Interpretation is an art, which combines many arts, whether the materials presented are scientific, historical, or architectural.

-Freeman Tilden

**IMMERSED TOWNS SURFACE FOR EXHIBIT AT CLUI**

**IMMERSED TOWNS SUBJECT OF PROGRAM**

**OVER THE PAST CENTURY**, hundreds of towns have been drowned in the nation, primarily for reservoir construction. Collectively, these lost places offer an alternate version of the history of America. An exhibit at CLUI Los Angeles from January 21 through March 27, 2005 explored the phenomenon of these intentionally submerged communities.

The exhibit was the result of three years of periodic research on the subject, conducted by CLUI researcher Angela Loughry, assisted by Carrie Lincourt, Mike Asbill, and Matthew Coolidge. Research included communicating with many local historic organizations, town offices, museums, municipalities, and archivists, as well as government agencies like the TVA, the Bureau of Reclamation, state parks departments, and the Army Corps of Engineers. Individuals from the Submerged Cultural Resources of the National Parks Service were helpful, though the majority of work conducted by this government entity focuses on Native American artifacts, lost to the likes of the waters of Lake Powell, or historic offshore shipwrecks. Similarly, obscure books with promising titles like *50 Dives in 50 States* offered just a few pieces of this submerged history. No nationwide survey of the cultural resources these sacrificed towns represent seems to exist.

The methodology originally developed for the exhibit included presenting contemporary views of some of these underwater communities, if at all possible. An inventory of possible sites from across the country was assembled in a database. Diving shops and clubs in the vicinity of the townsites were contacted to determine if anybody had direct experience with the towns. Few did, and even fewer had any photographs. In areas that were more densely populated, like the northeast, reservoirs are often part of a municipal drinking water supply, and recreational use restrictions prevent divers from having easy access. Remarkably, one exception was found in the largest manmade body of water in New England, the Quabbin Reservoir. A biologist named Ed Klekowski from the University of Massachusetts had accompanied a state police Underwater Recovery Team on a rare exercise on Quabbin, and had taken video equipment explicitly to document the communities of the Swift River Valley that were lost when the Quabbin was built in the late 1930s.

**TERMINAL ISLAND**

**TOURING THE EDGE OF THE CONTINENT**

**TERMINAL ISLAND IS AN** artificial landmass in the heart of the ports of Long Beach and Los Angeles, and was the subject of an exhibit at the CLUI Los Angeles from March 31 to May 30th, 2005.

The exhibit looked at Terminal Island as a sort of organismic, flowing, landscape machine, composed of five separate *terminal* activities that occur on the island: importation, exportation, excretion, deportation and expulsion. Each one of these activities was described in text, and depicted through video captured by CLUI personnel over the months prior to the exhibit.

This landscape machine churns and disgorges wastes in its treatment plant, and grinds up metals in its scrap yards. Fluids course through pipelines under its skin, while ships of crude pump in to it, and suck out of it. Its extremities are a bouquet of dead ends, of society pushed to the limits, with prisons, coast guards, piers and ground up riprap.

As the center of the largest port in the Americas, the nation’s economy flows across its thousands of acres of asphalt, in the form of digitized cubes of material trade, in twenty and forty foot equivalences. It was for this, more than anything, that the island grew out of the ocean, an extension of the continental reach towards the orient.

Its scale is beyond sensation by the senses, and its functions exceed the imaginations of our daily lives. Terminal Island is like a fictional place, made real by the collective will of America.

The exhibit was made possible by a grant from the City of Los Angeles Department of Cultural Affairs, and the CLUI Fund for the Study of Islands and Distant American Landmasses. A bus and boat tour were also conducted as part of this exhibit (see enclosed insert). ♦

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In November, 2004, Jane Wolff was invited to present her remarkable work about the California Delta at the Center’s exhibit space in Los Angeles, as part of the Center’s Independent Interpreters series of lectures and presentations.

Ms. Wolff has studied this vital, mysterious, and often overlooked part of the Californian landscape more than anyone else we know, and she has presented her findings in an unusual and engaging format.

The largest estuary on the west coast, the Delta is the lowlands of the Central Valley, where the Sacramento River meanders towards the San Francisco Bay area. It is a totally engineered land, much of it below sea level, preserved by a precarious system of levees. It is a land of hidden rural Chinatowns, monolithic agriculture, heavy recreational boating, and nearly bayou-like backwaters. All of this is captured and distilled by Jane Wolff’s trained eye and hand.

After studying the region for at least seven years, making numerous visits, she has chosen to depict the Delta, and the issues it faces, as a set of drawings of selected sites, combined with the site’s related USGS map, and a spare but lucid bit of text. The renderings of place are grouped into four categories, and ranked, becoming a set of playing cards.

These cards, as well as electronic versions of her drawings, maps, and photographs, were shown at the CLUI over the period of the exhibit. Ms. Wolff also came and gave a presentation of this work, to a full and grateful audience at the CLUI.

The work is available as a book, published by the meticulous and selective William Stout Publishers of San Francisco, with a preface by the literate and prolific State Librarian, Kevin Starr.

The project is also available in its purest form, as a set of playing cards, which is perhaps the best way to experience it, as a multitude of orderings and juxtapositions are created, depending how it is played.

The Center’s Independent Interpreter series of lectures and presentations is supported by a grant from the Andy Warhol Foundation for the Visual Arts.

The Center conducted an epic two day public bus tour of the Great Salt Lake area in October, 2004, examining this remarkable giant puddle at the bottom of the Great Basin. The tour was commissioned by the Museum of Contemporary Art in Los Angeles, which at the time was displaying a retrospective of the work of the artist Robert Smithson (the exhibit has since opened in Dallas, and is in New York starting June 23rd).

The first day of the tour addressed notions of the perceptual void, as the bus traveled over the top of the remote northern reaches of the Great Salt Lake, and visited Smithson’s Spiral Jetty and Nancy Holt’s Sun Tunnels. The second day focused on the underside of the lake shore, and the physical removals and replacements that occur there – the material void.

Day 1, 9:00 AM, Salt Palace, Salt Lake City, Utah

The bus met the passengers at the Salt Palace, a convention center across from Temple Square, the cultural center of Utah, ground zero of the global LDS empire, and where all numbered roads in Salt Lake City originate. Once everyone was on board, we headed north up the interstate, while the group listened to an introduction about the Center, the tour, and the Great Salt Lake itself, slowly being lulled into a state of readiness for the transformative events that lay ahead.

As we traveled around the edge of the lake, it became apparent that the lake is often on the edge of perceptibility, is elusive, vague, and mysterious. Almost impossible to look at, at times. The water and sky sometimes merge to create a silvery spaceless perceptual chasm, a sort of hole in our sight. It is into this hole, this perceptual drain, that we were headed. Smithson’s precedent (especially his Tour of the Monuments of Passaic) set the trajectory, from which we launched into an experiential miasmic odyssey.

Like the Spiral Jetty itself, the journey was a counterclockwise spiral inward, around the lake, and into the void. We followed along the path of least resistance, like captives of the great hemispheric coriolis effect, going down the drain of the Great Basin. But this is where the metaphor stops, as there is no Away – this basin does not drain anywhere. There is no connection with the rest of the continental landscape, no sedimentary streams of erosion carrying the powdered mountains out to the sea. What happens in the Basin, stays in the Basin. The drain is plugged, and the backed up flood is the Great Salt Lake.
In the age of the glaciers, pleistocene ancestors of the Great Salt Lake once covered much of the state. Even the high ground where Temple Square is today was once submerged. Then a great rupture occurred in the north, ending Utah’s terrestrial baptism, when the lake broke through its natural dam and spilled across southern Idaho. As this cataclysmic inundation dissipated and the lake shrank, a new age took hold, and grips the land still: now it is evaporation that rules this landscape.

In the Great Salt Lake basin it rains as little as four inches per year, while the evaporation rate rises as high as six feet per year. Snowmelt coming down the slopes of the Wasatch keep the lake in a fluctuating equilibrium. Over the past 40 years, the lake surface elevation has changed by a range of 20 feet, and with its gradual shoreline this resulted in a doubling, and halving, in size.

In 1986, the lake was at the highest it had been in a hundred years. Railways and real estate were being flooded, so the State built a battery of pumps at the edge of the lake to spread the lake out into the western salt flats. 18 years later, in 2004, the lake was nearing its lowest level again. By the time the CLUI tour group got to the Spiral Jetty, the lake level was 16 inches lower than when the Jetty was constructed in 1970.

Over the Top
The bus stopped at the sprawling Thiokol rocket plant for a brief briefing by a Thiokol representative, who assured us that a visit inside the site’s dozens of square miles of intriguing architectures of explosives production and storage facilities would not be possible.

Then it was over the top of the lake via Interstate 84, Highway 42, and Highway 30, a total of 120 miles that were remote to the extreme. For many miles the only structure we saw was an Asian American meditation center, surrounded by trailers and goats. This is ranching country, just south of the Idaho line. We passed through two small towns, neither with any services except a highway department yard, Mormon church, a school, and a telephone relay station. We watch the film Sun Tunnels in preparation for the next stop. Then at Grouse Creek Junction we meet with the vans again for the dirt road portion of the trip to Lucin.

6:00 PM, Sun Tunnels
The Sun Tunnels are just south of the town of Lucin, which no longer exists. Lucin is where the gravel rail causeway that cuts across the middle of the Great Salt Lake makes its western landfall. Early efforts to arrange to take the bus across the cutoff on the dirt road that runs next to the tracks were thwarted by the railway company, and eventually abandoned due to the high likelihood of a tire failure. That trip will have to wait.

The Sun Tunnels emerge from the flat plain south of Lucin as a distant grey dot, that slowly grows into a cluster of four 18 foot long concrete tubes as you approach. The tubes are aligned with the solstice and are large enough to walk in. They were constructed by the artist Nancy Holt, who visited the region often with her husband, Robert Smithson. It is tempting to make comparisons between the two famous land art sites of the Great Salt Lake desert: one a feminine, circular, astrological axis mundi, the other a peninsular, quarried rockpile, but it is best to just let them be, to let them become much more than that, on their own.

As the sun sank low, it was time to go. Back on the bus, it was an hour and half to our stop for the night, at Wendover, Nevada. To pass the time on board, the group was subjected to the film Damnation Alley. The film depicts an arduous journey across a United States that has been transformed by a nuclear armageddon into a landscape of violent toxic geography, with radioactive storms, mutant monsters, and other hardships of the post-apocalypse. The filmic journey is being made by a small group inside an elongated four wheel drive vehicle, which, though not exactly like the CLUI tour bus, is not altogether unlike the CLUI tour bus. This film was shown, partly, in the context of Smithson’s appreciation of such monolithic sci-fi. Much of the film was shot in the Great Salt Lake Desert, and its themes were a sort of prelude for the next phase of the tour, to be had on the following day.

continued on next page
Day 2, 9:00 AM, Wendover, Nevada

Wendover calls itself a town “On the Edge.” And it is. It is located where the Basin and Range of Nevada spills into the Salt Flats of Utah. Bisected by the state line, the town also claims to have “Too much fun for just one state.” It is also notable as where the Enola Gay practiced for a few months before heading to Hiroshima.

After a nights rest in the casino resorts that loom over the state line, the group boards the bus and loops through the old airbase at Wendover, stopping at the CLUI Regional Information Center building for a briefing and an orientation. This is the “material void” day of the Monuments of the Great American Void tour. As such, the group will be looking at sites along the south shore of the lake that are related to the removal and placement of material in the region.

Perceived as one of the emptiest places in America, this region draws material into it like a vacuum. Conversely, much of the material that is native to this place is extracted and dispersed across the nation. These notions of concentration and dispersal will follow us throughout the day, starting with a visit to the Bomb’s nursery, the Enola Gay hangar, then to the assembly areas and launch ramps at the edge of the edge at Southbase.

Leaving Southbase, we watched, on the bus monitors, this very landscape get destroyed by John Malkovich and Nicholas Cage in the movie Conair, shot at this location in 1996. We then headed out onto the Interstate 80 (America’s main street), passing Danger Cave, an archeological site that was worked by Dr. Robert Heizer, father of the earthworks artist Michael Heizer, friend/enemy of Robert Smithson. Danger Cave is one of the oldest sites of continuous occupation in the country, though no Indians live there anymore – it is gated to keep vandals out.

11:20AM, Bonneville Speedway

The bus heads out on the Bonneville Speedway access road, a four mile peninsula of asphalt that ends at the salt flat. The end of the road, this day, was marked with a new looking old sign welcoming us to the Bonneville Speedway – a prop temporarily installed by the movie company filming out on the flats, a film, it turns out, about motorcycle racing, with Anthony Hopkins, called the Fastest Indian (accidentally alluding to a very short duration of occupancy).

This road is one of the great American landmarks. It is a road to nowhere – the asphalt abruptly stops at a rounded cul-du-sac type bulb, surrounded on all sides by a sea of white salt. But the end of the road also marks the beginning of the roadless 2-D void, the landscape tabula rasa, the limits of imagination. Like an unwound Spiral Jetty, this road is a point of embarkation to another terrestrial realm.

After debussing and wandering around aimlessly, wallowing in directionlessness, which is what most people do on the flats, we reembarked and headed east again on the Interstate, continuing our counterclockwise spiral around the lake, watching different cinematic interpretations of the flats (despite their featurelessness, they are among the most filmed and photographed places in the USA).

At the midpoint of the longest stretch of interstate without an exit, across from a new cell tower, the third of the great trilogy of site specific artwork around the lake looms: the Tree of Utah. This construction is the work of an Iranian-Swedish artist, Karl Momen, who made it because he felt that the salt flats were just too empty. A mix of Surrealism, Russian Constructivism, and pragmatism, the 87-foot tall tree is a true manifestation of the void.

As further testament to the “emptiness” of this stretch of highway, large yellow highway signs east of the Tree warn “drowsy drivers” to pull over, the land so empty and boring that it induces sleep. Meanwhile, south of this point, a few weeks earlier, the Genesis space ship crashed into Dugway Proving Ground, like a saucer on an alien planet, which this may in fact be.

The bus exits at Clive, and circulates around the recently closed hazardous waste incinerator, seemingly abandoned, its gate thrown open. It is for sale. Then to the radioactive waste burial site called Envirocare, where pieces of the plant at Oak Ridge Tennessee are visible on top of the mound, being broken up by men in white suits for permanent entombment below, along with parts of other radioactive places across America, a veritable museum/midden mound. Then, to the north, we pass the Grassy Mountain hazardous waste site where ashes, dust, and filtercake from toxic industries across the nation are buried with asbestos and PCBs. And to the south the Aptus incinerator at Aragonite, now operated by Clean Harbors, a company from Braintree, Massachusetts, with its origins in the toxic sludge of Boston harbor, now sweeping up hazardous waste sites across the nation.

The tour stopped for a picnic lunch at the Aragonite Rest Area, the only rest area in the state of Utah with a house for its keepers, as it is considered too remote for a commute. The rest area also offers a good view of the hazardous waste incinerator.

The interstate continues east through a fifteen mile wide corridor between two bombing ranges, then descends into the Skull Valley, where the haze of chlorine gas from the magnesium plant – the only magnesium

continued on next page
The group turns in to the Cargill Salt facility, and picks up our local brief er, Ed Wanlass, who describes industrial salt harvesting at the southern edge of the lake. Cargill is one of three major salt operations on the lake, who, along with the magnesium company, maintain around 100,000 acres of salt evaporation and concentration ponds. The bus heads out to some of these ponds, where the bright blue and red water contrast strongly with the flat expanses of pure white salt, planed flat by harvesting machines.

I-80 east again, past the Tooele Army Depots hillside of munitions ig loos, then the Kennecott Copper Smelter, with the “tallest stack in the west,” (just 35 feet shorter than the Empire State Building), then south on Highway 11, past miles of Kennecott processing facilities, mixed in with tailings mounds, garbage dumps, and explosives plants, heading towards the Bingham Pit, “The biggest hole on earth.”

While the Guggenheim museum has displayed the work of Robert Smithson after his death, before he died in 1973, Smithson proposed building a four part spiral sculpture at the bottom of the Bingham Pit. The proposal was never seriously considered by the company. But the plan looks remarkably like it might be a drain, a drain for the bottom of the Great Basin.

The group was asked to ponder these notions while gazing over the guardrail into the pit, where the house-sized haul trucks, that long ago replaced the train, look like ants moving grains of sand.

Back on the bus, we had one more stop to complete the Tour of the Mon uments of the Great American Void, a sort of swan song. Though we had been circling it, looking at it, talking about it, and even smelling it, most of the group had yet to touch the Great Salt Lake. We stopped at the Saltair III pavilion, a shoreline building constructed as a gateway to the lake, and as a smaller re-creation of a grand Moorish pavilion that once existed nearby. A hundred years ago there were several Victorian pavilions on the southern shore of lake, where people swam and frolicked in the salty wa ter. As times changed, all of them were torn down, burned, or collapsed, including the largest and most grand of them all, the original Saltair II.

The cavernous, echoing, vacant Saltair III has had the feeling of a future ruin since the day it was built (construction was halted for a few years in the late 1980s, as the lake was so high waves were breaking through the partially constructed main hall). Though open to the public, the only life inside is a young woman in a sparse souvenir shop. After giving people a chance to walk the white expanse beyond the pavilion to the lake, and to visit the gift shop, the group headed a couple of miles down the shore to the site of the original Saltair, where some old passenger railcars decay, and the partially submerged jetty that led to the pavilion can be seen stretching out into the emptiness of the lake.

Saltair II was still there in the 1960s, a teetering spooky ruin. At that time it was used as a filming location for the film Carnival of Souls, a film that seems to have been written for the picturesque relic. We watched a clip from the movie, where the protagonist, a young organist at a church, gazes out at the fenced ruin, which seems to be drawing her towards it. Her companion, a minister, asks her, “What attraction could there be for you, out there?” She replies, “I’m not sure. I’m a reasonable person, I don’t know...Maybe I want to satisfy myself that the place is nothing more than it appears to be.” “Shall we go along now?” the minister says, disapprovingly, as he guides her back to the car. They leave, but she says, wistfully to herself, “Maybe I can come back some other time.” The bus then headed back to the Salt Palace, the end of the tour.
New trees, native to the region, were planted at the DRS to provide shade and to provide habitat for wildlife. Trees include cottonwoods (Populus fremontii), desert willows (Chilopsis linearis), and Blue Palo Verde (Cercidium floridium). An irrigation system was installed, with the assistance of Deena Capparelli, co-director of the Moisture Project, to water the new trees, and to begin experiments with irrigation elsewhere on the grounds.

The preparation for the transition of the original DRS building into a regional Landscape Information Center continues, with some of the improvements to the grounds being related to this venue change activity. Eventually, the DRS will be housed out of the new office unit on site, and will share the grounds and the display space with the Information Center. The new Pond Exhibit Unit was leveled and secured, and a small boat was brought out to provide access to the display space when the pond is finally filled. The walking trail is being laid out and points of interest are being constructed along the trail route. A special “landscape perception modification tunnel” is being designed to provide a suitable transition from the interior of the information center to the exterior interpretive grounds.

A small FM transmitter has been installed that broadcasts to receivers located at different points around the grounds of the DRS, enabling researchers that are in residence to have aural continuity while they move around the property, should they need it. The default transmission, played when researchers are absent or engaged in other tasks, is a recording of the inaugural speech of the lecture series of the Long Now Foundation, an organization based in the Bay Area that promotes long-term thinking in research endeavors, and human planning in general, goals that are shared by the CLUI. The speech was given in 2003 by Long Now board member Brian Eno, and it can be heard audibly at low levels at selected points on the grounds of the DRS. An ambient sound, available to anyone who stops to listen.

Researchers will continue to visit and work at the DRS, while CLUI-led improvements to the site will continue through the next year. ♦

Field sessions this season included a class from the Otis College of Design. After a briefing at the DRS, the class visited sites in the region on a tour conducted by Matthew Coolidge of the CLUI. Site visits were made to the solar power plants, the PG&E “Erin Brokovich” compressor station at Hinkley, the Calico Early Man archeological site, the solar-power-plant-turned-into-gamma-ray-observatory, and Peggy Sue’s diner.

Research projects at the DRS this season included a low altitude aerial reconnaissance vehicle, created and operated by Chris Csikszentmihalyi of the Computing Culture Group at MIT’s Media Lab. Small-scale testing was conducted at the DRS, while a full size model was tested and flown at nearby Harper Dry Lake, joining other historic aircraft R&D projects conducted there such as Northrop’s flying wing, and Howard Hughes’ D-2, a precursor to his YF-11 high altitude surveillance plane which he crash landed into Beverly Hills.

The periodical reading room is developing, with the assistance of the Prelinger Archives of San Francisco, and CLUI associate Mark Curtin of Texas. There is now a nearly complete set of the Annals of the Association of American Geographers, (later known as the American Geographical Society) 1947 to 1982, and the last few years of Aviation Week and Space Technology, Ground Engineering, and Oil and Gas Journal. A growing video library is available to resident researchers. Videos include The Story of the Colorado Aqueduct, Fractured Patterns: The Story of the BLM, and Secret City: A History of the Navy at China Lake.

Inside the new DRS support unit building, a kitchen, bathroom, bedroom, office, utility room, and reading room support activities of DRS researchers working on site and in the area.

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REPORT FROM THE GREAT BASIN
CLUI WENDOVER INTERPRETIVE R&D CONTINUES

The CLUI Complex in Wendover, Utah, on the edge of the salt flats, is up and running for another season, with many projects taking place through November. Several new visitors will be out this year or have been already, including sculptors and photographers participating in the Wendover Residence Program, which benefited from another round of generous support from the National Endowment for the Arts. Some former residents, such as Deborah Stratman, eTeam, Sim parch, and Achim Mohne, are returning to expand on the projects they started in previous seasons. “Wendover is such a continuously compelling place that the Center is committed to staying here forever,” said CLUI Program Manager Sarah Simons.

Neither “smart” nor a “bike,” the four-wheeled, six-passenger “smartbike” in the shop at CLUI Wendover. CLUI photo

“The CLUI Complex in Wendover, Utah, on the edge of the salt flats, is up and running for another season, with many projects taking place through November. Several new visitors will be out this year or have been already, including sculptors and photographers participating in the Wendover Residence Program, which benefited from another round of generous support from the National Endowment for the Arts. Some former residents, such as Deborah Stratman, eTeam, Sim parch, and Achim Mohne, are returning to expand on the projects they started in previous seasons. “Wendover is such a continuously compelling place that the Center is committed to staying here forever,” said CLUI Program Manager Sarah Simons.

“Smart” Car and Bike Provide Interpretive Partner for Exploration
Richard Pell and Igor Vamos were out again to make some updates and adjustments to the automated tour vehicle they designed over the past few years. The vehicle is a standard American sedan that has been altered to accommodate a touchscreen computer in its dashboard that provides an interactive program about the Wendover Airbase community. A map on the screen indicates the vehicle’s location as the car is driven around the airbase, and a collection of dots on the map mark selected points of interest. As the car approaches one of these dots, the name of the site is announced, followed by a narrated description of the site, as well as images and, in many cases, video commentary by the site’s owner or representative. “It’s kind of like the car is a mouse and the land is a mousepad,” said Richard Pell, the programmer for the car, who is a principal in the Institute for Applied Autonomy and an art teacher at the University of Michigan. “You drive around eating dots like an interpretive pacman.”

The car, housed in a garage built for it at the CLUI Residence Unit, is available for guests to check out by appointment. Users leave their drivers license as collateral.

At the same time the car was being updated this Spring, a team from Municipal Workshop, an itinerent creative group led by Richard Saxton, was in residence for a month working on a pedaled platform for the auto-tour. They modified a four wheeled touring “bicycle,” putting on a roof, cooler, and a power supply, and outfitting it with a computer, screen, GPS device and speaker for the auto tour system. The team also built a movable garage, so that the bike could be deployed to other locations in the future. The garage, an elegant modernist structure built out of pallets and other bulk material, resembles an ATV trailer, with a ramp that allows the bike to roll out the door. It also has a solar panel on the roof that charges the tourbike’s interpretive system between uses. While a few more technical issues are being worked out, the bike should be available for visitors to use in the near future. These two projects, along with many other creative uses of GPS, will be featured at a GPS expo event, to be held on the Bonneville Salt Flats in a year or so.

Target Museum Loans Work to Display in Tate Modern, London
Though the Center has just started to develop some of the exhibits around Wendover into the national American Land Museum Complex, one site, the Target Museum, being readied at a large wooden building at Southbase, has already had a provisional showing to a few visitors. This initial exhibit looks at the paper shooting targets generally used by police and other professional gun handlers in training situations at shooting ranges, as well as live fire “hot houses” and other scenario environments. Some of the paper practice targets were removed from the display at Southbase and loaned to the Tate Modern museum in London, part of an exhibit prepared by the design/build team Sim parch that has worked on a number of projects in association with the Center. The Target Museum will eventually have more displays about targets in the USA, from paper targets used in shooting ranges to ground based bulls-eye bombing targets.

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Students at Wendover
In addition to people involved in CLUI projects at Wendover, the participants in the Wendover Residence Program, and the visitors passing through, students visit Wendover as part of field programs based at colleges and universities around the country. This year the Land Arts and the American West course, based out of the University of Texas and the University of New Mexico, will again make a stop at Wendover for a few days. This unusual field class spends most of a semester traveling around the west, meeting with land artists, writers, and others whose work is the landscape. The group visits Marfa, Roden Crater, Lightning Field, the Very Large Array, Chaco Canyon, and other art and landscape sites from Utah to Texas.

Last fall, a group of graduate students in the Curatorial Practice Program at the California College of the Arts spent a week in the Wendover area, led by Matthew Coolidge of the CLUI. The group visited dozens of sites in the region, including the Bingham Pit, the American Magnesium Corporation, and Dugway Proving Ground, creating a collection of experiences and impressions about places that was developed into presentations over the rest of the semester. The class, called “Nowhere” is intended to show how to make something out of “nothing” and how “nothing” doesn’t really exist anyways.

Jailbird Prop Plane Turned into Theater
A flightless prop plane, left at the Wendover Airport after the filming of Conair in 1996 was turned into a theater showing clips of films shot in Wendover. The reel of ten or so Hollywood movies that have been filmed here, including the ‘70s helicopter chase movie Birds of Prey, the lofty ‘80s sailing movie Wind, and the ‘90s alien attack extravaganza Independence Day, was edited by members of the CLUI, and is shown on a monitor in the plane during special events, such as the annual airshow (lack of electricity in the plane, located out of the way on the edge of the flightline most of the time prevents the theater from being a continuous attraction). Of course a clip from Conair itself is featured in the program.

“The sensation of watching a scene in the same space where the scene was shot is conceptually satisfying, and reaffirms the proximal relationship between filmspace and ’real’ space,” said Igor Vamos, a media arts professor and CLUI Wendover program manager.

Residents Work on Display
The work of CLUI Wendover Residence Program Participants is visible at several locations around the CLUI complex in Wendover, both indoors and out. In Exhibit Hall One, the recommended first stop for visitors, is a display by Paula Poole and Brett Stalbaum that explores issues of place and displacement at the Center’s Remote Location, a landscape site 40 miles north of Wendover. In Exhibit Hall Two, the photographs of Wayne Barrar are on display. All display areas are open to the public and free of charge.

Members of a curatorial practice program class from the California College of the Arts consider the beauty and potential implications presented by the abstract geometry of a satellite image depicting the 40,000 acres of salt ponds operated by the American Magnesium Corporation east of Wendover.

The photographic work of Wayne Barrar is on view in Exhibit Hall 2.
PLAYAS, NEW MEXICO
A MODERN GHOST-TOWN BRACES FOR THE FUTURE

Steve Rowell of the CLUI has been documenting the town of Playas, and in particular the 230 homes slated for counter-terrorism training, creating a static, photographic index of this place that will, for the indefinite future, serve its role as a generic American suburb under simulated attack. A forthcoming exhibit is being planned using these and other materials. In March 2005, Rowell was involved in a residency program at the School of Architecture at Texas A&M in College Station, TX. There he worked with students to develop an exhibit on Playas, featuring photographs, video, an interactive map of the entire town, and an immersive virtual reality landscape using game and modeling software.

Over the course of time, towns and cities eventually die. Since the dawn of the 21st century, an increasing number of towns in America's underpopulated areas have been suffering this fate as plants, mills, mines, and high-tech firms shut down operations. Despite this and despite the receding U.S. economy, the industries of defense and disaster preparedness are flourishing, reversing this trend in some of the most remote areas of the nation. The war on terror is redefining the American pastoral in an unexpected way.

Situated in a remote desert valley 40 miles from the US/Mexico border is a modern ghost town once again in full bloom as a counter-terrorism training facility. Playas, New Mexico is a company town built in 1971 by the Phelps-Dodge Corporation to support its nearby copper smelting operations. The geographic location was ideal due to its isolation from populated areas sensitive to the toxic byproducts of ore smelting. After a brief life of only 28 years, the copper industry plummeted, and the smelter's location at the dead end of a long road became an unaffordable liability.

Along with the plant closure in 1999, went the town as well. The majority of the residents of Playas relocated elsewhere while a few families were re-trained as caretakers during the slow dismantling process of the plant. These caretakers have clustered in homes near the community center, creating an almost urban density, unintended when the town was planned, leaving the bulk of the homes exposed and empty, tempting to illegal immigrants who camp in them while on their way elsewhere. As a town, Playas is now lifeless, with no work, empty streets and barren homes. But as a place, it is bristling with law enforcement and the occasional well planned explosion of a simulated terrorist attack.

In 2004 New Mexico Tech (NMT) purchased Playas outright from Phelps-Dodge, using a $5 million grant from the Department of Homeland Security to begin converting the town into the nation's primary counter-terrorism training facility. Training will include first responder and hostage negotiation, urban warfare and WMD exercises (including simulated nuclear, chemical and biological attacks) as well as terrorism related border security programs. Citizens of Playas and surrounding areas, indeed much of New Mexico, are thrilled at this much needed inflow of cash and jobs. The nation's burden of war and debt has a direct, positive effect on this corner of the union.

Architecturally homogenous in its buildings' minimal facades, the town consists of 260 homes spread evenly down curving roads with cul-de-sacs and sidewalks. These features, more typical of a suburb, make Playas anomalous, whereas other isolated desert towns consist primarily of dirt roads and RVs as their de-facto plan. Playas also includes all of the infrastructure and civic elements of a suburb: an apartment complex, two churches, parks, a bank, and a community center which features a fully functioning bowling alley, diner, and fitness room.

As time passed many of the homes began to give way to the entropy that the harsh desert climate brings. Playas, like many other desert towns of the American West, was destined to become another ghost, but of a slightly different vintage than its 19th century cousins. If not for this

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recent and dramatic change of land ownership, a future scenario might have included treasure seekers scouring the dry plain in hopes of finding a shattered bowling pin, a fragment of gilded mirror or section of fossilized shag carpet from a faux adobe home.

The transition from company town to terror town is not only unique, but geographically of interest. Such operations flourish when removed from the public arena. Regular explosions and mock raids designed to resemble biological, chemical, and/or radiological attacks are too provocative for populated areas. Being isolated from the nearest major city by 130 miles (El Paso, TX) but only 20 miles line-of-sight from the US/Mexico border provides an unintended attraction. Mexicans crossing this arid and inhospitable segment of the border refer to the mothballed smelter as “La estrella del Norte” or the North Star using its flashing aviation beacon as a navigational reference.

Playas sits curiously between nation, state, and county borders, surrounded by the continental divide that winds both east and west of the town. This is a dystopic playground of potential future disaster that lies on the fringe of the romantic Southwest. Bracketed by ruins of native civilizations and the cold war, by petroglyphs in cliff dwellings and decaying isotopes beneath the crust where the world’s first atomic bomb was detonated, Playas sits and waits for its day in the sun.

In 2003, Wyoming’s mass decreased by 432,000,000 tons, from coal that was extracted, shipped, then burned in the Midwest and south. This is more than the amount of coal produced by the two next largest coal states, West Virginia and Kentucky, combined, and more than half the total amount produced in the USA.

The rich swamplands that covered the region 75 million years ago formed beds of coal, now buried by a hundred feet or so of soil and rock. In the Wyodak bed (named for its presence in Wyoming and proximity to the Dakotas), this layer of coal ranges from 25 to 190 feet in thickness. The process of extracting it is relatively simple: employ large rolling shovel machines and drag lines (large clawed buckets moved around by cables and a crane) to remove the topsoil and overburden, and put it aside. Next blast the black coal bed with explosives to loosen it, and then scoop it up into massive haul trucks, and put it on a train.

In the Southern Powder River Basin two adjacent operations compete for the title of largest coal mine in the nation, the North Antelope Rochelle Complex, owned by Peabody Energy, and the Black Thunder Coal Mine. With operations all over the world, Peabody Energy, based in St. Louis,
is the largest coal company in the world. It operates three mines in the Powder River Basin, but the North Antelope Rochelle is by far the largest, producing over 80 million tons per year.

A few miles away, the Black Thunder Mine is owned by the Arch Coal Company, the nation’s second largest coal company, also headquartered in St. Louis. The mine has operated since 1977, and was the undisputed largest operation in the country until it was surpassed by Peabody’s mine several years ago. But in 2004, Arch Coal bought the nearby North Rochelle mine from Triton Coal and added it to the Black Thunder Mine Complex. With a combined output of over 90 million tons per year, this reestablishes Black Thunder’s claim as the largest coal mine in the nation, and quite probably the world.

The scale of everything at Black Thunder is terrestrial and geologic. Its fleet of five draglines includes Ursa Major, a Bucyrus-Erie (B-E) 2570WS model, the third largest dragline in the nation. When it comes to machines this large, often only one of each model is ever made. They are assembled on site and never leave. In addition to the draglines are 11 giant electric shovels, dozens of 200 ton plus capacity dump trucks, and two towering storage silos, each with a 12,700 ton capacity.

More than two tons of coal is produced at the Black Thunder mine every second, 24 hours per day, seven days a week, 365 days a year. This is an amount of energy equivalent to a 600,000 barrel-per-day oil field, and enough to power over 5 million typical American homes.

But getting the coal out of the ground is just a part of this monolithically simple economic structure. As much as 80% of the cost of coal is conveyance: getting it to where it needs to go. At Black Thunder, if you could pick up the extracted coal at the mine yourself, it would cost just $5 a ton. In Illinois, electrical utilities buy the same coal for $30 a ton. Coal is largely a product of the railroad.

Coal was the material that made nationwide transportation possible. In the late 1800’s, railroads helped create the coal industry in the USA by demanding the material in large quantities for fuel in their steam engines. When the railways switched to diesel in the 1950’s, the coal industry slumped drastically. Coal companies reacted by developing economies of scale, employing new technology to move staggering amounts of material, with huge draglines and haul trucks, the largest land machines in the world. By the late 1960’s, coal fired power plants began sprouting up in the Midwest, mushrooms of opportunity fed by a stream of cheap coal, delivered by the railroad.

Within the network of strip mines in the Powder River Basin is one of the busiest and most lucrative railway systems in the nation. Dominated by the national Union Pacific and Burlington Northern Santa Fe railways, 80 trains a day move coal from Wyoming, each with over 100 cars, and each over a mile long.

At the North Antelope Rochelle Mine, up to 2,000 rail cars a day are loaded, filling over a dozen trains a day, and more than 5,000 trains a year. At Black Thunder, over 7 million coal cars have been loaded over the life of the mine. If they were all connected together, they would create a train that would spiral around the girth of the globe three times.

Though the coal industry is said to have been suffering in recent years, the rapid rise in oil prices, as well as other factors, seem to support the market of coal for the immediate future. According to the industry, the USA has a quarter of the world’s coal reserves, said to be the largest energy resource of any kind - oil and gas included - within the borders of a single country. And much of it is in Wyoming, making this rural state one of the most potent places in the landscape of energy. All you need to do is dig it up, move it, and light it on fire.

Having a look

Though there are a few mines north of Gillette, most of the big mines of the Powder River Basin are south of I-90, in a seventy mile stretch between Gillette and the little town of Bill, population 2, neither of whom is Bill. Highway 59 is the main highway through this part of the basin, but the mines are generally out of view a few miles to the east. To get up close, head south on 59 south of Gillette, then after about 12 miles, head east on Road 99, then in a few miles turn south on Hilight Road, which runs south, parallel to Hwy 59, but follows the rails, closer to the mines. The Black Thunder mine is south and east of the town of Wright, and the North Antelope Rochelle Mine is just a few miles south of Black Thunder.
IN A PICTURESQUE VALLEY near Wilmington, Delaware, the romantic ruins of what was once America’s largest powderworks has been preserved and maintained by the Hagley Museum, promoting the legacy of the Duponts, whose company began here. Part park, part memorial, part living history museum, the stone buildings and ruins of the 19th century powderworks seem too old world to have been in this country. The powderworks are a conflicted place, a calm, bucolic European village where worker’s flesh once dripped from the trees, following the frequent accidental explosions. These dark Eleutherian Mills are one of the most remarkable and moving corporate mythscapes in the nation, and their story is an important key for understanding the American paradox.

America was built with explosives. In the 18th and 19th centuries, gunpowder propelled the bullets that settled settler’s disputes with the Indians, the British, the Mexicans, and, finally, amongst ourselves, and bullets provided food in the form of meat. Explosives cut the paths for railways and canals, made the production of cement possible, and allowed mining and the collection of the minerals that form products to reach an industrial scale of production.

Though a few domestic powder plants existed in 18th century America, most of it was imported. The French, sharing a dislike for the British, and holding a claim on much of the North American continent, furnished 90% of the powder that enabled America to gain independence in the Revolution. After Pierre Dupont arrived in America with his family auspiciously on New Years Day, 1800, fleeing growing instabilities in France, the search for a business to support the family eventually settled on explosives.

Pierre’s son, Eleuthere Irenée Dupont, had studied powdermaking as a young man in France, and was impressed at the lack of quality domestic powder in the young American nation. Urged on by Thomas Jefferson, whom the family knew from Jefferson’s tenure as ambassador to France, and who understood the importance of domestic powder production to the country’s independence from both the British and the French, Eleuthere Irenée established the E.I. du Pont de Namours Company in 1802, and began construction of the powderworks on the Brandywine Creek. With the first contract coming from Jefferson’s government, the Eleutherian Mills, as they were later called, opened in 1804, and by the War of 1812 it was the largest powderworks in the nation, a position it would hold for several decades. But not without financial difficulties and personal tragedies. The first major explosion, in 1818, was said to have been felt 40 miles away. It killed 34 workers, and inflicted serious injury on Irenée’s wife. In 1857, a series of fires and blasts accidentally triggered by Alexis Dupont, killed him and six others. During 117 years of operation, the Eleutherian Mills exploded hundreds of times, and over 200 workers were euphemistically sent “across the creek.” After each explosion, the damaged parts of the plant were rebuilt, and production resumed.

A succession of Dupont men ran the company for the first 100 years, and members of the family lived and worked on the Brandywine. It was a family business, an insular microculture combining personal and family dynamics with gunpowder production. The Duponts lived and died on this ground. In 1834, the plant produced a million pounds of powder for the first time. In the Civil War it was protected by Union troops, and was the largest supplier of powder for their cause.

In 1867, Alfred Nobel patented Dynamite, a stable form of formerly unstable nitroglycerine. The improvements this brought with it changed not just the explosives industry, but industries of all kinds. Gunpowder, or “black powder,” which is what was made at Eleutherian Mills, is the combustible combination of carbon (charcoal) and potassium nitrate (salt-peter—often imported from other counties, but also available in forms like bat guano). Though the mixture is catalyzed with sulphur, it only burns when ignited. In order to detonate, it had to be contained. This works fine for cannons and guns, but for tearing up the earth, it has its limitations.

Dynamite detonates. Immediately following its introduction into the US, transportation projects accelerated, mining projects multiplied their output, and new materials, previously inextractable, became available, creating new industries and products. Lammot Dupont, grandson of the company’s founder Irenée, led the company into Dynamite production, building a new plant for it in Repauno, New Jersey. In 1884, an explosion at the plant killed Lammot and five others. The plant remains.

In 1902, with the death of Eugene Dupont, 100 years of dynastic family control ended, and the family partners put the company up for sale. Though it was bought by a new group of Duponts, the company began a drastic transformation, and was reorganized into a more modern, diversified company. Research facilities were established to investigate new product lines, including the Experimental Station, which was built on continued on page 13
The cinematic, noir qualities of ports in general may be partially due to recollection of anticipation, uncertain expectations, and preconceptions. If Terminal Island was an artificial landscape in the heart of the ports, its form was anticipated, uncertain, and preconceived. The tour really started even before the bus arrived to pick up the passengers, in the morning of May 14, we loaded up a bus with 50 paying passengers and headed south on the 405 freeway, to our terminal destination. The Center's tour of Terminal Island, an artificial landscape in the heart of the ports, is a program to deepen the port's channels from 45 feet deep to 53 feet deep to accommodate the ever increasing sizes of ships that ply the Pacific.

As the bus passed through the “South Bay Curtain”, the invisible, cultural barrier that keeps a lot of people in Los Angeles from venturing south of LAX, we entered the Port’s realm of influence: the first of the refineries connected to the port; the satellite manufacturers; the north American headquarters for Toyota and Nissan. We turned south onto the Harbor Freeway, getting closer.

Terminal Island originated as a fraction of land, in the form of a barrier of sediment in the estuary of the Los Angeles River and the Dominguez Slough, called Rattlesnake Island. In 1891, the Terminal Land Company purchased the island and a railway was built on its east side by the Los Angeles Terminal Railroad Company. The area was renamed Terminal Island, and was expected to become a terminus in the estuary of the Los Angeles River and the Dominguez Slough, called Rattlesnake Island. In 1891, the Terminal Land Company purchased the island and a railway was built on its east side by the Los Angeles Terminal Railroad Company. The area was renamed Terminal Island, and was expected to become a terminus in the estuary of the Los Angeles River and the Dominguez Slough, called Rattlesnake Island. In 1891, the Terminal Land Company purchased the island and a railway was built on its east side by the Los Angeles Terminal Railroad Company. 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prison, dubbed “Club Fed,” was built in the 1930’s and has housed notables like Al Capone and Charlie Manson. It was designed for 500 prisoners, but like most prisons in California, it has more than twice its designed capacity of inmates.

The third federal facility on Reservation Point is especially terminal. It is where particularly undesirable “unauthorized aliens” are kept before being deported to their nation of origin. Officially, it is the Department of Homeland Security’s Immigration and Customs Enforcement Detention and Removal Operations Service Processing Center, and is one of eight in the nation, all in border states. By the time a person gets here, Terminal Island will probably be the last place they will know in the USA.

After passing back out the gates of Federalland, we pass a number of notable sites, including a boathouse for one of the Port’s fireboats, and a memorial to the Japanese fishing community that once thrived here on Terminal Island, before being uprooted and shipped to internment camps for the duration of WWII. The community of nearly 3,000 people was given 48 hours to pack up and leave Terminal Island. Those that returned here after the war found that Terminal Island had been utterly transformed by war production, with newly built terminal areas and tank farms to supply the war effort, 3,000 people was given 48 hours to pack up and leave Terminal Island. Those that returned here after the war found that Terminal Island had been utterly transformed by war production, with newly built terminal areas and tank farms to supply the war effort, but no chance to rebuild. It was a war-time scene that was closed, it could devote itself to its already established parallel existence, as filming location.

As we arrived, the yard was filled with lighting and grip equipment, tents, props, flats, and craft services – the movies were filming somewhere nearby. As we circled the yard in the bus, we watched a clip from Eraser on the bus monitors, a 1996 film that depicts a typical use of Southwest Marine as generic port location. In the film, Arnold Schwarzenegger is after the bad guys who are loading secret, stolen superguns onto an oil tanker. The ship. Aided by the Port of LA, individually at the center of World Trade in the Los Angeles area, was offering free boat tours of the port, on the hour, which explained the crowds. These tours were limited to just a fraction of the port, and even then, just the Los Angeles side. We were determined to circle all of Terminal Island, and to provide as complete a view of it as we could. We waved goodbye to the port PR people, and set off to prove to ourselves that it really was still an island.

The view from the water was very different than from land. At first everything seemed dense, dark, and gray, but as we rounded the tip of the island, the view opened up and we saw the landscape stretch out so much we lost our bearings. After leaving Ports O’ Call, we passed by the Evergreen Terminal, and Yusen, with ships piled high with containers. Through the east basin, and into the narrow Cerritos Channel, past Hugo Neu Proler, one of two berthing space for the naval ships kept here. Now these ships, as well as the shipyard and the many ways the shipping industry could be made more environmentally friendly through recycling. Then Pacific Coast Recycling came into view, the second of the two metal scrap yards on the island. This yard deals mostly in ferrous metals like varieties of steel and iron. Several visible piles have different textures and shades, perhaps different constituents, and the degree to which the scrap has been processed. One pile has pale colors and a glossy sheen, and seems to be composed of cubed appliances, like washing machines and refrigerators. Another is coarser, dull, and rust colored, fragments of demolished industrial buildings, probably rejected by the people Scheduled for shredding, with the occasional identifiable fragment of a bicycle or toaster. Several different machines are at work here, including a giant clipper, a compactor/chopper, movable boxes with electromagnetic lifters, bucket loaders, and excavators with large buckets. Most of the processing and going on elsewhere, at yards in the Valley, and the Inland Empire. The material is brought here by trucks with large metal bins that says things like “Ecology Auto Parts,” the name of one of the largest scrap metal processors in the state. This is the final step for many spent consumer products and vehicles. From here, the material is shipped onto ships bound for places like South Korea, where it is likely to be remade into products that are shipped back to the port in a form of international recycling. Many of the ships loaded at the Pacific Coast Recycling berth take the scrap to China, where it is formed back into products and infrastructure that generally stays there, absorbed into that nation.

The export of this man-made raw material of shredded and pressed metal objects takes place on a part of Terminal Island that deals with bulk cargo that is not containerized. Near Pacific Coast Recycling is an oil terminal for the Pacific Region, which has the largest commercial port in the nation. After a brief span of open water, the boat heads for the tip of the Navy Mole, a long pier that juts out of the island’s mass, and projects in a faceted arc back towards Long Beach. The Mole was built to protect the Long Beach Shipyards, and to provide more berthing space for the naval ships kept here now. These ships, as well as the shipyard and the rest of the Navy, are gone. What has taken its place out on the end of the mole is the only commercial satellite launching system in the United States – Sea Launch.

Sea Launch is a very unusual operation. The satellites launched by the system are launched from the Port of LA, where they are held in reserve by the Southern California Boeing facilities – brought by truck out to the Sea Launch building on the tip of the mole where they are engineered with the rocket that will deliver them into space. The delivery rocket and its payload are loaded onto a custom made ship, called the Sea Launch Commander. Before the payload launch, a small booster rocket is launched in the interstitial parts of the cargo, or jacket. The booster and the payload safely reach space. The payload is anything but ordinary, it is a satellite that will go to orbit, and perform its role. The rocket is lifted into vertical position, then the platform is evacuated. The Commander moves some distance away, and controls the launch remotely. Since the first test launch in 1999, several communication satellites have been sent into orbit.
orbit in this manner, including, most recently, the third satellite in the XM Satellite Radio network. Sea Launch is a joint project of Russian, Ukrainian, and Norwegian companies, and is primarily owned and operated by Boeing.

The little Scorpio tourboat nestled up as close as it dared to the looming Commander and set off on a short tour of the smallest of the three gaps in the seven mile long federal breakwater. This one is called Angels Gate, and is the entrance into the Port of LA that is protected by a series of steeper, mostly assembled hammerhead cranes, with the full extent of their booms projecting like wings over the water off either side of the ship. It seemed poised in the stillness of a delicate balance, an improbable apparition.

The tourboat continued on after a halting consideration of this global port ghost ship. The Federal breakwater, made of rock quarried at Catalina Island, envelopes the whole of the port of LA and Long Beach, and separates the outer harbor from the open ocean, appeared as a recurring mass on one edge of the radar screen, enabling the captain to navigate. The fog began to thin out, enough to see the clusters of sea lions lounging on the buoys that mark a submerged dredge spoils pile. We approached one of the three gaps in the seven mile long federal breakwater. This one is called Angels Gate, and is the entrance into the Port of LA that is protected by a series of steeper, mostly assembled hammerhead cranes, with the full extent of their booms projecting like wings over the water off either side of the ship. It seemed poised in the stillness of a delicate balance, an improbable apparition.

As we approached the seaward tip of Reservation Point, we could see the comfortable homes of the prison warden and the Coast Guard Commander, surrounded by greenery. Then the industrial port begins. On the left, across from Coast Guard station on Terminal Island, are the docks of the LA Port Pilots, who head out to take the helm of approaching ships, in order to steer them through the cramped port channels of the Los Angeles Channel, in which the port is nestled.

Next, Scorpio headed into the Outer Harbor, and into a sort of space-like void. Fifteen years ago you could make a beeline from the tip of the Navy Mole to the Coast Guard at Reservation Point, and back into the Port of LA’s main channel. In the intervening years, the deepening of the port channel has been undertaken, in which the port waterway, which projects far into the outer harbor. To continue a clockwise loop around the island, Scorpio had to round the tip of Pier 400, and to do so it had to cross vast and empty stretches of water. As we set out, the fog intensified, until the boat was completely enveloped, and someone on the stern was navigating completely by his blobby forms on his small radar screen. We were in a world of our own, chugging along in the dampened visual hush of sea fog.

After an unknown time where our eyes strained to find an anchor, a form began to emerge out of the opaque atmosphere, directly in front of us. Its slowly emerging forms were confusing; some straight horizontals, long, then some verticals, extending to an unknown height. Its identity was elusive, but even more unsettling was the uniformity of scale and proportion. As we approached, it became more distinct, and finally, though its edges remained out of focus, we could make out its whole scale and form, which came with a nearly simultaneous, palatable shock to everyone on board. The object was a large ocean-going ship with a long deck that was improbably close to the ship’s surface, and overtopped the top of the boat. We could clearly see the three gaps in the seven mile long federal breakwater. This one is called Angels Gate, and is the entrance into the Port of LA that is protected by a series of steeper, mostly assembled hammerhead cranes, with the full extent of their booms projecting like wings over the water off either side of the ship. It seemed poised in the stillness of a delicate balance, an improbable apparition.

The bus headed out to Pier 300 and 400, two new landmasses that were added to the port just a few years ago, nearly doubling the port’s container handling capacity. These two terminals were extracted from the ocean floor over several years of dredge and fill, and are capped toward acres of asphalt, composed largely of gravel dug out of the town of frindle, 30 miles inland.

Pier 300, also called the Global Gateway South, is 262 acres of asphalt and railroad lines, and cost $270 million for the port to build. It opened in 1997, as one of the largest deepwater container yards in the world that is fully integrated with the port’s on-dock rail yards with double-stack capability. Meaning it can, at one location, unload a ship and build transcontinental trains that, with one container stacked on top of the other, can extend across the country in 10 days. This is the new norm in long distance container rail haulage. Pier 300 also has 12 of the latest hammerhead cranes, capable of unloading the largest container ships now plying the seas. These ships are known as Super Post-Panamax ships, as they are even larger still than the container ships that first went into service in 1987, and are now plying the Panama Canal. The significance of this is not so much that the Panama Canal is too small (1,000 feet by 110 feet is the largest a ship can be and still fit through its locks), but that, increasingly, it doesn’t matter; trade between Asia and the Pacific Coast is the US is such that the US needs to make these goods, by rail and truck, into the interior and across the continent (though half of the imports to the Port of LA stay west of the Rockies). Ships are now like conveyors, going back and forth on the same two points, one on either side of the Pacific, and the bigger the boat, the cheaper the freight, due to the economy of scale. One Super Post-Panamax ship can hold as much as eight thousand 20’ shipping containers.

Containers

Shipping containers started coming to the Port of LA in 1958, two years after the world’s first container ship, owned by Malcolm McLean’s revolutionary new company, Sea-Land, made its maiden voyage, from Newark to Houston. McLean’s simple idea was to build this single container, which was 8’ x 8’ x 20’, into the storage area on a ship, so that it could be easily loaded and unloaded from the ship, and into trucks, on land. But, because of the sheer bulk of the container, these were not long活得.
Pier 400 may be the largest single addition to America’s coastline in history. Construction started in 1994, along with Pier 300. Several years after 11 million metric tons of rock later, the nation is larger than it used to be by one and a half square miles. Environmental mitigation projects funded by the port at Seal Beach and Bolsa Chica, miles away in Orange County, appeased the normally restrictive California Coastal Commission.

It has one less, the Danish shipping giant APM (the A. P. Moller – Maersk group) owners of the familiar brand Maersk-Sealand (formed by a recent merger between Maersk and Sealand), the largest of the container operators, has been buying up 300 ships, nearly a million containers, and 20,000 employees, Maersk-Sealand is probably accurate in its claim to be the largest shipping company in the world. APL’s Pier 400 is the largest proprietary container terminal in the world. It has 12 Super Post-panamax berths, and is capable of handling the biggest ships afloat. The productivity of these berths is amazing. The facility is that law enforcement agencies in the region burn confiscated narcotics in the sand tons of trash per day is burned here, aided by natural gas, and enough electricity can be found berthed at ports up and down both coasts of the USA, and even in some industrialized and built up area, spanning the length of the Long Beach side of Terminal Island. Major facilities included the largest drydock south of Puget Sound, over 1,000 feet long, and capable of servicing aircraft carriers, which it did. Looming over the shipyard was “Herman the German,” the largest self-propelled floating crane in the world, captured from the Nazis, and brought over from Germany. Next door, the Long Beach Naval Station was also a fully developed site, but more like a modernist college campus. One of two of the lead architects that designed the station was Paul O. Williams, a noted local architect, who designed Los Angeles landmarks like the Theme building at LAX and the Beverly Hills Hotel.

The Station and the Shipyard were closed by the federal government in 1994 and 1997, and the land given back to the Port of Long Beach. Though there were efforts to prevent this from happening, the history of pier development and the pressure to develop land on a normally sunny Hueil Howser, of the TV show California’s Gold, in a matter of just a few years the entire site was razed, with buildings bulldozed into the drydocks, and the site paved over to become the Hanjin Terminal. The law suits were either dismissed or converted to a suit, with the City paying $4.5 million into a fund for local historic projects. Pier T opened in 2003, after Hanjin signed a 25 year lease for $1 billion. This was possibly the fastest conversion of a major industrialized military site to civilian use in recent history.

While watching, on the monitors, part of a documentary portrayal of the Naval Complex, made by the Port just before it was demolished, we drove onto Pier Echo, the edge of Terminal Island, and of the old shipyard, where the only remaining building from the navy base remains: a large metal maintenance building, building 303, marginally and temporarily being used by the port fire department. The port expects that it too will be torn down soon, when the rest of the 25 acre Pier Echo is developed into a major liquefied natural gas import facility, as they hope it will, despite developing controversy over the plan.

On the way out, we passed the Fremont Forest Products yard, BPs Alaskan crude terminal, Pacific Coast Recycling (well hidden from the street by a tall steel wall), Weyerhaeuser’s yard, the Long Beach Power Plant, then Ocean Boulevard, and over the Commodore Schuyler F. Heim Bridge, and onto Highway 103, the Terminal Island Freeway, a scenic industrial highway that passes through the Wilmington refinery (operated by Valero), and past views of bright yellow sulfur piles. Unfortunately, it may also be the shortest limited access freeway in the state.

We were now following the main rail lines from the port, taking the route a shipping container would take, to see how things worked, and to get a feel for it. The containers, truck to rail and rail to rail with six rolling gantry cranes. It is operated by Union Pacific, and allows trains to be assembled for long journeys across the country, or the short hop to two or three cities. The freight train, or “freight” as it is known, is a combination of rail traffic, trains with a few rolling trestles, and some flatbed cranes, which carry huge steel sheets on heavy dolly trucks. The ICTF is located on a spur of land that is part of the City of LA, though immediately surrounded by Carson and Long Beach. This spur is connected to the thin corridor of City of LA jurisdiction that connects the bulk of the city to the north, to the port via a 200 mile plus line of freight trains. As we get off the train, the Port of LA, with its 300 plus cranes, is either insufficient, inappropriate, or otherwise occupied. Each of the home ported MARAD ships has a crew that live in the area, or on the ship, standing by, ready to put on the freight traffic, a radar tracking station overlooking the harbor from a hill above San Pedro.

In 2002, involved the consolidation of a few different rail lines into one central rail corridor from the port to Los Angeles City, and the Port of LA. The $2.4 billion project, completed in 2002, would get even more trucks off the streets, and further improve capacity, efficiency, and business in general for the city and port. The $2.4 billion project, completed in 2002, involved the consolidation of all rail traffic at the ICTF and at the dockside terminals at the rest of the port, is controlled by the Centralized Traffic Control center, operated by the Pacific Harbor Lines company, located in a building on the north edge of the port. Similarly, ship traffic is also centrally monitored and controlled, by the Marine Exchange, which operates the Vessel Traffic Center, a radar tracking station overlooking the harbor from a hill above San Pedro.

The ICTF is handled over 10 million containers since opening, moving them from truck to rail and rail to rail with six rolling gantry cranes. It is operated by Union Pacific, and allows trains to be assembled for long journeys across the country, or the short hop to two or three cities. The freight train, or “freight” as it is known, is a combination of rail traffic, trains with a few rolling trestles, and some flatbed cranes, which carry huge steel sheets on heavy dolly trucks. The ICTF is located on a spur of land that is part of the City of LA, though immediately surrounded by Carson and Long Beach. This spur is connected to the thin corridor of City of LA jurisdiction that connects the bulk of the city to the north, to the port via a 200 mile plus line of freight trains. As we get off the train, the Port of LA, with its 300 plus cranes, is either insufficient, inappropriate, or otherwise occupied. Each of the home ported MARAD ships has a crew that live in the area, or on the ship, standing by, ready to put

Back down the Mole, the bus made a little side trip to take a look at the abandoned Matson Terminal, with its elegant, early ’60s control tower/office which will no doubt be removed when the new tenants are finally chosen. Back on Ocean Boulevard, the main road through the spine of Terminal Island, we passed by the second power plant on the island, the Montenary Power Plant, which is also known as SERRF – the Southeast Resource Recovery Facility, as the plant is as much an waste incinerator as it is a power plant, if not more (its an incinerator that makes electricity too). Over a thou

There is just one road left for us to travel before heading off the island, and we exit at Pier T, just before the Desmond Bridge, which heads into Long Beach. Pier T is the newest container terminal in the Port of Long Beach. It is leased to the Hanjin Company, a large shipping company owned by the Cho family of South Korea, who own other shipping lines too, and over 100 ships. With fourteen cranes, as many as a million containers are handled at this terminal every year.

Even more remarkable however is what is no longer visible at Terminal T: the Long Beach Naval Shipyard. The shipyard and its adjacent Naval Station was one of the major Navy complexes of the West Coast. 16,000 people worked at the shipyard at its peak, and an estimated 50,000 when the Vessel Traffic Center, a radar tracking station overlooking the harbor from a hill above San Pedro.

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the opposite bank of the Brandywine, above the mills, and remains active to this day. DuPont continued its acquisitions of competing explosives companies, begun in the late 1800’s, and continued its reign as largest of them all. But Du Pont’s explosives monopoly was one of the major American industrial trusts attacked by Roosevelt, and in 1907, Du Pont’s explosives businesses were separated into the Atlas and Hercules Powder Companies.

As the 20th century progressed, industrialization changed, and with it – and often by it - the Du Pont company. The increasingly antiquated Eleutherian Mills, still producing black powder, finally became obsolete, and closed in 1921.

The company’s diversification and research continued, largely based on compounds and materials related to those that make up explosives, like nitrocellulose and cotton. Synthetic plastics began to replace more organic plastic material, and Du Pont experimented with coatings, paints, shellacs, and plastics mixed with fabrics. Further delving into organic chemistry and petrochemicals, eventually the company invented and marketed successful products like nylon, teflon, rayon, dacron, cellophane, and mylar. In WW2, Du Pont built dozens of major munitions and explosives plants for the federal government, including, for the Manhattan Project, the world’s first plutonium plant at Hanford, Washington.

By 1971, black powder was a very minor product in the world, used mostly by historical reenactments, and Du Pont stopped making it altogether. The company was fully engrossed in pursuing, as their motto of the time proclaimed, “Better things for better living - through chemistry.” Part of the feeling exuded by the restored ruins of the Eleutherian Mills is a nostalgia for simpler times, when America was young and idealistic, when families, not corporate boards, ran businesses, and when explosions, while dramatic and tragic, were also kind of quaint - we hadn’t yet figured out how to really blow stuff up.

D I S C U S S I O N  O F  C O L O R A D O  S P R I N G S

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T H E  O R I G I N S  o f  t h e  c i t y  a r e  a s  a  s u p p l y  c e n t e r  f o r  t h e  m i n i n g  b o o m t o w n s  i n  t h e  h i l l s ,  l i k e  t h e  l e g e n d a r y  C r i p p l e  C r e e k .  I n  1 9 1 7 , w h e n  t h e  n a t i o n  s w i t c h e d  f r o m  g o l d  t o  s i l v e r  f o r  i t s  c o i n a g e , c r e a t i n g  a  s l u m p  i n  t h e  l o c a l  g o l d  m i n i n g  i n d u s t r y , b u s i n e s s e s  i n  t h e  r e g i o n  w e r e  q u i c k  t o  c a s h  i n  o n  t h e  l a n d s c a p e  i t s e l f :  t h e  d r a m a t i c  m o u n t a i n  s c e n e r y  b e c a m e  t h e  d r a w ,  a n d  t o u r i s m  b e c a m e  t h e  m a j o r  l o c a l  i n d u s t r y .

Spearheading this trend was one of the grandest western resorts in the nation, the Broadmoor, which opened in 1918, and roared into the twenties at full tilt, attracting recreating presidents and foreign royalty. Pikes Peak, which looms 8,000 feet above the city’s streets, became a national landmark, famous for the daredevil auto races up the winding dirt road all the way to the peak’s 14,110 foot summit, a road privately built and financed by the Broadmoor. A cog railway, also owned by the Broadmoor, offered another way to the summit. Today, both are still popular summer attractions, though traffic on the narrow private toll road travels at a much slower pace.

It could be that the recreational opportunities, and the existence of a swanky resort is what first brought Colorado Springs to the attention of federal military planners. Or it could be just a naturally nationally strategic location. In either case, Colorado Springs has become the symbolic, if not the actual, center for the nation’s defense, and it teems with military activity, Army and Air Force.

Most famous of course is Cheyenne Mountain, the spring-cushioned underground satellite and radar observation nidus and command center bored into a hill at the base of Pikes Peak at the peak of the Cold War. Like a central nervous system, connected by satellite, fiber optics, and
COLORADO SPRINGS continued

microwave to thousands of sensitive ground and space-based receptors, spread all over the world, Cheyenne Mountain still vigilantly monitors the skies and space for hostile or suspicious moving objects the world over. It recently underwent a $1.7 billion renovation. It is operated by NORAD, and the US Space Command, which is headquartered at Peterson Air Force Base, also in Colorado Springs. Petersen employs a few thousand people in communication, security, logistics, and intelligence programs, and is also associated with nearby Schriever Air Force Base, the military center for time and space (see article on next page).

At the base of Cheyenne Mountain is Fort Carson, a large mechanized infantry (tank) base, with 137,000 acres and around 15,000 military personnel and 3,000 civilian jobs. On the north edge of town is the Air Force Academy, the Air Force’s equivalent to West Point (a jet-age modernist complex, opened in 1958, in the foothills of the Rockies – compare to West Point’s medieval fortress on the Hudson, founded in Napoleonic times). All told, at least 35,000 people are employed by the military and related civilian jobs in Colorado Springs, despite – or perhaps because of – being nearly as far from foreign lands as possible.

The high elevation and sporty environment were no doubt the attractions that brought the United States Olympic Committee’s administrative headquarters and Training Center to Colorado Springs. If the complex has an authoritative look at its core, that is because its previous use was as Ent Air Force Base, the former headquarters of the North American Defense Command (before it moved to nearby Petersen AFB). The Olympic Committee moved into the former defense node in 1978, soon after it was vacated by the Air Force. The complex was expanded massively in the 1990s to house new training facilities for athletes, including a sports science center, 45,000 square foot aquatic center, a 59,000 square foot multi-story gymnasium, the largest indoor shooting facility in the western hemisphere, housing and support for over 550 trainees and trainers, and much more. It is the center of the US’s olympian efforts, and one of the largest diversified sports training complexes in the country.

It has been suggested that Colorado Springs’ location at a sort of geographic fulcrum for the lower 48, where the plains meet the mountains, favors the timely and simultaneous distribution of mail to all parts of the country. This theory explains the presence of a number of mail order and direct marketing businesses in the region (Columbia House, transcripts and tape companies, and the Citizen Information Center, run by the federal government in nearby Pueblo), and is supported by the fact that Federal Express has opened a regional distribution node at the airport.

This “mail hub” theory helps to explain, partially at least, the new nationally prominent evangelical Christian presence in the Springs. The national headquarters for the politically influential Focus on the Family, now one of the largest private employers in the region, is located off the Interstate north of town. Its sprawling new campus sends out enough mail (reportedly 4 million pieces a month) to have its own zip code. At the next exit off I-25 is the headquarters of the New Life Church, with its 10,000 seat World Prayer Center. The head of this church, pastor Ted Haggard, is the president of the National Association of Evangelicals, and a good friend of the Bush administration. No doubt he too sends out a lot of mail.

Perhaps some of the same forces that draw such technological and spiritual extremes to the Springs also attracted Nikola Tesla here in 1899. Seeking open land and lots of electricity, the notoriously inventive high energy physicist built a lab a mile east of downtown to investigate, among other things, the transmission of electricity through the air. A few months later, while making what has been described as the largest artificial lightning display ever created, the town electrical utility became overloaded, and their only generator exploded. After unsuccessful attempts to convince the utility to provide service to his lab again, Tesla left the Springs, never to return. A hundred years later, the only museum in the whole country dedicated to this pioneering inventor of alternating current, located in downtown Colorado Springs, auctioned off its assets and closed for good, citing lack of public interest and support as the reason.

Another curious and unique museum that seems, however, to be thriving in Colorado Springs, is the Money Museum. This is America’s largest museum dedicated to numismatics, and is located at the institutional headquarters of the American Numismatic Association. The ANA is the lead agency for promoting the hobby and industry of coin collecting in the nation. 500 clubs and over 32,000 individuals are members of the ANA. Why the hub of this network of money collectors is in Colorado Springs remains a mystery.

The nation’s center for numismatic outreach, global space/time control, projectile tracking, international athleticism, bulk mail powerhouse, politically powerful evangelical Christianity, and the sort of higher education that only the Air Force can provide: This is today’s Colorado Springs.
GLOBAL POSITIONING PIVOTS AROUND COLORADO SPRINGS
AND A BRIEF HISTORY OF AMERICAN SPACE TIME

Less celebrated than Cheyenne Mountain, its Colorado Springs Cold War cousin, Schriever Air Force Base’s role may be even more significant in the enveloping electronic world. Among a host of space warfare and satellite functions at the base, Schriever is the control center for the global positioning system, the only system of its kind in the world, and a system that is increasingly vital to military and civilian infrastructure. GPS operates using the speed of light rate of electronic signals to determine the relative distance between objects. To do so it couples the most precise clocks in the world to a global network of satellites whose position is precisely monitored and measured.

For the centuries before the space age, military superiority was largely determined at sea. The invention of longitude as a ship-based navigation system, using accurate portable clocks on board ships and calculating distances relative to known celestial entities, revolutionized the ability for colonial scouts and imperial forces to discover, conquer, and control the world. The center for this global navigational system was Greenwich, England, at the seat of the ruling empire of the era. Global time, and global space (longitude) was calibrated from this point, and governed by the Royal Navy.

Due to this historic and critical foundation for timekeeping, the Navy has traditionally controlled time in the United States as well, based out of the Naval Observatory in Washington DC (which shares its grounds with the official Vice President’s residence). The nation’s “Master Clock,” regulated by the atomic decay of hydrogen, resides at the observatory, overseen by the Director of Time Service, and the Superintendent of the Naval Observatory, who is designated as the DOD Precise Time and Time Interval (PTTI) Manager.

In the past few decades however, the global systems of surveillance, communication, and navigation have steadily moved upwards, above the roiling seas, into space, borne by satellites. And in the USA, space is not the Navy’s realm, it is the Air Force’s. With the development of GPS, the Air Force finally captured some control of Time from the Navy, and now has an official atomic clock of its own, the “Alternate Master Clock.” While the calibration of the Alternate Master Clock is linked to the Navy’s Master Clock in Washington,* and its existence is often explained as being a redundant back-up of the Master Clock, it is, as official Coast Guard documents explain, “capable of independent performance” suggesting some degree of autonomy for the Air Force. And, it is located at Schriever, confirming its status as the Greenwich of the Space Age.

Since nearly all military bases in the USA have origins in or soon after WWII, Schriever, established from scratch as Falcon Air Force Station in 1983 (renamed Schriever in 1998), is quite possibly the newest major military base in the country. It was built on 3,800 acres in the rolling plains, several miles east of its parent, Petersen Air Force Base. Its original stated function was to be a back up satellite control facility for Onizuka Air Force Station, in Mountain View, California, where all DOD satellites were being controlled from at that time (from the famous “Blue Cube” building, visible next the highway, and surrounded by Lockheed’s main satellite manufacturing plant). By 1987, Schriever had control of most of the DODs satellites, including the Navstar System, the original Global Positioning Satellite network.

At all times there are at least 24 operational satellites in the GPS constellation (sometimes as many as 29), guaranteeing that at least three or four satellites are visible simultaneously from any place on earth. To control this continuously orbiting network, monitoring locations positioned around the globe (in Guam, Ascension Island, Diego Garcia, Hawaii, California, Colorado, Florida, Greenland, and the UK) send information to Schreiver’s Master Control Center. In addition to keeping track of the location of these satellites to a degree of precision measured in nanoseconds, some of these monitoring stations also upload adjusted time and location information from Schriever to the satellites. Additionally, each satellite has its own atomic clock, and all onboard clocks are centrally calibrated by the Alternate Master Clock at Schriever.

This global network of monitoring locations and earthstations, controlled by the Master Control Station at Schriever, operates instantaneously and continuously, and connects to all the satellites in the GPS constellation. As a result, each satellite knows exactly where it is at any given moment, and beams this information back to earth as a continuous stream of radio waves. These radio waves are picked up by GPS receivers the world over, whether they are on aircraft carriers, or in the hands of hikers with Garmins from Walmart. With a minimum of three separate satellite location/time streams, the GPS device does a little math to triangulate its own location relative to those “fixed” points in space. As the receiver moves, its position relative to those points is continuously recalculated, and a three dimensional picture of its position, heading, speed and altitude is formed, another object moving through space. It is all relative to, and centered in, the time/space hub of Colorado Springs, Colorado.*

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♦️ The “calibration” of time, and a global agreement of what time it really is, is determined by machines and complex diplomatic international agreements and policies involving several different time types and standards of deviation (Coordinated Universal Time, International Atomic Time, etc.) Thousands of people the world over must be involved in “global time” vocations — an international temporal bureaucracy. The machines involved are generally what are called “atomic clocks,” as they use some form of atomic oscillation to regulate them. Both of the US’s Master Clocks, at the Naval Observatory and at Schriever, use devices known as hydrogen masers, castermounted file-cabinet sized appliances manufactured by the Symmetricom company in Beverly, Massachusetts [www.symmetricom.com/products_pfr_MHM2010.asp].
REFLECTIONS ON CHICAGO
SIX ICONIC MONUMENTS OF THE CITY

Millenium Park

Chicago’s redeveloped waterfront is the most visible face of the city, and the showcase for civic projects that promote Chicago, from the most famous World’s fairs, to the museums, recreational lands, and now Millenium Park, possibly the most dramatic urban public art site in the nation, at the moment. It includes the Pritzker Pavillion, a Frank Gehry bandstand that appears to be frozen in a state of extreme exfoliation, as if from some full frontal blast, facing a huge lawn, covered by a suspended, swooping Tron grid for hanging speakers and lights. Named after the originator of the Pritzker Prize in architecture, and built by a Pritzker Prize holder, the pavilion is a doubly certified landmark in architecture. The Crown Fountain, another popular piece of public art in the park consists of two fifty foot high glass block videoscreens, facing each other, and showing closeups of peoples faces, making various expressions from joy to sorrow to pain. Water flows down the face of these faces, and in the space between them is a shallow fountain for people to walk around in, or not. But perhaps the most popular part of the millenium monument triad is Cloud Gate, a reflective ellipsoid, conceived by British artist Anish Kapoor. Designed and built by Performance Structures of Oakland, California (in a shed next to the former CLUI headquarters), the giant steel “bean” is sheathed in highly polished stainless steel, and makes for dramatic reflections of the city that surrounds it. A great place to take the parents, Millenium Park is like an architectural funhouse, guarded by a fleet of security on segways.

Pillar of Fire Monument at the Chicago Fire Academy

One of the most famous stories of this celebrated city of architecture is the moment of architectural erasure that occurred in 1871, when much of downtown was lost in the Great Fire. Ms. Oleary’s cow probably didn’t start the fire, but someone did, and it does seem to have started in her barn. There is a statue at the site where her barn stood, the Pillar of Fire monument, but what is especially interesting at the site is the fact that it is now one of the city’s main fire training facilities. In addition to classrooms and displays of old fire equipment is an unusual false-fronted building. On the street side it looks like a wall of flaming red brick. But on the other side, it is a high bay training hall, with an exterior wall facing a paved lot that is a stylized version of an apartment block building.

Union Stockyards Gate

What was once the nation’s largest and most infamous packing site has now been turned into a business park. Like many monuments, this one is impressive not for what is there, but for what was there. The Chicago stockyards were the most famous stockyards in this nation of meat. They operated for over 100 years, employing 30,000 people at their peak, processing over a billion animals over the years, leaving the local river rotting with remains. Though Upton Sinclair’s The Jungle, published in 1907, was written about the yards, and the disgusting conditions he described had an immediate effect on food safety, leading to the federal Food and Drug Act a year later, it had relatively little effect on worker’s conditions or on the nation’s appetite for meat. Encroaching urban and suburban development was one of the causes of the demise of the yards, and competition from distribution points closer to the rangelands. In 1955, the stockyards at Omaha surpassed Chicago’s in volume, and the Union Stockyards were finally closed in 1971. Just one of the archways was left as a relic, with a stone carving of a mounted cows head, peer out blankly to posterity. Located at 850 W Exchanger St., just west of Halstead.

continued on next page
SITE REPORTS

CHICAGO continued

Tribune Tower’s Monument of Monuments
This grim gothic tower’s form was inspired by other architectural monuments, like Notre Dame cathedral, but its exterior walls are actually composed of pieces of other “monumental places” around the world, many visible, and touchable from the public sidewalks around the building. It seems to have been a pet project of one of the newspaper’s more flamboyant owners, Colonel McCormick, who ran the paper for more than 35 years. The Colonel instructed his writers and friends to bring back samples from the exotic places they would visit. Some were collected with permission, some were not. Embedded in the walls are more than 120 examples of this “site sampling,” each identified by an adjacent engraved plaque. They include pieces of such global landmarks as the Pope’s residence, the Parthenon, the Taj Mahal, the Coliseum in Rome, the Great Pyramid of Cheops, and the childhood home of Hans Christian Andersen in Odense, Denmark. Also included are at least one piece of some place in each of the 50 United States, including the Alamo, Harvard University, Mount McKinley, William Henry Harrison (9th president of the USA)’s house in Indiana, and a piece of petrified forests in Arizona, and near Calistoga, California. A curious curation indeed, and a deconstructive distillation of the architecture of the World. Located at 435 N Michigan Ave.

First Chain Reaction Site
On this spot, now a plaza in the University of Chicago, was the squash court under the grandstands of Stagg Field, where Enrico Fermi and assistants created the first sustained nuclear reaction, in December, 1942 - the nuclear genie’s first glance at the world outside the bottle. In 1967, 25 years later, Henry Moore made a sculpture he called “Nuclear Energy,” to be the monument for the site. The radioactive remains from the experiment, meanwhile, including pieces of the lab at Stagg Field, were buried in the Red Gate Woods, in Palos Hills, a few miles southeast of downtown. A stone monument there warns people not to dig. The lab site and Moore sculpture are at 5651 Ellis St., between 56th and 57th. The relocated radioactive parts of the lab are near Archer Ave. and 107th.

Acme Coke Plant
America’s steel/rust belt extends from south of Chicago and into Indiana along the south shore of Lake Michigan. Here are the great furnaces, sheds, and slagpiles of most of America’s steel production. Though many of these landmarks are visible from public roads, and accessed by dedicated explorers through gaps in fencing, many are still engaged in business, privately owned, and less than friendly to the harmless, curious visitor. The exception is the immensely scenic and visitable Acme Coke Plant, which closed in 2002, with the last intact structures from Chicago’s steel industry. Acme turned coal into coke used by the Acme blast furnace across the river, which was torn down last year. The plant is in limbo, as local preservationists are in the midst of raising money to buy the site. If they are successful, the site will slowly be transformed into a labor and steel industry museum, and probably become part of the I&M Canal National Heritage Corridor, which is expected to cut its interpretive swath through this former industrial zone. But, for now, the place is raw and alive, a partially torn down, but mostly intact monumental relic of industry. Located at 110th Street and Torrance Ave.

Less is Moore: Nuclear Energy sculpture at site of Fermi’s discovery.

The entrance of the abandoned Acme Chicago Coke Plant.

More protruding global tribunations.
IMMERSED REMAINS continued from page one

Vivid video like this of other drowned towns proved illusive. Many of the towns were located along river valleys now so deep under water that no diver could easily visit, and no light would penetrate to those depths. Attempts to troll for deep remains were made by the CLUI using a submersible infrared camera, with an attached light source. In all cases the murky, silty water proved impenetrable, and the imagery unsatisfactory.

As the list narrowed down, visits were made to over a dozen reservoirs to capture images, follow up leads, meet with knowledgeable locals, and examine archives.

Over time, as patterns for the stories of the subjects emerged, and the types of documentation available stabilized, the final structure for the exhibit formed. Three curatorial threads would bind it together. The first would be a timeline following the settlement and development of the United States; the second would show a transformation of documentary forms (from intentional black and white photographic recordings, to video, to fresh digital pictures); and the third would evolve from the beginnings of disappearance, through total loss, to a rediscovery, a reevaluation, and a reemergence.

Finally, six towns under six reservoirs were selected to portray this multifaceted phenomenon, through a variety of media. In each case, an image of downtown would show the community as it looked soon before the flood, and a map would show where the town was, and where, now, the water is.

IMMERSED REMAINS:
TOWNS SUBMERGED IN AMERICA
The Exhibit

Elbowoods, North Dakota; Kennett, California; Enfield, Massachusetts; Neversink, New York; Butler, Tennessee; St. Thomas, Nevada. Each of these towns represents a different element of America's development. Yet they all share the same fate: they, and hundreds of other communities like them, were vacated, demolished and flooded to make way for dams and reservoirs. Their remnants persist, preserved underwater, and sometimes emerge, as reminders of what was not allowed to be.

Elbowoods, North Dakota, is seen for the last time in this image, one of a series of photographs taken as the floodwaters of newly formed Lake Sakakawea approach the center of the evacuated town.

Elbowoods, ND - The Flooded Plain

Elbowoods was one of several Native American towns along the Missouri River which were permanently flooded following the completion of the Garrison Dam in North Dakota in 1953. The town was established in 1891, to be the local Indian headquarters for the region's Hidatsa, Mandan, and Arikara tribes. By the 1950's, many of the natives in town had become Christians, and operated the gas stations, stores, post office, and other businesses typical of a rural town of a few hundred people, as well as the reservation's main school and hospital, also located at Elbowoods. The reservoir that formed behind the Army Corps of Engineers' Garrison Dam was named after Sacajawea, the legendary Shoshone Indian woman who guided Lewis and Clark through the mountains of Montana. 200 mile long Lake Sakakawea, the third largest reservoir in the country, flooded a quarter of the Fort Berthold Indian Reservation, forcing the relocation of 325 families, nearly 80% of the population on the reservation at that time. Many moved to a newly established community called New Town, where now 1,500 members of the Three Affiliated Tribes live a modern life with a large casino.

Lake Shasta rises to flood downtown Kennett, California.

Photo by P. E. Norine, January 8, 1944, courtesy of the Bureau of Reclamation

Kennett, CA - Boomtown Sunk

Though the old mining town of Kennett was a faded relic of its boomtown self by the time it was flooded by Lake Shasta in 1944, it was still home to a hundred people. Like other "gold rush" towns in northern California, it was established for mining and prospecting in the region
in the 1850s, though it wasn’t until a railroad camp was built in 1883, with over a thousand Chinese laborers, that the population began to rise substantially. Gold was discovered nearby the next year, and a post office came in 1886. The largest copper smelter on the west coast opened in 1905, and by 1911, 3,000 people lived in town. The hills around the town were exfoliated and denuded by the acid fumes from the smelter, and farmers in the valley 15 miles away began a suit against the company that operated the smelter, for destruction of their crops. The mines closed after the end of WWI, the smelter soon followed, and Kennett’s population fell over the next two decades. The town now rests beneath 400 feet of water, along with many of the region’s smelters, paint factories, and mines, and their surrounding despoiled soils.

Neversink, NY - Gotham’s Thirsty Reach
Neversink (whose fateful name is said to be derived from the Indian word “ne-wa-sink,” meaning “continuously flowing”) was the larger of two communities that were removed from the reservoir site in 1942. The other town was called Bittersweet. A total of 340 people were evicted from the valley and 6,149 acres condemned. Some buildings were relocated to nearby towns, though most were bulldozed and burned in a “final harvest.” Trees were removed, cellars were filled in, privies disinfected, and even barnyard manure was said to have been dug up, to maintain New York City’s reputation for having the finest quality drinking water possible. The Neversink Reservoir began to flood the land on June 4, 1953, and took two years to fill.

Butler, TN - The Deep South
Butler was the largest single community, and the only incorporated town, removed by the Tennessee Valley Authority (TVA) throughout that entire massive, depression-era public works project to modernize and electrify the rural parts of seven southeastern United States. Butler was the commercial center for the Watauga Valley, in eastern Tennessee, and the only real town in the region, with a population of around 600. It was a typical southern town, with two barbershops, two beauty parlors, markets, the Blue Bird Cafe, hardware store, drug store, a few service stations, a few hotels, three churches, a rail station, Masonic lodge, a brick City Hall, bank, and doctors and dentists offices. Located in the forested hills of Appalachia, local industries were mostly wood related, and included a lumber company, a crating company, a furniture company, and a casket company. In 1948, when the floodgates were closed, the Watauga Dam and Reservoir began flooding 458 square miles along the Watauga River. 735 families had been displaced. Around 175 build-
IMMERSED continued

ings, including shops, barns, churches and homes, were moved to higher ground, to a new town site named New Butler. Most buildings were demolished on site, and 1,200 bodies were moved from the graveyards. Some families opted to leave the graves of their ancestors undisturbed, so they are still there, along with a reported slave graveyard that TVA crews never found. When “Old Butler” was exposed in the 1983 drawdown conducted to service the dam, Don Stout’s shoe store, made of stone, and the one room jail house, made of concrete, stood out from the other foundations and building pads along the muddy streets, still lined with trees, long dead but preserved by the water.

St. Thomas, Nevada - Draught and Drought

Like most of the early settlements in the desert southwest, St. Thomas was established in an area of available water, in this case the comparatively lush Moapa Valley, fifty miles northeast of where Las Vegas is now. The town started as a Mormon outpost in 1865, and was later part of a chain of agricultural communities in the valley following the Muddy River, including Moapa, Logandale, and Overton, that were otherwise surrounded by arid desert. St. Thomas had a peak population of around 500 people, and for a while was known for producing cantaloupes and asparagus. A railway spur served the valley, and US 91, the main highway to Los Angeles before Interstate 15, went through town, making it a stop for motorists. In 1938, however, as Lake Mead crept northward, filling in behind the Boulder Dam, St. Thomas, located at a lower elevation at the southern end of the valley, was flooded. At the moment, due to regional drought conditions, portions of forty buildings are visible at the exposed remains of St. Thomas, including the old school and the Hannig Ice Cream parlor. Also visible is the foundation of the Gentry Hotel, where former president Herbert Hoover stayed in 1932, while inspecting the nearby construction project he had helped to create. The Boulder Dam, which flooded the town, was later renamed in his honor.

UNUSUAL REAL ESTATE LISTING # 2465

ANGEL’S LADIES BROTHEL, BEATTY, NEVADA

The 77 year old owner of the Angel’s Ladies Brothel is retiring, and is listing his property as follows:

The following are all for sale as part of this package:
- The brothel, which has been operating for decades in the same location.
- 48 to 72 acres of land with 452 feet of highway frontage.
- Water rights, which in the desert can be as precious as gold.
- A 66,000 gallon, 84-degree hot mineral water swimming pool, secluded in trees.
- Complete privacy. A place for relaxation and pleasure, in the nude or with clothing—your choice. For truck drivers and people in today’s stressed society.
- A small orchard and a vegetable garden started back in the early 1900s by an old farmer who grew vegetables for miners. The present owner has grown all kinds of vegetables, including watermelons, cantaloupes, honeydew melons, squashes, peppers, potatoes, carrots, onions, corn and tomatoes.

Other listed features include:
Clear, blue skies, surrounded by rolling hills, no traffic jams, lots of fresh clean air. There is pasture land with a stream running through it, for horses that some of our Ladies have stabled here. Very few neighbors, except for across the highway and surrounding us is all BLM government land and a few miles over the hills is Death Valley National Park. Wild burros have access to all the open range in this area, at night the burros come down from the hills and they can get very vocal as they wander around the buildings, but they are harmless.

The brothel has a graded dirt runway, and a crashed Beechcraft airplane sits at the entrance as a landmark on Highway 95.

The package price for 48 acres, the water rights, and the brothel is $1,800,000 on terms, or $2,500,000 for all 72 acres. Considerably less if paying cash.

Call the owner, Mack Moore, at (702) 395-0926.
DUTCH CRATER ON HOLD
POLDER BOMBING SUSPENDED

A project to develop a bombing crater in the Dutch landscape is currently on hold, though it may be stalled indefinitely. “We’re not really worried about it. It’ll happen or it won’t,” said CLUI European Projects Manager Erik Knutzen, “either way it’s a win-win situation for everyone.”

The project started a few years ago, when the Center was contacted by a Dutch art organization, one that has commissioned some major contemporary earthworks in the past, and asked to develop possibilities for its regional landscape. A committee to consider the proposal was formed, and the crater concept was finally supported by the majority.

The proposal the CLUI submitted to the organization in Holland involved the creation of a 10-20 meter wide crater, formed by an act of aerial bombing. It was suggested that a flat, open, undeveloped, grassy region be selected, and an area of approximately 100 meters by 100 meters designated as a target area for the project. The project would have two phases: first the creation of the target zone, then the formation of the landform.

The proposal was favorably considered by the Dutch, and a representative of the Center was dispatched to Holland to meet with the organization’s directors, deliver a presentation about the project, and to tour possible locations for the project to occur.

At the various meetings, all seemed to go well. The project, once properly explained, was received with enthusiasm. A group set out to survey the region, scouting possible sites. Several possibilities presented themselves, including, surprisingly, some developed areas that could be evacuated, as well as uninhabited farmland.

The Center would have to subcontract out the creation of an authored "earthwork," as an institution that deals with interpretation and documentation the Center could explore the notion of creating a documentary form on the ground that could be viewed and considered by the public.

In order to form a budget and a timeline, research was begun on procuring a bomb of an appropriate magnitude (in order to create a crater of the desired size), and arranging different delivery scenarios. Contacts at a NATO practice range on the coast were sought, and aircraft charter opportunities pursued. The project seemed to be developing smoothly.

Months after the visit to Holland, a letter came with apologies. The project, as well as all other projects planned by the organization, would have to cease, as the organization’s funding from the state had fallen through, due to general cutbacks for cultural programming across the board.

While some at the CLUI suggested that alternate funding sources could be sought from within the United States, it was decided to let the matter stand, for now. “We’re not going to do it if they don’t want us to,” said Knutzen, “they have to want it to happen. That’s part of the point.”

CLUI LAND USE DATABASE UPGRADES
NEW INTERACTIVE MAPPING GOES GOOGLE

The CLUI has recently upgraded the system that operates the Land Use Database, the core element of the Center’s resources, and the repository for information about the built landscape of America. The database is now housed in a new server, automatically backed up by a RAID system and duplicated on an off-site server in the Bay Area. This redundancy was essential, and a great relief given the ephemerality of electronic media.

Ryan McKinley, who developed the new database system for in house use also developed the new online interface, which includes new features such as a list that shows users what other users have been looking at. His upgrades have also enabled the content of the publicly available portion of the database to be visible to search engines like Google, dramatically increasing the number of visitors to the Center’s online resources.

One unintended and sometimes amusing result has been an increase in confused inquiries. Certain word combinations, like “walmart” and “headquarters” are scarce enough on the web that we get a lot of messages, even on the phone, from people who don’t seem to read very carefully. They think they have gotten to the home office, and complain about the disappearance of their favorite catfood, poor service, and things like that.

McKinley has also been working on the online mapping portion of the Land Use Database, which now uses the nationwide scalable map and satellite coverage provided by Google’s new mapping service.
In this in-depth overview of waste, landscape architect and historian Mira Engler works her way from the domestic to the societal landscapes of discarded material, and includes the creative interpretations of waste among the essential elements in bringing waste back into the circuit of consumption. Another very nice book done with the help of our friends at the Center for American Places.

Covers the 900 year history of gunpowder, from its early use in China in fireworks (the Chinese used it in bombs and other weaponry early on too) to its transition into the staple for all wars fought until the 20th Century, then back to just fireworks, when other things came along to replace it.

A good basic and comprehensive description of the evolution of mobile heavy machinery, written by an industry insider, a retired caterpillar marketing executive. An interesting reflection of the changes society made to machines, and machines to society. They worked together, both the chicken and the egg.

Low altitude color aerial photographs on one side of the spread, and a paragraph or two of text on the other, with each spread describing a word or phrase from developer/critical parlance. A bit arbitrary, and covering more than just “sprawl,” its a field guide in style and name, mostly. But its a nice idea to illustrate with examples concepts like “edge nodes,” “leapfrog,” “LULU,” “privatopia.”

Organization Space: Landscapes, Highways, and Houses in America, Keller Easterling, MIT Press, 1999
A look at some of the modernist systems that cover a lot of ground, like interests and subdivisions, and some of the “systemicists” who conceived of them, like Norman Bel Geddes (highways), the TVA, and, most notably, Benton MacKay, who was a fascinating visionary of the American whole. Easterling dredges up some revolutionary notions from his archives at Dartmouth.

Changing Mines in America, Peter Goin and C. Elizabeth Raymond, Center for American Places, 2004
The book covers eight major mining areas in the USA: the Mesabi Iron Range in Minnesota; the Wyoming Valley in Pennsylvania; Kames County, Texas’ uranium mines; the radon health mines of Montana; Bingham Pit in Utah; Rawhide Nevada; Eagle Mountain, California; and American Flat, Nevada. Each region is a chapter, with an instructive essay about its history and present state, historical images, and Goin’s contemporary views. “Reality,” at its finest.

A nice description of historic American mining technology, designed to help readers understand what they might find at old abandoned mines in the West. By the author of Blown to Bits in the Mine: A History of Mining and Explosives in the West.

Mining Camps Speak: A New Way to Explore the Ghost Towns of the American West, Beth and Bill Sagstetter, Benchmark Publishing of Colorado, 1998
A “hands on” guide to explaining what you might encounter at an old mining site, from understanding how boilers worked, to reading old cans. Has lots of images and photographs, which make it especially handy, including images of common objects as they appeared in mail order catalogs of the time, and lots of on site photos of debris.

Trailer Trash: The World of Trailers and Mobile Homes in the Southwest, Bob Moore, Route 66 Magazine Publishing, 2004
For about a hundred pages, this picture book shows the original ad for a particular model trailer (mostly large-ish but towable versions from the 1940s to the 1960s), coupled with a photograph of an actual specimen of the model, usually abandoned and/or battered, taken in the field by the author. This technique implies, without depicting, the life of use of the trailers, as if it were some kind of elusive truth. The best trailer book yet, and without a drop of pretension.

Airdrop, Jennifer Gabrys, Book Works, 2004
A beautiful little booklet about dropping things from the sky onto the ground by longtime CLUI associate Jennifer Gabrys. Published in the United Kingdom by Book Works.

A swashbuckling investigative journalistic account of tales of the current international sea trade, fishing industry, shipwrecks, piracy, and such.

Nice to see a full-length book version of veteran travel writer and photographer Richard Menzies’ stories and images from his meetings with characters across Nevada and Utah, from Melvin Dummar, to Robert Golka. Menzies mounted an exhibit of this work at the CLUI in Wendover in 1999.

Superlatives USA: The Largest, Smallest, Longest, Shortest, and Wackiest Sites in America, Melissa L. Jones, Capital Books, 2005
This is no Guinness Book, its just another way to slice the plethora of Americanorama out there. But a few new things find their way into the roadside canon with every new publication of this sort, as things are always changing out there.

Just what the title says it is. This is a practical book covering 75 historic ranger and guard stations out through the western forestsland. Most are little log cabins in the woods, often built by the rangers themselves in the early 1900s, and some are large complexes, built during the WPA years. But its an interesting way of thinking about the Forest Service, as it established itself, like a sort of pioneer of federal bureaucracy, expressing itself through architecture.

A nicely done look at this network of urban waterways, though as much a history and description of the city, as the waterways. Nearly half the book is devoted to a 70 mile loop around southern Chicago, entirely on the water, from downtown to Lake Michigan, then inland at Calumet and back through a network of lakes and canals, cutting through the industrial core of America’s “Second City.”

With an informative essay by Matthew Gandy, this book of very photographic black and white photographs (thankfully annotated) provides a vivid look at the water supply system for this largest - and most protective of its infrastructure - city. Completed in the months before the twin towers attack, this world is much more hidden now.
CLUI PUBLICATIONS

The Nevada Test Site: A Guide to America’s Nuclear Proving Ground
The only book available that describes in detail the nation’s foremost weapons and R&D field test facility. Praised by both antinuclear activists and Department of Energy officials! 60pp, with fold-out map and over 100 illustrations. $15.00

One Hundred Places in Washington
100 exemplary land use sites in Washington State. From the 1999 exhibition presented at the Center on Contemporary Art in Seattle. 102pp, illustrated. $15.00

Points of Interest in Ohio
35 superlative sites from the Center’s Land Use Database, selected for an exhibit at the Contemporary Arts Center of Cincinnati, Ohio in 2002. bw/white photos. $5.00

The Chesapeake Bay Hydraulic Model
An illustrated history of this remarkable engineering accomplishment, the largest indoor hydraulic model in the world, now abandoned. $5.00

Commonwealth of Technology: Extrapulations on the Contemporary Landscape of Massachusetts
Sites in Massachusetts with an emphasis on the role of technology in the landscape. $7.50

Points of Interest in the Owens River Valley
Dozens of interesting places in the Owens River Valley region, the scenic and compelling back space of California. Illustrated with photographs from the CLUI photo archive. $10.00

Points of Interest in the Great Salt Lake Desert Region
Published in 2004, this book is an updated edition of the 1996 CLUI publication “Around Wendover: An Examination of the Anthropic Landscape of the Great Salt Lake Desert Region.” 40 sites in this remarkable area are examined. $7.50

Antarctic 1: Views Along Antarctica’s First Highway
CD-ROM of the CLUI exhibit, with text by Bill Fox. Includes “clickable map” of McMurdo Station. Works on Mac and PC. $20.00

The Nevada Test Site
An interactive version of the NTS Guide on CD-ROM. Features clickable maps and over 100 color, original CLUI photographs. $20.00

The Nellis Range
A CD-ROM interactive exhibit featuring Nevada’s Nellis Range and AFB and environs. This CLUI exhibit and tour took place in the Fall of 2000. $20.00

Suggested Photo Spot Post Card and Tour Book
Full color book with 20 Suggested Photo Spot post cards, depicting the sites with the Photo Spot sign in the foreground. Also contains directional information to the Photo Spots across the United States. 40pp, color illustrations, spiral bound. $14.95

Back to the Bay: Exploring the Margins of the San Francisco Bay Region
A catalog and guidebook of the 2001 CLUI exhibit, at the Yerba Buena Center for the Arts in San Francisco. 110 pp, illustrated. $15.00

5th Avenue Peninsula Tour
An inexhaustive investigation of urban content. Self-guided tour of a portion of Oakland, California’s industrial waterfront. 24pp, illustrated. $5.00

Points of Interest in the California Desert Region
With Visititation Information
Over 100 interesting places in the California desert. 60pp, illustrated. $7.50

Route 58: A Cross-Section of California
Illustrated tour book to this remarkable, 210-mile roadway. A perfect weekend-long trip from Los Angeles. Revised Edition. 80pp, illustrated. $15.00

Hinterland
Catalog of the 100 sites featured in the 1997 CLUI exhibit: Hinterland: A Voyage into Exurban Southern California. 112 pages. 2004 reprint, bw photos. $7.50

Nuclear Proving Grounds of the World
A report on the primary nuclear test sites across the globe, and the hundreds of other sites where single nuclear blasts took place on, under, and above the earth, in the former USSR, USA, Africa, Australia, Pacific Ocean and elsewhere. 30pp, illustrated. $3.00

Subterranean Renovations: The Unique Architectural Spaces of Show Caves
Examines underground built structures and depicts some of the best tourist cave environments in the United States, with contact and visitation information. From the CLUI exhibit. 58pp, illustrated. $5.00

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www.clui.org
Another large and tardy issue of the newsletter, with apologies both for the length of time between editions, and the length between the first and last words of this one. We take some comfort in the fact that you needn’t read the whole of the newsletter, though you are reading this editorial commentary for some reason, and this is probably the least interesting part. You also can throw it away without reading a word, as no doubt some of you do. We hope however that you do read and enjoy the whole newsletter, and that you pass it along to someone else who you think might be interested. It is a reflection of all that we stand for here at the Center, and we wouldn’t go through the trouble of writing it, printing it, and distributing it if we didn’t feel that the world would benefit from its existence, however presumptuous this may be. Thank you to all of you that support the Center in whatever way you do, and we look forward to hearing from you. If you send us your newsletter, we will do our best to read it thoroughly, and give it the thought that it deserves.

-Lay of the Land Editors