

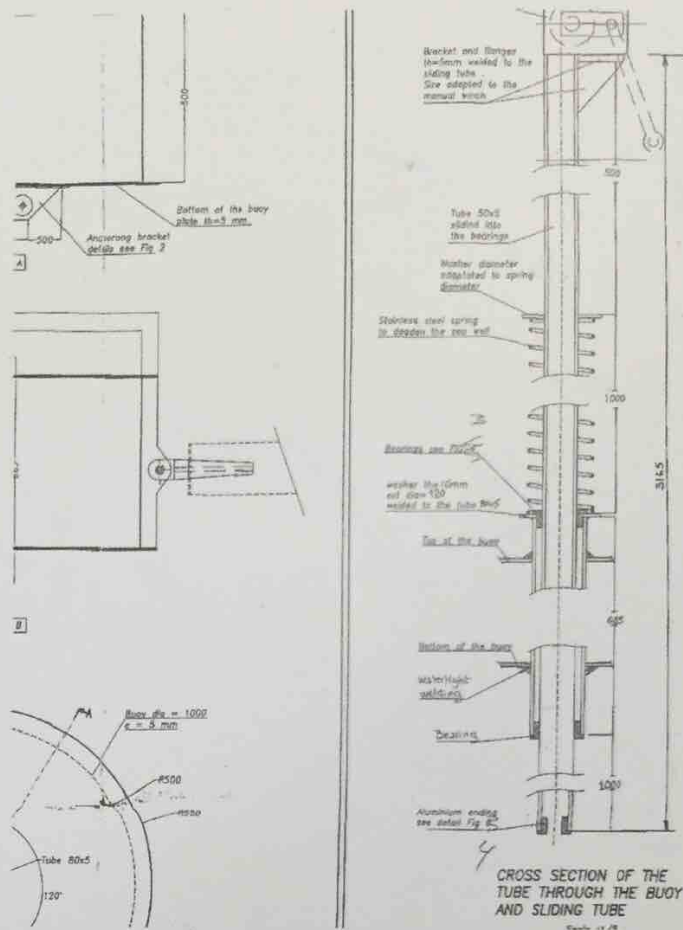
OCEAN EARTH



ARCHITECTURE OF THE 21ST CENTURY: OCEAN EARTH

By Peter Fend

Courtesy American Fine Arts



Building on phenomena like Architecture Without Architects and global digital info flow, Ocean Earth functions as an architecture firm without precedent: a firm producing only, as its NY State corporate charter of 1980 describes, "architectural components" and "media services."

That is, it produces the hardware for architecture without architects, and then the information on how to make it work.

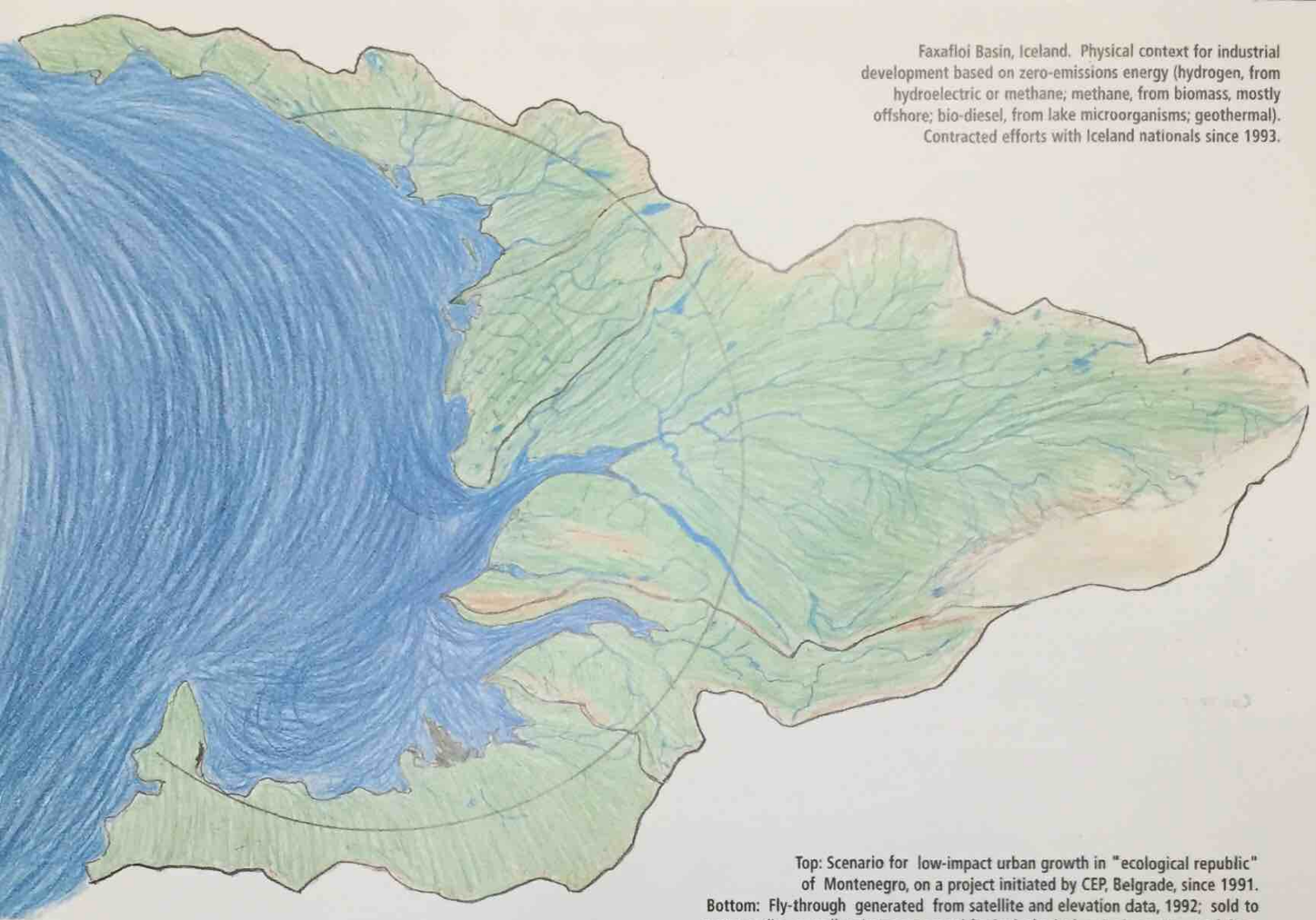
The idea base is the art of the past century, the 20th. What has originated as art, like structuralist film, or field-theory painting, or salt-lake earthworks, or counter-weighted arcs, gets combined with scientific research into nature-suited programs of construction and development — on the scale of current technological impact, the planet. Since, of course, the planet is chiefly saltwater, recalling Duchamp, this firm set up for global-scale architecture was founded as "Ocean Earth Construction and Development Corporation." To avoid some acronym confusion with the supra-governmental Paris-based Organization for Economic Cooperation and

Development, or OECD, we shortened the name in 1994 to "Ocean Earth Development Corporation," or "OEDC." Our phrase, "HOW FAR CAN ART GO?"

The track record says, Pretty far. Certainly beyond anything like art-world stardom. And possibly on par with, if not surpassing, the legacy of the OECD.

When I stepped into the Iraqi Embassy in Paris in October 1990, during the diplomatic pause between Iraq's seizure of Kuwait and Desert Storm, intending to talk about how giant earthworks designed by Russian engineers but comparable to works conceived 20 years earlier by American artists, recently destroyed by Iran-contra financed action, could be rebuilt, with ecological advantage, I saw that their dossier on Ocean Earth was about 3 inches thick. To date, even after over a decade on the world-art circuit, more press and more official action, even more money and contracts, has been generated by Ocean Earth outside the art world — its source — than inside. The question now, like that faced by the Russian Constructivists, the Italian Futurists and the French / British Situationists, and

Faxaflói Basin, Iceland. Physical context for industrial development based on zero-emissions energy (hydrogen, from hydroelectric or methane; methane, from biomass, mostly offshore; bio-diesel, from lake microorganisms; geothermal). Contracted efforts with Iceland nationals since 1993.



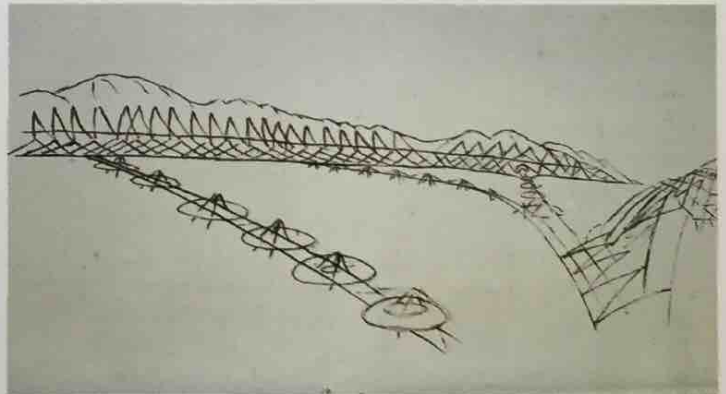
Top: Scenario for low-impact urban growth in "ecological republic" of Montenegro, on a project initiated by CEP, Belgrade, since 1991.
Bottom: Fly-through generated from satellite and elevation data, 1992; sold to news media, as well as being prepared for hydrological and slope-city modeling.

like that successfully solved by the artists who worked for Louis XIV in the 17th century to become the chief architects of the French State and its fortifications, is to break out of the box of culture onto the stage of history. Onto the stage where art, like all the other professions, belongs. In the front pages, not the leisure ones.

This can happen if one uses what John D. Rockefeller, Bill Gates, and Japan's present-day samurai have practiced to cause pan-global change: business organization.

Architecture, Ocean Earth says, can be Big Business. It can also be, as history shows repeatedly, the Manifestation of State.

All our media and architectural-component offerings are produced under brand names, each one being managed and financed differently, some quite independent, all in their own competitive markets. All brand groups, while separate, enjoy the unique combination of geographical, engineering, and ecological knowledge gathered by Ocean Earth.



SALTWATER-BASIN MAPPING

Organization of all geographic data within regional-sea basins, like the Mediterranean Basin (and its subsets the Adriatic, the Gulf of Sirte, etc.), the North Sea Basin, the Sea of Japan Basin, as distinguished from the Taiwan-centered Kuroshio-Current Regional Sea, ... A legal framework comes from the UN's Regional Seas Program, founded by Yugoslav scientist Stjepan Keckes in the 1970s as part of the United Nations Environment Program. All basins can be sub-divided, each time into a coherent saltwater body with its insloping land. Any project, even for buildings, is set within its soil-slope, or drainage, context. While this mapping has been said to be "political," it could solely be administrative — in line with established practices in today's petroleum industry, such as "basin surveys."

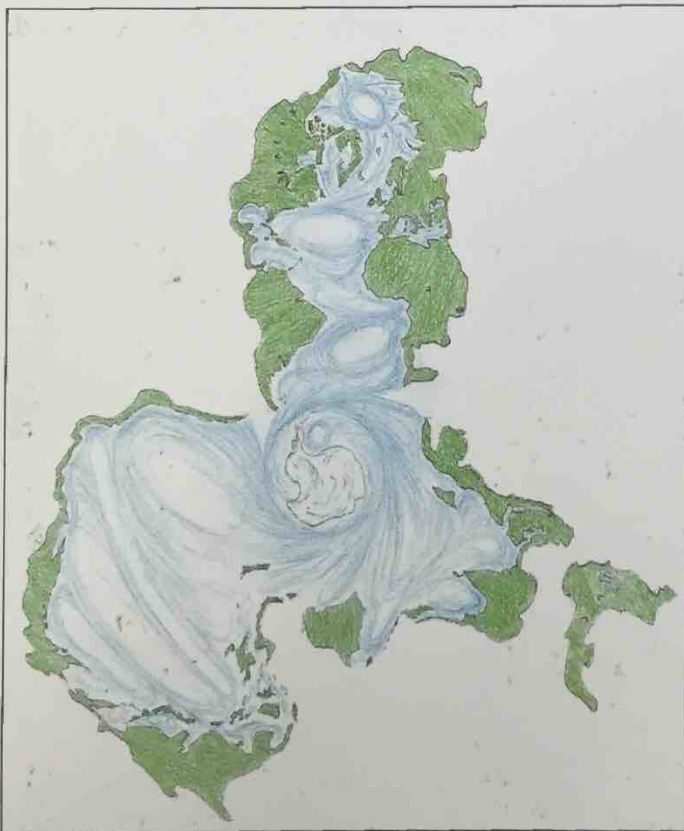
Brand names: OCEAN EARTH; BEACH PARTY.
Slogan: WHY NOT?

MOTILE-MEDIA SITE MONITORING

Digital monitoring of sites on earth, sometimes set within basins or sub-basins, largely using the many observation satellites now viewing Earth. For this work, serving mass-media clients like the International Herald Tribune and most major TV networks, Ocean Earth is best known. Most output is motile, in color streams for quick comparisons. The idea man here, for mass-media dissemination of earth images, was Taro Suzuki. Together, with Joan Waltemath, Eve Vaterlaus, Win Knowlton, Peter Fend, Bill Dolson, Wolfgang Staehle, Colleen Fitzgibbon, Glenn Steigelman, and Paul Sharits, we started exhibiting and telecasting in 1982. First sites: Falklands (NBC/BBC), and Beirut (CBS). Since 1982, a half dozen new collaborators (e.g., Gunther, Scardillo) joined in, most continuously NASA veteran George Chaikin.

Brand names: SPACE FORCE; GLOBAL SURVEY.
Slogan: AIM HIGHER.

© Steirischer Herbst / Ocean Earth



The planet as centered on Antarctica and the Southern Ocean, with its three major ocean basins (Atlantic/Arctic, Pacific, Indian) extending on out. The inward-draining basins of Eurasia, rich in fossil gas, appear at the right. The global rise in temperatures, along with ozone-layer depletion, is greatest near the center. But so are the quantities of marine biomass, harvestable for conversion into methane or hydrogen fuel, to reverse those trends. The map, in contrast to North Pole-centered charts, which are anthropocentric and dry-land-based, accounts for all terrain on Earth as it slopes down to salt seas.



© Sigma Press / Ocean Earth

Landsat civil satellite data were processed extensively in 1985, often by rapid sequencing of spectral versions, to yield images such as these — showing what in SALT II terminology were the "stationary structures" for medium-range mobile Russian missiles. These weapons were meant to exert power over Eurasia. We demonstrated that the media-viewing public could conceivably view all "changes" to such installations, and therefore witness key indicators in East-West arms control. Given the new attitudes towards petroleum-supply geopolitics, mass-media demand for public detection may return.

PUBLIC FINANCE SYSTEM

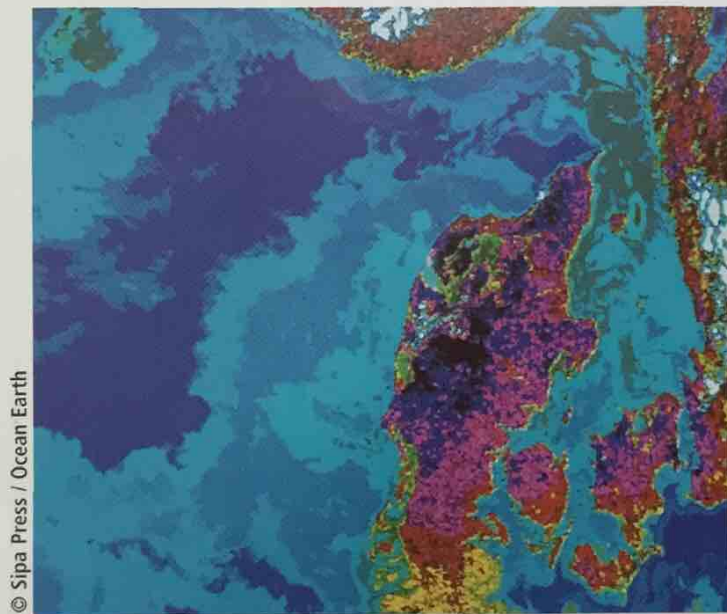
In response to state worries, we follow up on our first show (1982), called "Art of the State," to start a new kind of tax system. With a burden not on income, not on imports, not on property per se, but on ecological degradation. Using satellites, one can assess all terrain for bioproductivity and pollution, one can assign baseline values for ecological health, then charge taxes, on a pixel by pixel basis, for every algorithmically-measured divergence from those values. People with property that measures healthy pay no tax. People with blacktop, or highways, or noxious emissions in the atmosphere, or other forms of degradation, pay much higher tax. The payors are the owners of assessed property, be that a local government, business, or individual. Ill-managed or polluted districts consequently pay high taxes, which can be acceptable only with high economic productivity. The State returns to its original role of Gardener, maintaining the common wealth, rather than — with the income tax and Internet setups today — the role of Big Brother.

Brand names: TELEVISION GOVERNMENT; TVGO.
Slogan: THE MIRROR REPLACES THE MASTER.

RENEWABLE ENERGY REPORTS

In any region, as small as a neighborhood, physical inventory of all renewable-energy sources, complete with costs. Scouting out sites well suited for exploitation of: wind, solar, biomass, urban/industrial wastes, agricultural wastes and runoff, thermal-gradient, geothermal, down-flowing water, or any other renewable, non-polluting fuel source. An energy-market Geographical Information System (GIS), often plotted within basins and using digital sensors, mostly orbital. Available in extenso to owner/operators of renewable-resource power plants and fuel infrastructure. Negative imagery is displayed of current fossil-fuel release sites. Conceived first for Ruhr region, 1981. Realized with satellite data first with kelp fields in the Falklands, 1982. Efforts now underway, in 2000, to link up with a four-person team, started up in the record heat of Summer 1999, called "RAPID RESPONSE," to supply retail distributors of zero-emissions fuel with up-to-date source reports. Governmental, urban-supply, and regional-planning markets also served.

Brand name: ENERGY SOURCE.
Slogan: SELF-RELIANCE.



© Sipa Press / Ocean Earth

1-km resolution data from comparable dates in 1988 and 1987 were processed to show changes in surface temperature, both on sea and land. A panoptic view of Denmark shows how that country, long interested in replacing the income tax with land-based tax systems, could begin the process. National institutes there already collect these and more detailed data, down to, a several-meter resolution. An ecological-depletion accounting system could be readily developed from such a data base. Surveys extend readily offshore; here, a toxic microalgal bloom appears. Denmark could be a test country.



© Meteo-France / Ocean Earth

Sea-surface temperature along the Iberian Current, from Brittany to the Canaries, was video-recorded in this composite of several data frames in a regional-sea basin imaging program, co-copyrighted with the French Meteorological Institute (1992). Fresh recordings every several hours, structured in this basin form, allow managers of offshore biomass industry to shift the location of their rigs, and the attendant types of temperature-sensitive plants, along the length of the current as soon as temperatures change. With such information, the renewable-fuel industry can become as large as the fossil one.

ARCHITECTURAL COMPONENTS

OCEAN/LAKE COMPONENTS

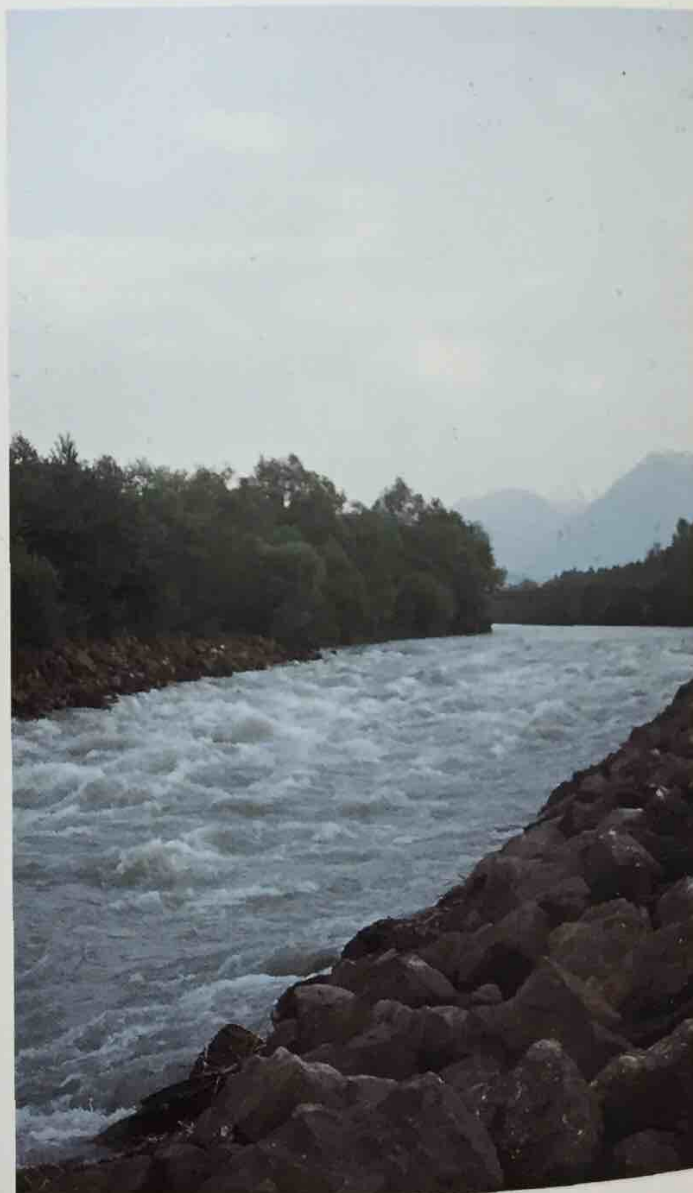
GASCAR (Clean Air Rig, Carbon Absorption Rig, Cities Architecture Rudiment).

Offshore, submersible structures for growth and harvesting of marine algae. Inland, Gantry cranes with skimmers for harvesting of freshwater algae, plants like hyacinths, or fuel-rich microorganisms that can grow on water surface. The largest marine structures are up to 40-m deep, with underside cutting and re-attaching functions for weekly cropping of the fastest-growth algae on earth. Naval architect, Marc Lombard, La Rochelle. Scientists consulting: IFREMER, France; Caltech, Institute of Gas Technology, SUNY Stony Brook, Harbor Branch, USA; CSIRO, Australia; Japan Ocean Industries Association. Budgets and investment shares ready for two sites.

RIVER (FLOWING-WATER) COMPONENTS

SCREW DRIVE.

An adaptation of Archimedes screw, designed by Borisa Antonijevic, an ecological party co-chair in the Balkans, for installation wherever water flows. Takes advantage of differences in water weight and pressure with greater depth, using a variety of screws with changeable dimensions. Can even be used in the desert, in a closed cycle, as in the inter-cooler system for auto engines. Immediate, local source of electric power. High-voltage enough for electrolyzers that can convert other water in the same stream to a transportable, high-energy fuel: hydrogen. Near-zero impact on fisheries or nutrient flow, unlike with hydroelectric dams. Tests start May 2000.



MARSH/UPLAND COMPONENTS EARTHWORKS.

Under co-copyright agreements with earth artists like Dennis Oppenheim, on-site testing and development of earthworks and outdoor structures (e.g., Dry Wells, Dead Furrow, Bird Cages, Lightning Field) to revive oases and marshes, strengthen surface water flows, slow down overflows with meanders, and broaden higher-animal diversity.

Located along bird-insect migratory pathways. Readies terrain for large populations of wild animals, suited for cropping by youthful hunting gangs. Targeted for drought-threatened hinterlands. Useful also in restoring marshes or estuaries, especially for maximizing saltwater-freshwater mixing, to raise ocean productivity.



Cones and cages effect micro-habitats.

Underground-animal paths absorb aquifer.

Hole near salt flats collects freshwater.

Convex-disc marshes control stream flow.

BIOLOGICALLY-STABLE WASTE PRODUCTS KERATIN EXTRUDE.

Those waste streams not economically suited for conversion to fuel, nor easily turned into compost, are pyrolyzed to yield some ash and large amounts of mixed hydrocarbons. Rather than refine the hydrocarbons, let them serve as a feedstock for rapid-growth microorganisms. These organisms could enter the human food chain, but more usefully enter the many-species animal food chain of the Wide-Open Outdoors.

For this, they are keratinized (in an alpha-keratin enriched vat), then squeezed through hard forms, much as in the manufacture of pasta, to yield artificially-produced keratin tissue. Products include: scales, horns, nails, and — most important, given the feeding habits of wild birds — feathers. The keratin extrusion can be diluted to produce a hardened but elastic material for paving. Surfaces hard on feet and legs can be made softer, durably.



Keratins grown on methanous substrate.

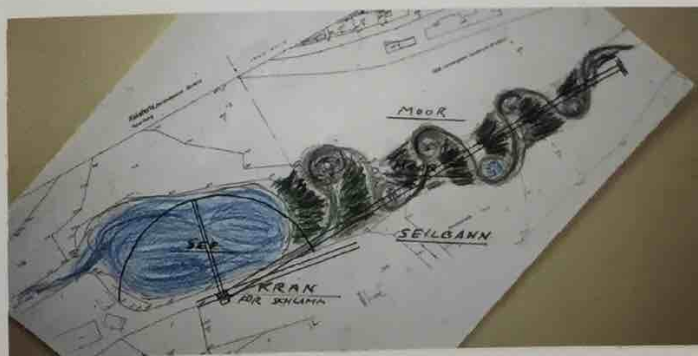
Cluster onto feather follicle, then extend.

Scatter onto swirled marsh (e.g., Jamaica Bay).

Radar shows birds in a feeding cluster.

A FRESHWATER TEST SITE

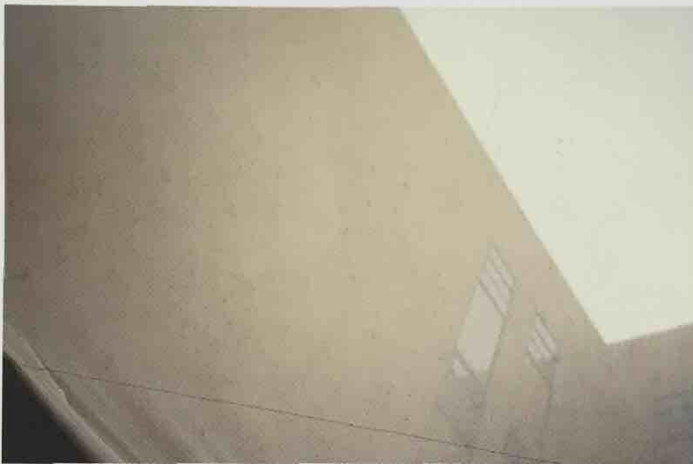
After exploration and discussion with regional government authorities, Ocean Earth is invited since 1995 to propose river-engineering and marsh-forming test projects in this problematic segment of the Upper Rhine Basin in the Austrian Alps. Efforts have been continued, with satellites and river analyses, down to The Netherlands, towards better control of overall flow to the sea.



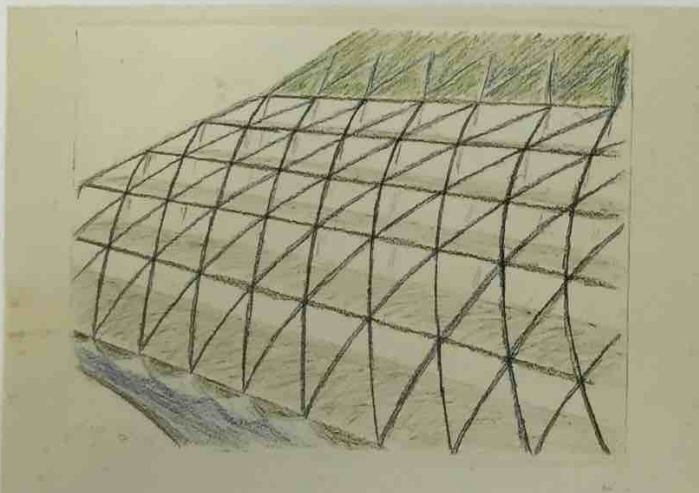
HUMAN-HABITAT COMPONENTS CITY BILD.

Following through on ambitions of Gordon Matta-Clark and the Russian Constructivists he drew from, correlated with the aspirations of Richard Le Ricolais, Kenneth Snelson, Frei Otto, Coop Himmelblau, and Archigram, we test ultra-light and ultra-flexible structures which, within extensive infrastructure, could foster a self-arranged, quick-change architecture. The infrastructure and primary carriage is designed by civil engineers; lesser and

Stretch fabric for canopies, largely to reduce wind load and tensigrity strengthening (first test constructions with Eve Vaterlaus, 1981).



Diamond-grid girders and water sluices, installed over a multi-story set-back slope, either on a large cantilever or bascule bridge carriage or wedge-cut into a hillside; industrial-materials version of cliff or cave dwellings; fulfilling long-proposed 20th-century "Terrassenhaeuser" (terraced megastructure) fantasies (testing center planned with architect Kevin Gannon, with firms based in Pittsburgh).



greater accumulations of intermodal elements occur thereon. The carriage functions as a bridge: one can observe civil-engineering codes rather than conventional building codes; you don't need architects to build, just engineers. Hence the term "bild," which means "picture," or "indications on how to use certain pre-engineered products." Artists' initiatives would be industrialized. The products include:

Containers, of the standard 8' x 10' x 20' or 40' length, usually in open space-frame format, with walls or interior elements added, much as "fixtures" are added to lofts or appliances and plumbing are integrated into bath, kitchen or media (News Room) units; reinforced corners allow for riotous stacking and Lego-like assembly.



Funded Ocean Earth research, Tokyo

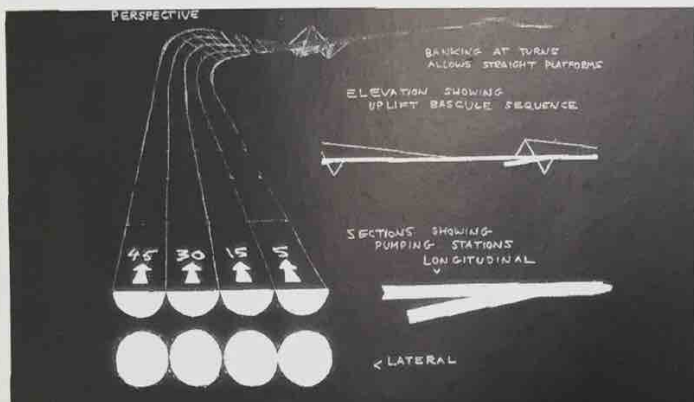


Funded Ocean Earth research, Adriatic coast

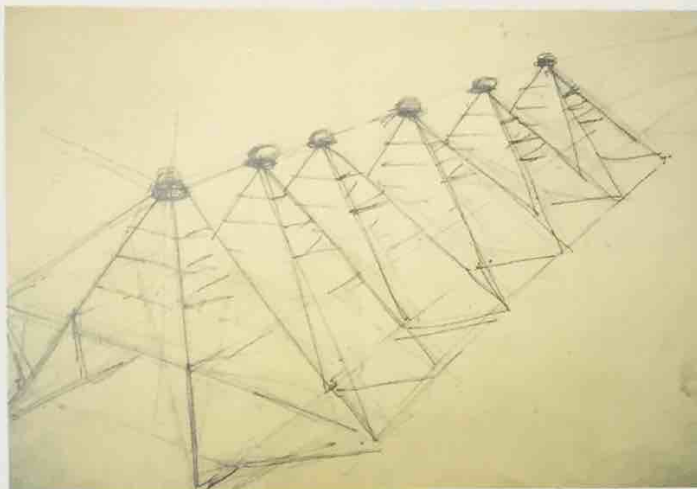
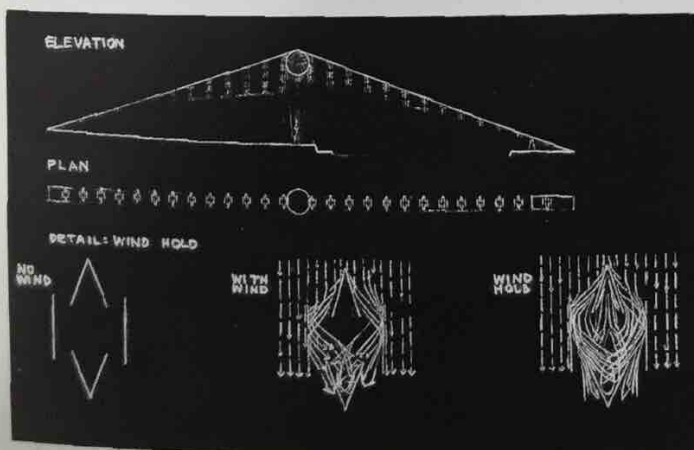
Hypobaric or alternating-pressure chambers, with other atmosphere-modifying enclosures to accelerate rest, intensify recovery; variations on the iron lung.



Aqueducts with pumps, and either continuous-belt or regularly-spaced floating surfaces, for rapid distribution of goods — and perhaps pedestrians — on a structure bearing zero live load. City transport imitates blood vessels. Pumps serve as counterweights to hold up the long-extended arms of aqueduct channels.



Low-grade heat collectors (i.e., balloons and buoyed airfoils), coupled with helium-suspended vessels, for using city heat to suspend canopies and aerial pathways, sharply reducing windload and the gap between indoors and outdoors. Canopies can support vegetation for shade and oxygen, which would also sharply reduce the ecological-depletion tax burden on the "covered" district.

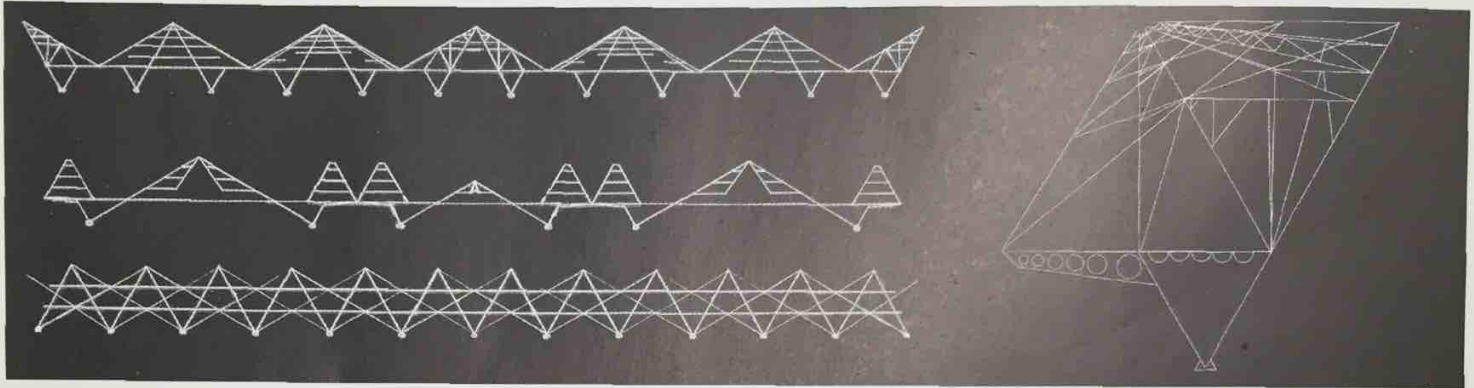


Tracked counterweights and hoist towers, to allow continuous grouping and de-grouping of containers, floors, and other live-in / work-in elements over a tract; the "building" is replaced by an ever-flexible neighborhood construction project, multi-angled.



Caisson foundations for large structural-steel cantilever bridge forms, so that permanent construction projects can "grow" like plants out of a pot, following through on early drawings by Matta-Clark. Bascule counterweight and radical tensigrity principles fulfill what architectural engineers have long said could be possible today: an enormous variety of visual and material arrangements. The caissons can float in trains, for lower cost in foundation work, and greater safety against

earthquakes. These components, with extended superstructure, can work easily in the world's rapidly-expanding (and often Third World) megacities — where the alternative to "buildings" is too often a muddy shantytown. Now, the clip-on, quick-change aspects of self-built cities gets incorporated in a engineer-controlled supra-terrestrial infrastructure, with water, fuel, and sewage lines readily extended throughout, independent of the slobby terrain. The tree-house is industrialized.

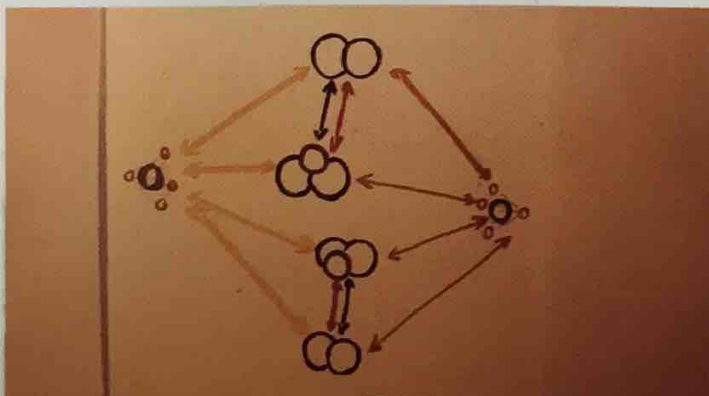


Body-Scale Components: ELASTIC THORAX; EXO WARE. Clothing, i.e., immediate-proximity architecture, derived from body-scale adaptation of various CITY BILD materials. Contracted, with personal-wear rights to the designer, architectural conversion rights to Ocean Earth, with: Heather Josephine Jansen, Sophie Vieille, Madison Bedard ... and more soon. Aim for a continuum from the self into constructed space, realizing "Futurist Body Madness."



Private Transport Units: CELL CAR ("KAR").

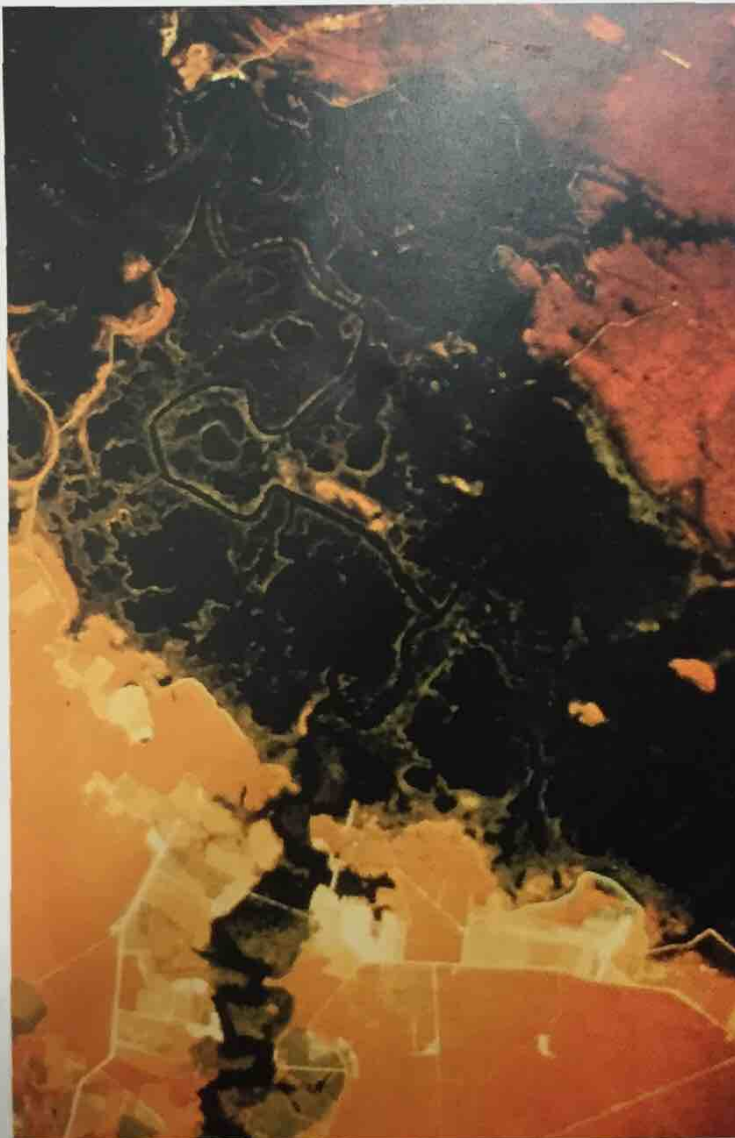
A lightweight, easily-built automobile with zero-emissions. Aluminum chassis and body, fuel-cell engine, taking on hydrogen, methanol or methane or bio-kerosene. Projected industrial development sites: the rubble car factory in Kragujevac, Yugoslavia, the world-class deep port in energy-rich Iceland, and the Indian Ocean coast. Full chemical exchange cycles (carbon, hydrogen, oxygen) result, region-wide. The operative maxim: JUST ADD WATER.



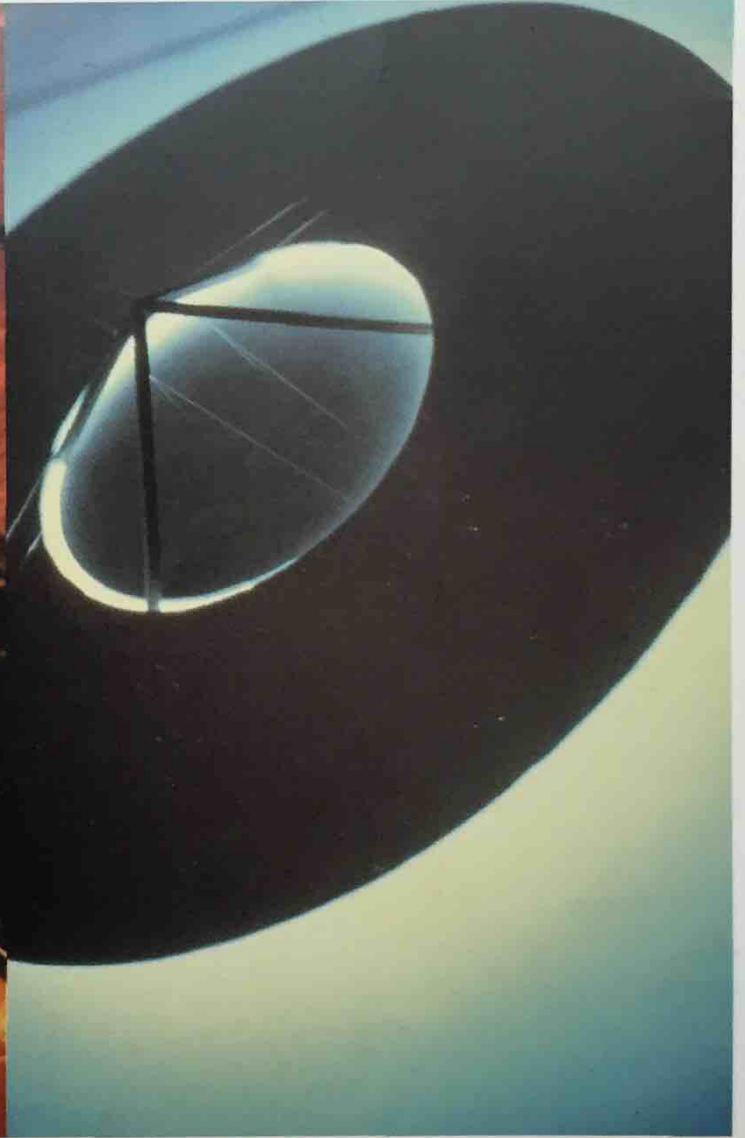
Post-Petroleum Gas Stations: RAPID. A brand for renewable-energy distribution, managed by an autonomous unit initiated by a four-person team of Christina Cobb, Peter Fend, Julia Fischer, and Bill Meyer as a RAPID RESPONSE to global warming in Summer 1999. Architectural designers John Vons and David Cook, backed up by architect Kevin Gannon, contribute to the design and building of eco-fuel gas stations — and then their daily servicing with timely fuel-access information. Capitalization is on a project-finance basis, with cash flow and marketing inside the RAPID frame. A variety of fuels is marketed, depending on what car types prevail: methane, methanol, hydrogen, ethanol, bio-diesel, bio-kerosene, electric recharge. Automotive and fuel scenarios are unclear, so options remain open — and architecture flexible. RAPID distributes tanks and attendant compression, conversion or re-forming equipment in standard 8 x 10 x 20 or 40 foot shipping containers, ready for replacement or re-

arrangement. The supply of RAPID information and equipment is directed at easy fuel access: e.g., hydrogen and recharge at mountain streams, biogas near eutrophicated lakes or estuaries. The RAPID team, joined by engineers, renewable-fuel experts, real-estate brokers, even microbiologists, prepares each station for ENERGY SELF-RELIANCE. A desert station could be surrounded by solar panels, an urban station feeds off the gas-pipeline grid, as well as urban-industrial wastes, and a rural station utilizes agricultural runoff. Using its base in the art world, RAPID commissions different artists for each station — for maximum excitement. While design and construction require architectural components, often from CITY BILD, a Web-based dissemination of energy information, including satellite surveys, allows each station owner/operator a chance at entrepreneurial success. Practice spreads to marine and aviation markets. Now target concise areas, e.g., Iceland, for solid market share.

A local source of fuel...



... a place where to get it.





as featured in ISSUE3 of ISSUE magazine

ISSUE

ISSUE is published quarterly by Issue, Inc.
600 Broadway, 4F, New York NY 10012
Tel 212 966 7076 Fax 212 966 1334
issueinc.com