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RICE UNIVERSITY

Beyond the Control of Architecture

by

John L. Kisner, II

A THESIS SUBMITTED
IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS
FOR THE DEGREE
MASTER OF ARCHITECTURE

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Abstract

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New means of interaction in the electronic realm are transforming activities of our society that have traditionally occurred in the spatial realm. Since the development of public space has traditionally been the center of the domain reserved for the practice of architecture, this transfer of activity from the spatial to the electronic can be interpreted as an slipping away of the lifeblood of the profession.

After initially proposing a way for the architectural profession to positively impact the problem of the decline of equality in contemporary culture, the focus of this investigation shifted to the nature of the relationships between architecture and the physical and electronic worlds. The conclusion is that the profession of architecture should not abandon the strength of its empirical knowledge about human needs in the physical world in an uphill effort to compete for control over the new means of interaction in the electronic realm.
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1. Original thesis statement

The following statement, adapted in December of 1993 from the first draft written in April of 1993, is the starting point for this thesis:

The profession of architecture has a mute voice in our culture today. In order to stem the depreciation of its value to society, architecture can consciously engage the ongoing discourse in the political arena. Potentially, the value of architecture can be resuscitated by an academic search for methods through which the profession can positively impact problems of the contemporary culture. The relatively non-partisan position of the academy enables political issues to be examined without a conflict between the interests of the profession and the culture.

My strategy is to seek a method for architecture to address the social and political issue of the decline of equality in contemporary culture. Individual status is currently determined primarily by wealth in our culture. The focus of Liberalism is to attempt to lessen the gap between rich and poor in order to establish monetary equality. A new movement, Civic Liberalism, which is outlined in The End of Equality by Mickey Kaus, maintains not only that the strategies of traditional Liberalism are fundamentally in conflict with the basic tenets of capitalism, but also that any governmental attempt at monetary equality will struggle against the tide of larger fiscal forces created by the meritocracy of the emerging global economy. The alternative strategy proposed by Kaus is for the public sphere to shape a culture that emphasizes social equality instead of allowing the private sphere to shape a culture that emphasizes monetary inequality.
This political agenda is the springboard for the thesis. I primarily accept the value structure inherent in Kaus' argument, but I have reservations about his strategy of intervening through a network of governmental institutional programs. Still, at the outset, I am adopting one of his proposed programs, mandatory national service, as the program for my thesis. A critical light upon this optimistic view of the possibilities of state control is maintained by studying the fiction of Thomas Pynchon concurrently with the development of the thesis project.

The proposed program is a mandatory federal civilian service program. It will be coupled with the renewal of a peacetime draft for military service and will conscript all men and women not serving military duty. Length of service will be eight to twelve months according to the nature of specific assignments. Any task that serves the best interest of society and falls through the cracks of the free market economy is eligible to be performed by the national service corps. Anticipated tasks are care for the elderly and disabled, environmental cleanup, disaster relief, and infrastructure construction.

The intent of this program is to provide an environment devoid of the class stratifications into which individuals would naturally fall. Such a situation was created for men in the mandatory military service of World War II. The important difference is that this conscription is done for constructive civilian programs instead of war. The primary point is to remove individuals from their accustomed economic and geographic positions for a limited period of time, after which they return to their previous situations with the experience of working with others who are different from themselves in many ways. This shift will involve three to four million people annually. Work sites will be spread around the United States. Many, such as infrastructure construction and
environmental cleanup, will move from site to site. Others, such as elderly and disabled care, will operate in established centers.

Organizational structure is a fundamental aspect of the program. The economy of scale made possible by the decentralization of electronic communication should limit the pure volume of necessary bureaucracy. While some level of vision concerning the totality of this federal program is essential, the project will limit its scope to concentrate on how the program is implemented in a single city: Houston, Texas. The intent is that the holistic structure exists in a way that the totality can be extrapolated from one of its pieces.
2. Social equality according to Mickey Kaus

CeCe Rider:

Clothshoring around. Wife of award-winning jewelry designer Barry Kieselstein-Kord, CeCe Kieselstein-Kord is quintessential country. From her early eighteenth-century house in Millbrook, New Jersey, the tall blonde Texan races out across rolling farmland on her favorite midnight rides. Her hacking gear is the finest - from M.J. Knoud, Madison Avenue - and her three horses, Basil, Bob, and Mo, 'are much better dressed than I.' Shown here with her daughter Elisabeth Ann and the pony Snowy, CeCe digs her spurs into good causes too: she's this year's chairman for the New York City Ballet's School of American Ballet Benefit on December 12 ¹

Mickey Kaus, in *The End of Equality*, cites this image and copy from a 1987 issue of *Vanity Fair* as an example of a marketing strategy that had become quite common by the late 1980's. *Vanity Fair* does not target an exclusively wealthy audience; its readership at the time had an average household income of forty six thousand dollars. Despite this fact, many of its advertisements sell products and services that are available only to the very wealthy. The most disturbing aspect of this demographic condition is the attitude toward wealth depicted in the advertisements. While implying a desire for emulation, the attitude is one of fawning acceptance. Of course there will always be an upper class carrying out affectations of superiority. The issue here is that the rest of society, through the course of the 1980's, demonstrated an increasing admiration for those affectations. Kaus concluded that, "In recent years [the United States of] America has become a more divided place in which the affluent and educated are seen not simply as objects for ordinary human envy, but as somehow a group apart - and in which the affluent and educated feel increasingly comfortable in proclaiming that distinction." ²
The 1950's can be seen as a high point of social equality in this country. Following World War II, perhaps the most socially equalizing and unifying event in United States history, factors such as the GI. Bill indicated that an increasing percentage of the population would be able to share in widespread prosperity. In 1952, the editor and popular author Frederick Lewis Allen declared: "The social distance between the extremes of society is shrinking." This encouraging inclination had been completely reversed by the end of the 1980's.

The current adulation of wealth is compounded by its counterpart; the tendency to look up the social ladder with envy is accompanied by the tendency to look down with derision. There is an implication in our society now that the wealthy are not merely richer, but that they are better people, that they are more polished, more intelligent, more entertaining, cleaner, and better looking. Kaus lists three suspects for the reversal of these trends in the public perception of social equality: money inequality, meritocracy, and the decline of the public sphere. 4

The first suspect, money inequality, is a factor that worsens the problems of social inequality, but is not the primary problem. There is no doubt that monetary inequality is increasing; the debate is over the source and the extent. Likely sources are a growing gap between the pay rates for skilled and unskilled labor, an increasing prevalence of two-income households, and assortative mating, an example of which is the tendency of professionals to marry other professionals rather than office workers. Nevertheless, it is not the actual disparity of monetary equality that is important. Instead, the popular perception of the income equality trend seems to have a greater effect on a collective attitude. In Fear of Falling, Barbara Ehrenreich states:
The extremes of wealth and poverty moved farther apart and, as if stretched beyond the limit of safety, the ground in the middle began to tremble and crack. . . . Anxiety breeds a hypertrophied status consciousness, in which Americans try to reassure themselves of their position by acquiring and consuming in ways that validate their superiority, usually by buying things that attest to their good taste. (I have a cuisinart, so I'm OK.)

Monetary inequality is a contributing factor because status is uncertain in any mobile capitalist society, and anxiety that inevitably arises over status is heightened when the gaps in levels of status grow. Still, monetary inequality only reached problematic levels in the late 1960's when social inequality had already begun its decline.

The second suspect, meritocracy, results not from the number and extent of the wealthy, but from methods through which wealth is attained. Robert Reich sites global economic forces increasing the value of United States skilled labor and decreasing the value of United States unskilled labor. This translates into an arena where greater pay directly follows greater education in informational skills. James Fallows analyzes professional sports as a model of a true meritocracy where salary is determined by demonstrated performance. These factors merge to create what Kaus refers to as the fairness trap: "The more the economy's implicit judgments are seen as being fair and based on true 'merit', the more the losers will tend to feel like they deserved to lose, the easier it will be to equate economic success with individual worth, and the greater the threat to social equality." Meritocracy is a factor with definite impact upon the interest of social equality, yet it is an issue that lies well outside the sphere of architectural or even governmental control.

The final suspect, the decline of the public sphere, is the area where architecture, working through the avenue of governmental intervention, may be
able to impact the issue of social equality. Equalizing elements of the public sphere that have been in decline are the military draft, public school systems, and the realm of public spaces. The draft has been transformed from the egalitarian demographics of World War II, with seventy percent of able-bodied males between the ages of eighteen and thirty eight serving by the end of the war, to the class separation of Vietnam, with the college qualification test that was commonly referred to as "score high or die."\(^{10}\) The loss of a mandatory draft effectively disqualifies military service as a class-mixing institution. Consequently, the upper class' share of the risk of defending the nation has diminished considerably.\(^ {11}\) Public schools remain as an equalizing institution in some rural areas and small cities, but the process of suburbanization has produced a spatial segregation by class that often precludes their ability to serve such a function in large cities. The prevalence of private and religious schools, together with political efforts to give tax credits to families paying for education through private schools, is beginning to change the educational system into something that compounds rather than hinders the tendencies toward social stratification. The loss of a realm of public spaces is evident in the proliferation of automobile-oriented urban fabric, deed-restricted "communities", and the steady migration of entertainment venues from the public realm to the suburban living room. The perception of the increasingly vacated public sphere as being dangerous has led to the propagation of walled enclave neighborhoods and the continued movement of previously public activities into the private commercial realm, a tendency evidenced by suburban shopping malls, private health clubs, and pay-per-use playgrounds.\(^ {12}\)
3. The National Service Corps program

In an attempt to execute the intentions of the original thesis, the following outline was established:

Existing conditions
1. Increasing irrelevance of the architectural profession to problems of the contemporary culture.
2. Declining sense of equality (innate value of the individual) in contemporary society.
3. Impending establishment of comprehensive telecommunications system as critical crossroads in the struggle to assert a public realm.
4. Ongoing debate of the role of government and the degree to which it penetrates the lives of individuals.

Strategies
1. Increase value of the architectural profession to society by contributing research toward the mitigation of a significant societal problem.
2. Investigate the implementation of a government-imposed social engineering institution to create fissures in barriers of class, ethnicity, and geographic region.
3. Place telecommunications system in public realm, administered by the government for the maintenance of free access rather than allowing it to be exploited by commercial interests in the private sector.
4. Argue for increased governmental activity in the maintenance of the public realm.

Implementation
1. Successful execution of this thesis project.
2. Establish national network to coordinate annual relocation of 3-4 million people in a mandatory National Service Corps program. Tasks will be carried out by groups varied in class, ethnic, and geographic background.

3. One central task of the National Service Corps will be the construction of a national telecommunications system modeled on the existing interstate and federal highway system for automotive transportation.

4. Use proposal of National Service Corps program as platform to elicit discussion about the ramifications of this degree of governmental intrusion into the lives of its citizens.

Note:
Even though the boundaries that separate nation-states may become increasingly blurred by the emerging global society, this thesis is conducted with the society and culture of the United States as its political and social context. Consequently, references to "society" and "culture", unless otherwise specified, refer to that of the United States of America.

The National Service Corps will be visualized through a set of four components that form a stencil through which an image of the whole program may be projected:

Network: telecommunications system for the National Service Corps

Node: single point in National Service Corps network
administrative office, conscription point, or service site

Site 1: fixed service site - home health care center

Site 2: mobile service site - fiber optic cable installation

The network component will be a new step in the field telecommunications systems. A form of international telecommunications, known as the Internet, already exists. During the Cold War, ARPA Net was created by the United States military as a method of linking defense researchers around the country.
As local networks continued to sprout everywhere, and as businesses found it valuable to link their networks with others, a web of networks was gradually built through accretion. In 1986, the National Science Foundation, in order to provide broad access to the five supercomputers it could afford, commissioned a high speed network (NSFNET) which local networks could plug into. In 1991, a bill sponsored by Senator Al Gore, "The High Performance Computing Act", was passed, establishing the interim NREN, or National Research and Education Network, an even higher speed network which subsumed the NSFNET. More recently, commercial interests such as America Online and Compuserve have made access to the Internet available to individuals who pay a monthly charge as low as ten dollars. The Internet now exists throughout the United States and into almost all other nations. It provides one of the most extensive forums for interaction in contemporary society, yet access is still exclusive to members of participating corporate or academic communities and paying customers who own a computer and modem.

This immense grafting together of dissimilar systems was made possible by the establishment of a common set of standards and the development of IP, or Internet Protocol, a system that can easily transfer information among the different computer operating systems on the Internet. With IP, each machine on the Internet can determine the identities of all the others and route information along the shortest possible available path. IP was developed militarily as an experiment in resilient networks that can withstand a catastrophe to any part and route around it. The primary use of IP, however, has been civilian just as the military interest in building an infrastructure to allow rapid deployment of military vehicles yielded the federal interstate highway system.
The National Service Corps network must facilitate the two major annual organizational tasks of the program: the allocation of services to be performed by the National Service Corps and the conscription and assignment of National Service Corps participants.

There are two primary categories of services performed: community service and geographic. Community service centers are allocated by state in proportion to each state's elderly and youth population. Allocation within each state is determined by local governments. These centers generally serve specific neighborhoods or towns and remain in permanent structures from year to year. Examples of community service centers are in-home/walk-in assistance programs for the elderly, disabled, and households with young children. Geographic service units are allocated on a national level according to specific needs. These facilities are related to projects that are temporary in nature and not based upon specific neighborhoods or communities. Geographic units move from site to site as needed. Examples of geographic unit services are environmental cleanup, disaster relief, and infrastructure construction.

Each year, administrative and service centers that serve as network nodes spend the period of August until January allocating and registering the services that will be active for the coming year. Conscription of program participants then takes place on a first come - first choice basis during the period of February until July. At each node, registrants can virtually visit service centers, converse with current participants, and make their choice to serve at any sites retaining vacancies. Registration access from public facilities will begin one month prior to registration from home computers or private facilities.

National Service Corps network nodes will be located according to the following system:
1. Metro areas
   Proportionate to population of 6-17 year old age group.
   One node per 50,000 6-17 year olds.
   25,000 minimum 6-17 year olds per node.
   251 metro areas
   687 nodes

   32 Los Angeles/Long Beach, CA
   27 New York, NY
   22 Chicago, IL
   17 Philadelphia, PA-NJ
   16 Detroit, MI
   13 Houston, TX; Washington, DC-MD-VA
   11 Boston-Lawrence-Salem-Lowell-Brockton, MA; Riverside-San Bernardino, CA
   10 Atlanta, GA; Dallas, TX
   09 St. Louis, MO-IL; Minneapolis-St. Paul, MN; Nassau-Suffolk, NY
   08 San Diego, CA; Anaheim-Santa Ana, CA; Baltimore, MD; Phoenix, AZ
   07 Oakland, CA; Miami-Hialeah, FL; Seattle, WA
   06 Cleveland, OH; Pittsburgh, PA; Newark, NJ; Tampa-St. Petersburg-Clearwater, FL; Denver, CO; Kansas City, MO-KS; Salt Lake City-Ogden, UT; Cincinnati, OH-KY-IN
   05 Sacramento, CA; San Antonio, TX; Milwaukee, WI; Norfolk-Virginia Beach-Newport News, VA; Fort Worth-Arlington, TX; New Orleans, LA; San Jose, CA; Columbus, OH; Indianapolis, IN
   04 Portland, OR; San Francisco, CA; Charlotte-Gastonia-Rock Hill, NC-SC; Bergen-Passaic, NJ; Memphis, TN-AR-MS; Oklahoma City, OK; Orlando, FL; Ft. Lauderdale-Pompano Beach-Hollywood, FL; Nashville, TN; Hartford-New Britain-Middletown-Bristol, CT; Louisville, KY-IN
   03 Rochester, NY; Dayton-Springfield, OH; Birmingham, AL; Monmouth-Ocean, NJ; Jacksonville, FL; Buffalo, NY; Greensboro-Winston Salem-High Point, NC; Middlesex-Somerset-Hunterdon, NJ; Richmond-Petersburg, VA; Fresno, CA; Providence-Pawtucket-Woonsocket, RI; Albany-Schenectady-Troy, NY; Honolulu, HA; El Paso, TX; Grand Rapids, MI; Austin, TX; Tulsa, OK; Bridgeport-Norwalk-Stamford-Danbury, CT; Oxnard-Ventura, CA; New Haven-Waterbury-Meriden, CT; Gary-Hammond, IN
   02 Las Vegas, NV; Omaha, NE-IA; Worcester-Fitchburg-Leominster, MA; Bakersfield, CA; Scranton-Wilkes Barre, PA; Syracuse, NY; West Palm Beach-Boca Raton-Delray Beach, FL; Tucson, AZ; Akron, OH; Toledo, OH; Raleigh-Durham, NC; Allentown-Bethlehem-Easton, PA-NJ;
Greenville-Spartanburg, SC; Tacoma, WA; Baton Rouge, LA; McAllen-Edinburgh-Mission, TX; Knoxville, TN; Wilmington, DE-NJ-MD; Springfield, MA; Stockton, CA; Lake County, IL; Harrisonburg-Lebanon-Carlisle, PA; Little Rock-North Little Rock, AR; Mobile, AL; Charleston, SC; Youngstown-Warren, OH; Albequerque, NM; Wichita, KS; New Bedford-Fall River-Attleboro, MA; Flint, MI; Vallejo-Fairfield-Napa, CA; Jersey City, NJ; Joliet, IL; Columbia, SC; Jackson, MS; Modesto, CA; Saginaw-Bay City-Midland, MI; Augusta, GA-SC; Corpus Christi, TX; Lansing-East Lansing, MI; Chattanooga, TN-GA; Lancaster, PA; Colorado Springs, CO; Aurora-Elgin, IL; Visalia-Tulare-Porterville, CA; Beaumont-Port Arthur, TX; Fort Wayne, IN; York, PA; Canton, OH; Johnson City-Kingsport-Bristol, TN-VA; Provo-Orem, UT; Des Moines, IA; Lakeland-Winter Haven, FL; Shreveport, LA; Brownsville-Harlingen, TX; Spokane, WA; Davenport-Rock Island-Moline, IA; Santa Rosa-Petaluma, CA; Salinas-Seaside-Monterey, CA; Peoria, IL; Pensacola, FL; Melbourne-Titusville-Palm Bay, FL; Portsmouth-Dover-Rochester, NH; Appleton-Oshkosh-Neenah, WI; Orange County, NY; Lexington-Fayette, KY; Manchester-Nashua, NH; Santa Barbara-Santa Maria-Lompoc, CA; Montgomery, AL; Huntington-Ashland, WV-KY-OH; Madison, WI; Reading, PA; Utica-Rome, NY; Hamilton-Middletown, OH; Macon-Warner Robbins, GA; Lorain-Elyria, OH; Rockford, IL; Salem, OR; Fayetteville, NC; Daytona Beach, FL; Trenton, NJ; Erie, PA; Evansville, IN-KY; Eugene-Springfield, OR; Atlantic City, NJ; Vancouver, WA; Killeen-Temple, TX; Savannah, GA; Columbus, GA-AL; Fort Myers-Cape Coral, FL; Anchorage, AK; Binghamton, NY; Charleston, WV; South Bend-Mishawaka, IN; Lafayette, LA; Duluth, MN-WI; Poughkeepsie, NY; Galveston-Texas City, TX; Johnstown, PA; Merced, CA; Boise City, ID; Ann Arbor, MI; Lubbock, TX; Huoma-Thibodeaux, LA; Huntsville, AL; Springfield, MO; New London-Norwich, CT; Yakima, WA; Brazoria, TX; Reno, NV; St. Cloud, MN; Portland, ME; Tallahassee, FL; Niagara Falls, NY; Hickory-Morganton, NC; Biloxi-Gulfport, MS; Santa Cruz, CA Kalamazoo, MI; Green Bay, WI; Bremerton, WA; Amarillo, TX; Fort Pierce, FL; Boulder-Longmont, CO; Lake Charles, LA; Lincoln, NE; Roanoke, VA; Laredo, TX; Waco, TX; Fort Smith, AR-OK; Springfield, IL; Racine, WI; Richland-Kennewick-Pasco, WA; Fort Collins-Loveland, CO; Longview-Marshall, TX; Olympia, WA; Muskegon, MI; Gainesville, FL; Beaver County, PA; Benton Harbor, MI; Elkhart-Goshen, IN; Lima, OH; Sarasota, FL; Ocala, FL; Chico, CA; Cedar Rapids,
IA; Monroe, LA; Topeka, KS; Clarksville-Hopkinsville, TN-KY; Las Cruces, NM; Redding, CA; Tyler, TX; Bradenton, FL; Alexandria, LA; Asheville, NC; Parkersburg-Marietta, WV-OH; Wheeling, WV-OH; Jackson, MI; Waterloo-Cedar Falls, IA; Fargo-Moorhead, ND-MN; Janesville-Beloit, WI; Medford, OR; Odessa, TX; Greeley, CO; Anderson, SC; Battle Creek, MI; Jamestown-Dunkirk, NY; Fort Walton Beach, FL; Dothan, AL; Tuscaloosa, AL; Eau Claire, WI; Bangor, ME; Champaign-Urbana-Rantoul, IL; Vineland-Millville-Bridgeton, NJ; Athens, GA; Joplin, MO; Pascagoula, MS; Decatur, IL; Yuba City, CA; Steubenville-Weirton, OH-WV; Albany, GA

2. State capitals
One node minimum for coordination with local government.
14 capitals (not included as metro areas)
14 nodes

01 Juneau, AK; Dover, DE; Frankfort, KY; Augusta, ME; Annapolis, MD; Jefferson City, MO; Helena, MT; Carson City, NV; Concord, NH; Santa Fe, NM; Bismarck, ND; Pierre, SD; Montpelier, VT; Cheyenne, WY

3. University locations
One node per institution enrolling more than 15,000 students
120 locations
136 nodes

06 New York, NY
04 Chicago, IL
03 Washington, DC
02 Los Angeles, CA; San Francisco, CA; Boston, MA; Cambridge, MA; Philadelphia, PA; Milwaukee, WI
01 Auburn, AL; Tuscaloosa, AL; Fayetteville, AR; Tempe, AZ; Tucson, AZ; Berkeley, CA; Chico, CA; Davis, CA; Fresno, CA; Fullerton, CA; Long Beach, CA; Palo Alto, CA; San Diego, CA; San Luis Obispo, CA; Santa Barbara, CA; Boulder, CO; Fort Collins, CO; Storrs, CT; Newark, DE; Coral Gables, FL; Gainesville, FL; Miami, FL; Tallahassee, FL; Tampa, FL; Athens, GA; Atlanta, GA; Honolulu, HA; Ames, IA; Iowa City, IA; Carbondale, IL; Champaign, IL; DeKalb, IL; Evanston, IL; Normal, IL; Bloomington, IN; Lafayette, IN; Muncie, IN; Terre Haute, IN; Lawrence, KS; Manhattan, KS; Wichita, KS; Bowling Green, KY; Lexington, KY; Baton Rouge, LA; Lafayette, LA; New Orleans, LA; Amherst, MA; Baltimore, MD; College Park, MD; Orono, ME; Ann Arbor, MI; East Lansing, MI;
Kalamazoo, MI; Minneapolis, MN; Columbia, MO; St. Louis, MO; Chapel Hill, NC; Raleigh, NC; Lincoln, NE; Omaha, NE; New Brunswick, NJ; Albuquerque, NM; Las Vegas, NV; Albany, NY; Buffalo, NY; Greenvale, NY; Hempstead, NY; Ithaca, NY; Rochester, NY; Syracuse, NY; Akron, OH; Athens, OH; Bowling Green, OH; Cincinnati, OH; Columbus, OH; Kent, OH; Oxford, OH; Toledo, OH; Norman, OK; Corvallis, OR; Eugene, OR; Pittsburgh, PA; State College, PA; Kingston, RI; Clemson, SC; Columbia, SC; Knoxville, TN; Memphis, TN; Arlington, TX; Austin, TX; College Station, TX; Denton, TX; El Paso, TX; Houston, TX; Lubbock, TX; University Park, TX; Ogden, UT; Provo, UT; Salt Lake City, UT; Blacksburg, VA; Charlottesville, VA; Norfolk, VA; Richmond, VA; Pullman, WA; Seattle, WA; Madison, WI; Oshkosh, WI; Morgantown, WV

4. Rural locations
   Strategically located to fill in large geographic gaps in network.
   34 locations
   34 nodes

01 Fairbanks, AK; Ketchikan, AK; Nome, AK; Flagstaff, AZ; Springfield, AZ; Yuma, AZ; Eureka, CA; Durango, CO; Grand Junction, CO; HiLo, HA; Kahului, HA; Lihue, HA; Pocatello, ID; Liberal, KS; Oakley, KS; Poplar Bluff, MO; Tupelo, MS; Glasgow, MT; Missoula, MT; Minot, SD; North Platte, NE; Roswell, NM; Ely, NV; Lawton, OK; Bend, OR; Rapid City, SD; Sioux Falls, SD; Abilene, TX; Del Rio, TX; Marathon, TX; Cedar City, UT; Winchester, VA; Rock Springs, WY; Sheridan, WY

871 nodes total
   Individual nodes will register an average of 4-5,000 participants annually.

Like the Internet, there is no hierarchy and no central governing authority.

An intelligent system such as IP is necessary to provide the adaptability that this structure requires.

Each node is a threshold between the concrete physical world that our bodies inhabit and the electronic frontier where our minds can escape our
bodies. Of course, every Macintosh on a desktop or even every book on a shelf is also such a boundary, but the events that affect the existence of this threshold carry a deeper significance of governmental decree and integration into a larger social body.
4. The Zivildienst: civilian service at work in Germany

The Zivildienst, or civilian service, in Germany is a relevant model for national service in the United States. Every man in Germany who does not join either the Zivildienst or the Development Aid organization before his twenty second birthday will automatically be drafted into the Bundeswehr, the military. Twenty months of service in the Zivildienst is the legal alternative to fifteen months of service in the Bundeswehr. The motivation behind the formation of the Zivildienst derives from the responsibility of the state to provide for the welfare of its citizens, an idea that can be traced to Bismarck, as well as from societal organizations such as the Christian Church and medieval guilds with charitable attitudes toward the sick, poor, elderly, and needy children. In 1988 in West Germany, out of 450,000 men to reach conscription age, 230,000 chose the Bundeswehr and 120,000 the Zivildienst. The remainder received exemptions, mostly from physical or mental disabilities. 13

The primary purpose of the Zivildienst is to ensure equity in military conscription. The sponsors for whom work is performed by the Zivildienst are organizations in the private sphere. The tasks must serve the public well-being and are individually evaluated by a government agency. The following are the primary occupations:

- nursing and social welfare 61.4 %
- handicrafts 11.9 %
- ambulance / rescue 9.1 %
- individual care for disabled 6.1 % 14

The occupations are used to strategically fill in the gaps of service left out of a market-driven economy. The following quote from German analyst Jurgen
Kuhlmann describes the usefulness of the Zivildienst as a governmental social program:

Experience has shown that the social functions assumed by conscientious objectors undergoing civilian service would only be performed inadequately or would be eliminated completely if they were based on the rules of competition, even in a social market economy. Wherever the material profit that can be gained remains negligible or cannot be financed by the relevant marginal groups, the obvious, and comparably less expensive solution, is for the state to obtain, by proscription, social work in the form of services for the common well-being.

In the future the Zivildienst will gain new sociopolitical significance primarily for two reasons. First, even more elderly people will require care and old-age assistance due to population trends. Second, the state will be even less able to provide this care because funds provided to the public health and social services will become scarce. It is already evident that the scope of available services cannot adequately satisfy the needs of social welfare work despite the extension of the term of duty. In this connection, voices demanding an obligatory social service for young women could become more demanding. 

This description of the future prospects for the social service system in Germany sounds strikingly similar to discussions concerning the plight of the United States' Social Security and Medicare systems as the baby boomers reach retirement age. Even though the primary purpose of the National Service Corps is as a builder of social equality, the more pragmatic benefits that it offers are also important.
5. The issue of governmental intervention

From the outset, the commitment to use a mandatory federal program was tempered by a persistent doubt about the necessity of governmental coercion. A general lack of confidence in both the intentions and competence of government led to a study of literary fiction containing ideas in sympathy with this attitude. Thus *The Crying of Lot 49* and *V* by Thomas Pynchon and an English translation of *The City Builder* by George Konrad were studied concurrently with the development of the National Service Corps program.

In *The Crying of Lot 49*, Thomas Pynchon presents an extensive underworld that has slipped through the cracks of conventional society. This underworld has developed a postage system by using mailboxes disguised as public waste receptacles. The only indication that these waste receptacles are thresholds into another world are the periods following each letter stenciled on the lid, transforming the usual "WASTE" into "W.A.S.T.E.", which stands for "We await silent Trystero's empire." Pynchon has constructed a complex underground form with historical references going back to the Thurn and Taxis postal monopoly of medieval Europe. He offers a glimpse of the logic behind the need for such a creation:

For here were God knew how many citizens, deliberately choosing not to communicate by U.S. Mail. It was not an act of treason, nor possibly even of defiance. But it was a calculated withdrawal, from the life of the republic, from its machinery. Whatever else was being denied them out of hate, indifference to the power of their vote, loopholes, simple ignorance, this withdrawal was their own, unpublicized, private. Since they could not have withdrawn into a vacuum (could they?), there had to exist the separate, silent, unsuspected world. 16
In *The City Builder*, George Konrad portrays an angst-ridden Hungarian Socialist city planner as his protagonist. The city planner's father was also the city planner for the small city in which he lives. In this sense he lives very literally with the mistakes of his father, a situation that has led him to formulate a dim view of the possibilities of well-intentioned planning:

For many in my generation, this plan-religion which at first was refreshing, and only much later began to make others pay for its shortcomings, has faded into bittersweet memory. We are now experts on world dynamics, messengers of a future derived from a prolongation of the present, but we still keep shifting the weight of decisions from the uninformed onto ourselves, and are not anxious to be confronted with independent, measurable control-machinery. With renunciantary solemnity we rule and allot, even when things proceed more smoothly without us. Were I to surround myself with the magic of omniscience, I would still be a puppet, and not the conductor, of progress. Far too often I confuse the convenience of intervention with the interest of the city. My egalitarian schemes were lame pretexts: we created a modified system of inequalities in place of the older systems. 17

By conducting this study of literary sources, my intention was to keep an awareness of the many pitfalls that must be negotiated in order to overcome the criticism of the coercive quality of the National Service Corps proposal. In the end, I did not avoid these traps and lost confidence in maintaining a vigilant pursuit of the original proposal.

The following are relevant passages from Pynchon:

*The Crying of Lot 49*

Such a captive maiden, having plenty of time to think, soon realizes that her tower, its height and architecture, are like her ego only incidental: that what really keeps her where she is is magic, anonymous and malignant, visited on her from outside and with no reason at all. 18
... to examine this formless magic, to understand how it works, how to measure its field strength, count its lines of force ... 19

San Narciso lay farther south, near L.A. Like many named places in California it was less an identifiable city than a grouping of concepts - census tracts, special-purpose bond issue districts, shopping nuclei, all overlaid with access roads to its own freeway. 20

... a vast sprawl of houses which had grown up all together, like a well-tended crop, from the dull brown earth; and she thought of the time she'd opened a transistor radio to replace a battery and seen her first printed circuit. The ordered swirl of houses and streets, from this high angle, sprang at her now with the same unexpected, astonishing clarity as the circuit card had. Though she knew even less about radios than she did about Southern Californians, there were to both outward patterns a hieroglyphic sense of concealed meaning, of an intent to communicate. There'd seemed no limit to what the printed circuit card could have told her (if she had tried to find out); so in her first minute of San Narciso, a revelation also trembled just past the limit of her understanding. 21

Oedipa wondered whether, at the end of this (if it were supposed to end), she too might not be left with only compiled memories of clues, announcements, intimations, but never the central truth itself, which must somehow each time be too bright for her memory to hold; which must always blaze out, destroying its own image irreversibly, leaving an overexposed blank when the ordinary world came back. 22

Either Trystero did exist, in its own right, or it was being presumed, perhaps fantasied by Oedipa, so hung up and interpenetrated by the dead man's estate. Here in San Francisco, away from the tangible assets of the estate, there might still be the chance of getting the whole thing to go away and disintegrate quietly. She had only to drift tonight, at random, and watch nothing happen, to be convinced it was purely nervous, a little something for her shrink to fix. 23

The city was hers, as, made up and sleeked so with the customary words and images (cosmopolitan, culture, cable cars), it had not been before: she had safe passage tonight to its far blood's branchings, be they capillaries too small for more than peering into, or vessels mashed together in shameless municipal hiccups, out on the skin for all but the tourists to see. Nothing out of the night's could touch her; nothing did. The repetition of symbols was to be enough, without trauma as well to attenuate it or even jar it loose from her memory. **She was meant to remember.** She embraced that possibility as though she might a toy street from a high balcony, roller-coaster ride, feeding-time among the beasts in the zoo - any
death wish that can be consummated by some minute gesture. She
touched the edge of its voluptuous field, knowing that it would be
lovely beyond dreams simply to submit to it; that not gravity's pull,
laws of ballistics, feral ravening, promised more delight. She tested
it, shivering: I am meant to remember. Each clue that comes is
supposed to have its own clarity, its fine chances for permanence.
But then she wondered if the gemlike "clues" were only some kind of
compensation. To make up for having lost the direct, epileptic Word,
the cry that might abolish the night.  

There was the true continuity, San Narciso had no boundaries. No
one knew yet how to draw them. She had dedicated herself, weeks
ago, to making sense of what Inverarity had left behind, never
suspecting that the legacy was America. 

... by that continuity she might have found the Trystero anywhere in
her republic, through any of a hundred lightly-concealed
entranceways, a hundred alienations, if only she'd looked.

She had heard all about excluded middles; they were bad shit, to be
avoided; and how had it happened here, with the chances once so
good for diversity? For it was like walking among matrices of a great
digital computer, the zeroes and ones twinned above, hanging like
balanced mobiles right and left, ahead, thick, maybe endless.
Behind the hieroglyphic streets would be a transcendent meaning, or
only the earth.

For either there was some Trystero beyond the appearance of the
legacy America, or there was just America and if there was just
America then it seemed the only way she could continue, and
manage to be at all relevant to it, was as an alien, unfurrowed,
assumed full circle into paranoia.

V

Profane was afraid of land or seascapes like this, where nothing else
lived but himself. It seemed he was always walking into one: turn a
corner in the street, open a door to a weatherdeck, and there he'd
be, in alien country.

He thought that all the way up north, along a 500-mile length of
underground cable, there must be earthworms, blind trollfolk,
listening in.

All of which went to support his private thesis that correction - along
all dimensions: social, political, emotional - entails retreat to a
diametric opposite rather than any reasonable search for a golden mean. 31

So Esther's nose. Identical with an idea of nasal beauty established by movies, advertisements, magazine illustrations. Cultural harmony, Schoenmaker called it. 32

Perhaps history this century, thought Eigenvalue, is rippled with gathers in its fabric such that if we are situated, as Stencil seemed to be, at the bottom of a fold, it's impossible to determine warp, woof, or pattern anywhere else. By virtue, however, of existing in one gather it is assumed that there are others compartmented off into sinuous cycles each of which come to assume greater importance than the weave itself and destroy any continuity . . ., we are accordingly lost to any sense of continuous tradition. Perhaps if we lived on a crest, things would be different. We could at least see. 33

The first schemes, buildings developed as a local node for the National Service Corps, received criticism for a heroic, even brutalist, language that was most likely inspired by misgivings about the mandatory nature of the program. The proposed massive concrete structure was particularly inappropriate for a program whose physicality was elusive. Consequently, the search for a form with mutable qualities evoking the transience of the program gradually became more important than investigating the details for the implementation of the National Service Corps. The presence of the electronic realm for which this building would be a threshold became the true subject of this project. Initial attempts to reconcile the immutability of a building with the desired malleability of a public cyberspace gateway were not promising. One particularly literal scheme proposed a concrete framework similar to a parking garage with computer stations on wheels wandering around like golf carts or bumper cars. The parking garage framework from the scheme appears in the later diagrams of program allocation (figures 1-9). In a maddeningly ironic twist, efforts to devise schemes for increasingly malleable programs led to
increasingly restrictive forms.
6. The electronic frontier as a threat to architecture

Obviously, the arrival of the electronic realm is an invasion into the public spatial arena that has traditionally been the professional turf of architecture. An extended passage from an article by Michael Sorkin provides a clear description of how the electronic realm poses a threat to public space and, consequently, architecture:

I sincerely believe that we are among the last generations that will enjoy or suffer (depending on your point of view) nonvirtual subjectivity. More, I believe that this divide between an artificial, electronically or chemically conjured reality and that which is more directly apprehended by the senses is the dominant issue that we confront as designers. The postmillennial struggle will surely be about space and autonomy, about the politics of limit to the mind and - more relevantly - the body. If the virtual reality disc jockeys are able to conjure sensations of reality that are either indistinguishable from or better than the quotidian version, it may be time to move along, to chill out, to fire up the CAD and design the fleshy ergonomic toggles to switch the Holo to VR mode.

The site for all this - at least in the near term - is likely to be the seam between virtuality and physicality. A vast discourse of the prosthetics of translation is already arising, yielding a class of objects that bridge between the aspatial, nondimensional world of virtual space and body-bound world of antique reality. These will range from stereoptic laser scanning glasses able to beam virtual images straight into the retina, to a myriad of stimulating implants, to a million shrinking appliances bringing numberless images into our shrinking homes. Already children learn to hold the TV remote before a fork.

A totemic current example of this site is the cash machine, a primitive translation device bridging material and ethereal realms. The existence of these machines is predicated, obviously, on the need for cash, on our condition of not-quite-readiness to relinquish the reliability and palpability of paper notes to a more completely abstracted, electronic relationship to money. Here is also architecture degree, let us say, .001. In its minimal way, the cash machine links this transaction with the electronic beyond to a tiny ordering of actual space.

At one level the cash machine is simply a piece of automation, another displacement of a formerly human interaction by a machine. It colonizes a piece of human territory - the teller-customer transaction - for the mechanical, eliminating a small, sometimes annoying, ritual
from the texture of civil society. However, perhaps more important than
the ritual it removes is the ritual that replaces it.

. . . . Activated by the insertion of a plastic "identity" card into a
slim orifice, the citizen attempts to "log on" to the system. This is a
moment of great tension, the pause as the invisible police test you,
examine your account, decide whether or not to let you have what you
want. It's the primal test of citizenship in the new world order; the only
requirements are a balance and a number.

In many cities certain nonelectronic entities intrude on this
transaction. For security's sake (increasingly architecture and design's
most absolute rationale), cash machines are most often located in
glazed antechambers to bank branches - places, in theory, of
adequate public visibility to deter robberies on the spot. To be
admitted, one sticks one's card into an external slot, the computer runs
a check, and an automatic door buzzes you in. In practice, though, no
card is necessary to get in. At most banks in New York City, homeless
people are stationed at these doors, opening and closing them in
circumvention of the security system, cups in hand, self-designated
door persons.

The scene is in many ways a perfect rendering of the
degeneration of physical space of public activity in the millenial,
postelectronic city. Efficiently, it deploys a compact apparatus of
privilege, ranging from the untouchable at the door, demeaning
himself or herself in the hopes of some trickle-down from those
admitted to the inner circle, to the brahmins secure in their secret
codes and reliable balances. Reaganism made flesh. What they
share, though, is not simply the meanly designed physical
environment of the little cash piazza; all participate in a culture in which
surveillance substitutes for public space.

It is a deep irony of this essentially paranoid condition that the
most enfranchised members of this electronic public are those willing to
submit to the most draconian form of observation. To fully participate in
the electronic city is to have virtually all of one's activities recorded,
correlated, and made available to an enormous invisible government
of shadowy credit agencies, back-office computer banks, and endless
media connections. To exist in the public realm in the electronic system
means to be wired in. The ultimate consequence is that the body, the
person, no longer simply exists in public space but actually becomes it.

As with the cash machine's bridging along the seam between
physical object and immaterial network, the intermediate character of
the present is reflected, again ironically, in the vast increase in mobility
that the global citizenship is currently experiencing. For the moment we
are obsessed with an old, Newtonian vision of mobility. Status among
multinational mental proletarians such as ourselves is calculated in
frequent flier miles. But the global corridor is also a direct physical
analogue to the space of virtuality, a vast territory of diminished
expectations. It is increasingly everywhere the same. And it is also a
condition of intense surveillability. The endless credit card transactions, security checks, car reservations, seat assignments, and special meals speak of a condition in which one's position is constantly fixed. Over a billion people pass through this system annually.

In the end, though, literal mobility matters almost not at all. In a world of exponential population growth, we are constantly receiving (mixed) signals to take up less space. Keep your cigarette smoke out of my eyes, become an anorexic, sit still, and check out what's on channel 902 tonight. Here's the message: I believe we are all at risk of becoming so many Walter Hudsons, well-wired lumps of protoplasm, free to enjoy our virtual pleasures, mind-moving and disembodied, unable to get out of bed. Designers must decide how complicit they wish to be in this. 34

(Walter Hudson, the world's fattest human according to the Guinness Book of World Records, achieved a physical size that prevented him from leaving his bed, so he surrounded his bed with a refrigerator, toilet, telephone, television, and computer.)

Alluquere Roseanne Stone also speaks with concern about the situation in which bodies are becoming the site of political authentication and activity. 35 Since communication in the restricted bandwidth of current online systems takes place almost exclusively within the medium of typed text characters, the body is obviously absent, but replaced by an online persona of many faces. The only face with a direct connection to the physical world is the persona presented to the online service provider such as America online, an employer, or a university. This persona must be connected to a specific credit card number, student ID, or social security number, which then corresponds to a conventional body in the physical world. The other personas are created by the conventional body persona and presented to the occupants of the online community. Qualities of conventional bodies such as gender and age are not vital for online personas, yet they exhibit a strong persistence to exist. Anyone
communicating online chooses whether or not to establish bodily characteristics for personas and is free to determine what such characteristics should be. As a result, there seems to be a remarkable absence of ugly fat old men communicating online.

The environment for online communications so far has been established almost exclusively through metaphors of conventional space and bodies. Ms. Stone writes about the following tendencies documented in her study of online communities:

First: Members of prosthetic virtual communities act as if the community met in a physical public space.

Second: Virtual space is most frequently visualized as Cartesian.

Third: Conferencees act as if the virtual space were inhabited by bodies.

Fourth: Bodies in virtual space have complex erotic components, with a high value on unambiguously identifying the gender of their fellow conferencees. 36

This persistence of conventional concepts of space and body overlapping into the electronic realm is also evident from my following online discussion in July of 1994:

Kisnej: I do like the freedom in creating mental images based on these lines of text
MirandaKey: do tell...
Kisnej: don't you form mental images of the people you communicate with online?
MirandaKey: yes, I do
MirandaKey: I also like to hear descriptions as well
Kisnej: the need for other people to be represented in a body is very persistent
MirandaKey: yes!
Kisnej: this medium could be genderless, but everyone wants to know about age and sex
MirandaKey: but pure cerebral contact is also very nice...
MirandaKey: in fact, it's communication almost solely with words that I find most addictive
Kisnej: it is - and getting away from the body can be very liberating
MirandaKey: yep
MirandaKey: are you a cyber veteran?
Kisnej: we get past so many prejudices
MirandaKey: do we?
Kisnej: no - just a couple of months
Kisnej: some, I think - but many do persist - why else would we use profiles?
MirandaKey: it's a medium based on information... we just want more info
MirandaKey: always more info...
Kisnej: but this seems to be many more smaller streams of info than communicating in the physical world
MirandaKey: I guess... have you met AOLers in the 'real' world?
Kisnej: no
Kisnej: have you?
MirandaKey: how old are you?
MirandaKey: yes, I have
Kisnej: 30
Kisnej: how did they seen in person compared to your earlier images of them?
MirandaKey: it was less a crisis of images...
MirandaKey: and more a crisis of differing styles of communication...
MirandaKey: One's cyber persona can differ quite stridently from one's live persona...
Kisnej: yes
MirandaKey: yes what?
Kisnej: agreeing about your statement of differences
MirandaKey: I KNEW that... just wanted you to elaborate for heaven's sake...
MirandaKey: do you consider yourself primarily left or right brained?
Kisnej: could you say that you had a preference for one kind of persona over the other?
MirandaKey: I actually dated someone I met on here for several weeks...
MirandaKey: but he was far less expressive in person...
MirandaKey: less effusive...
Kisnej: I try to develop both, but I have to work more diligently with the creative side
MirandaKey: and even though our physical chemistry was nice...I sorely missed the person I met on the computer...
Kisnej: would you have been interested in dating him if you had met him first in person (if you can venture a guess)?
MirandaKey: probably not (but I fell very hard for him online)
MirandaKey: interesting scenario, don't you think?
Kisnej: that's where I think you got past a prejudice - got past image
to substance
Kisnej: yes, fascinating
MirandaKey: yeah -- but the most interesting part is that this
'substance' that I was so fond of was not as perceptible in the
flesh... not as accessible!
Kisnej: I wonder why he couldn't express himself in the flesh - did he
lack body confidence?
MirandaKey: yeah, to some extent
MirandaKey: not as confident in general... or focused
Kisnej: that's unfortunate - but this medium must be good for him
MirandaKey: I think it is
Kisnej: I've got to go to bed soon - east coast - but I'd like to keep in
touch
MirandaKey: sounds good... best wishes! 37

It should be noted that, as messages are sent back and forth, a new
message will often arrive while the response to the previous is being typed,
causing a transcript of the conversation to appear disjointed in places. Also,
the term AOLers refers to users of America Online.

As for the progression of the architectural project, the local node for the
National Service Corps network had been sited at the corner of Kelvin and
Dunstan in the Rice Village area of Houston, currently a parking lot next to a
vacant former branch bank. The program for this node is threefold; it serves as
a public Internet access facility, houses a day care center as a task for the
National Service Corps, and houses an elderly care center as a task for the
National Service Corps. The idea is that, in addition to the overlapping of
differing social strata performed by the federal program, the multiple functions
of the local node building will also overlap in their inhabitation of the physical
space of the building.

Three grids of differing sizes are projected across the three floor plates of
the building, one grid corresponding to each of the three program functions.
These nine grids occupy conceptually the same layer of space as the floor plates of the building, with three grids per floor plate. However, when the computer is asked to render a floor plate with any one of the corresponding grid layers activated, the computer has to decide which surface to render, the grid or the floor plate. In each case, some blocks from the grid are rendered and some areas of the floor plate are rendered, in a seemingly arbitrary pattern. The same grid and floor plate combination will always produce the same result, yet the results consistently differ between the different program functions per floor and the different floor of the same program functions. The result of this exercise was nine arbitrary patterns for the allocation of each program function to each floor. (figures 1-9) The arbitrary patterns are useful because the field of space for each floor is inflected into areas occupied by overlapping multiple program functions, individual program functions, and no program functions. (figure 10) Thus areas of overlap are defined in a variety of conditions that are then judged for their compatibility with various relationships between different program elements. After initial study, these planes of patterns were rotated in order to express conditions of the building section rather than the building plan. Basic formal elements for the needs of the three functions were then inserted into appropriate spatial conditions. (figures 11-14) The interior spaces created by this process were investigated at an abstract level. (figures 15-21) Finally, the congested interior arrangement of overlapping functions was developed into a building occupying the corner of the site. A parking lot wraps around the two back sides of the building. Most of the ground floor is an open public lobby, with the specific program functions inhabiting the upper floors. (figures 22-31)
7. Losses and their compensations

I believe that the steady transition of many human activities from the physical realm to the electronic is inevitable; the issue is how each of us chooses to deal with this change. Also, how can the profession of architecture best function in our society in the wake of this change?

The arrival of virtual reality holds many promises and dangers. Fictional visions of a world permeated by virtual reality, such as those of William Gibson or Neal Stephenson, do not forecast a situation preferable to our current one, at least as far as social equality is concerned. So far, the wonders of communication offered by the electronic realm are disappointing at best. Spending a little time browsing a newsgroup or participating in online chat can demonstrate how very many people have very little of interest to say. A statement by Gilles Deleuze illustrates this point well:

Radio and television have spread this spirit everywhere, and we’re riddled with pointless talk, insane amounts of words and images. Stupidity is never blind or mute. So the problem is no longer getting people to express themselves, but providing little gaps of solitude and silence in which they might eventually find something to say. Repressive forces don’t stop people from expressing themselves, but rather, force them to express themselves. 38

The process of sorting through all the noise to find some content is seldom worth the trouble. Undoubtedly, as bandwidth increases to include visual and tactile sensations, the possibilities of electronic communication will improve; but will they ever rival or surpass the conventional reality we already know, and if so, at what cost?
I have spent many hours laboring through the process of building and rendering three-dimensional computer models. Sometimes, after particularly intensive periods of immersion in the dark world of the computer lab, I find myself looking at shadow patterns and thinking that they look almost like a good computer model. In moments like these I realize that we already live in a giant computer, and I wonder why we are putting forth such a tremendous effort to create virtual worlds that parallel the one we already have. Whenever I try to build a high degree of detail into a computer model, I come away from the task with an increased appreciation for the computing power of our physical reality. The time I spend waiting on computers, listening to the sounds of the hamster wheels churning inside, renews my appreciation of a world where everything happens in real time.

A portion of this investigation consisted of the study of two films that portray individuals who have developed neuroses to the point that they can function in social groups only by using the medium of video as a mediator. These films are *Sex, Lies, and Videotape* by Steven Soderbergh and *Family Viewing* by Atom Egoyan. I had captured hundreds of video stills that were meant to be a continuous visual sidebar to the text of this thesis paper, but they were the victims of the second computer catastrophe during the execution of this project. The first computer problem occurred in the middle of my thesis semester. Immediately after receiving my new computer, for which I am still in debt, I copied onto the hard disk from the Rice Advanced Visualization Lab software that I would be using for the production of this project. Unfortunately, I inadvertently copied some of Rice University's network policing software as well, so in the middle of the following night, this software indicated to the Rice network that my computer was a Rice University computer, and the network
cleaned all personal files off of my hard disk according to the policy for storage of personal files outside of user directories. Thus I lost all of my computer work to date, about 95% of my architectural project at that time. I had not been pleased with my work to that point, so I adopted the optimistic view of having a chance to make fresh start. The second catastrophe happened in early April of 1996, about two weeks before the time that I am writing this. Almost finished with this thesis project and nearing the final deadline to turn it in without paying more tuition and going through another oral defense, I had the entire project on a supposedly reliable Syquest disk. One evening the computer crashed, and when I rebooted it, the Syquest cartridge came up as "unreadable." After discovering that the cost of data recovery would range from seven hundred to sixteen hundred dollars, depending on the difficulty, I decided that I would reconstruct this document from the hardcopy text and images stored away in the relative safety of a closet.

Many architects and architectural educators seem to believe that architecture must get involved in the world of virtual reality in order to colonize new territory for a weakening profession. The September 1994 issue of Progressive Architecture, in its coverage of the annual SIG Graph conference, proposed the "disturbing thought that the digital revolution is passing architects by." 39 No matter how enticing the world of virtual reality is to architects, the profession is nowhere close to understanding the skills necessary to jump to the leading edge of the field. It is quite a stretch to imagine the architectural profession catching up with the entertainment industry giants in pioneering the exploration of the virtual world.

The best asset that architects have to aid them in becoming virtual reality innovators is the fact that, so far, virtual reality is being staked out by the same
concepts that govern the physical world. The metaphor of bodies inhabiting space has carried over into virtual reality primarily because it is all that we know. As long as it persists, there is the possibility that architects can use their familiarity with principles of spatial organization to gain an upperhand in groundbreaking proposals for the organization of virtual space. The time in which this possibility is open will likely be short-lived. As people become assimilated to the new virtual environment, the need for the metaphor of bodies inhabiting space may dwindle away to be replaced by new concepts for the mediation of interaction between individuals. Once this happens, the dubious advantage that architects now have will be gone, and architects will have nothing to offset the tremendous resources of the entertainment industry.

In an unpublished paper entitled "Technology and its Compensations," Benjamin Gianni claims that technology, through its offerings of remote communication and easy transportation, has caused the decline of our public physical environment. He further makes the point that a vicious circle is at work; faced with a crumbling and splintered physical environment, it is easier and cheaper to turn to technology rather than architecture to deal with the problem. The architectural solution of fixing the physical environment is costly and time-consuming. The technological solution of staying within a nice bunker, depending more on remote communication, and buying a nicer car, is cheaper and more immediately satisfying for those who can afford it. The architectural solution must be supported by an entire society, whereas the technological one requires just a few wealthy individuals who fix the problem only for themselves. Of course, as more people turn to technology for their personal solutions to this public problem, the public realm is further decimated. 40
Despite the fact that the electronic realm will continue to spread, it is possible that the best hope for the future of architecture lies in the fact that we as humans are ultimately bound to the habitation of our bodies. We could end up as the Borg of Star Trek, bodies in a state of suspended animation, all wired into a single collective consciousness. But our bodies are not well suited to such development; they atrophy when left idle. As we lose more time from the physical world to the virtual, we compensate by using exercise to intensify our time in the physical world. Nothing about the virtual world, from monitors and mice to headsets and gloves, has proven to be body-friendly. If the offerings of the electronic realm do not follow a steep curve of improvement, the bodily harm caused by them may trigger a backlash to the physical.

A more likely scenario, though, is that there will be rapid advances in ergonomics, and that the physical and virtual will become intertwined as new interfaces disappear into our bodies. Here the needs of our bodies will remain an active concern. The profession of architecture has built a mass of empirical knowledge related to providing for the needs of humans living in bodies. The importance of architecture's role in forming public space for social interaction will probably continue to diminish over time, but its role in forming the space of bodily habitation will remain.
Notes


30. Pynchon, *V.*, p. 35.


32. Pynchon, *V.*, p. 103.


Bibliography


Appendix A: Review notes

This transcript is based on notes taken by a friend at the oral defense on September 1, 1994. The following are not quotes, but summaries.

EG: Elysabeth Gamard
SK: Sanford Kwinter
MW: Mark Wamble
JK: John Kisner
RS: Rebecca Sternberg
DW: Dana Weeder

EG: This building is a tapestry. You seem to be pursuing the development of a new kind of space using the computer as an instrument. Perhaps similar in the ways hand drawing systems such as the pen bar system have been used. Someone would learn this building over time. It doesn't employ traditional cues.

JK: [summary of process to create building - role of computer as a generative tool as well as a means of exploration]

EG: [interested in the use of computer to understand new things, but questions effectiveness]

JK: [explanation of difficulty of penetrating and inhabiting model due to clipping methods and shadow casting of form-Z software]

EG: [building transparent to function, like aircraft carrier or rocketship, but not necessarily to human inhabitation]

What drove the deliberation of the spaces?

JK: [description of method of using computer to inflect a neutral field of space and relating programmatic needs to inflected field]

MW: When extruding the plan and section, did you simultaneously extrude both? [sees overlap of plan/section, but needs something to help him understand more]

JK: [explanation of unitary piece - defensible shell for computer use, and how it was dispersed about the building]
EG: Human inhabitation is lost in the mechanics of this design, possibly because of the computer's involvement.

MW: How did you arrive at that decision to freeze those certain planes?

JK: Those planes are just a starting point from which spatial zones are extruded for the purpose of mixing the program. They could have been anywhere, so their location was somewhat arbitrary.

MW: And then the user would select a space of overlapped components that represented his/her needs? It seems that your conception of making a better work environment was to overlap functions and create a diversity of use, where space and hard forms have a malleable quality. Have you abandoned this line?

EG: Often to liberate one's self and architecture from traditional methods means to create a new set of limitations.

MW: The attempt is to approximate how a random field interacts with a fixed field . . . What is closed and open for use?

JK: A random field of movement would be generated on its own by users - the architecture is fixed, but the accommodation of indeterminate use patterns is an attempt to include something beyond my own control in the design.

EG: An attempt at empowering architecture - doesn't express the traditional power relationships. You give a set of clues; you don't dictate.

JK: Each program element would have a variety of relationships to other elements.

EG: But think of mutual funds: the more people are empowered, the more factors are created, the less they can do for themselves, and inertia sets in. Architecture's tradition has been setting up rules and orders, so where does the architect now stand relative to patriarchal institutions?

MW: Do you have data about use, perhaps the frequency of logging onto or traffic on the Internet?

JK: Yes, but very crude and haphazard.

MW: There is no need for accuracy as long as you recognize that the facility is open-ended. However, you can approximate. Be specific in terms, agendas, and goals, but unspecific about use. Architecture is now headed toward a role of handling information and how it can be
incorporated, rather than fifty years ago when it was concerned only with space in the traditional sense. The computer can be used to model information.

JK: I am interested in that and attempted it, but became frustrated with a lack of progress and became worried about completing such a task within the time frame of the thesis.

SK: I'm mesmerized by your screensaver. (an abstract pattern of moving waves interacting with radiating points) How did your rectilinear forms and spaces serve your program better than these screensaver forms? Did you get stuck in orthogonality and compressed into this fine-grained structure? Where is the mutability? Why is this a rigorous rejection of freeform architecture?

JK: Orthogonality can be like pixellation; if the grain is fine enough, then forms and directions other than the orthogonal will emerge. It is not necessarily a rejection, but I was frightened with the prospect of losing a grip of understanding so that I wouldn't be able to make decisions, to understand from the way things are viewed on the computer how they fall in space.

SK: You believe in the hardware, in the electricity moving through the computer in a very structured way. But there is a problem figuring out how to get into the building. The ratio of spaces is too consistent. What this needs is the introduction of a second and third level of order for the spaces.

JK: There was a difficulty in occupying these spaces as they were created on the computer.

SK: You had to let the machine decide. This building is more about the process of design than about having a program. The process got away from program.

RS: It is not fair to blame the computer. There is a question that we may not need public spaces. What about how to use these spaces? What about occupation? How to feel it? Use it? And this promotes use in a time when we are questioning use.

JK: But use was explored, however the building falls short in this respect.
EG: I have seen students working on computer-based theses for ten years now, and it's always the same question: what are the limitations of the machine? What about human habitation and use? The issue of computer use in design is who/what drives this process. When embracing hardware, does architecture become the hardware that we plug into? Mutability, a software of interaction, personality, relationships, is messy. Computers resist this. Why are we using computers to get at these other issues?

DW: Sanford, look at the screensaver.

SK: I'm looking at how each region builds itself.
   (about building) I worry about the hierarchy of spaces and gradations. The building lacks hierarchy; it lacks a metabolism with parts relating to each other. Without hierarchy, the distribution of spaces is dull. Just look at the screensaver that has lots of freeform stuff going on. John, are you driven by software?

DW: But can't rectilinear be freeform?

SK: Yes, but why should computer clusters be rectilinear? Why not more freeform? Freeform can be programmatic, rule-based, and algorhythmic. If a building doesn't have a metabolism, it will be obvious. Its presence will not always be apparent.

EG: These issues are interesting. This thesis has been an incredible process with no resolution and many questions. It frames architecture in a very peculiar way that is pervasive in that any embrace of science and technology becomes cognitive.

MW: Peculiar?

EG: With respect to science and technology. I feel like we don't talk about a lot of things in projects like these - that this thesis is very narrow in its embrace of materials and technology. While something allows for choice, it is very directed.

MW: It is not too narrow or failed, but maybe incomplete.

EG: Where is it in terms of what we do?

MW: At a certain point, a building acquires a finite. Rafael Moneo says that a building reaches its solitude - a point where you've walked away, but the building is not dead - it takes on a life of its own that you can't predict or
map, and the hard evidence of the pursuit falls away. You can approximate, but past means of approximation are not adequate now.

JK: The beginnings were idealistic in the embrace of political policies, etc. The Internet is territorialized in ways that are similar to the physical world, and qualities of liberation may not be there.

SK: Go get metabolic software that physicists use. Don't try to understand it, just move through it like material. Read *Out of Control*, which is different from the manual mind. How has the stuff that you've been reading and doing changed your views?

EG: This is all ironic: adult care and computers, people leaving their bodies, the hypercognitive aspect.

JK: I regret that the issue of the devaluation of the physical world may not have been addressed.

EG: Obliquely, it has.