Terra *Inf*irma: Remediation by Design

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FIELDS

Beneath the ideological clamor of federal politics, a bi-partisan land-use revolution is unfolding at the state and local level. This revolution is two-fold; first, a consortium of 'open space' preservationists has entered the political mainstream, effectively removing millions of acres of agricultural and forest tracts, or *greenfields*, from the real-estate market at metropolitan peripheries.[1] A counterpoint is found in the equally robust (if less glamorous) toxic-site redevelopment initiatives known collectively as *brownfield* remediation. Municipalities that sponsor these programs are projecting land-use patterns that represent a radical departure from Post-War convention. New York State and New Jersey, for example have constructed such legislative pairings, under (ostensibly) divergent political leadership; New York's 2002 *Open Space Conservation Plan* preceded a *Brownfield Remediation and Redevelopment Bill* by one year.[2] In New Jersey, a 1999 *Garden State Preservation Trust Act* was created three years before the *Office of Brownfield Reuse*.[3]

MANDATE

While the long-term implications of this legislation remain unclear, a significant transformation in land-use protocols is imminent. In particular, the sudden efficacy of brownfield remediation profoundly alters the conventional calculus of metropolitan land-use. New forms of practice will emerge, and new types of landscapes. And while designers have been operating critically in post-industrial contexts for decades, a clear mandate for the design professions in the U.S. has yet to fully materialize. This marginalization is due in part to the formative technical and financial complexities of remediation, which have allowed other professions to frame the emerging discourse. With the notable exceptions of Downsview Park, Fresh Kills Lifescape, the design professions have played a supportive, rather than leading role. Without a clear mandate the design professions risk occupying the periphery of this process. The purpose of this essay is to explore potential grounding for such a mandate.

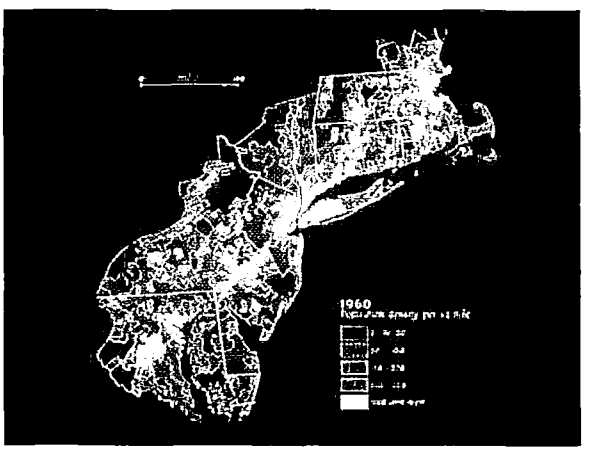

Figure 1. 'Megalopolis' Gottman, J. 1960

This process begins with the establishment of a conceptual framework, within which remediation is posited as a cultural (rather than exclusively technical) problem. Seminal texts on art and landscape by Martin Heidegger and Robert Smithson provide a rhetorical armature for this effort. Following a discourse on the problems of *ruin* and *monument*, the essay will conclude by projecting tactics for remedial design methodologies, which are intended as speculative templates for further discussion.

SHIFTS

To begin, it is useful to locate remediation within the broader narrative of Post-War metropolitan development. That narrative may today be characterized by two paradigm shifts in the geo-spatial and cultural structure of western economies. These shifts are evident in the paired emergence of greenfield conservation and brownfield remediation.

First, the recent ubiquity of greenfield conservation suggests the closing of megalopolitan frontiers and the end of the great dispersals of the Post-War period. The regional conurbations of the Eastern Seaboard have exhausted their potential for low-density, horizontal expansion (*Fig 1*). A new age of increasing densities and re-cycled landscapes has arrived. Second, the recent efficacy of brownfield remediation signals the demise of industrial manufacturing as a potent economic force, a builder of cities and a shaper of landscapes. The steady depletion of this sector in the Post-War Period reached terminal proportions in the 1990's. In 2000, manufacturing jobs accounted for 10% of the American workforce, compared to 33% in 1950. Since 2000, 1.9 million manufacturing jobs have moved to overseas labor markets.[4] These figures reflect the tectonic shift from manufacturing to knowledge sectors that has characterized western economic trends in the Post-War period. The apogee of this trend in the closing decade of the 20th Century reflects the global proliferation of information infrastructures that characterized that period.

Together, these developments herald the first mature steps toward alternate topographic futures for the metropolitan regions of the industrialized world. They may be read as an expression of a new and rapidly changing *ethos* regarding the form and meaning of advanced industrial civilization. In previous periods of epic change, art has served to interpret, reveal and expand the prevailing *ethos*. During the transition from agricultural to industrial societies, for example, art was employed to exacerbate, critique and comprehend momentous change. If such a transition is again underway, then art must be summoned to again serve these essential functions.

TASK

Remedial science has inspired a regime of advanced technologies and procedures. The principal targets of remediation are the primary bio-systems of the particular site; specifically, its soil, water and air. Techniques for soil include vapor-vacuum extraction, chemical oxidation, thermal desorption and 'bio-venting.' For surface and ground water, procedures such as hydro-fracturing and air sparging have been developed to remove or dilute contaminants. For air, bio-filtration and carbon adsorption are employed for the same purpose. In each instance, physical, chemical or thermal operations destroy contaminants, or accelerate their natural biodegradation.[5] As demand for these services increases, we can anticipate rapid advances in these technologies.

The technical intricacies are matched, however, by the larger cognitive or behavioral problems that haunt questions of site recovery. While sites may be rendered habitable according to EPA standards, those of potential inhabitants are substantially more difficult to gauge. Will former chemical manufacturing sites, for example, ever remove their stigma of toxicity? While the Federal Government may deem them safe, potential residents will require assurances that speak to the primordial, all-too-human requirement for shelter. In this sense, remediation is a problem of *dwelling*.

'Dwelling' here is used ontologically; it refers to the existential question of *occupation*, which has both physical and temporal dimensions. To *dwell*, in this sense, is to feel 'at home' in both space and time. To establish such dwelling in hostile surrounds, willful acts of cosmological and terrestrial appropriation are required. Such operations are often embedded in the origins of cultural phenomena, and have served as essential precursors to human settlement for millennia.

Indeed, It has often been posited that culture has its origins in acts of spatial appropriation. *Carol Burns,* for example, associates the origins of culture with the clearing of the land;

> ...the primeval forest was cleared; the clearing of 'eyes', loci, became groves as centers for ritual. These swidden clearings were the fields for the first agricultural

> practices. The place-making rituals and geometry of the clearing were later transferred to foundation rites.[6]

Foundation rituals, consecration rites and their attendant spatial devices were essential tools that served pre-modern, human dwelling. They provided the mytho-poetic grounding for occupations of the land.

In *The Idea of a Town*, Joseph Rykwert posits that technology and mythology were inseparable components of town planning in ancient Rome. On the role of the former Rykwert writes;

> ...technology was more closely connected with the formulation of ritual, with its interference in the natural order, than with scientific thinking.[7]

For the Romans, Rykwert argues, empirical science worked at the service of a larger cultural project; the metaphysical alignments required to establish dwelling from within a vast and indifferent expanse. 'Statistical forecasting,' Rykwert concludes, 'is a schematized form of divination.'[8]

Brownfield remediation operates far from consecration ritual. Nevertheless, these processes share performative objectives; both deploy willful acts of territorial appropriation to wrest footholds for human dwelling from potentially hostile environments. We moderns, in this sense, are also challenged to clear ground, invent myths, raise totems and erect temples to pursue our cultural objectives.

CONFRONTATION

To further explore the appropriative function of art, it is helpful to turn to Heidegger's seminal discussion of aesthetic phenomena in 'The Origin of the Work of Art' (1936). In the essay, Heidegger defines art as that which results from the *confrontation* between two elemental forces;

> The world, in resting upon the earth, strives to surmount it...the earth, however, as sheltering and concealing, tends to draw the world unto itself.[9]

Figure 2. Temple of Poseidon, Paestum 460 B.C.

These words purposely refer to notions that elude rational analysis. Indeed, they are tools that Heidegger employed as part of a comprehensive critique of Enlightenment thought. They may, however, be understood reductively as *nature* and *culture*. Nature, in this sense, draws all acts of human enterprise unto itself, while Culture (manifest as art) strives to overcome this inevitability. In this cosmological schema, the art-work serves to claim territory for human dwelling within the mysterious expanse of a concealing earth. To illustrate, Heidegger offers a Greek temple; (*Fig. 2*)

> A building, a Greek temple, portrays nothing. It simply stands there in the middle of the rock-cleft valley. The building encloses the figure of the god, and in this concealment lets it stand out into the holy precinct through the open portico.[10]

Here the temple serves to set the cultural narratives of its builders against the vast indifference of the landscape beyond. It is in this juxtaposition, or *confrontation*, that the temple illuminates the existential gulf that separates human being from the natural world. This revealing exposes the tragic dimension of the human experience, recalling its pervasive contingency and temporal boundaries. Thus the art-work is a device through which these profound distinctions and difficult truths are enframed. Here the temple transforms the landscape from a 'rock cleft valley' into a 'precinct'. The work thus serves its appropriative function; it is a creative act of orientation and defiance, within and against

the cosmological indifference and contingencies of the natural world.

From Heidegger then, we borrow the notion that the *confrontation* between contingency and artifice is an essential pre-condition of the cultural act.

Remediation, it may therefore be argued, is a mode of artistic endeavor. It too is an act of defiance and appropriation, that posits human ingenuity against the mysterious toxins of post-industrial terrains.

We may also discern in Heidegger the essential role that context plays in the work of art. A context, or *site,* is for Heidegger, an integral part of the work itself.

While this discourse may useful as an introduction, its limitations become apparent when one considers the 'second nature' of the contemporary landscape which is increasingly characterized by the integration of synthetic and organic topographies. This collapse of distinctions calls into question the relevance of Heidegger's dialectic for the contemporary world. Can the essential notion of *confrontation* survive the demise of one of its protagonists? If our world is so thoroughly formed by human effort, against what force may those efforts be measured?

To address these questions, it is useful to consult the writings of Robert Smithson (1938-73), whose investigations of landform served as formative catalysts for contemporary notions of art and landscape.

Smithson's work is infused with a fundamental challenge to the humanist tradition of Western Art that prevails over Heidegger's dialectic. This tradition presupposes the existence of a fundamental distinction between humanity and the natural world. For Smithson this disparity is problematic because it posits an impossible veneer between culture and reality, and thus denies an authentic engagement with being;

> ...there is nothing 'natural' about the museum of Natural History. 'Nature' is simply another 18th and 19th century fiction.[11]

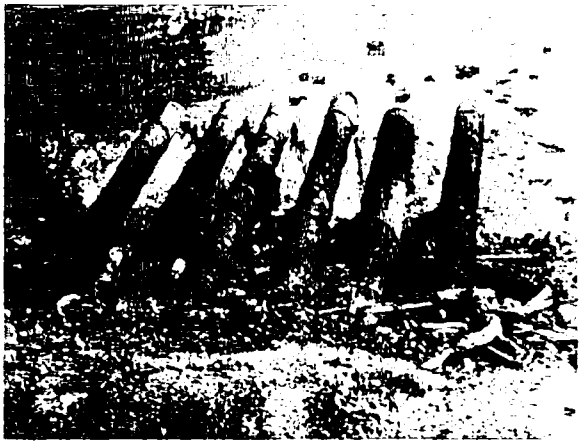

Figure 3. 'The Great Pipe Monument' Smithson, R. 1967

To pursue this challenge to humanism, it is useful to compare Heidegger's temple to Smithson's 'monuments' on the industrial periphery of New York City. (*Fig. 3*) For Heidegger, the temple speaks through its confrontation with the landscape. For Smithson, the distinction between cultural and natural phenomena is profoundly ambiguous. To speak of confrontation is to presume separateness. All matter, Smithson argues, is conjured from a common primordial source, and always appears to be in various stages of returning to it;

> ...It was hard to tell the new highway from the old road; they were both confounded into a unitary chaos...many machines were not working and this caused them to resemble prehistoric creatures trapped in the mud... the houses mirrored themselves into colorlessness.[12]

Here all notions of 'artificial' and 'natural' effectively collapse; highways become a 'unitary chaos', while machines become 'prehistoric creatures' and suburban houses melt into an archaic 'colorlessness'. In Heidegger, the work of art the serves to re-present the conflict between *earth* and *world*; For Smithson; there is only *earth*; All human artifice may be traced to elemental sources within the earth. As such, products of human effort exist in a continuum of perpetual decay, or *entropy*, struggling hopelessly against time to retain their formal identity;

'The tools of technology become a part of the Earth's geology as they sink back into their

original state. Machines like dinosaurs must return to dust or rust.'[13]

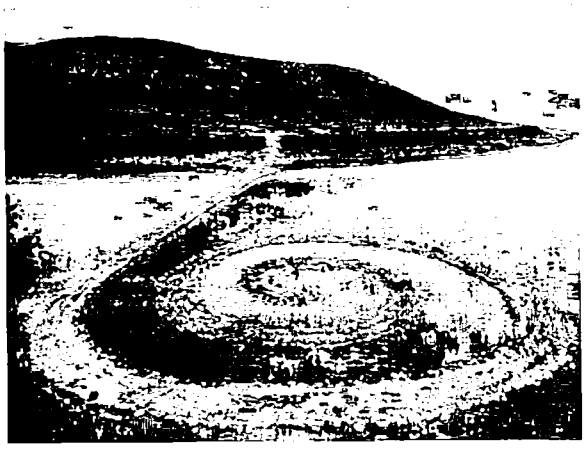

Figure 4. 'Spiral Jetty' Smithson, R. 1970-2

Smithson's most celebrated work, *Spiral Jetty* of 1972, may therefore be read as an analogue to Heidegger's Greek temple. Both an act of culture and nature, it calls into question any attempt to distinguish between them as creative forces. In this regard, Heidegger's *confrontation* has lost all meaning. *(Fig. 4)*

A closer look at Smithson's work, however, suggests that such conclusions are premature. In Smithson's preoccupation with decay, we may discern a vehicle through which Heidegger's *confrontation* may be applied to the synthetic landscape. From Heidegger; the earth '...as sheltering and concealing, tends always to draw the world unto itself.' Smithson's 'extinct machines...trapped in the mud' and tools that 'sink into their original state' are demonstrative of such *drawing* or, in Smithson's terms, *entropy*. Smithson, no less than Heidegger, posits a cosmology wherein the efforts of human culture are drawn inevitably back into a concealing and mysterious *earth*.

What we owe to Smithson then is a more comprehensive view of Heidegger's *confrontation*. *Earth* is re-posited as both synthetic and organic, 'natural' and 'artificial' conditions. In both Smithson and Heidegger we can discern the plenary role of landscape as a spatio-temporal foreground for all cultural production and human effort. In both instances, the concealing force of the *earth* exists as an all-present ground, which is perpetually re-claiming the objects in its midst. This reclaiming is achieved through the medium of *time*, an essential protagonist of both Smithson's and Heidegger's aesthetics. For Smithson, the essential characteristic of *earth* is its *temporality*. Art, for Smithson, is also conflict; conflict with *time*.

These characteristics of Smithson's work are revealed in his geological preoccupations. Works such as *STRATA* (1970) and *Tar Pool and Gravel Pit* (1966) explore the complexities of minerals compounds, fossils and crystalline formations. In confronting human time with geological time, Smithson's art serves the same appropriative function as Heidegger's temple; it confronts the 'tragic' brevity of the human life-span. In experiencing such pieces, our own inevitable demise is fore grounded. As such, a potential space is cleared for human dwelling from within the infinite expanse of planetary time.

To succeed as cultural acts, remedial operations must also operate in *time*. The condition of these sites may be likened to a coma; they are frozen in a particular moment, unable to establish location in the temporal field. This suggests that temporal excavations of brownfield sites, projecting both past and future, will be essential to their rejuvenation.

SITE

For Heidegger and Smithson, the context of the artwork is essential to its meaning. This notion of context may be re-framed as *site*. Invariably, remedial operations are problems of site. It is thus imperative to clarify the meaning of this notion, and the distinguishing characteristics of the *brownfield* as a particular species of it.

As generally understood within the topographic disciplines, the *site* is a legally-defined parcel of the earth's crust for which an intervention or modification is intended. Here the word is employed further to describe two distinct but complimentary entities. First, *site* names a *contained* volume of undifferentiated space that can be empirically quantified. *Site* also refers to a spatial *container*, whose surfaces are composed of multiple layers of cultural and ecological significance. These layers may be phenomenological or conceptual, visible or embedded, implied or present-at-hand.

The first reading of site is topo-centric and layer-less. It borrows from the contentious notion of a 'blind' spatial volume whose physical proportions are given preference over the particular agents of containment. This reading does not distinguish between materials, nor does it register the complexities of cultural or temporal frameworks. Such indifference to the container presumes space to be like water; a shapeless medium that may be bounded, dispersed and described in the manner of a neutral fluid.

In opposition to the neutral *contained* is the layered *container*. An exploration of its characteristics introduces the idea of *locus*, here also understood as *place*. These characteristics are complex, ranging from the undulations of geography or flora, to the particularities of ethnic, linguistic and mytho-poetic contexts. As concepts, 'place' and 'context' elude simple classification; these are phenomena that are bound up with regional identity and the full range of sensory experiences.

Finally, notions of *site* recognize the essential temporality of the physical environment. As unique conditions in both space and time, sites must be understood as layered, historical texts, composite alcoves for untold opportunities and unforeseen configurations. As such, sites are saturated with temporal material. In time, sites become depositories of collective memory and harbors of possibility.

MONUMENT, MEMORY, MERCURY

> The term `brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.[14]

Technically, the distinguishing characteristic of a brownfield site is the presence, or apparent presence, of hazardous materials. How is this presence to be interpreted, relative to the unfolding characterization of *site*? As a *contained* field, a brownfield is different from other sites only in its formal or geometric properties. As a *container*, the brownfield possesses unique characteristics. An assessment of these important distinctions helps point to a strategy for engagement.

The first such characteristic is the concentration of industrial *artifacts*. While most sites contain found objects and archeological tracings, few possess latent *monuments*. By virtue of its former usage, the brownfield often possesses such monuments, often in the form of crumbling infrastructures, abandoned manufacturing facilities or derelict, overgrown terrains. Like the concrete abutments of Smithson's Passaic, such artifacts are rich with aesthetic content. A remedial design methodology must formulate a strategy for engaging such structures.

In what sense may these objects be considered monumental? The distinguishing characteristics of the monument are bound to notions of *scale*. In the sense used here, 'monument' names a physical entity of a scale that is sufficiently vast to recall the human observer to the comparative insignificance of their own being. Monuments thus function as works of art, relative to Heidegger's criteria.

Likewise, an object may be called monumental in direct proportion to its capacity to defy the effects of *entropy*. By definition, a monument exists within a temporal framework that dwarfs the human lifespan. Smithson's 'monuments' on the Passaic were such objects; WPA transportation infrastructures that had acquired the crumbling patina of decay. In their transcendence of human time, these objects have become monumental.

However, this reading fails to address the didactic or edifying function of the monument. The distinction between *monument* and *ruin,* (which is ambiguous in Smithson), identifies a significant task for remedial artists - the appropriation of ruin as monument.

Ruins have been a source of fascination in Western art for centuries. Their emergence in the English landscape park established the Picturesque as a stylistic category in the 18th Century, and their most recent appearance was in the guise of Deconstructivism. Ruins bespeak the concealing nature, and inevitable triumph, of Heidegger's *earth* and Smithson's *entropy*. They advertise the futility of human effort and suggest a diminished position in the cosmological order. Their presence challenges the progressive ethos of the Enlightenment. Like wilderness and gothic interiors, ruins are said to evoke the dread of the *sublime*.

Monuments, by contrast, strive to defy such diminution, to serve as the *anti-ruin*. They are human artifacts that exist to transcend the boundaries of time. In their millennial defiance of the desert, The Great Pyramids of Giza remain the definitive prototypes. This reading posits a challenge to Smithson's terminology. As noted, Smithson problematized distinctions between human and natural phenomenon. The relative absence of the word *ruin* in Smithson is therefore consistent; *ruin* is synonymous with *monument*; both spring from the same source to which both will in time return. Are monument and ruin one and the same? By contrasting conventional monuments with Smithson's version, we gain insight on the distinction; monuments serve as vehicles of cultural continuity, mytho-poetic 'time capsules' that record the prevailing ethos of a particular people, in order that it may endure from one generation to the next. In this sense, monuments are foci of collective memory that may be said to serve an *ethical* function.[15] Ruins have no such responsibilities; in their state of perpetual decay, they celebrate only entropy.

Industrial artifacts may be characterized as latent monuments: they are ruins that may, through strategic design intervention, become monumental. *(Fig. 5)* These objects inadvertently speak to a significant cultural transition; the passing of the Industrial Age. They stand as testaments to the prevailing ethos and legacy of the 20th Century. Their appropriation will simultaneously mark the end of one historical period and the beginning of another. In their formal re-configuration, brownfield monuments must speak to this essential dualism. They must become sepulcher and divining rod, crypt and cradle, marking a significant temporal threshold.

Remedial art must formulate strategies for transubstantiation. Ruins must be reconfigured as monuments. Such efforts may be likened to both *requiem* and *consecration*; the former, as a funerary rite, marks the passing of entities from this world into the next. The latter, as a clearing or purification, claims territory for new constructions.

Likewise, the bounding surfaces of the brownfield are potentially hostile, latent with danger in the form of toxins. Such dangers are concealed in the earth; a design strategy that seeks to expose *topography* as a method of *revealing* must therefore be tested. In this regard, the *section*, as a tool of engagement with the primary horizontal surface, becomes an essential device for the appropriative designer. Toxic layers (or their representative facsimile) might be 'unearthed' or otherwise incorporated into public domains. Specific locales of site reclamation could function in the manner of 'swidden clearings' of mythological origin; as loci for gathering and ritual. Such loci must be carved from the surface of the earth, and given compositional prominence. In this manner, they gain potential as forums for public life and vehicles of edification.

PROGRAM

These speculations lead to programmatic strategies for remedial terrains. Programming these surfaces may constitute the preeminent design task, as it forces remediators to concretize abstractions into economic particulars. Determining program requires the re-articulation of remedial objectives; who and what is to occupy these sites?

Dwelling, as understood here, is invariably a problem of *community*. While this term currently operates at multiple scales and in varying strata of the virtual and physical domain, it is used here in its conventional sense; a community names a group of individuals who share a framework of common interests and a matrix of physical spaces.

Figure 5. *Untitled*, Ruhr Valley - Becher, B & H . 1971

If brownfield sites are to be made habitable in the long term, they must become capable of

appropriation by communities. In instances such as the north Brooklyn Waterfront, brownfields are incorporated into the fabric and periphery of existing communities. Often these sites are bound up with the origin of the community itself; employment generated at waterfront manufacturing complexes drew the community into being. As industry has vacated, these sites have become daunting, hallow presences; they are no longer sources of sustenance, and the poisons (real or imagined) in their soil and groundwater are assumed to be a silent and proliferating threat.

Properly programmed, such sites may once again become foci for communal activity and economic self-sufficiency. While housing, commercial and retail programs emerge as natural candidates for remediated sites, the public components will be the critical elements that allow the rest to accrue. In absence of re-claimed public domain, the brownfield will remain inhospitable, mysterious, enigmatic, and unprofitable. What is the appropriate program for such a civic gesture? If the distinguishing characteristic of the site is its *toxicity*, a space that demonstrates the absence would serve to celebrate its rehabilitation. A public garden or park space, that reveals the ecological vigor of the site, would thus serve both a bio-remedial and ethical function. The garden thus becomes a spatial and temporal expression of the hopes and fears of a community, a heterotopian clearing that gauges the health of the site through time.

In concert with this garden, a series of strategic excavations could be devoted to revealing remedial procedures. While such spaces may be alcoves within a larger field, they would each be identified with specific remedial procedures. They might also become associated with particularly toxic locales on the site - likely home to industrial artifacts - that could be transformed into remedial 'pavilions', each devoted to singular procedures or technologies.

Finally, the pre-eminent 'monuments' on the site could be appropriated for civic structures or commercial uses; library, museum, school. Economic performance might be enhanced through the transformation of industrial facilities into commercial office space or luxury condominium complexes. Likewise, a cooperative legal structure that leverages the value of high-end residential units, could ensure a steady revenue stream for community expenditures. Lighter and cleaner manufacturing or recycling venues could also be interspersed to provide for low-skilled employment opportunities.

ROLE

The transition from industrial to knowledge economies has radical implications for the cultural and physical geography of metropolitan regions. If the design professions are to participate substantively in this historic transition, the problem must be re-framed as a question of culture and ontology, a question of *dwelling*. Understood in this sense, remedial problems demand leadership roles from the design disciplines.

NOTES

[1] The Nature Conservancy 'About Us', 2005

[2] New York State Department of Environmental Conservation (NYSDEC)

[3] New Jersey Department of Environmental Protection (NJDEP)

[4] *Barbara Hagenbaugh*. USA TODAY. McLean, Va.: Dec 13, 2002. pg. B.01

[5] Federal Remediation Technology Roundtable (FRTR)

[6] Carol Burns, "On Site," in Andrea Kahn, ed., *Drawing / Building / Text* 1991

[7] Rykwert, Joseph *The Idea of a Town* The Mit Press. 20 July, 1988. p. 32

[8] Rykwert, p. 32

[9] *Martin Heidegger: Basic Writings*, David Farrell Krell, ed., New York: Harper & Row, p.132 1977

[10] Krell p. 134

[11] Flam, Jack *Introduction: Reading Robert Smithson / Flam, Jack, ed. Robert Smithson: The Collected Writings. Berkeley, 1996* p. xiii

[12] Smithson, Robert *A Tour of the Monuments of Passaic, New Jersey 1967 (Flam p.71)*

[13] Smithson, Robert *A Sedimentation of the Mind: Earth Projects 1968 (Flam p. 101)*

[14] Environmental Protection Agency (EPA)

[15] Harries, Karsten *The Ethical Function of Architecture* The MIT Press 03 July, 1998