations.

Seed To Seed by Susan Ashworth 1991 Seed Savers Exchange 0-9613977-7-2

The definitive guide for anyone who wants to learn seed saving techniques. Includes 130 vegetables. Describes botanical classifications, pollination, isolation, caging, seed harvest, drying, cleaning, and storage. Really important stuff.

And please don't complain about books being expensive - get a library card for fucks sake. And if there's twice as many cops in your town as there used to be but they've cut the library funding in half - make some noise about it - educate and articulate your bad self.

They make the laws
To chain us well
The clergy dazzle us with heaven
Or they damn us into hell
We will not worship
The God they serve
The God of greed who feeds the rich
While poor men starve

We work, we eat together
We need no swords
We will not bow to masters
Or pay rent to the lords
We are free men
Though we are poor
You Diggers all stand up for glory
Stand up now

From the men of property
The orders came
They sent the hired men and troopers
To wipe out the Diggers' claim
Tear down their cottages
Destroy their corn
They were dispersed -
Only the vision lingers on

You poor take courage
You rich take care
The earth was made a common treasury
For everyone to share
All things in common
All people one
We come in peace
The order came to cut them down



FROM 50 YEARS IS ENOUGH: THE CASE AGAINST THE
WORLD BANK & INTERNATIONAL MONETARY FUND
BY GLOBAL EXCHANGE

INTRODUCTION

Kevin Danaher

As World War II raged across Europe and Asia, the leaders of England and the United States realized that, in order to ensure a liberal, capitalist world economy after the war, they would need multilateral institutions that could enforce rules favoring the free movement of capital internationally. In July 1944 the two governments convened a conference at Bretton Woods, New Hampshire. There they developed the plans for two institutions that would shape the world economy for the next 50 years.

The International Monetary Fund (IMF) was established to smooth world commerce by reducing foreign exchange restrictions. It also created a reserve of funds to be tapped by countries experiencing temporary balance of payments problems so they could continue trading without interruption. This pump-priming of the world market would benefit all trading countries, especially the biggest traders, the United States and Britain.

Also founded at Bretton Woods was the International Bank for Reconstruction and Development (World Bank). The World Bank was given the task of making post-war development loans for infrastructure projects (roads, utilities), which, because they were unprofitable, were not likely to be initiated by private capital. The Bank was also mandated to promote private foreign investment by means of guarantees or participation in loans and other investments made by private investors.

The founders of these institutions hoped that by establishing ground-rules before the end of the war, they could gird themselves against the twin threats of state-managed economies under a socialist model and international anarchy brought on by cutthroat varieties of nationalistic capitalism. They saw that if the major powers did not ensure some access to big capital for the elites of less prosperous countries, those elites could adopt policies with the potential for unravelling the world capitalist economy.

The unwritten goal of the World Bank and the IMF -- one that has



growing season, we move the chickens to the where the corn was growing the year before and keep rebuilding the fertility. Just like in the forest, we're in the process of creating a long term self-sustaining cycle filled with different interconnected elements.

Diversity

By growing tons of different kinds of things, we're guaranteed to be eating well year round. When onion season is over, leek season is just beginning. When the kale is starting to all go to seed, the first heads of lettuce are ready to harvest. In our orchard there are early, mid, and late season apples trees all right next to each other. With all our canning and drying and freezing, there's no problem eating jam and pesto sauce all sorts of other goodies all year round. No one ever goes hungry around here. If this was an industrial monocrop farm, we'd have to ship in tons of food or things would get really boring. Diversity is all about stability and living large - the important stuff.

Urban Guerrilla Gardening - Growing Food in the City

We need to start growing food where we live and reclaiming all this knowledge for ourselves and future generations. We can't keep importing and trucking all of our food all over the globe and let big corporations control the most basic aspect of our lives for us. There is so much potential for growing food in the cities and suburbs. Taking over abandoned rubble lots and roof tops and lawns and starting community gardens. Building compost with all the organic wastes from supermarkets and restaurants and our kitchens. Catching water before it runs off into the sewers - building ponds and attracting birds and insects. Creating urban woodlots of fire and timber wood grown around industrial zones can filter pollution from the air, produce oxygen, create habitat for birds and small animals, and not make all the buildings so damn oppressive. Locals parks could be full of fruit trees and berries. We could graft scion wood of good fruit trees to crab apples in alleyways or non-fruiting cherries and peaches and plums in parks, come back later for the harvest. We can dumpster tons of bathtubs and tires and milk crates and refrigerators and other good stuff to grow things out of. There's more edge and vertical growing space than you can shake a stick at in the city. The possibilities are rich. It's all like sculpture and art - dealing with living systems that change over time. It's so important to bring this stuff into the city, bridge connections

between people of different generations and cultures, teach the kids that there's more to life than concrete and hate and fear.

Everyone around here knows me as the aggro city kid, the one who's sometimes too impatient and loud and talks faster than everyone else and goes out smashing up concrete slabs with a sledgehammer and builds raised vegetable beds out of sticks and blackberries just to prove we can grow food even in really crappy soil. As I've lived on this farm for almost an entire growing season, I've learned a little bit of patience and calm and a whole bunch of skills that I'm looking forward to bringing home.



been enforced with a vengeance -- has been to integrate countries into the capitalist world economy. Despite all the rhetoric about development and the alleviation of poverty, the central function of these multilateral lending institutions has been to draw the rulers and governments of weaker states more tightly into a world economy dominated by large, transnational corporations.

Over the past five decades, the World Bank and the IMF have steadily gained power and influence, becoming the key arbiters determining which countries will receive international loans. This status gives the Bretton Woods institutions the power to enforce economic policies written in Washington, where both the Bank and the Fund are based. For many in the Third World, this harkens back to colonial times.

The policies imposed by the World Bank and the IMF are designed to facilitate the repayment of debt: that is, the steady transfer of wealth out of Third World countries to the bankers of the industrial countries. This transfer of wealth has had devastating consequences for the poor majority. Money that could have been invested in health, education and housing has instead been transferred to wealthy bankers. Accordingly, Third World countries under IMF/World Bank tutelage have seen infant mortality rates increase, schools and housing deteriorate, unemployment skyrocket and the general health of the people decline.

This is why author Susan George uses the term "financial low-intensity conflict" to depict the war being waged between rich and poor. It is *not* simply a war between "North and South," as it is so often portrayed in the mainstream press and academic literature. Rather, it is a collaborative effort between southern elites and their northern counterparts. The Third World rulers get new infusions of cash and remain unaffected by the austerity policies imposed by the technocrats from the IMF and the World Bank. Northern elites get loan payments and can sleep well at night knowing that their allies in the South will keep a tight grip on the workers and keep the money flowing.

Notice that, despite all their pressure to cut back the size of Third World governments, the IMF and World Bank do not pressure Third World leaders to reduce military spending. Without a strong repressive apparatus, it would be impossible to enforce the harsh policies dictated from Washington.

The Record Speaks for Itself

There is a parable about a villager who goes to a local wise man and asks to borrow the wise man's donkey. The wise man lies, saying the donkey is not there. Just then, the donkey brays. The wise man



pauses, then says: "Well, who are you going to believe, a donkey or a wise man?"

Despite the steady decline of Third World economies under the tutelage of economists from the World Bank and the International Monetary Fund (IMF), these institutions keep insisting that their wise men and their "free market" policies will eventually foster development. Third World leaders are told that, in order to get more loans to pay off the old loans, they must implement "structural adjustment" reforms. These include:

- selling state enterprises to the private sector in order to make governments more efficient
- raising producer prices for agricultural goods so farmers will have the incentive to grow and market more food
- devaluing local currencies (in line with their world market value) to make exports more competitive in foreign markets
- reducing government budget deficits by cutting consumer subsidies and charging user fees for social services such as health care and education
- encouraging free trade by dropping protectionist measures and by reducing regulation of the private sector
- creating incentives to attract foreign capital

Yet the central question that is consistently avoided by the enforcers of these policies is, do they work?

Look at the case of Africa. Thirty of the 47 governments in sub-Saharan Africa have been pressured into implementing structural adjustment reforms. The effects have been devastating to the poor. As early as 1988, the United Nations concluded: "The most vulnerable population groups, in particular women, youth, the disabled and the aged, have been severely and adversely affected."

Though western economists claimed that these policies would reduce debt burdens, by 1992, Africa's external debt had reached \$290 billion, about 2.5 times greater than it was in 1980. The record of the IMF/World Bank gurus is also dismal in Latin America and Asian debtor countries such as the Philippines.

Asian countries such as Japan, China and South Korea that have experienced high growth rates have done so *not* through a dogmatic "free market" strategy as espoused by the Bank and the Fund, but through highly state-directed economies.

Usually, we are exposed to analyses from people in the top 2 percent of the world's income pyramid. In contrast, the book you are holding includes strong representation of Third World voices explaining



The quintessential crop guild is the traditional Native American planting of corn, beans, and squash. As the runner beans trellis their way up the corn stalks, they fix the nitrogen that's being lost to the soil from the corn which needs a lot of nutrients to grow. As the squash plant provides an understory which keeps away weeds and helps to keep the soil moist, their big spiny leaves also keep the animals from trying to climb up and steal the corn ears as they ripen.

Edge

At the edge between the forest and the lake there's always a mix of both ecologies and whole other set of species that doesn't exist in either of the two. Ecological productivity always increases at the boundary between two ecologies because the resources from both systems can be used. This is true for land/water, forest/grassland, estuary/ocean, sidewalk/street, wherever.) Energies and materials always accumulate at the edges - soil and debris are blown by the wind against fences or walls. Increased edge makes for a more productive landscape - creates more surface area, more patches of microclimates. People always want to live on the edges.

When we build our garden beds or ponds, we take edge into account and don't just always make them normal rectangles or circles. We built an herb spiral next to our house out of smashed up concrete from an old building foundation. The raised spirals condenses space, creates a bunch of little microclimates for shade and sun tolerant herbs, increases the surface area, and looks really cool. Edges define areas and break them into manageable sections - look around and see what I'm talking about.

Relative Location

Out in the forest the individual plants and animals and soil organisms aren't nearly as important as how they all relate to each other. When the birds eat berries from the trees, they fly to the other side of the forest and plant new trees by shitting out the seeds. Bark beetles carry the spores of fungi into fallen trees and the fungi help break down the wood of the trees back into soil which provide the materials for new trees to grow. If we separate out each organism it's hard to appreciate what's actually going on. If you haven't already figured it out, this is a reoccurring theme here. Rather than viewing everything on our farm as separate entities, we try to figure out how as many of the elements in our system can work together as possible.

In our production garden we have a five year crop rotation. The idea is that we keep up the soil fertility by growing a succession of crops that complement each other: after corn we grow beans and then tomatoes and then squash. To throw off the pests and diseases, the same crop is never grown a bed two years in a row. We also factor a slew of chickens into the whole thing. We keep the chickens fenced off in a nice big area and as they hang out they scratch up the ground and eat the pests and shit all over the place to get the soil ready to plant in. They have a nice life on the farm, rub themselves in the dust and have sex and all that; they eat bugs and food scraps and corn scratch, we eat their eggs, everyone's happy. At the beginning of the next

Plant Stacking and Time Stacking and Swales

In the forest there are a series of interconnected levels - from the understorey of ferns and bushes to the upper canopy of the mature trees. Instead of planting a flat field of one crop which needs tons of attention and water, the idea is to intercrop taller and shorter species, climbing plants and herbs and different kinds of trees - everything placed according to their shade tolerance, heights, and water requirements.

In one of the permaculture sites there is a sequence of swales connected to a small dugout pond which carry nutrients down to the bottom of the slope. At the bottom of the slope there's a bunch of raised beds made of sticks and mud where all the garlic is planted. Swales are just these long level excavations that are dug to store water in the underlying soils or sediments. They're different than ditches because instead of just diverting water so it can drain somewhere else, swales work to intercept the water flow, hold it for a few hours or days, and let it slowly infiltrate the ground water, recharging soils and tree root systems. The site was a big swamp full of alder trees a couple years ago and slowly the permaculture crew has been rerouting the water to make the wet areas nicer and the surrounding areas more fertile for growing ground crops, carefully removing the alders and replacing them with fruit and nut trees. Trees are totally important parts of swale planting systems. Our teacher Brent shows us how he cuts the alder trees to harvest their wood but does it in such a way that the younger trees can take

advantage of the old root systems and exposed sunlight from removing the canopies. Just like everything else around here, the idea is to set up the system so that it doesn't need any inputs from the outside and can totally function as a self-contained ecosystem.

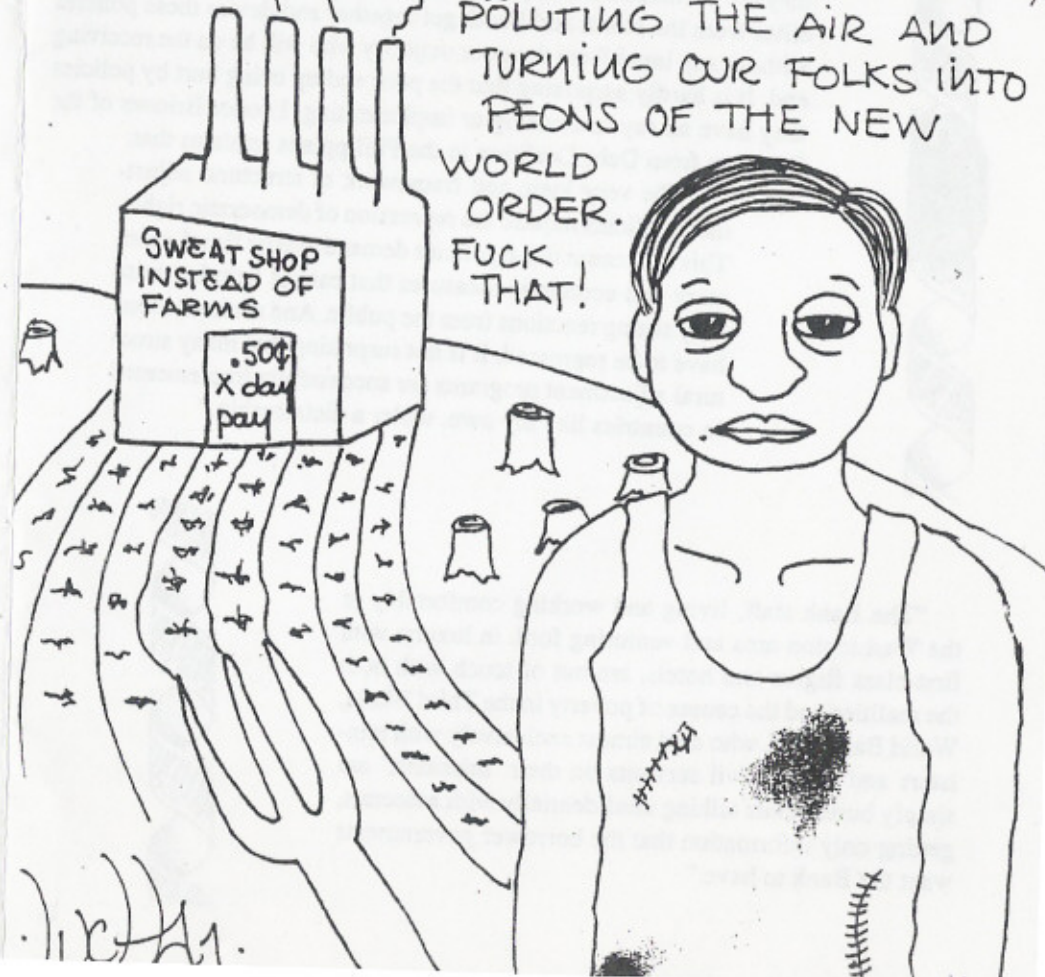
Guilds

The fir trees in the forest have like 26 different types of fungi and scrubs and insects that somehow play a role in their growth and life. In the forest, the trees, bugs, birds, fungi, ferns, and huckleberry bushes all work together to create an interconnected web. Sometimes, rather than thinking about organisms individually, it's useful to think of them in clusters or groups. When the individuals are clustered around a central element we call these groups guilds. In the forest we can talk about the fir tree guild.

There are a couple of fruit orchards spread around the farm, mostly apple and plum trees. There are also a small herd of sheep which keep the grass down in the orchards by grazing. They also eat up any fruit which falls and rots on the ground, preventing diseases in the trees. Every week or so the sheep are moved from one orchard to another so that they don't graze the grass too low. To keep the trees healthy and not competing with invasive grasses, we grow yarrow and clover and borage and nettles and comfrey around the them. The sheep also eat these and like them too. We can say that the sheep and herbs we grow in the orchard and the trees are all part of the fruit tree guild.

IN COUNTRIES LIKE NICARAGUA, FOLKS WHO USED TO WORK THE LAND GROWING FOOD FOR CONSUMPTION HAVE BEEN FORCED TO GROW CROPS FOR EXPORT (USING GENETICALLY ENGINEERED SEEDS) NOT HAVING ENOUGH FOOD TO FEED THEMSELVES. EVEN WORSE, LAND THAT USED TO HAVE AGRICULTURAL USE IS NOW PREMISES FOR "FREE TRADE ZONES" WHERE MAQUILADORAS WILL "EMPLOY" FORMER FARMERS FOR LOW WAGES, POLLUTING THE AIR AND TURNING OUR FOLKS INTO PEONS OF THE NEW

WORLD ORDER. FUCK THAT!



the many damaging effects of the neoliberal economic strategy imposed on them by "experts" from Washington. As Martin Khor, Director of the Third World Network in Malaysia, sums it up:

"Structural adjustment is a policy to continue colonial trade and economic patterns developed during the colonial period, but which the Northern powers want to continue in the post-colonial period. Economically speaking, we [countries in the South] are more dependent on the ex-colonial countries than we ever were. The World Bank and IMF are playing the role that our ex-colonial masters used to play."



A central problem with the structural adjustment policies is that they are developed and imposed in an undemocratic manner. Unelected elites from the North and South get together and devise these policies without any input from the poor majority who will be on the receiving end. It is hardly surprising that the poor end up being hurt by policies they have no say in devising or implementing. Leonor Briones of the Freedom from Debt Coalition in the Philippines explains that:

"The very logic and framework of structural adjustment policies require the repression of democratic rights. This is because these policies demand drastic fiscal, monetary and economic measures that cannot help but raise very strong reactions from the public. And such reactions have to be repressed. It is not surprising that many structural adjustment programs are successfully implemented in countries like my own, under a dictatorship."



"The Bank staff, living and working comfortably in the Washington area and venturing forth in luxury, with first-class flights and hotels, are out of touch with both the realities and the causes of poverty in the Third World. World Bank staff, who deal almost exclusively with ministers and senior civil servants on their 'missions,' are simply bureaucrats talking confidentially with autocrats, getting only information that the borrower governments want the Bank to have."



The same thing happens in abandoned rubble lots and pastures and anywhere else where the land has been disturbed. Areas will be colonized by a new weed and herb layer which might hold the soil against erosion, bring water to the topsoil with their roots, break up compaction, fix nitrogen, reduce salts, or bring up nutrients from the subsoil which will end up in the topsoil as they die back and decompose. Blackberry bushes with big old thorns will invade an area and keep everything else away while the land heals itself. Eventually, just like with the alder, trees will grow up through the blackberry vines and shade them out.

We can do the same thing by building up the soil and substituting our own herb, pioneer, and climax species. Depending upon the type of soil you start with (which might be eroded, salted, swampy, worn out, acid, alkaline, clayey, or sandy) - it's possible to introduce plants that will easily survive and might be more useful than the existing vegetation. We can grow cover crops of clover or alfalfa or peas or beans which fix nitrogen in the soil and then turn them in to build up the fertility. We can grow buckwheat which is a phosphorus accumulator or winter rye which suppresses weed growth. We can

introduce animals into a system and have them do our work for us while they happily live their lives. If we play our cards right, in 20 years we can end up with forests of hazelnuts and peaches and blueberries. That's the plan - a permanent agriculture.

Sheet Mulching

There's all these subtle little sheet mulching projects all over the farm - it's a really basic, cool idea. The grass is full of nutrients cause it's so good at pulling minerals up from down in the subsoil. It becomes obvious pretty quick that it's a waste of time and resources to try and pull it out of the ground and clear beds for growing stuff. It's much easier to just throw a thick layer of wet cardboard or an old carpet over an area - wait a year - and when the top layer of weeds is dead and rotted back into the soil from all the heat and lack of air, then it's time to sow the vegetables. Periodically I stumble upon one of Brent's mulch spots - sets of bamboo poles or alder branches with nitrogen fixing beans trellising up from the cardboard, getting the soil ready for next year.

Pigs and Junkus

The pigs I feed everyday are fenced off in an area full of this thick weed called junkus that's scattered throughout the pasture land. It's really hard to get rid of with farm machinery, but pigs love to dig with their snouts and root up whatever they can. The longer they hang out there, the clearer that soil gets and eventually the farm crew is going to plant another fruit and nut orchard. We get to feed them our garbage, they get to play around all day and be really cute, and a bunch of people (not me) are going to be eating a lot of meat in the Wintertime.

Cows and Bamboo

The cow barn is close the lake. There's a huge clump of bamboo that's been planted at the edge of the barn which absorbs the excess nitrogen from the cow manure which would otherwise run down into the lake. The clump gets periodically harvested for poles. Everything works out. (9)

World Bank, IMF, and Agriculture:

Christina Cobb -
FREE AGENCY

First it was the chemical-dependent miracle of the so-called "green revolution"; now the claim is biotechnology will feed the world. The World Bank played a leading role in converting global agricultural practices to a chemical dependent, nutrient depleting, and polluting system of food production.

It has consistently invested in industrial agricultural projects that drive small farmers off their land and force large-scale single crops to be grown for the export market. Many nations that used to be self-sufficient are now obligated to import basic food staples because the majority of fertile land is dedicated to growing a few cash crops for export.

Meanwhile, chemical fertilizers, pesticides and herbicides are wreaking environmental havoc. The only real beneficiaries in this scenario are the companies who sell the chemical inputs and hybrid seeds, and their investors. Now that those same companies are investing massive dollars to develop biotechnology products, they are looking to market genetically engineered (GE) seeds and chemicals designed to treat the crops. Not only do GE crops continue the unsustainable trends of industrial agriculture, they also pose a whole new set of hazards to biodiversity, the environment, and human health.

GE crops are being commercialized that have pesticides built into them that are so strong, the plants are actually registered as pesticides with the EPA. GE traits can and have spread to other plants through cross-pollination. Beneficial insects such as lacewings and lady bugs have been harmed by exposure to these toxic plants. On the human health front, the concern is that there may be unforeseen allergy-causing or toxic effects from the novel proteins produced by the combining of DNA from different species. GE foods aren't required to be tested before being commercialized, so we are all essentially participants in a mass experiment.

The World Bank is investing in the "gene revolution," still promoting short-term gains for corporations and an agricultural system that disempowers developing world farmers instead of supporting sustainable agricultural practices, like organic farming or integrated pest management. A major "structural adjustment" of the World Bank itself is needed if it is ever to meet the real food security needs of the developing world.



The new Food Pyramid
Stop food monopoly.

Straight Up Permaculture

Everything we do on the farm is somehow mimicking things that happen out in nature. The principles and forces at play out in the forest are the same ones we use to design our fields and gardens and homes and lives. Where I've been living is like a big experiment in organic development and sustainability. Instead of acres of tractor tilled monocrops full of pesticides and herbicides and fungicides and factory buildings pumping out mutated cows and chickens, we have an organic vegetable gardens and happy animals and what we call little patches of permaculture scattered throughout the farm.

Energy Cycling

In the forest water falls from the sky, soaks into the soil, moves through the soil and across the land, rises up in the stems of trees, and returns to the atmosphere. The same way the trees in the forest hold onto water, use it, then let it back out - we try to turn flows of nutrients and energy (sun, water, wind, organic wastes) through our farm into cycles.

We have a pipe which runs from our water source (a spring) up in the hills and intercepts the flow before it runs down the creek and into our lake. Our pipe connects down to a big ferrocement tank at the top of a bluff which connects to a number of other pipes which carry water down to our houses and fields. The idea is to catch, store, and use all of our resources before they run off the property. Recycling kitchen waste into compost, channeling household greywater into the garden, raking leaves up around trees as mulch - those are all different ways of energy cycling. Rather than using expensive, complex machinery which need petroleum and random parts from the other side of the world, we use hand tools like scythes, wheelbarrows, forks, and spades. The energy we expend out in the fields goes into our food cultivation, then we eat the food and the cycle starts all over again.

The idea is to create a closed circle where we feed ourselves and don't have to be dependent on the global market for our survival. The idea of localized economy is based on the same principle - supporting your friends and regional community and keeping the trade flowing in a circle. Buying from the neighborhood family market rather than the megamall - supporting local businesses rather than giving it to people who already have plenty of money and live really far away from you in fancy houses somewhere.

Accelerated succession - pioneers and climax species.

The forest develops and changes over time, always giving rise to a new succession of different species. Each stage creates the right conditions for the next stage. When the trees get cut down on this land, the first thing that happens is the alders grow. There are patches of alder all over this forest from where the old trees have been clearcut. Alder is a pioneer species. Their roots fix nitrogen in the ground and build up the soil for the next generation to come along. As the rest of the flora and fauna develop around them in layers of vines and shrubs and ground cover, the cedar and fir slowly begin growing again. Eventually the alder fall and break back down into soil, shaded out by the climax species cedar and fir. ⑤

All my housemates are really busy with projects: canning tomatoes, cooking jam, drying plums, threshing amaranth and quinoa and beans, making pesto and tending to the berry wine. Our eight month sustainable agriculture program ends in six weeks and we're all planning our futures, heading off in different directions ready to take on the world with all this knowledge in our hands and arms and minds.

My days are really full and completely revolve around food - sowing it, tending to it, talking about it, studying it, harvesting it, processing it, eating it. I've been t-bud grafting fruit trees and rooting semi-hardwood cuttings of shrubs and trees in tins of wet sand, saving tons of different kinds of vegetable and flower and herb seed, staying up late at night reading drip irrigation and biofertilizer and plant propagation textbooks. I swear it's so magical - like casting spells - getting the timing down and mixing up the right amounts of soil and seeds and water and sun and - poof! - it all starts growing.

Reclaiming Lost Knowledge

What's incredible is that people aren't learning these skills anymore - food cultivation and land stewardship are rapidly becoming lost arts. Not so many generations back most of our families were providing their own food in one way or another. Our grandmothers had fruit trees in their backyards, our grandpas would catch their own fish, people would save their own seed and grow the same tomatoes their grandparents had grown. We lived in tighter communities with more localized economies and had a closer connection to the land we lived on and the people around us.

Now a couple multinational chemical companies own most of the crop seeds in the world and genetically alter our food to be dependent on their fertilizers and herbicides. We grow our food on huge tracks of monocropped land and transport it all over the place in monster trucks and buy it wrapped up in plastic from nightmarish superstores. We've sprawled out of our cities in strangleholds of highway and covered up our best agricultural soil with cancerous growths of suburban development and industrial parks. Our economy is based on an infinite growth model that doesn't factor in our limited natural resources or peoples' livelihoods and happiness. The rivers are full of toxic waste and there's a law against fruit trees in my home town because the fruit might fall on peoples' cars. Kids like me grow up in big apartment buildings totally alienated and clueless and never knowing where our food really comes from or how anything really works.

When I listen to the news on the radio full of war and catastrophe and stock market bullshit, I take comfort in the fact that the skills I'm learning will never become outdated. No matter what I end up doing I will never be downsized and replaced by a machine. I'm going to spend the rest of my life helping to clean up the mess the corporations have created in all their greed and shortsightedness. And just like the rest of the people I work with everyday, I'm just going to get better at all of this stuff as the years go on. Anyone can learn how to grow food and take care of themselves and the world around them. What follows are some rough notes about some of the stuff we've been learning out here. ②

THE NEW ECONOMY: THEORY AND RESULT

ECONOMIC GLOBALIZATION SEEKS to integrate and merge the economic activity of all countries on the planet within a single, homogenized model of development. Countries with cultures and traditions as varied as those of India, Sweden, Thailand, Brazil, France, or Bhutan are all meant to adopt the same tastes, values, and lifestyles, and to be served by the same global corporations, fast food restaurants, clothing chains, television, and films. The homogenous model serves the efficiency needs of the largest corporations, allowing them to duplicate their efforts on an ever-expanding terrain.

The globalization process has some key characteristics: *free trade, deregulation, and privatization* of as much economic activity as possible, and the *rapid commodification* of every remaining aspect of life. These include the few remaining pristine elements of "the commons," elements of life that have so far been outside the trading system: culture, fresh water, seeds, and the genetic structures of life. All are being privatized and commodified as part of the globalization project.

The ideological heart of this model is free trade (now often called "trade liberalization") which demands the elimination of national regulations, laws, or tariffs that slow down corporations and their investments as they move across national borders. The goal is global integration in order to achieve greater and cheaper access to scarce resources, new markets, and cheap labor, wherever they are. More recently, free trade has also begun to apply to capital itself (i.e., currency, stocks, etc.), which is now traded at a higher volume than global trade in goods and services. Modern information technology has made it possible to shift unimaginably large sums of money instantaneously, across borders, anywhere in the world, at the strike of a computer key. This has already had awful destabilizing effects on some countries' economies, and was a precipitating cause of the 1997-1998 global financial crisis. (Current free trade models defy traditional free trade notions as espoused by influential economic gurus Adam Smith and David Ricardo, whose names are often invoked by free trade advocates. Neither Smith nor Ricardo believed that corporations should be mobile, or that capital should be permitted to leave its own community.)

The only exception to the present trend toward the elimination of economic borders applies to labor, which is still mostly not legally free to move at will. A mobile labor force would seriously complicate matters for corporations seeking the lowest possible wages and wage competition among countries. As it is, many countries of the world, the United Kingdom among them, have begun to advertise that they have the lowest wages in their region.

Another key ingredient of the free trade model is export-oriented production, based on the theories of specialization. Several hundred years of colonial rule had already created dependence on a few export commodities in many countries. Still, until the 1980s, many small countries of the world followed policies that sought greater national and regional self-reliance, especially in crucial areas like food production. Some achieved considerable success and long-term stability by emphasizing a diverse local economy with a broad industrial and agricultural base. This was particularly important for food production and security. Trade activity remained lively, but mainly in economic areas that could not easily be satisfied locally.

Local or regional self-reliance, however, is subversive to free trade and economic globalization, which depend upon hyper-activated economic activity in every dimension. It is far less economically rewarding for global corporations when local economies care for or feed themselves than it is to have each country shipping a massive volume of commodities across oceans (export) and receiving others (import) on ships that pass each other in the night. So, during the 1980s and 1990s, tremendous pressures were applied to all countries, particularly by the World Bank and the International Monetary Fund, to abandon the idea of self-reliance—it came to be synonymous with "isolationism" and "protectionism"—and to instead specialize in producing a much smaller number of commodities for export.

Threats of boycott and exclusion from the international community were finally effective, and many small countries dropped their barriers to foreign investment and entry. Global corporations were then free to

FROM A PRIMER

Prepared by

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BY SASCIA
SCATTER

Can't Hang with the Monocult - Lessons in the Forest
Kickin it on the Farm - Month Seven

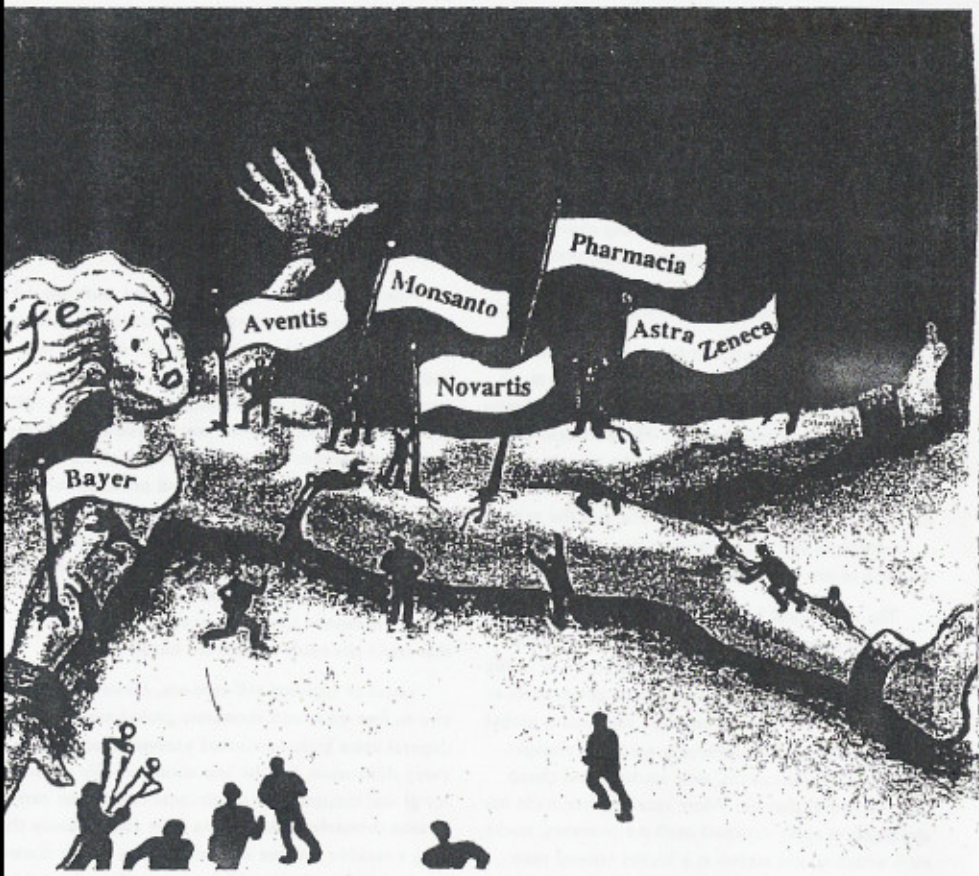
I'm sitting under a huge cedar tree on a thick cushion of moss and needles and decomposing wood, it's early Saturday afternoon, and I'm in the middle of the forest across the lake from the farm. I've been working clearing trails in the park here for the past bunch of hours, cutting back sollal roots and pulling up ferns; now I'm watching the squirrels run across the upper story of the trees and resting my sore arms in the shade, feeling sweat beading down my neck, listening to the sound of my breath and the birds chirping and the wind blowing across the lake. I'm about at fern level, looking straight up into the crisscrossing network of spirals and whirls of tree branches, light flickering through the patterns of needles and swirls. The soil under the cedar needles I'm resting on is thick and black, held together with decomposing organic matter - constantly in flux and full of life. It's all mulched under a carpet of the tree's energy - breaking down and building up and breaking back down again - slowly getting taller and deeper - holding the energy in and letting it go little by little over time. Life in this forest is an endless flow of producing, consuming, and decomposing. The tree I'm sitting under sheds it's weight and builds the soil it stands in. The old growth fir trees stumps everywhere that were hand-logged back in the 1920's have giant new hemlocks growing out of them - the new trees taking advantage of the old root systems carved through the soil and rock.

Here in the forest, everything is connected up and down and underground - from the smallest microbe fixing nitrogen in the soil to the cougar catching a deer for its dinner on the edge of the bluff. There are a lot of important lessons to learn out here.

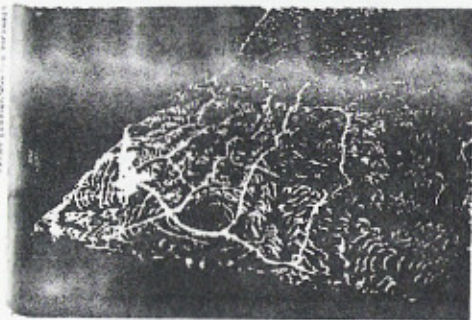
The Backdrop:

So while most of my friends are back in the city somewhere cultivating their stress and balancing activism and computer temp jobs or scamming their way along the trainlines and supermarket dumpsters of America, this urban kid has been learning how to grow food and living at a farm near the edge of the forest on a tiny island in British Columbia for the past half a year.

Here's my routine: I wake up in the morning with the sun and write down my crazy dreams, slip out of the house and feed the pigs, water the greenhouse full of tomatoes and peppers, tend to my little broccoli transplants which are just starting to make heads for Fall, maybe jump in the lake if it's not to chilly. Usually after breakfast, me and the rest of the crew head out to the production garden and harvest corn and beans and squash and carrots and eggplants and leeks and beets and lettuce and tomatoes and zucchini and basil. We work on building compost or building fences or slowing down erosion in the creek that feeds into the lake by our house. A couple times a week we'll have a discussion group kind of class on soil chemistry or composting toilets or land trusting. A couple of us are building a seed bank and networking with a bunch of local farmers and seed companies and exchanges.



p colonizing and patenting of life.



Palm oil plantation in Sabah, Borneo—The 1997 fires that engulfed Southeast Asia in a cloud of smoke half the size of the U.S. were mainly caused by plantation companies, which illegally use fire to clear forests to make way for palm oil plantations. WTO agricultural provisions have benefited large palm oil exporters and encouraged expansion of plantations. Small farmers in Indonesia, however, have been decimated by WTO policies that give northern agribusiness more access to the South.

gases. The average plate of food that Americans now eat has traveled some 1,500 miles from source to table, solely because it benefits the corporate actors who sit at the hub of the process. The international transport required by a globalized agriculture system dramatically increases the need for new infrastructure—more roads, pipelines, and airports—which is usually destructive to the environment, as well as requiring a greater use of fossil fuels. The tremendous growth in ocean shipping increases ocean pollution and brings wave after wave of invasive species—bacteria, parasites, viruses, insects and animals—that hitch rides on trucks, planes, or ships headed for new locales.

Another environmental consequence of the new system is an increased dependence on biotechnology (i.e. genetically modified organisms). This not only shrinks the crop gene pool further, but there is growing evidence that genetically modified crops produce a new kind of "genetic pollution" as the genetically modified traits spread to neighboring crops and weedy relatives through cross pollination. In the case of plants altered to be pest-resistant this new kind of pollution has already been shown to kill untargeted insects. This may lead to irreversible changes in plant and animal genetic structure and in ecological balances.



enter, buy out, and otherwise dominate many sectors of the local or national economy, including food production. In agriculture, diversity of food production and an emphasis on staple foods to feed local people were sacrificed for single crop monocultures producing

luxury crops for export markets, using massive inputs of chemicals and machines. In the end, self-reliant economies and communities, small businesses, and small farms were undermined by a system that sends mass-produced manufactured and agricultural goods steaming around the planet at staggering environmental costs in the form of ocean and air pollution, energy consumption, and devastating infrastructure developments (new roads, ports, pipelines, dams, and airports).

Much of the pressure to change came packaged in the form of structural adjustment programs that the World Bank and the International Monetary Fund forced upon small countries. These programs included conditionalities for receiving the loans that would theoretically help them make the transition to an export-oriented, free trade economy. In addition to demanding tariff reductions and opening up to foreign corporate investment, the loan conditions required sharp reductions in spending on social programs such as education, health care, small business assistance, wage supports, and other social services. Without these supports, poor people were suddenly much poorer. In addition, currency devaluations were advised so as to make the new monoculture production more appealing for export markets. All of these measures, combined with the pressures to privatize national industries, left economies that had been relatively self-reliant utterly dependent on and massively indebted to banks and global bureaucracies, a situation from which they are now trying to find relief.

The rationale for all of these free trade and free market theories was that they would produce accelerated economic growth because they gave corporations greatly expanded access to resources and markets and freed them from pesky environmental laws and social standards. Free trade theorists claimed that the "rising tide will lift all boats," providing broad economic benefits to all levels of society. The evidence so far

Free trade theorists claimed that the "rising tide will lift all boats," providing broad economic benefits to all levels of society. The evidence so far clearly shows that it lifts only yachts.

clearly shows that it lifts only yachts.

All recent research confirms that only a small number of people at the top of the global corporate pyramid—CEOs of global corporations and a small number in upper management—experience significant bene-

fits from all the growth, expansion, mergers, and consolidations created by globalization. The gaps between the wealthiest and poorest people in society, and between management and workers, have never been so great as they are today. This comes following a period of the most rapid acceleration of global economic activity in history.

A recent report from the Institute for Policy Studies shows that American CEOs are now paid, on average, 419 times more than line workers. The Economic Policy Institute's 1999 report shows that median hourly wages, when adjusted for inflation, are down by 10 percent in the last 25 years. The U.S. Federal Reserve reports that the top 20 percent of the U.S. population owns 84.6 percent of all the wealth in the country. And the wealth of the world's 475 billionaires is equal to the annual incomes of more than 50 percent of the people on earth. Of the 100 largest economies in the world, 52 are corporations, only 48 are countries. As for jobs: The top 200 global corporations of the world—enjoying the efficiencies of scale and consolidation—employ only one-half of one percent of the global work force. Lifting all boats indeed.

Meanwhile, according to a UN study, the gap between rich nations and poor ones is also expanding because of inequities in the global trading system. Third World are beginning to fully understand that the rules of globalization are meant to benefit not them, but only stateless global corporations.

In addition, environmental havoc created from this system has reached an unprecedented level. Global destruction of habitat and species, expanding ozone holes, rapid climate change, and other results previously noted are all dramatically exacerbated by a system designed and constructed to place economic values and corporate self-interest above all other values.



Sugar cane harvesters in Luxor, Egypt—Instead of growing food to feed local populations, the lending policies and global trade rules of many international institutions and agreements encourage developing countries to grow more and more monocultures (i.e., one crop) of luxury items, such as sugar cane, for export. This system leads to over production which, in combination with unstable currency rates, results in dramatic price drops in luxury item commodities. For example, in 1998, the price paid to many developing countries for sugar cane dropped 38 percent.

AGRICULTURE, FOOD, AND PUBLIC HEALTH

ALTHOUGH TRADE IN AGRICULTURAL goods has been going on for centuries, small-scale, family farmers have provided food for themselves and their communities for millennia. Even today, about half of the world's people still live on the land, growing food for their families and communities. However, things are changing rapidly. The self-reliant system that emphasizes local production for local consumption is being taken over by a new, globally industrialized agriculture system that is centralized and controlled by giant agribusiness corporations. Farmers are being driven off their traditional lands, communities are being decimated, and hunger is on the rise. In the South, as global corporations operate ever larger farms, they replace staple food production with monocultures of luxury items for export markets.

And, all around the globe, they replace people on the land with machines and chemicals, leaving once self-sufficient farmers landless, jobless, and often homeless.

The elimination of self-sufficient, small-scale farming is usually explained away as an uncontrollable evolutionary step toward "progress." This is not so, the globalization of industrial agriculture has been deliberate and conscious. Global institutions such as the WTO have created rules that explicitly favor large-scale, heavily industrialized export-oriented systems of production. As Eugene Whelan, former Canadian federal agriculture minister, observed, "These deals aren't about free trade. They're about the right of these guys [corporate agribusinesses] to do business the way they want, wherever they want."

THE GLOBALIZATION OF INDUSTRIAL AGRICULTURE

THE WTO ADMINISTERS and enforces several agreements affecting agriculture. All of them serve the purposes of global agribusinesses. Before the WTO, international trade agreements such as GATT limited their role in agriculture mainly to setting quotas and tariffs. But as huge agribusinesses became more intent on capturing larger markets, the industry began to push hard for further liberalization in agriculture through international trade instruments. Then, the Uruguay Round of GATT produced agreements that greatly expanded its rule over more aspects of agriculture while limiting the power of national governments to protect their own farmers, consumers, and natural resources.

Globally industrialized agriculture not only drives small farmers off the land, it also creates terrible insecurities and dependencies for those that remain. Instead of dealing with local trade, farmers are now subject to market forces generated by giant, vertically integrated global corporations powerful enough to influence both supplies and prices at every level of agricultural activity. The result is enormous price volatility. Farmers are selling to an increasingly centralized monopoly of food corporations that can play both the domestic and world markets using one group of farmers against another in international pricing games. Since WTO policies have entered the picture, global prices for the world's major crops, such as corn, soybeans, wheat, cotton, and rice have reached their highest and lowest levels in the last 20 years. The years of low prices have ruined millions of farmers. The years of high prices have hurt poorer, developing countries that have become reliant on food imports; causing malnutrition and starvation.

Even relatively sophisticated family farmers in developed countries find that they cannot compete with the huge capital outlays agribusiness can make, nor do they receive the preferences and subsidies that favor agribusiness under global trade rules. As a result, record numbers of farmers are being driven off of lands that have been nurtured and maintained by families and communities for generations. In southern countries, millions of farmers have been displaced, resulting in massive migrations into already overcrowded cities. According to USDA, over 50,000 family farms have disappeared over the last five years.

Throughout the centuries, traditional farmers have developed and protected a treasury of seeds and plants adapted to local conditions. In India, farmers developed more than 200,000 varieties of rice; Chile boasts hundreds of varieties of potatoes; in Zimbabwe there are numerous varieties of maize. This wealth of agricultural biodiversity is being lost in the conversion to monoculture, or single, crops. Scientists fear that future adaptation to both natural and manmade disasters such as climate change, flooding, desertification, and the global transport of pest species is greatly threatened as the gene pool for crops becomes seriously depleted.

The new agriculture system is also contributing to nutritional deficiencies among many populations. Because industrial agriculture is dominated by western corporations it promotes a western diet. But people in developing countries often cannot afford the full range of a western diet, especially meat. The western food they can afford is not always as nutritious or culturally desirable as the varied traditional food crops developed over time. In India, for example, traditional grains such as sorghum, finger millet, and barnyard millet have a higher protein content than the variety of wheat grain used in the North, yet these ancient grains of India are in danger of being wiped out as a result of WTO policies that favor agribusiness farms and industrial monoculture.

In addition to causing malnutrition, hunger is exacerbated by this global food production system. Around the world, over 800 million people go hungry every day. Although food production has increased in the East Asian countries that participated in industrial agricultural policies encouraged by institutions such as the World Bank, hunger has dramatically increased. Countries that were formerly food self-sufficient are now growing export crops—many of them high-value luxury items such as exotic plants and flowers, cottons, exotic fruits and vegetables for export to wealthy countries. As a result, food production for local consumption declines.

The environmental consequences of large-scale industrial agriculture are extreme because it requires heavy chemical and pesticide use, depletes the soil, increases water usage, and uses large fuel-consuming machinery, adding to emissions of climate-changing