Poiesis to Prosthesis
The ubiquity, scale and complexity of technology increased in the latter part of the 20th century, allowing for unprecedented urban growth in North America. We are enmeshed in a techno-metro-globalism where technology is focused on functional immediacy that defeats natural indices of distance (geographic or anthropomorphic measure) and time (temporality). What appear to us are merely the intentional conditions and products of this culture; the vast array of transactions, processes and transformations necessary to produce these conditions are built on opacity to their presence, and interrelatedness to yet other unseen technologies. The ramifications of this web of technorelations produce unintended realities, as the analytic apparatus of impact and mitigation has never caught up to these constructs.

Heidegger noted technology as problematic across his philosophic career. He held initially the danger of technology was in aiding mankind to dominate, as if mankind were a subject in control and the objectification of everything were the problem. In 1940 he said: 'Man is what lies at the bottom of all beings; and that is, in modern terms, at the bottom of all objectification and representability'. (1) Following the devastation of World War II in Europe and aware of the atomic capabilities then appearing, he saw that the nature of technology was not limited to the need for reductive objectification; it was technology as thing-like itself, not dependent on subject's understanding or use of objects. In 1946 he concluded that exploitation and control are not the subject's doing; 'that man becomes the subject and the world the object, is a consequence of technology's nature establishing itself, and not the other way around.' (2) In his 1953 message, The Question Concerning Technology, Heidegger further criticized the nature of emerging technologies as potentially diminishing Being by creating a prosthetic separateness from reality. With amazing speed, while technology was certainly revealing new aspects of the world, it conceals other aspects of reality. ‘Yet, unless abandoned, technologies also compete, prescribe and brace themselves as they become prostheses that eventually we cannot do without.’ (3)

Technology comes from techne, which for Heidegger is a way of bringing forth or revealing. (4) Technology has extrinsic value in that it is instrumental in achieving ends, with the means today often virtual. Traditionally, making was done as care; as revealing through Poiesis, and the direct engagement of the artist with the material object. ‘There was a time when it was not the technology alone that bore the name techne… when the bringing forth of the true into the beautiful was called techne. And the Poiesis of the fine arts was also called techne…’ (5) For Heidegger, art in the pre-scientific age had a special capability- to set up (reveal) a world, to make clear what was. ‘ “The world-founding nature” of the work of art makes possible… revelation of things in the world. The artist founds a world in which producing takes its rightful place, whereas the artisan makes useful things that do not of themselves have the capacity to found a world.’ (6)

The technologies of the culture of ends have lead to fabricated realities apart from that poetic making. Technology for Heidegger is also a necessary enframing of the world in a very particular way: ‘Modern sciences way of representing pursues and entraps nature as a calculable
coherence of forces...[for example] physics, indeed already as pure theory, sets nature up to exhibit itself as a coherence of forces...it orders its experiments precisely for the purpose of asking whether and how nature reports itself when set up this way. Here is technology as a way of arranging- which requires commodification of sources and ends: ‘...unlock-store-regulate-secure everything ordered to stand by, at-hand, for further ordering and distributions.’ (7) For Heidegger the essence of life was to act as the poetic discloser of Being, requiring the individual's free access to an existential clearing, where what is real is revealed. But then, ‘the coming to presence of technology threatens revealing...with the possibility that all revealing will be consumed in ordering...’ (8) This technological revealing establishes hegemony over revealing; ‘the prevailing discourse overvalues all kinds of new technologies by simply adding up whatever they make possible to what is already possible, although on closer analysis the newer technological forms of access obscure and subtract from other forms of access generally devaluing what is near.’ (9)

Concealment by Information and Formalism

Albert Borgmann notes that with the latest era of technology we have further reduced the subject: object relationship to one of subject: information, and a morass of ‘information behind information’ where ‘Intensively, the pursuit of information or sign use in a particular research program can exfoliate into those many types, distinctions, and qualifications that only the specialist of a particular school can love and care for.’ (10) Inherent is a semiotic relationship where the information now stands as the symbol (a further reduction) of the former object (which had largely been a reduction through decontextualization).

In architectural design, this can be noted in a number of ways, such as the way the world is reduced to an interaction of forces for structural analysis, the way issues of life safety are converted to dimension and components, or the way the lifeworld is reduced to a program via spreadsheet of rooms. These reductions map complex realities and render them actionable as pieces of meaningful data. While ‘true’ in description, this data may also be an incomplete, description, leaving the fullness of design achieved via the architect's contribution of connectivity between the actionable items. Mullins quotes Borgmann of a possible coming crisis: ‘there is information about reality, which is the fruit of the economy of natural signs. There is information for reality, which enriches reality and is the fruit of conventional signs and the cultural texts such signs have made possible. And there is information as reality, which is technological information. Technological information is undergirded by information theory... Borgmann believes that the flood of technological information will "erode, suspend and dissolve its predecessors" ’ (11)

The reduction of architecture to a series of semiotic ‘meanings’ based on symbolism was one hallmark of postmodernism. It enabled two kinds of formalism: self referential and referential. In the referential version, the authority relies upon an overt outside reference- such as politico-legal mandate of 'style' drawn from the historical context. In the self- referential version, the authority of geometry (whether classical Euclidian or computer enabled scripted blob) is the driving force, sublimating other ‘factors’. These reductions are logic structures, whether historical/theoretical or theoretical/experimental. Each suffers from a similar poverty due to being established within a limited set of architectural media. Perez-Gomez explains: ‘...it is now clear that the alternatives proposed by all sorts of "post-modern" formalisms, regardless of their origin in styles, geometry or biology, are very shallow. Cities all over the world continue to lose qualities, becoming anonymous and inhospitable. It is not difficult to demonstrate that late twentieth century collective pathologies are related to an alienating urban and architectural environment... that speaks merely of techno-political values. (12)

EcoMetro

A major contribution of the ecology movement has been calling into question the globalist techno-product view. However, alternative quantitative knowledge, and values within an ethical stance are not necessarily grounds for design or tending to Being as Heidegger proposed. ‘Greenwashing’ (13) could describe many of the opportunists today in the field of architectural materials and services, and conceals larger necessary revelations.
Authentic sustainable practice requires care of the lifeworld, attention to materials in their emergence and origin, chosen construction process, and awareness of daily life experiences and larger ecological processes. As the largest challenges in sustainability are urban, an 'ecometro' approach engaging the phenomenal presence of these now historicized industrial and urban landscapes points to a project of reconciliation versus atemporal hermetic products.

**Eco-Phenomenology**

‘The threat to man does not come... from lethal machines and apparatus of technology.... the rule of [man’s] enframing threatens man with the possibility that it could be denied to him to enter into a more original revealing and experience the call of a more primal truth.’ -Heidegger (14)

Heidegger made a point in numerous writings of architecture enabling Being within the four-fold, which he articulated as man, gods, earth and sky. (15) His use of the Greek Temple as example of setting up a world of relations of the four-fold is a now an anachronistic metaphor, but the concept of architecture gathering and enframing the realities of the world is still open for rediscovery. This enframing must be thought out as radically inclusive. The presence of ‘man’ in the fourfold is given, due to the initiation of architecture as a cultural intention. The presence of ‘gods’ is at least retained in the aspirations of the community, however dictated by corporate or personal gain or political fiat. An elaboration of these is beyond the limits of this paper. While there is no doubt of the co-constitution of nature and culture, there seems a massive cultural disconnection from the natural world of earth and sky brought about by the current technological prosthetic. Reopening earth and sky for architectural enframing necessarily aligns design-as-projection with others forms of description that allow earth and sky to reappear.

Ecology as science provides opportunity for earth and sky, but limitations of the larger technological critique make this appearing inauthentic. Ecology when brought under the thinking of phenomenology has been termed eco-phenomenology. It is only in its earliest stages of disclosure. Eco-phenomenology provides a point to explore the re-emergence of earth and sky for architectures enframing the four-fold.

Merleau-Ponty asked ‘Where are we to put the limit between the body and the world, since the world is flesh?’ (16) Despite the need to see mankind and nature in relation, one cannot lapse into thinking that by engagement there is unity or monism. The simplification of nature as a separate ‘thing’ also discounts the most basic phenomenological findings of difference that nature displays. Lester Embree suggests while the cultural sciences may be expanded into a constitutive eco-phenomenology, a more immediate entry to embodied eco-phenomenology is from ‘valuation environmentalism'- the kind of activity culturally assigned to recreation. (17) David Abram, a contributor to this emergence, describes eco-phenomenology as ‘...returning to the realm of experience, not to explain it, but to simply pay attention to its rhythms and textures...simply to become familiar with its diverse modes of appearance- and ultimately to give voice to its enigmatic and ever-shifting patterns...’ (18) For Abrams, the manner of encounter is through the body: ‘...the body is a form destined to the world; ... completes itself only in things, in others, in the encompassing earth ...the recuperation of the incarnate, sensorial dimension of experience brings with it a recuperation of the living landscape in which we are corporeally embedded.’ (19)

**Recovering Earth**

More than any other media the architect addresses, earth provides resistance, conceptually and literally. Its geologic origins, historic sediments, and current geomorphology are always there. The resources required to transform earth into a ‘tabula rasa’ are often counterproductive; concealment and denial of the earth are ultimately unsustainable.

The era of land art brought about by work like Smithson’s Spiral Jetty continues today in the phenomenologically informed interventions of James Turrell, and others. Aspects of earth are revealed by new interventions on or in the earth, reestablishing the concept of ground. But these works are often remote. In efforts to demonstrate alternatives to sprawl, much progress has been
made in recovery of metropolitan earth, thanks to designers like James Corner. In particular there has been a greater recognition of ‘landscape urbanism.’ (20) Two excellent gatherings of explorations into the complexities of earth, have been the Revelatory Landscapes exhibit sponsored by SF MOMA in 2001 (21) and Groundswell, sponsored by MOMA in 2005. (22) Each exhibit looked at the ideas of recovering spent or degraded land for new human engagement without denial of realities in the particular landscape history.

Architects can benefit from the comments on earth-as-media inherent to landscape architecture by Aaron Betsky: ‘what has always distinguished landscape architecture from other forms of art making is its continual reality. Things always change and are contingent…Whereas most other forms of art abstract not only the system but also the material of appearance, landscape architecture has had to accept the organic development of its subject…[it] has never been able to remove itself from the development of space and time…even more than architecture it remains rooted in a time based reality…[that] no manner of abstraction can completely deny.’ (23)

Two competition examples in New York City designed by James Corner and his Field Operations Studio and now under construction, show this restatement of earth: Fresh Kills Lifestylescape and the High Line. The revival of landscape in the Fresh Kills Park of Staten Island was part of the Groundswell exhibit. Here a 2200-acre landfill was brought into a new framework of processes and spaces by being turned into a lifestcape: regenerative ecological habitat and park. The commodity ‘waste site’ is refocused on what interventions might mitigate the effects of the necessary capping, etc. The reconnection with waterways as larger natural systems and recreation opens opportunities based on real media versus abandonment and isolation. Similarly, in cooperation with Diller-Scofidio-Renfro, Corner shaped their entry for adaptive re-use of the High Line rights of way, a long abandoned elevated rail system weaving above the streets and through buildings of the Chelsea neighborhood of lower Manhattan. Art studios and community spaces interlaced a new park infrastructure taking advantage of specific location of the rail right-of-way as promenade. In one of the highest density urban areas of the world each solution reintroduced the individual into places they had been denied or prohibited and brought renewed sensate place into being in recovering earth.

Recovering Sky
Sky is more elusive. By convention we may see it as a canopy overhead, the visual sky of a Turner or Gainsborough painting. Kahn in his most poetic and phenomenal reading suggested sky as space of light- a radiant aura of energy that is tactile, with sky stretching from sun to skin. Abrams suggests an even more intimate sky: ‘…air has indeed become the most taken for granted of phenomena…we imbibe it…we refer the gap between things as mere empty space.’ (24)

But even when reduced to mere ‘outside’, sky cannot be denied and lessons may be learned. Leatherbarrow outlines the maturity in Corbusier’s work in dealing with this division. (25) Beginning with the Salvation Army Cité de Refuge of 1933, Corbu was naive as to the impact of
the massive glass division between inside and out - the space overheated and required retrofit. Later in his career in India, he skillfully utilizes the *brises-soleil*, not only as an exterior sunscreen, but one that made dramatic spatial and material contributions to the openness of the massive structures. The machine was replaced or mitigated by the architecture.

Reduced to data, sky is lost. While most architecture mitigates microclimate via environmental control equipment, the work of Transsolar (26) has utilized advanced computing capability to rationalize the spatial and material contribution of the architecture itself to provide comfort. Transsolar describe themselves as climatic consultants, asking 'why isn’t climate regarded as an aesthetic category…' as ‘the most important case for responsible climate engineering is an architectonic one, that is, a human one.’ (27). In their structures, extensive modeling acknowledging time and change is crucial. Full-scale mock-ups and prototyping contribute to an architecture of atria, courtyards, multiple layered building skins, day lighting, natural air and geothermal heating and cooling and material innovation. The work includes collaboration with such diverse architects as Jahn (28), Behnisch, Gehry, SAANA, and UN Studio. This combination of using the natural inherent characteristics of location, low and high technologies, and space, contribute to a structure engaged in its particular sky.

Two examples suggest the openness of these ideas in achieving climate through engaging air and sky within radically differing situations: the Deutsche Post high rise office in Bonn, done in collaboration with Helmut Jahn and Werner Sobek and, the Mercedes-Benz Museum in Stuttgart, done in collaboration with Ben van Berkel and Caroline Bos (UN Studio). At Deutsche Post the urban tower is split into twin daylighted towers joined at a service core with two slender series of atria termed skygardens. The skygardens act as a natural return chimney with air introduced and conditioned at the double skin glass facades. Minimal equipment supports maximum thermal use of the architecture and spaces. Similarly a natural stack effect is used in the dense concrete central atrium of the low-rise Museum, with generous glazed areas on a ramp-like spatial system are shaded by careful overhead floor shaping. Radically different designers taking advantage of the Transsolar expertise in sky show the climate/sky realization does not determine design but allows it to appear as an opportunity as influence to the design. In this way sky reappears as tangible vs. mere exteriority.
Concluding Comment

Architecture over the last half century has done a disservice in contributing an aestheticized product devoid of the contact with the realities about it, whether reneging on progressive techné, ignoring the ethics of increasing environmental awareness, marginalizing common good in public space, or distraction from the deeper clearing and revealing for Being. A simple resurfacing of our urban centers with another sediment of weak constructs will fail, especially greenwashing that only offers products versus challenge deeper societal and architectural conventions. The conditions for change are ripe, not only via social constructs, poetic pragmatic realism, and new materiality, but an eco-phenomenal reassessment of the urban situation. As Abrams suggests, ‘If, at any moment, we suspend our theoretical awareness in order to attend to our sensory experience of the world around us, we find that we are not outside of the world, but entirely within it. We are thoroughly encompassed by the physical world, immersed in its depths. Hence our sensory relation to the world is hardly that of a spectator to an object… we are never disinterested onlookers but participants in a dynamic, shifting field.’ (29) We are well served not to teach solutions to our students as much as provide them access to the real grounds architecture has always proceeded from: within a vision of the world, necessarily enframed between earth and sky.

End Notes

13. Greenwashing: a combination of ‘green’ as in sustainable and ‘whitewashing’ as in concealment of true nature.
19. Abram Spell, 62
23. Aaron Betsky. ‘Dig We Must,’ Levy, Revelatory Landscapes, 9.
27. Thierfelder, Trassolar, 201 and 223.