

Dear Peter and Judy,

All our loose kitchen table talk about how reinhabitation, technology and communities fold together within the Hudson estuary have meant hours at the drawing board looking for a pattern that connects human needs and the health of the estuary with ways to provide for ourselves.

The question of technology makes this tricky turf. What we're talking about is turning around faith in a technological fix for cultural problems toward seeing cultures as the ground for defining our technological choices. Reinhabitation means stepping out of the industrial framework into a cultural identity of living well in place while building an allied base of technological support. I know, I know, Luddites will want to run us out of town and quick-fix whiz bang kids will want to send us out for reprogramming. So what's new? What really matters is that people on the street and the land already have a feeling for the richness of daily life, know that better is possible and will make the moves if the music is right.

Here are pages from my design notebook that I promised to send along. They go with this sense of cultural shift and were selected to begin at the household and radiate out to levels of community scale that support reinhabitory initiative. They're broken down into rural and urban settings (ugly words to begin with and increasingly worthless as adjectives that work to describe bioregional locations) and then tied together by a diagram that illustrates possible reciprocity between heavily built-up areas of the estuary and more undeveloped ones.

Notebooks can be as varied in their make-up and style as the people who keep them. Here you will find a steady flow of notes, narrative or personal experiences, and questions posed to aid in design direction. Drawings and source materials help illustrate and detail the projects. As you know, some of these notes and drawings have found their way off the drawing board to serve as foundations for actual projects that were completed or are currently underway. More to come, too. It's getting to be showtime around here for reinhabitory work.

Miss you. See you soon.

A handwritten signature in black ink, appearing to be a stylized name or initials.

A POLE FRAME HOUSE at the base of the northeastern leg of the Shawangunk mountains.

What design criteria anchor the building of a house within the watershed boundaries of the Hudson River estuary?

- The dwelling should stand well against the elements.
- Construction would be of local materials and affordable.
- Heating, cooling and ventilation would be accounted for by the natural energy cycles of the sun, wind, and change of the seasons.
- Net energy efficiency would “sort out” technological options (solar collectors and photovoltaic cells, for example) according to embodied energy and life-cycle costs.
- Biological spaces (greenhouses, let’s say) should be interwoven with human needs in the form of functional design elements (as considered in food production, for instance).
- The purposes and impact of the house (such as waste removal) should be tied to the organization and health of micro and local ecologies.
- By resonating native and traditional housing forms, the dwellings can be a bridge to and an enactment of a reinhabitory culture.

How does this pole frame house design embody these criteria? Site location and the shape of the house are conservation measures themselves, allowing the northern winds of winter to pass over the roof rather than to buffet it. Advances in pole frame construction assure a structurally sound building while providing deep roof, floor and wall recesses framed out with local green 1”X lumber. This simultaneously allows for high insulation values and timber conservation. Heating is a combination of conservation efforts, direct gain (sunlight through the windows), solar greenhouse (with thermal mass) and masonry woodstove (Russian fireplace). The greenhouse provides the setting in which to grow food and fish (water-filled tubes within the greenhouse act as an environment for aquaculture while collecting and radiating heat to the interior of the house). A site-built solar domestic hot water heating system is incorporated into the roof of the greenhouse and a low-cost windmill pumps water. A septic tank system (with water-conserving fixtures) handles wastes. All plumbing is back-to-back in order to conserve materials.

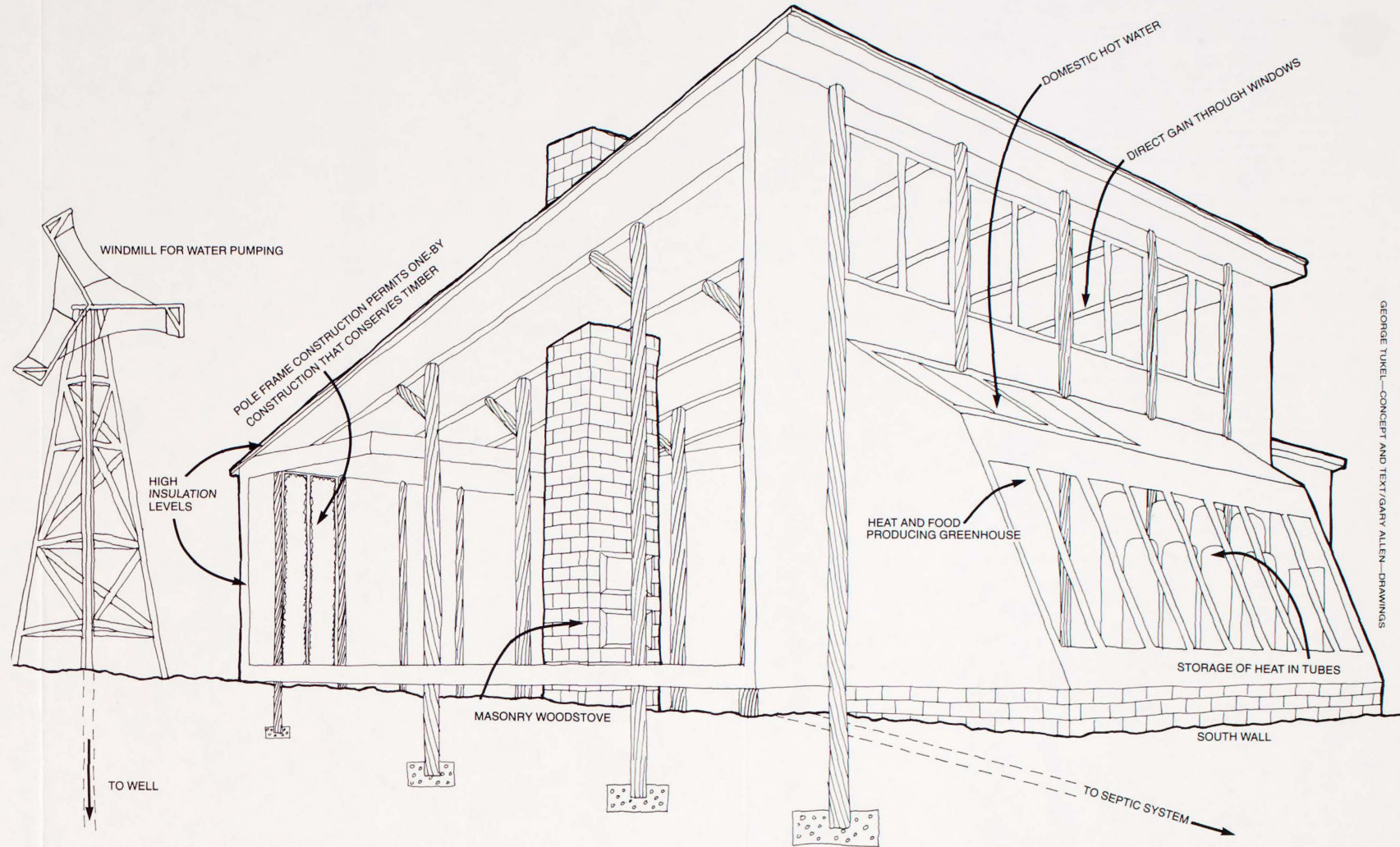
Lighting is task defined and appliances are energy efficient.

Finally, this pole frame house has the lines of the Salt Box House (a classic of the region) and the spaciousness and relaxed formality of the Native American Long House (a pole frame structure) and the symbolism of a pole centered structure suggests that human acts can connect earth with sky through construction, habitation and aging.

Bruce is starting to get serious about making his many talents available to people who want to build their own homes. He’s a rare hybrid: a painter and filmmaker, he carries the sensibilities and openness of an artist with the scars of making his living as a general contractor.

Coming of age in an Italian family headed up by a carpenter, building is like a second language to him. He has the knack for it. And he puts in a hard day’s work. The need is certainly there for someone like him. More and more locals are readying themselves for the house-raising commitment. People are talking up a storm about what they plan to put up: double-wall super-insulated houses/passive solar high-mass barns/sun-tempered stone and log buildings. This stuff is definitely not “Mother-Earth News” mickey mouse. There is a spirit of support, cooperativeness and hands-on help to it all. It makes me feel that I know what the barn-raising tradition of the area is all about.

Bruce is keyed into it, too. His take is that the time is near for an owner-builder school or, at least, a network connecting builders to sympathetic suppliers, mechanics and designers. He’s right. As usual, the hat trick will be in building an organization that doesn’t take the magic out of it. Worth a try.



GEORGE TUKEI—CONCEPT AND TEXT/GARY ALLEN—DRAWINGS

ECOLOGICALLY SCALED FARMS AND SOLAR VILLAGES
looking out onto the Walkkill Valley from the Mohonk Tower

The provision of nourishment, local autonomy, and home rule was the backbone of the traditional farming culture up and down the lower Hudson. The stability of this culture has been disrupted primarily by an obsession with short-term economic gain. Indigenous farming communities have been transformed into zones for land speculation and development. And farming that remains has absorbed the use of industrial technology—mechanization, high energy use, and crops based on intensive use of fertilizers and spraying—to maintain yields.

The consequence is that we are losing the physical means—the land—and increasingly, knowledge of how to provide for ourselves, within our watershed borders, without cannibalizing the natural surroundings.

Might it be wiser for our rural communities to live closer and better to assure our possibilities as town dwellers and farmers, apart from but in sync with the different pace of our city neighbors?

A nice idea say many, but the industrial train is moving a bit too fast to jump off without a serious hurt. There is a mean sort of addiction at work here, and it prompts the recollection of those who argue for fossil fuel based energy production. "Either we play by the industrial rules of the game or suffer in our quality of life" is the contrived choice offered up and believed. This is said in the face of knowing that a power supply system based on renewable energy would be more economical as well as far easier on all life within the estuary. Part of breaking this cycle of addiction may lie in reinterpreting traditional farming values. Farmers have passed on monocultural agricultural practices that wear down the soil (our bridge to cross to sustainability). It is necessary now for farmers to include the preservation of conditions that support life—the soil—within immediate needs—the crops for sale. Example? Growing food while caring for the land.

What paths are available to move in this direction? What clues do we have to go on?

One way to support reinhabitation would be to interweave ecologically scaled farms with solar-based villages. Two things happen here. The first is that farming can become farming again by infusing bioregional worth into its identity and practice. Secondly, village living can concurrently become more autonomous and interdependent with the estuary by aligning its own requirements with natural ones. The results? Food production that restores fertility within the current of local

ecological succession and communities that are placed and stabilizing.

For farming, it could hinge on practice and scale. Farming methods have historically employed the monoculture of annuals to achieve their yields. An alternative to this method would be cultivating a polyculture of perennials: a permaculture as analogue to the forest.

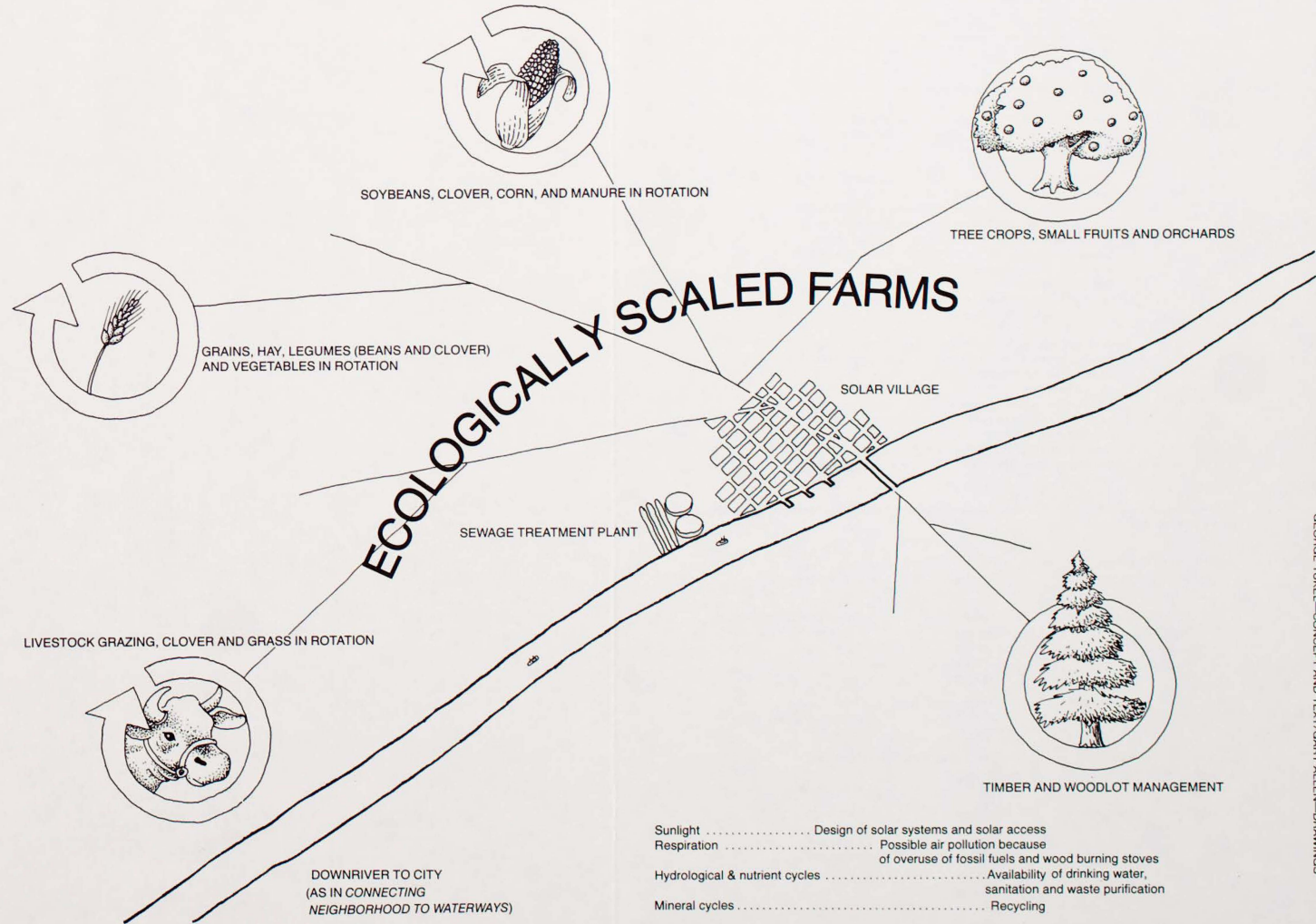
A lot of hard work is going to have to go into fully realizing this alternative. A good deal of work, though, is already being done in the estuary on family-scaled farms. These farms are a response to:

- Heavy reliance on energy and chemical fertilizers with resulting increases in cost
- Soil productivity depleted by the loss of organic matter and erosion
- Pollution of the environment by agricultural chemicals
- Food grown with heavy use of pesticides that harms humans and animals

In reaction to those conditions, a shift is being made from conventional chemical intensive agriculture toward organic farming. The goals of this shift: a stable, sustainable and profitable way of growing food. What are its major characteristics?

- More farms are in the 10-50 acre size range
- Farming practices are more labor intensive
- Soil is alive and, to keep it healthy, nutrients are recycled by producing humus from crop residues, manure and other organic materials
- Insects and pests are controlled by biological means
- Farming practices, such as crop rotation and planting of legumes, diverse and timely tillage and the use of implements that minimize physical impact on the soil, are beginning to move with "feed the soil, not the plant"

Villages can become hubs of multi-species life. A measure of that possibility lies with reinhabitants viewing the shape of their communities within the patterns of energy available to a locale through direct solar radiation, secondary solar-derived energy flows and watershed ecosystems. This energy availability—solar income—can become the basis for community decision making. By taking solar income as the common denominator, the energetics of village life adhere to wider life processes of the bioregion.



HOMESTEADING IN THE ESTUARY *a long stone's throw from where 44/55 meets 299*

The possibilities of living beyond the immediate reach of urban centers while remaining connected to them are increasingly limited to and impoverished image of the suburban dream. (The momentum of the "logic" of suburban growth—access to the city, medium density development, and the civility of small town living—continues even when many communities fashioned on this model are suffering from economic woes as well as energy/resource wastefulness.)

This is especially true for a region that has a city as large as New York located within it. In the estuary, outer commuting boundaries of the two most influential cities—Albany and New York—actually overlap. This reinforces the tendency to view undeveloped areas of the estuary as "prime" locations for sprawl development. But that formula is not the only one available. Another possibility is the homestead. What, though, could a homestead look like? What would it include?

— It would harbor the family

— It would be food-producing at a scale above a garden but below that of a farm in an attempt to provide year-round supply:

1. Gardens—kitchen and supply
2. Orchards
3. Fish farming
4. Rabbits
5. Chickens
6. Bees

— Households can become energy generators and "resource managers" of their energy needs:

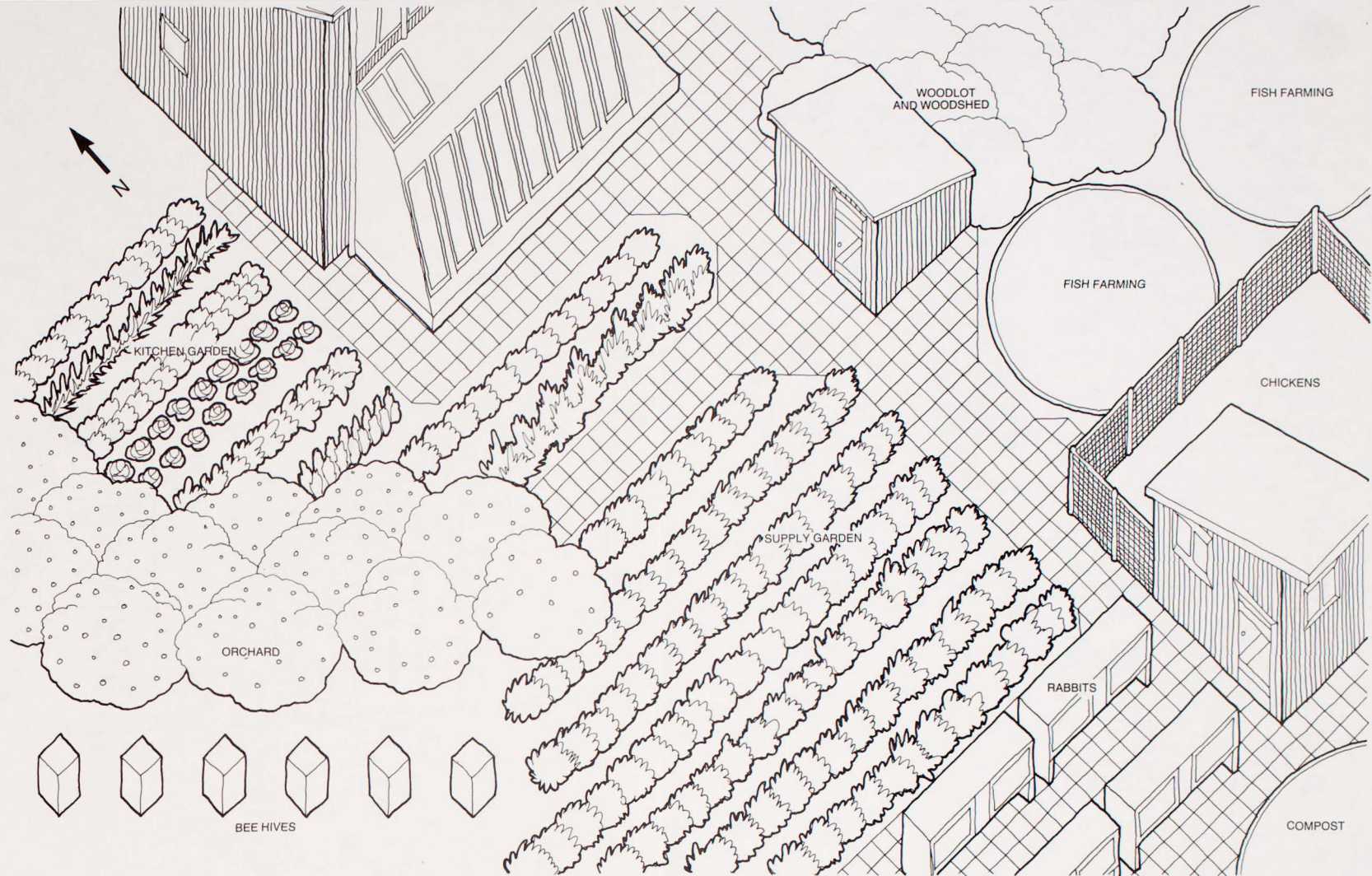
1. Firewood tied to wood lot management practices
2. Micro-hydro
3. Windmills
4. Solar heating

Homesteading necessitates soil building to offset native soil conditions and abuse, and as a commitment to the long-term reinhabitation of the estuary.

Overall, homesteading activities can be organized along lines of a permaculture exhibiting the characteristics of a mature forest ecosystem (as opposed to a

monoculture—the equivalent of suburban development). Patterns of natural maturity that work as design "glue" are:

- The number of species within the wider life community increases and relationships become more varied
- Food chains evolve from simple cause and effect relations to complex food webs
- Longer community life cycles, the product of diversity and mutual arrangements of need, yield increasing stability



GEORGE TUREL—CONCEPT AND TEXT/GARY ALLEN—DRAWINGS

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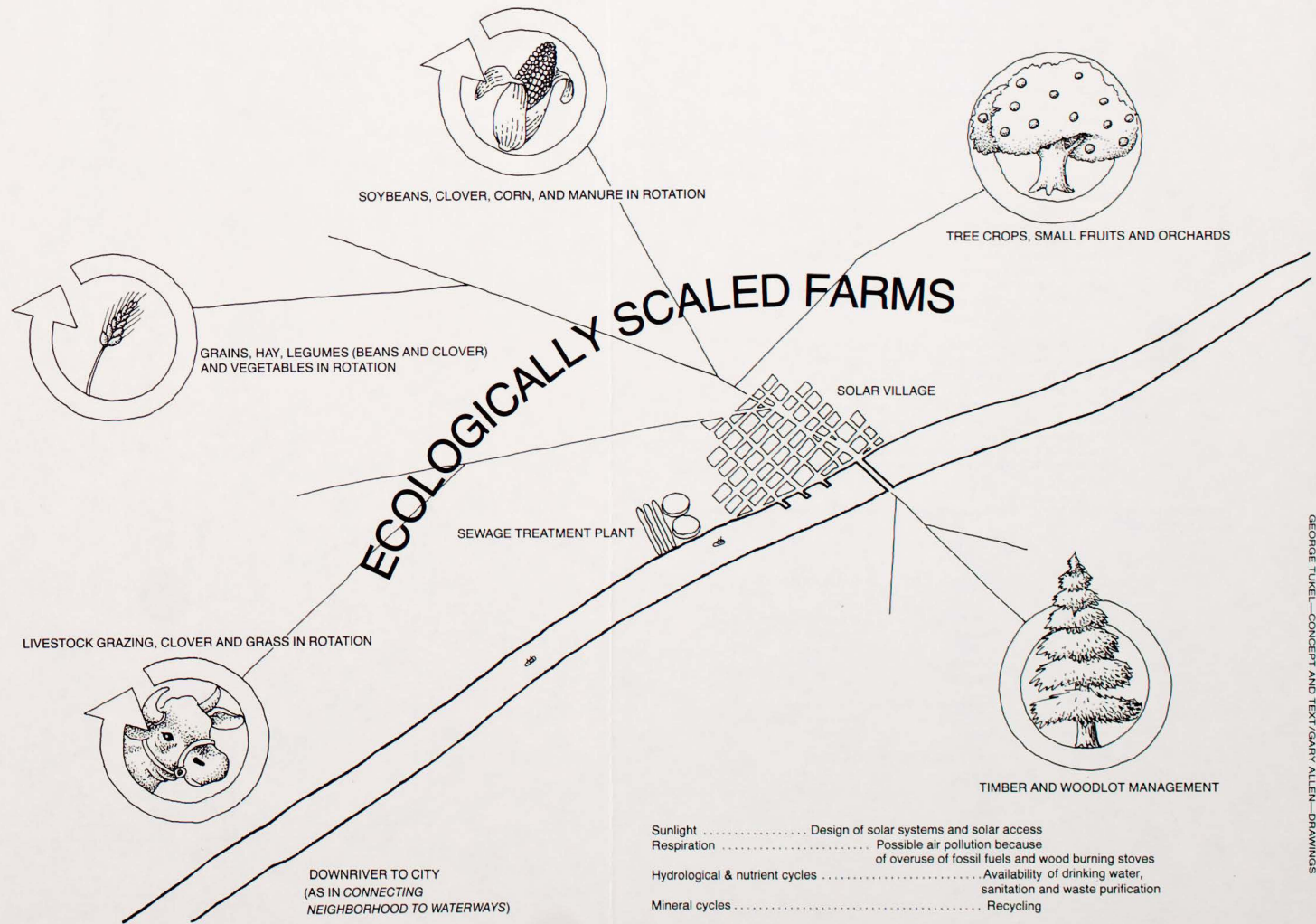
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ECOLOGICALLY SCALED FARMS



- Sunlight Design of solar systems and solar access
- Respiration Possible air pollution because of overuse of fossil fuels and wood burning stoves
- Hydrological & nutrient cycles Availability of drinking water, sanitation and waste purification
- Mineral cycles Recycling

DOWNRIVER TO CITY
(AS IN CONNECTING
NEIGHBORHOOD TO WATERWAYS)

BRINGING BACK CITY NEIGHBORHOODS *after visiting vacant lots in the south bronx that could be leased to neighborhood groups for their use.*

Households, city blocks and neighborhoods work at scales that are practical and personal. You can see local conditions change and influence them as well through individual and group actions and perseverance.

Cities in the estuary—Poughkeepsie, Newburgh and New York, for example—are at pivotal moments in their histories. Substantial sections of the inner core cityscape have literally been torn to the ground because of anger, destruction and subsequent demolition of buildings. Large open spaces now exist which demand community reconstruction.

We face a juncture. Reconstruction is imminent. Will the past be reduplicated in the failures of "modern urban planning" or can we shift towards eco-development within the city?

A contrast of two types of development.

An example of urban planning.

Am driving through the South Bronx and see two suburban raised ranch houses sitting on a 4-5 acre lot where multi-family buildings once stood. Bars on windows, garbage beginning to pile up in the immediate vicinity and burned out shells of 2-family houses surrounding them. These are homes picked out of a catalog (much as how people shop around for their first new car). They are no-place. These living "units" (as they are referred to) are sharply separated from the land they lie on, from the neighborhood and from each other. Turn corner and see signs proclaiming which community groups and city agencies are sponsoring this "experiment" in pre-fab modular housing.

A turn towards eco-development.

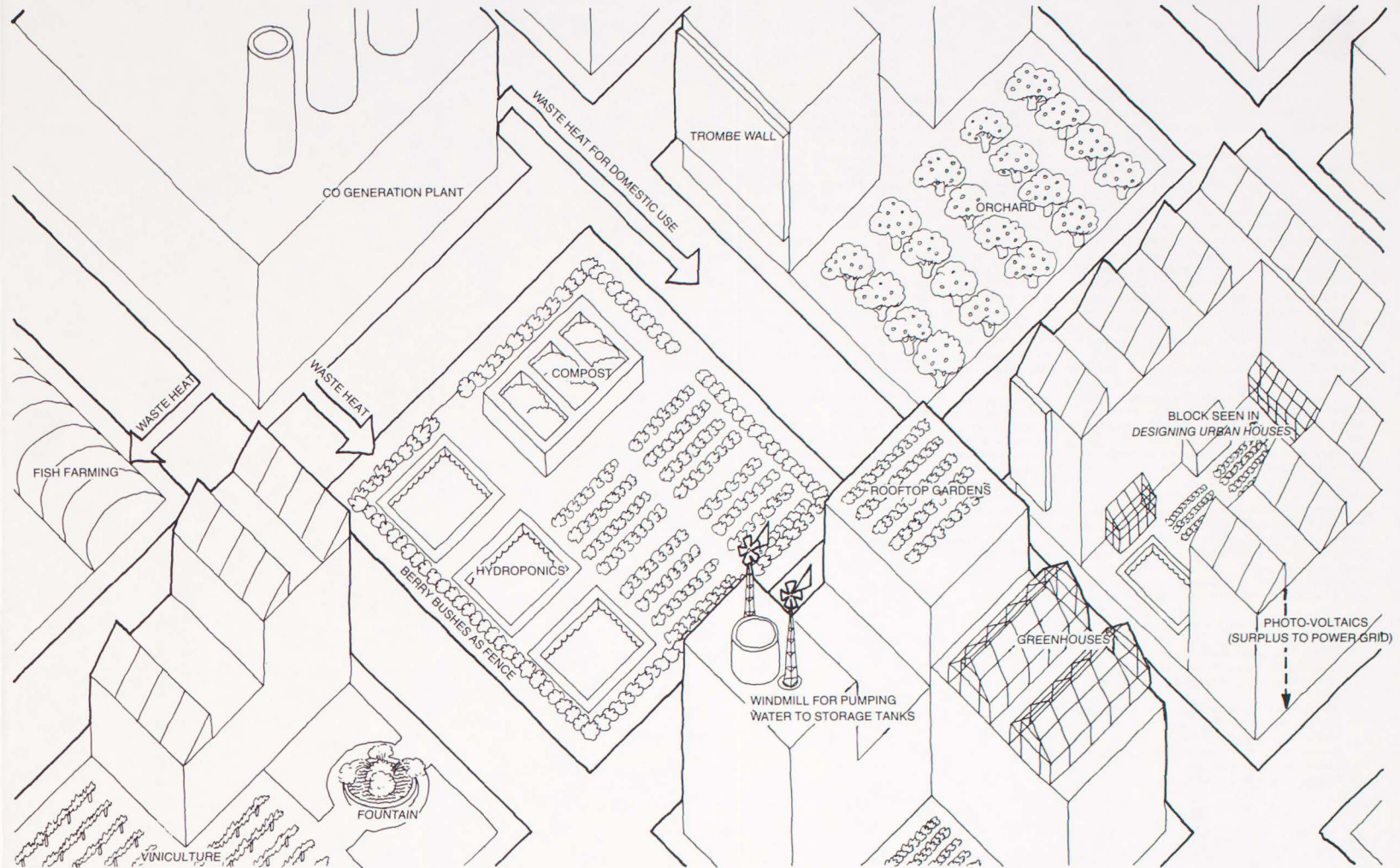
Take a typical setting: a 3 or 4 block area, part of which is now open space, part usable housing and commercial buildings and the remainder abandoned burned-out buildings (but still structurally intact). Then consider the following elements of eco-development:

- 1 — Population density should be at a scale which allows for choices rather than unilaterally defining them; in our example(s), this could mean medium-density housing interwoven with multi-functional and green spaces (as opposed to high-rise tenements and concrete retreats and vistas).

- 2 — The day-to-day means of provision (for example, food and energy) and services (waste management) should be carried out in as decentralized and sustainable a manner as possible.
- 3 — Designs for the neighborhood should incorporate lessons learned from watching healthy natural systems evolve.

Examples —

- Is total biomass increasing? *Translation:* more space dedicated to gardens, orchards, parks and green space.
- Are material cycles becoming more closed? *Translation:* Organic material is being composted for gardens on a community basis.
- Can we have more production from smaller inputs of energy? *Translation:* conservation of energy and its efficient use.
- Are multiple pathways of material and energy use being nurtured? *Translation:* All households now become energy producers as well as consumers. Household systems, say solar, and neighborhood systems, say co-generation, meet immediate needs while feeding energy surplus back into the power grid. The utility is now acting as a manager between energy producers and consumers in order to maintain constant supply.



LOOKING TO THE ESTUARY FOR IDENTITY

I assume that the less that is shipped into the estuary the better. Why? When oil from the Middle East or vegetables from California or South America comes in, money leaves the region, resulting in a weakened local economy and heightened dependency on external goods. Control over such exchange is extremely impractical and possible only by interfering in the economic affairs of other bioregions. In the long run, natural and human systems are kept unstable and simple(minded), stymied by injections of foreign and artificial materials and energy that do not allow a natural evolution to more stable and complex forms. Consequently, we have little climax forest or indigenous agriculture within the estuary.

To import less food and energy, we are going to have to take stock of the estuary's agricultural and energy resources—viewing them through the lens of sustainability—and create appropriate agricultural practices and a renewable energy production infrastructure.

In the passage from later industrial society to reinhabitory culture, there is a critical interplay between the human monospecies terrain we call cities and the surrounding multispecies terrain we call country.

Cities on the river (especially New York) will never become net food and energy producers. There are just too many people in too small an area. Yet, through resource energy conservation and intensive food and solar energy production, they could enrich themselves as places to live, as well as make it possible for the estuary to limit and more adequately define its imports.

Proposing this shift of cultural identity leading to indigenous forms of technology and development is necessary because only then can those primary food and energy producing areas—the multi-species terrain—hope to yield enough to support themselves and their neighbors and kin in the cities.

Within the multi-species areas of the estuary, the cornerstones of long term reinhabitation could be soil building, ecologically scaled agricultural practices (devoid of dependence on fossil fuels), energy production based on bioregional renewable sources of energy, and an ethic that grants to soil and land a deserved and privileged status as the conveyor of life. Local traditions of farming can be coupled with small farm polyculture food growing techniques. Power production technologies that don't erode the natural base of support can be applied. Together, they could provide the foundation of a bioregional identity for all estuary inhabitants while also making secure their food and energy supplies.

If urban and rural peoples can begin to see themselves differently via bioregional values (actions that contribute to the restoration or maintenance of the estuary), then a reciprocity of new understanding can connect the city and country communities.

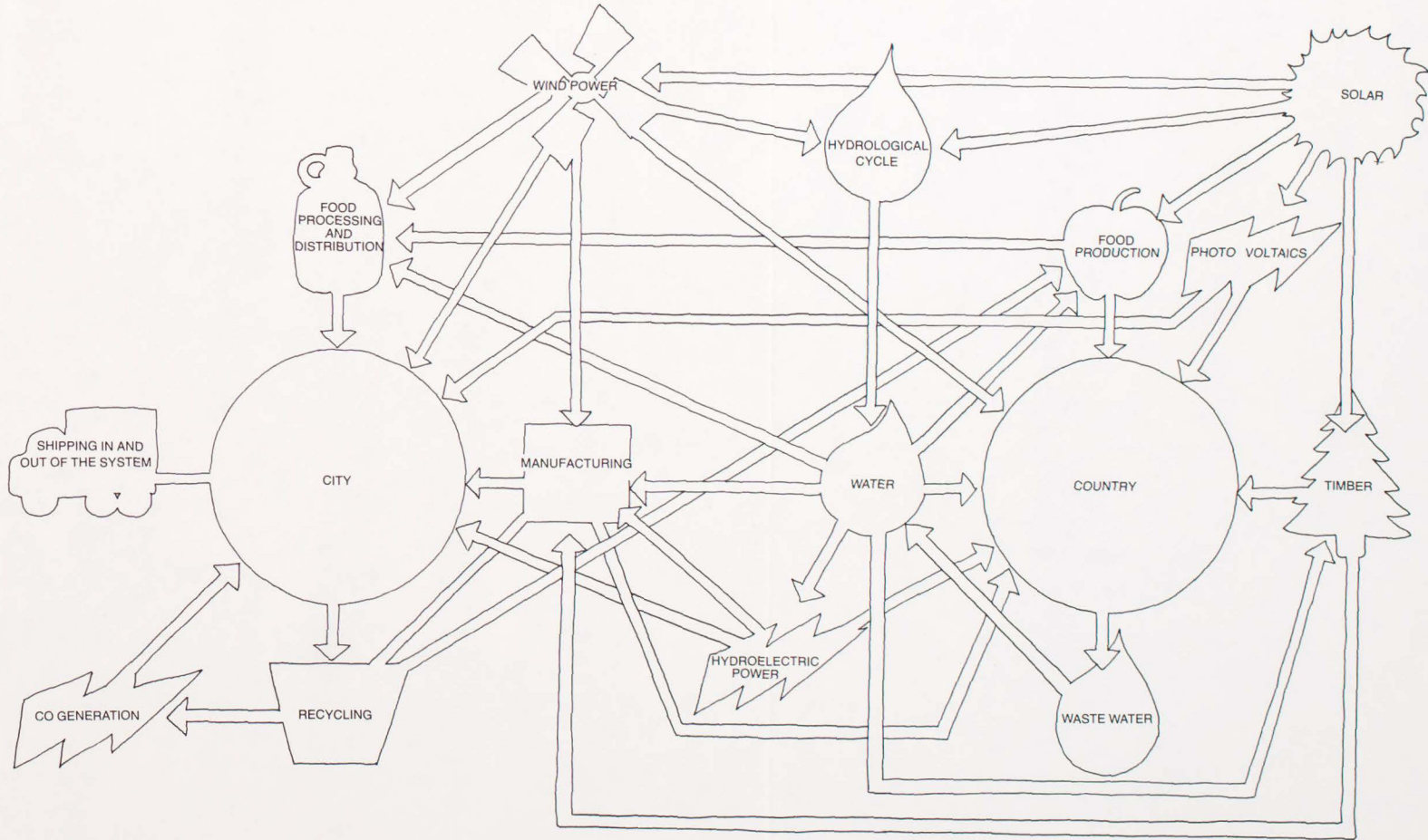
As it stands now, few see the estuary as an organic whole, an organism whose parts complement each other and whose wellbeing depends on the health and sturdiness of this intimate association.

Many of those living in cities "visit" the country for rest and solitude—to recharge batteries drained by city overload—and those in the country "come" to the city for culture—to plug into the juice of what is "current."

By not fracturing the estuary into industrial-based segments, eco-development becomes more vividly possible because a more comprehensive bioregional perspective has evolved. What elements of eco-development can immediately be undertaken to connect up-river with downriver communities?

1. — Organic refuse or compost from built-up areas can be trucked to close-in farmland for soil building and fertilizing (rather than being dumped in the ocean, used as landfill, or burned).
2. — Regional food cooperatives can provide technical assistance, transportation, coordination and marketing mechanisms to farmers as well as outlets in cities to facilitate the means by which small farms can deliver foodstuffs to nearby locations: sustainable yields that are economically viable.
3. — Watershed utilities—community organizations can become responsible for supplying essential power requirements to reinhabitants of the estuary while maintaining the bioregion through a soft supply system embodied in native renewable cycles.

For those living in the "city" or "country," new values, arising from bioregional worth, become the basis for new choices of sustenance, sustainability and shared destiny.



CONNECTING NEIGHBORHOOD TO WATERWAYS

scanning the east river from the Brooklyn bridge and walking the waterfront at Newburgh.

How many of those living in the cities of the estuary are aware of the original biological conditions of the watershed that allowed their homes to flourish, diversity and decay under the pressures of modern growth?

In a real sense, all major cities within the estuary continue as waterfront communities—but who “feels” the river as living co-presence within the urban centers?

The river as a base of biological support and cultural self-identity has receded far from view, long since overlaid by industrial development and purpose. It's time to restore the Hudson to its former prominence. Why? Diversity of natural life needs to be returned to the city in order to nourish rooted intelligence and reawaken native imagination. Secondly, if the high energy and material use patterns required to keep our urban centers intact are to be transformed within bioregional limits, the resource base defined by biogeographic characteristics will be a key. And those characteristics are generally shared by all the estuarine cities: immediate access to waterways connecting upriver and downriver communities year round; estuarine and marine ecologies of unusual quality and complexity; soil in the immediate surroundings which provide a reliable agricultural base; and rich forests of mixed hardwoods. New York differs from Poughkeepsie, Newburgh, Kingston and Albany in that it is an extraordinary harbor as well.

A vital bridge in this transformation will be the relation of neighborhoods to the waterfront. As a physical area with a good deal of flexibility (there is plenty of open and warehouse space), the waterfront provides the metaphor (the richness of the harbor and salt/fresh water mix) for designing the city in accord with the bioregion. Waterfronts could be the focus of many activities that yield a feeling of connection to the harbor and river:

1. Restoration: cleaning the waters and rebuilding natural habitats
2. Fishing: a local marine culture can be reinvented
3. Recycling: nearby warehouses can serve as depots for recycling materials like glass and aluminum
4. Aquaculture and greenhouses: piers and barges provide ideal environments for construction of biological containers for fish farming, greenhouses for intensive food production and composting/soil building centers
5. Commercial activities: marketplaces

Navigating heavy traffic by the Fulton Fish Market and recently resurrected South Street Seaport to get over the bridge to the nursery at the Brooklyn Navy Yard. A lot of activity—water nearby—feels right. Off to the left, someone has erected a light-weight structure on the pier—for storage? Tennis courts? Who knows, but it works well in making the pier an enclosed usable space. Store the scene away for future reference.

Finish up at the Navy Yard—talk about industrial relics—and decide to check out the drydocks and ships. Walking over there and notice that the Navy has built a 4-story residential building on a barge. It's floating just off shore, 10 feet or so, and tied up to the wharf. Talk to some of the guys walking off the “apartment” boat. Problems with the wind? Rocking? Service Supply? None of the above. They think it's hot stuff and so do I. We part with a common appreciation of design elegance and a few laughs at the expense of the Armed Forces.

Having a beer that evening. The day's experience prompts a hunch: enclose piers and barges with light-weight solar structures to create environments for intensive vegetable and fish farming. Build a wholesale marketplace adjacent to the waterfront and farms where neighborhood residents come to buy food, and design it in a way that invites back the rich maritime tradition that once existed and the diverse ecologies of the waterways. The results? Jobs for the unemployed, nutritional food at low prices, and bioregionally based neighborhood and waterfront revitalization.

