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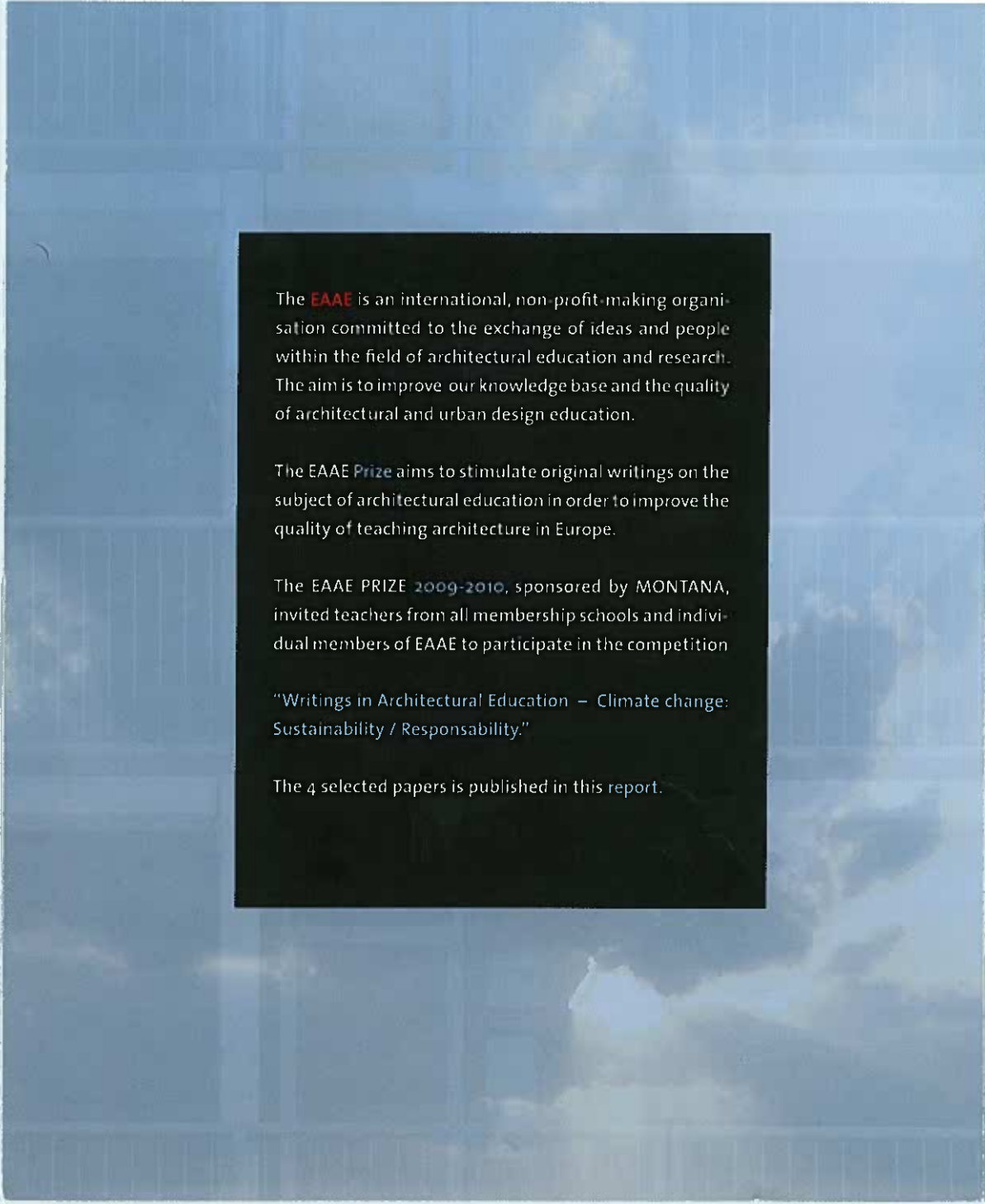
**311**

**EAAE prize 2009-2010**

Writings in Architectural Education

**Climate Change:  
Sustainability/  
Responsability**

**EAAE PRIZE 2009-2010**  
*sponsored by* **Montana**



The **EAAE** is an international, non-profit-making organisation committed to the exchange of ideas and people within the field of architectural education and research. The aim is to improve our knowledge base and the quality of architectural and urban design education.

The **EAAE Prize** aims to stimulate original writings on the subject of architectural education in order to improve the quality of teaching architecture in Europe.

The **EAAE PRIZE 2009-2010**, sponsored by **MONTANA**, invited teachers from all membership schools and individual members of EAAE to participate in the competition

“Writings in Architectural Education – Climate change: Sustainability / Responsibility.”

The 4 selected papers is published in this report.

**EAAE prize 2009-2010**  
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# **EAAE prize 2009-2010**

Writings in Architectural Education

## **Climate Change: Sustainability/ Responsibility**

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# PREFACE

## **Preface**

In 2009, the EAAE announced a prize competition for the teaching staff at the EAAE member schools as well as "individual members". The ongoing, worldwide debate regarding climate changes influenced the theme and thus the subtitle of the competition: "Climate Change: Sustainability/Responsibility"

The EAAE Prize aims to stimulate original writing on the subject of architectural education in order to improve the quality of architectural teaching in Europe. Organized bi-annually, the competition focuses public attention on outstanding written work selected by an international jury.

The invitation and inspirational text for the prize competition read as follows:

"Ongoing research is documenting the climate changes and demonstrates that human activities contribute significantly to this process. The different types of climate changes form one of the most complex themes in the current worldwide debate and these challenges have implications reaching far into the future. These challenges span across a wide spectrum; from the identification of causes of climate changes and the scenarios associated with global warming, to assessments of the significance of these changes for all systems, to questions of adaptation to climate changes and to the development of new technologies that can contribute to counteracting these changes and their effects. It is well established that 70% or more of the CO<sub>2</sub> is generated by cities including the production and operation of buildings. Architects thus play a crucial role in terms of architecture, urban design and planning insofar as they affect spatial organization and the design and maintenance of the environments of society into the future.

How is this challenge addressed in architectural education?

Are the challenges of climate change included in the basic knowledge delivered through the curriculum, are they addressed in the themes for student projects, or are they addressed through individual research about climate and architecture?

Which new educational initiatives do you find important?"

Among the submissions, the scientific jury selected 4 papers to be of an adequately high quality to proceed in the competition. Unfortunately, 4 papers did not create the basis for the planned workshop in Copenhagen. The workshop was replaced by the detailed comments from the jury to the authors of the 4 papers, and they were given approx. 4 weeks to re-write their contribution in relation to the comments. The improved papers (all 4 authors took the opportunity to consider the criticism) were placed before the jury, and the voting result is as follows:

**First prize, EUR 5,000**

Michael K. Jenson, PhD, University of Colorado, USA, College of Architecture and Planning  
Ethics or Technology?

**Second prize, EUR 4,000**

Kim Sorvig, University of New Mexico, USA, School of Architecture and Planning  
The Architect's Footprint: Toward a Green History and a Critical Practice of Building

**Mention, EUR 500**

Giovanna Franco, Faculty of Architecture of Genoa, Italy  
Acting upon the Recent Inheritance Sustainability and Responsibility Towards  
the Contemporary

**Mention, EUR 500**

Isaac Lerner, Eastern Mediterranean University, Turkey  
Form Follows Fiction; The Architecture and Urbanism of a Sustainable Responsive  
Environment

**THE JURY**

Professor Hilde Heynen	KUL – Department of Architecture
Professor Per Olaf Fjeld	Oslo School of Architecture
Professor Loughlin Kealy	UCD Architecture, School of Architecture, Landscape and Civil Engineering
Professor Chris Younès	Ecole nationale supérieure d'architecture de Paris la Villette
Professor Anne Beim	The Royal Danish Academy of Fine Arts, School of Architecture

**THE ORGANIZATION COMMITTEE**

The organization committee on behalf of the EAAE Council consisted of Ebbe Harder supported by Pia Davidsen (The Royal Danish Academy of Fine Arts, School of Architecture) and they handled the process and realisation of the prize.

**THE PRIZE SPONSOR**

The prize sponsor is MONTANA – a Danish furniture design company – which has a very precise environmental policy for production and the product cyclus. MONTANA supplies intelligent storage, tables and chairs for homes and modern work spaces.

**Ebbe Harder**

August 2010





**1**FIRSTPRIZE EUR 5.000

**MICHAEL K. JENSON**

University of Colorado, USA

College of Architecture and Planning

**Ethics or Technology?**

**MICHAEL K. JENSON**

**ETHICS OR TECHNOLOGY?**

**JURYS COMMENT**

This is an arresting paper, strongly argued, that takes a strategic stance and argues with clarity. In its exposition on such matters as "techne" and "technology" the paper is reflective and critical. The juxtaposition of Heidegger and McLuhan is stimulating, as a way of encapsulating the thinking/acting/seeing dilemma that contemporary society faces. It evokes Bateson's "habits of thought" formulation in his Steps to Ecology of Mind.

There are some paradoxical statements that might be explored further: for example, the opposition between "spectator knowledge" and "participant knowledge". Here one is reminded of the axiom "dichotomising pathologies". It is, from a logical perspective a similar disjunction to that which separated "means" from "ends". A great deal of theoretical exploration has taken place within the social sciences on the whole question of the value of the "participant observer" where different value frameworks have somehow to be drawn into relationship. The jury wonders how critical is the dichotomy – the thrust of the paper's argument in general is against an instrumental view of knowledge and in favour of an understanding of ethics that is not exclusively homo-centric.

The paper focuses on a very important issue in architecture, in fact a dilemma for many professions. In the abstract the author sets up a clear structure for a further discussion. The first sub-topic (Sustainability: Ethics or Technology) brings up many interesting points, the examples are good, what is included in the term technology is fairly clear, but a understanding of what the author considers to be ethics in relation to sustainability is less clear.

In the second sub-topic (Reigning in unintended Consequences: The Need For Ethical Reflection in Architecture) there is a certain disconnect between the title and the actual content of this sub-topic. Again, what is ethical reflection in architecture? The author goes to great lengths to define and give specificity to some terms or ideas and backs these up with many quotes, and others are simply left open for the reader to define.

The third sub-topic (Techne, Technology, and Technical Dependency) and the last sub-topic (Techne, Technology, and the Return to Relevatory Technological Knowledge) pursue a very concrete line of thought. The author in an effort to clarify and backup the argument and use of terminology has paraphrased and quoted from a great many sources. To a certain extent there is a little "over-kill". Is some of the interesting potential points lost in the process of defining terminology, and are some of the terminology and good points (as presented) suffering when the reader applies them to specific situations. The bridges or connections between the theoretical and the more specific issues in architecture and sustainability need more work, as some

areas are very open for interpretation. (Two different types of architects will have different perceptions of when their choices are within the realm of techne or technology). To bring this challenging paper up to another level is not a rewrite but rather more a second round of critical reading

The paper offers a pertinent discussion on the ethical role of technology and the numerous approaches to nature. The discussion focuses on the strategic level and weights the philosophical stand as a starting point. The intention of the paper is very clear; and it works well with the short abstract and the outline.

It is a well structured paper that offers a proper academic discussion with fine use of references and a great mix of highly abstract and real time examples to underline the points made.

The paper misses recent literature (eco feminism), but also literature that discusses techne in close relation to architectural production/edifice (Frampton, Leatherbarrow, Hartoonian).

The paper has a clear focus and presents a well elaborated argument. It is well researched, and well founded in the literature. However, the jury regrets the absence of feminist ecological thinking, which would tie in very well with what the author has to say. It seems that the Heideggerian critique of technology is being reworked and re-thought by eco-feminism and feminist ecologists, and it would be interesting to draw also upon that material.

The jury particularly appreciates the attempt to link the more abstract overall outlook with very concrete suggestions about the reform of the curriculum.

A very deep paper, at the core of argument about sustainability to find a paradigmatic approach. Very relevant about question of nature, technology and ethics (technology as a source of revelation and not of domination). It would be interesting to question and develop the concept of environment.

**The Jury**  
May, 2010



CCTV, Beijing. Photo by the author

*The coming to presence of technology threatens revealing, threatens it with the possibility that all revealing will be consumed in ordering and that everything will present itself only in the unconcealedness of standing reserve. Human activity can never directly counter this danger. Human achievement alone can never banish it. But human reflection can ponder the fact that all saving power must be of a higher essence than what is endangered, though at the same time kindred to it.*

Martin Heidegger "The Question of Technology"

**MICHAEL K. JENSON**  
University of Colorado, USA  
College of Architecture and Planning

## **Ethics or Technology?**

### **ABSTRACT**

Though the recent emergence of “green” practices and technology is positive, architecture’s faith in technology overcoming all obstacles with more technology has not been sufficiently questioned. Until this occurs, sustainable practices will remain surface endeavors and will not truly change architectural convention. Architects must re envision technology as a revelatory process for gaining authentic insight, akin to the ancient Greek concept of techne. By re-examining this concept, the attitude necessary for a shift from envisioning the environment solely in terms of its being utilizable resources for technological advancement to its having inherent value to our existence can manifest. The rediscovery of techne as a revelatory epistemological process can temper modern technology’s propensity to dominate allowing a truly sustainable attitude towards the environment to emerge.

In addition, before “sustainability” can truly transform the process of architectural design and building construction, the discipline must change the prevailing conception that the solution to the current crisis will be fundamentally technologically based. Foremost, it is an ethical issue entailing a shift in how the Human/Nature relationship is envisioned. This investigation then will focus on how ethical reflection must play a central role in the development of a truly sustainable design process and will be undertaken in three parts: 1) The necessity of developing a critically reflective process towards technology, 2) how this must lead to a revelatory process of reflection akin to techne and ecofeminism’s valuing of difference, and 3) how a critical ethically reflective design agenda can revalue architecture’s focus regarding the environment (agency verses product). Only then we can environmentally responsible strategies integrating technology and ecology be formulated.

## **SUSTAINABILITY: ETHICS OR TECHNOLOGY?**

When surveying any skyline, the ecological impact it represents is overwhelming. Its gleaming forms exemplify a questionable choice made over the last several decades: advancing technologies reliant on fossil fuels at the expense of a healthy environment. The ramifications of this expenditure may be argued, but the need to address its consequences is without question. As David Orr points out: "We have good reason to believe that humankind will build more buildings in the next fifty years than in the past 5000. Done by prevailing design standards, we will cast a long shadow on subsequent generations" (ORR/15). This "boom" may bode well economically, but will be delivered at the expense of the ecosystems that sustain human life. As Jared Diamond asserts in his book *Collapse*, two choices must be made to stabilize our future:

*"As we continue to convert large natural habitats to human habitats such as cities, farms, or recreational landscapes at an accelerated rate, we are faced with the prospect of two choices that will dictate our success or failure in coming to terms with the relationship between our goals and their impact on the environment. "... Long-term planning and a willingness to reconsider "core values" are crucial in tipping the scale either towards success or away from it in regards to the alleviation of the current state of extreme environmental degradation that many of our current agendas induce" (DIAMOND/522).*

In regards to architecture, this core revaluing must be directed towards our fascination with technology's potential to transform life benevolently as well as the unquestioning faith in the technical expertise founding its advancement. Though the recent spread of "green" practices and technology is positive, our continued faith that technology can overcome any obstacle with more technology has yet to be adequately interrogated. Two recent personal experiences exemplify how the current paradigm of sustainability has not reached the level of significance demanded by Diamond.

The first came on a studio critique for a small housing project. One student's project amounted to the addition of several types of "green" technology to a concrete box. When asked how this specifically addressed an intriguing problem — a counseling center/transitional housing for returning female Iraq war veterans with post-traumatic stress syndrome — she became confused and defensive. When pressed harder, she embarked on a further recitation of the virtues of being "Green". The basis of my critique was simple: Sustainable technologies in themselves did not constitute a design strategy. In addition, she had not critically analyzed the appropriateness of the technology chosen. When asked about the implications of proposing a wind turbine within a tight knit urban neighborhood — how the noise and scale of the turbine might affect the recovery of returning veterans— she had no answer.

Further questions were posed: In any urban system is there not a human "ecology" to be considered? Shouldn't the spatial and material qualities of the project contribute to the welfare of its inhabitants as well as be integrated with more environmental friendly technologies? Her

continued silence indicated that her intentions were good, but were lost in an uncritical romanticism for green technologies. The second arose in a faculty meeting when the architecture chair announced a search for a “sustainable technology expert” to reinforce recent college efforts to achieve “distinction” in sustainable practices. The wisdom of narrowly defining the position was questioned by several individuals, which infuriated the chair. The concern was that sustainability was a larger issue than any single technological expertise could address and had overarching pedagogical and theoretical implications pertaining to the nature of both education and practice. How might sustainability best be developed to become a connective tissue woven through the entire educational experience? The conflict here stemmed from differing conceptions of sustainability. Some saw it as a “big picture” issue affecting the entire discipline, while others envisioned it as a focused technological expertise.

These examples illustrate how latent prejudices affect potentially transformative attitudes that might lead to a lessening architecture’s environmental impact. The first exemplifies the belief that overcoming the current crisis means the creation of more technology, while the second holds that this technological increase should be precise, narrowly focused, and ethically neutral. The discipline seems caught in the trap of convention described in a statement often attributed to Albert Einstein: “You cannot solve a problem from the same consciousness that created it. You must learn to see the world anew.”

This underscores the difficulty of questioning prevailing conventions of practice while developing innovative strategies of integration with the environment as well as simultaneously providing shelter to a rapidly expanding population. Technological advancement alone will not suffice; there must be an ethical foundation for understanding the entirety of the ecological impact of these strategies. A new generation must be introduced to the critical thinking skills necessary to navigate immediate needs while contributing to a paradigmatic shift in how the environment is valued. We must become more strategic and less tactical in our thinking. As contemporary architectural culture comes to terms with the rapid technological development that spawned this crisis, the absence of sound philosophical foundations is apparent.

*To claim that architecture today faces a philosophical problem and to suggest that philosophical reflection should be part of any well-constructed program of architectural education is to claim not just that architects have become uncertain of their way and of the maps on which they have been relying, but that such uncertainty reflects a deeper uncertainty about how we ought to live, where our place should be, and how architects are to help shape that place, to “edify”, to build in that sense.” (HARRIES/11)*

This uncertainty is masked in a “green” fervor that avoids a truly constructive reevaluation of the Human—Nature relationship. In fact, the reassessment of the MAN—TECHNOLOGY—NATURE connection is warranted. Architects must be trained to read, understand, and operate on a larger systematic level (ORR/15).

Technology must be re envisioned as a revelatory process of learning, akin to the ancient Greek concept of *techne*. By re examining this concept, the shift from envisioning the environment as the raw material for technological advancement to an inherently valuable attribute of our existence can take place. *Techne*, thus conceived, can temper modern technology's propensity to dominate allowing authentically environmentally responsible strategies integrating technology with ecology to be formed.

Before "sustainability" can profoundly affect present architectural conventions, the perception that the solution to the current crisis is necessarily technological must change. This paper proposes that at its foundation, this issue is ethical and entails a reevaluation of the Human/Nature relationship. This investigation then will focus on how ethical reflection must play a central role in sustainable practices and will unfold in several steps: 1) The necessity of developing a critically reflective process towards technology, 2) how this must lead to a revelatory process of reflection akin to *techne* and ecofeminism's valuing of difference, and 3) how a critical ethically reflective design agenda can revalue architecture's focus regarding the environment (agency verses product). Only then, can authentically sustainable practices emerge allowing the discipline to rise to the challenges it now faces.

### **ARCHITECTURE, TECHNOLOGY, AND TECHNOLOGICAL DEPENDENCE**

Architecture has become a discipline both practiced and taught as the science of building. Consequently, important ethical issues are often cast aside due to budgetary constraints or client predilection. Current architectural conventions propagate negative consequences found in all environmental problems: they are unforeseen, largely unintended, and often ironic. For instance, in striving to manifest material prosperity, architects have affected the environment so detrimentally that the very prosperity they seek to materialize is undermined. The looming environmental catastrophe is a direct result of a miscalculation between overly focused human intentions and their wide-ranging ecological results — a disjunction cultivated by an uncritical reliance on technical prowess (ORR/16).

The scale of recent technological advancements has induced a collapse of "knowing into making" causing "knowing as loving" to be supplanted by "knowing as willing." The former attempts a metaphysically oriented comprehension of the natural order by seeking to understand its meaning. Modern society no longer values this type of reflection that differentiates modern attitudes from those of the "ancients". The latter envisioned human existence as part of a greater order and subordinate to natural laws whereas "moderns" envision their lives as more detached from this because there is seemingly little limitation to the transformative power of technology over Nature (BRADSHAW/10).

However, this "power without limits" exacts a price. Willing and reasoning have come together to serve as the foundation for the successes of our modern science. Willing is directed towards action and when tied to reasoning envisions the world as a field of potentially subjugated objects



ripe for our technological control (BRADSHAW/11). Hannah Arendt sums up the danger of this marriage as: "Technology's very nature is the will to will, namely to subject the whole world to its domination and rulership, whose natural end can only be total destruction" (ARENDR/178 & BRADSHAW/15).

As a multitude of large scale environmental crises emerge in the wake of our technological advancement attest, "scientific progress alone would be a hollow victory without the moral and ethical progress that must accompany it and ensure the humanization and humanity of our development and use of science" (SOMERVILLE/3 & BRADSHAW/15). As the search for an ethically critical process founding sustainable practice unfolds in the context of this technologically myopic attitude, a central question emerges: how can a space for reflection concerning large scale systemic consequences of current design practices be formed? This is difficult due to a narrowed vision of practice based on technologically dependent attitudes. However, within our western intellectual traditions, there are clues to how such reflection might emerge. Grant's speculation on thinking and production, will and reflection, illuminate a potential path:

*"In the ancient world, though knowing was put in a productive relationship to making, the differences in the mentality were very distinct. The term techne described a type of knowledge that was a form of poesis or production where the knowledge base was a "leading forth" or a theoretically explorative endeavor. This "leading" emerges from outside of human willing and had as its fundamental goal a process of knowledge acquisition related directly to making, not as domination, but as comprehension (BRADSHAW/09 & CAYLEY/184-185).*

*Techne* then, is limited in its potential for transformation as its attempts to overcome the hardships of Nature from within the natural order. Technology, on the other hand, is fundamentally limitless in its impact to its surroundings in both complexity and scale (GRANT/11-13). In addition, *techne* can be considered defensive in that it seeks only to guard against the immediate hardships placed upon humans and to manifest something specific that may not have existed previously. Technology distorts core elements such as natural laws or entire ecological systems regardless of the long-term consequences and is therefore inherently offensive in posture (ROSEN/73). The former mindset fails to challenge the primacy of Nature whereas the latter, in its sheer complexity, scale, and power, transforms it to its core. Therefore, "contemporary technology is not simply more complicated or of a greater scope and size than ancient *techne*, but is fundamentally different" (TABACHNICK/92 - 93).

Technology is so ingrained in the collective consciousness that it renders contemporary individuals thoroughly dependent on its instruments. This dependency runs so deep it prevents any objective assessment regarding its usage because our conceptual understanding of it is clouded by the preconception that technology will necessarily self-correct (GERRIE/186). Continued Reliance on its "fixes" creates a chronic situation where society is unable/unwilling to question the continued use of problem technologies. There is frequently misleading "evidence"

produced asserting that certain social or ecological problems are being repaired by the technologies that created them, thereby reinforcing problematic behavior, and thwarting any truly corrective action from being taken (GERRIE/187).

This over-reliance on technological fixes rests on what Marshall McLuhan feels involves a "subliminal and docile acceptance" (McLuhan/103 & GERRIE/191) brought on by an unawareness of the real and overarching effects of our technological activities. The result is that "a man is not free if he cannot see where he is going" (McLuhan/103 & GERRIE/191). Attempting to maintain an intensive self-consciously aware attitude continuously is likely to fail in creating any meaningful avenue for reflection because it is the mundane nature of our technology that dulls our awareness of its adverse effects. Simply maintaining awareness of bad habits is the most difficult part in overcoming them. As a result, a majority of the underlying conditions of our present environmental crisis rest on destructive, yet routine habits involving polluting technologies that fuel our contemporary lifestyle:

*"...this attempt to repair the harm of a technology by modification, is a technological fix. If, on the other hand, we question the very purpose and intent behind the technology (e.g. of insecticides) and thereby develop alternative approaches that might require modifying our values and goals, then we recognize the limits of the technological fix" (DRENGSON 1984/260 & GERRIE/186).*

## **TECHNE, RELEVATORY TECHNOLOGICAL KNOWLEDGE, AND THE ENVIRONMENT**

How does technology then become a source for this type of revelation? Two of Heidegger's statements in *The Question Concerning Technology* provide clues for distinguishing *techne* and technology, as well as the potential of a return to the ancient Greek concept. This return could overcome our current dependency on technological fixes that dominate the environment to be set aside in lieu of a path seeking understanding, valuing, and working with what ecologies provide sensibly.

The phrases, "The essence of technology is not technological" and "Where the danger of technology lies, so does its savior" are both insightful and perplexing, as well as the foundation for the re conceptualization of the MAN—NATURE—TECHNOLOGY relationship. By Heidegger's reckoning, human activities like sailing or hunting were not attempts at controlling or intellectually detaching from Nature, but were manifest "scenes of disclosure" illustrating its supremacy. For example, the power of the sea was exhibited by a ship's attempt to navigate its stormy waves and to overcome these dangers the contemplation of Nature's potential to overwhelm was necessary. *Techne* then, was a knowledge cultivated to first comprehend, and then surmount a particular hazard in Nature (TABACHNICK /100).

Contemporary technology neither wishes nor allows such disclosure to take place. Whereas *techne* is fleeting, temporary, and continually transforming, technology manifests as a detached, inflexible, and instrumental rationality seeking to permanently impose its desire. With *techne*, an

artisan's craft is described as a "bringing forth" (HEIDEGGER & TABACHNICK /101) where Nature is a partner in a cooperative relationship and "shines through" the crafting of an artefact. For example, the characteristics of wood, stone, or metal were disclosed for Greek artisans in their alteration. Wood still decomposed similarly to its natural state and the specific characteristics of soft woods distinguished them from hard woods. These characteristics informed the capacity to forge specific materials in a congenial fashion to the final artefact (HARTOONIAN/29). By manipulating these within the context of the natural order, an understanding of their characteristics and position within that context were understood. Thus, *techne* maintains "an openness" towards the revealing of natural processes (TABACHNICK /101).

Contemporary technology is not a "bringing forth", but is a "challenging forth" (HEIDEGGER & TABACHNICK/101). It alters material properties so drastically that they become unrecognizable. For instance, fission transforms atoms at a level not seen directly. This makes the process difficult to comprehend. It unleashes a force so destructive it speeds up the effects of decomposition to the point that thousands of years pass in an instance. It is an "undisclosing artifact" where "we are cut off from, become unaware of, or forget the movedness or transience of existence" (TABACHNICK /102). Heidegger describes this blocking of the "shining-forth" of Nature as "enframing" (*Ge-stell*). In this state, technology does not disclose natural attributes authentically, but decontextualizes and "frames" them squarely within the human agenda. Here, technology objectifies Nature by treating it as a repository of material waiting for technical manipulation (TABACHNICK /102). This makes comprehending authentic properties difficult and reflection outside of human action impossible.

What then is the essence of technology or rather what *ought* it be? It must again become the knowledge gained through the formation of artefacts necessary to mediate the harshness of the natural environment. What then is the danger and savior outlined in Heidegger's quotes? The danger lies in technology's potential to emerge as an "enframing" which utilizes *techne* to overpower the natural environment. This impedes humans from appreciating its essential structure and processes.

Its savior lies in the re conceptualization of *techne* from "the will" to impose our will on nature permanently to readily accepting that our technology must be transient and limited. The "saving" of technology emerges, as humans *understand* the complexity of our natural environment, but not as an attempt to acquire dominion over it. "Late in the twentieth century, we still need to think through anew the basic principles of our view of nature, and of man and especially of the relation between nature and man" (GRENE1974/346 & WIESS/112). Technology is a means towards this, but only if considered a tool for analysis. One that, at its base, holds a reverence to our most important subject: Nature *Techne*, as the ancient Greeks understood it, was a continually transforming, transient knowledge that was contextually situated. It is a type of critical practice allowing the investigation of a problem at hand, its solution, and contextual appropriateness to be assessed sensitively within the nuanced ecologies surrounding it. In our quest

to work *with* Nature, technology then is more than a "fix"; it is a type of knowledge needing continuous questioning. As Ihde reminds us: "You need to have a series of multiple perspectives, to recognize the shape, structure, and complexity of the phenomena you are investigating". (IHDE/125).

This re conceptualization of technology as a reflective process dissolving attempts at environmental colonization by Universalist rationalistic desire is akin to ecofeminist calls for an end to the domination of women and the environment by patriarchal structures. As Karen J. Warren describes, "Ecological Feminism", is a theoretical umbrella "which captures a variety of multicultural perspectives on the nature within social systems of domination between those humans in subdominant or subordinate positions, particularly women, and the domination of nonhuman nature" (WARREN/01). It is a philosophy demanding the understanding and commitment to the valuing and preservation of ecosystems through a "plurality of positions". It rejects universalized or essentialist approaches to social/ecological issues and favors searching for appropriate answers to particular problems by reflecting upon the implications of the immediate historical, political, and material implications of a given situation, at a given moment. In other words, ecofeminist "reads" can vary culturally, temporally, or even geographically as the analysis moves from one circumstance to another (WARREN/02) and consistently acknowledges the world's active agency in discourses that are "not of universal truth but of local truth, bioregional truth or an ethical vernacular" (CHENEY/172).

Cheney argues for a process of ethical reflection focused around "the other" (difference) in an interactive conversational relationship involving selfhood. He doesn't propose the elimination of metaphysical Universalist visions involving the overall structure of systems, but envisions a relationship valuing difference as well as rejecting their potential as colonizing agents. To offset this tendency towards a false unity and domination, a "grass roots" metaphysical conception must be adopted that is bioregionally based and cultivates a responsiveness to authentic encounters with environmental systems. The insights gained are not considered transportable to other contexts, but are expressions of specific interactions between individuals, environmental systems, and place (CHENEY/166). By focusing on difference, the desire is not to develop a strategy of dominance, but one of comprehension. Our interaction with the environment then;

*"...has a different goal: not prediction per se, but understanding; not the power to manipulate, but empowerment — the kind of power that results from an understanding of the world around us, that simultaneously reflects and affirms our connection to that world" (KELLER/166, CHENEY/167).*

So, ecofeminism is concerned with the "transvaluation" of societal values to cultivate the nurturing side of human culture. (Salleh 1992: 203) Because our technological dependency has become so pronounced, most of the modern era has been obsessed with the search for a singularly defining language that frames multiplicity and difference (enframing). Perhaps these latter aspects now must

frame questions involving intellectually unified metaphysical systems and their attempts to dominate social and environmental contexts (CHENEY/170). By this, the world becomes the active agent in the construction of knowledge where possibilities for conceiving "relationality" within social worlds disrupts "previous taxa of the human, the natural, or the constructed" (HARAWAY/03).

#### **ARCHITECTURAL ETHICS, REFLECTION, AND THE CREATION OF A REFLEXIVE RELATIONSHIP TO THE ENVIRONMENT**

Within this study, it has been asserted that it is our relationship with technology as much as with the environment that illustrates the uncertainty of our present "maps" leading to a harmful domination of the ecological systems that support us. We must learn to utilize the power of technology to reinforce and reveal the beauty and necessity of the world's natural attributes (ORR/31). Technology must become a source of revelation, not domination for our modern culture. In short, the ethical structures that found our actions, our attempts to "edify" (Harries's term, see introduction above), must become more reflective, and reflexive in regards to the environment.

Though call for ethical reflection in architecture as illustrated in karsten Harries's quote above is valid, his conception of an architectural ethics is problematic. It is based on the ancient Greek notion of ethos and connected to an authenticity related to a preconceived notion of community and its subsequent constitution of place. By this, architecture is the manifestation of community values and should reflect these in the social practices producing place. To the philosopher, this idealized relationship has been lost as technology both dominated and alienated humans from the environment. Reactionary "postmodern" movements in architecture failed to address this alienation because they focused on architecture's decorative aspects and the sensibility of the architect as the communal "watchdog" of aesthetic Taste. (FISCHER/174-75).

The proposed answer to technologically driven design is a prescriptive ethical/aesthetic agenda demanding that architects submit their creative instincts to the values of the community. If this occurs, we return to an architecture rising to the authentic or ethical standards the ancient Greeks obtained (FISCHER/175). This demand is akin to what was proposed by new urbanism as its proponents set out to prescribe the "proper" forms, programs, scales, styles, and materials of the developments following its agenda. These projects have never rose to the level of community that either Harries or their proponents envisioned. A central criticism towards this agenda is the ambiguity surrounding who defines the values of the community and the needs of its members. Ironically, this was left to market forces that have a dismal record providing for the greater common good of the community. Also, community values do not manifest in the materiality of buildings. The process of communal formation is far more complicated and even if the architectural prescriptions are followed rigidly, there is no guarantee that a cohesive community will form.

These limitations arise from a focus on the products of architects and not their design process or practices. Buildings are artefacts not inherently moral or ethical in themselves, thus it is impos-

sible for them to reflect values without understanding the ethical intentions behind the agency of their creators. As Saul Fischer asserts: "Whatever approach to guiding moral choices of architects is workable, it needs to recognize the significance of the architect's moral agency" (FISCHER/175). This echoes Alberto Perez-Gomez's assertion "...that the common good has always been a primary concern in architecture. This is evident in the writings of Vitruvius and others over the centuries who have attempted to elucidate the meaning of architectural praxis" (PEREZ-GOMEZ/02).

The philosopher Warwick Fox has developed a theory based on ethical analysis similar to the *reflective equilibrium* theory described by John Rawls. Though Fox describes it by a different name, *responsive cohesion*, its reflective nature is essentially the same:

*"The term cohere literally means to cling, hold, stick or adhere together (from the Latin cohaerere, from co, together and haerere, to cling, adhere). The adjectival term, responsive (from Latin respondsum, answer) suggests that the way that we should strive to reach a state in which theory and personal evaluations cohere or 'cling together' is through a process in which each side is responsive to, or answers to, the challenges thrown up by the other side...The upshot of the process is that cohesion between the two sides is ultimately brought about, assuming this goal is reached through a process of mutual accommodation, adjustment, adaptation or reconciliation between theory and evaluation"* (FOX/212).

The strength of this paradigm is that individuals are free to pursue their goals and desires, but must respond to the goals and desires of others (including the environment). Ample freedom is entertained for individual expression and self-fulfillment, but not so much that it infringes upon or impedes another's pursuits. The moral community then is the social arrangement emerging by the "clinging together" of individuals in a loosely defined order that strikes a balance between a rigidly designated ethical community (major infringement or no freedom at all) and one that is too loosely defined (no sense of community) (FOX/213). This theory goes a good distance in addressing the relationship between thinking about all life (the environment) and the development of a position in architectural design that is sensitive to those needs. By this, and in the terminology of Leopold's, "Land ethic": "a thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise" (LEOPOLD 204, RADFORD/512).

Though achieving an internally cohesive logic underlying an activity like architecture is important, reaching a responsive cohesion with a surrounding context is seen as paramount. It follows that the largest context to address in reaching a cohesive state is the natural environment. The well being of the largest context (earth) is hierarchically more important than regional or urban contexts. This is not to say that internal cohesion in the design process is not important, for to not achieve this is a failure of the design process, but protection of this larger context must be the primary basis for all decisions, technological, aesthetic, economic, or otherwise (RADFORD/516).

If an ethic of responsive cohesion underlies our design process, the architect's core set of skills moves from being purely the invention of beautiful forms through a spatial/material language to a core aptitude involving the connection of all natural, social, and material contexts surrounding a construct. In other words, "the core skill of an architect is the ability to give effect to a general foundational value within the *specific* domain of architecture. This skill distinguishes architects from other members of society" (RADFORD/523).

For sustainability to truly transform our conventions, it must demand an understanding involving all "contexts" surrounding a project. These might span from the ramifications of resource extraction globally (affecting material choices) through to the affects of specific planning codes as well as a broader conception of efficiency involving the technologies incorporated into the logic of the design process. In other words, the architect must first comprehend, and then frame the appropriate elements that must cohere in a particular circumstance as well as understand the implications that this frame brings to the system. This is a complex, demanding, but necessary expectation of the discipline. To be authentically architecturally sustainable, our conception of it must move from its being a more technologically sophisticated arsenal founding an environmentally ambivalent universalized design logic to an outwardly focused means of analysis that appropriately addresses the general needs of the environment and the specific needs of the project simultaneously. It must become a logic that utilizes design to adequately comprehend the relationship between our needs, the needs of the ecosystem, and the balance that must be struck for each to thrive. As Fox asserts: *achieving a sustainable way of living is not just a technical issue (although it is often discussed as if it were), but also (and fundamentally) an ethical one.* (Author's italics) (FOX/06).

#### **CONCLUSION: AN ETHICAL PRELUDE TO A CONTINUALLY EMERGENT SUSTAINABLE ATTITUDE IN ARCHITECTURE**

The environmental crisis has exploded onto the contemporary global consciousness with surprising force and speed. In the face of this looming crisis, the hocking of greener projects and products not only eases the conscious of the modern consumer, but also keeps alive a frame of mind offering no long-term solutions. Our reliance on consumption and convenience has forged this path and the goal of architects should be to embrace our role as potential educators in the transformation of this mindset to embrace alternate ecological possibilities. If our houses, offices, and means of transportation, are seen as educative, then architecture can stem its recent trend towards the margins and serve as an ethical "midwife" to a more environmentally sensitive attitude. (ORR/30) If our creation of the built environment is 70% of the natural resources utilized globally per year, architectural education seems a likely starting point to influence the environmental education of the general public. A design "rethink" is necessary that reveals environmentally appropriate technological applications to overcoming immediate and tangible problems.

The central revelation of the writing of this text was that though my focus was sustainability, it became apparent that the criticism struck upon issues not new to the discipline. They are just

more pressing due to globalization and the environmental crisis it has produced. The calls for a focus on agency, the understanding of the complexity, connections, and nuances of the varying scales of context, a critical outlook towards technology, and a reflective/reflexive attitude towards the environment have been presented in various formats (ranging from aesthetic and stylistic concerns, to formal and functional ones) for decades, if not centuries. The difference now is that the circumstance is such that the potential for this crisis to negatively affect a huge number of lives is immense, very real, and imminent. The positive aspect of a crisis is that it demands action, and thus is an opportunity for the discipline to exercise some "demons". The grandest of these affects education and is based on the search for a universalized ideology of architectural design that organizes a curriculum to the point that architecture is portrayed as a uniformed system. This re conceptualization of both education and practice demands stepping outside conventional views reliant on entrenched ideologies:

*...professions tend to impose (as far as they can) a fixed cohesion on situations, disciplines tend to acknowledge and embrace the inherent impossibility of a fixed cohesion and offer a loose label under which a continual search for responsive cohesion can thrive. (Radford/525)*

The former has dictated the identity of the practitioner and the "frame" for their education for decades. At the beginning of the 21st century both need to change by reinforcing the latter's disciplinary attitude.

This study also contained another revelation. Though the call for a paradigm shift is seemingly simple and straight forward, the ripples, connections, and effects it causes touch a myriad of topics and disciplines including ethics, technology, and the environment. However, it is important to attend to as many of these as possible. On the positive side, understanding this complexity is a majority of the work. This is true for most influential works of philosophy. The concept is simple, the ramifications immense. An example I use to illustrate this to my students is Heidegger's seminal text, *Being and Time* (Sein und Ziet). The fundamental assertion of this text is that existence is temporally based. In other words, you cannot consider existence outside of temporality. This was a simple concept that took only several hundred pages to explicate and consider the ramifications of its thesis. Given the scale and complexity that we must now address to achieve this "sustainable revolution", the present conventions of architecture need this type of rigorous consideration.

Giving up a Universalist paradigm for practice and the education of architects means adopting a vision emphasizing the importance of agency and ethical reflection. This brings individuality, personal views, and accountability back into the formula. Simple in concept, but the ramifications of such a move will affect the entire discipline. The need for architectural programs to become more integrated and interdisciplinary is paramount to our success in this quest. The vision of the architect as "all knowing" has to be cast aside permanently altering the design studio format considerably.



The role of the studio should enlarge to structure the entirety of a student's education. Each semester would be considered one studio, not three to five different courses. All instructors would be involved in the integrated education of the designer, being present at mid-term and final critiques as well as giving individual critiques regularly. Also, to specifically address the need for ethical reflection encouraging social and environmental responsibility, the coursework involved outside the conventional studio structure should be multi-disciplinary. For instance, an environmental ethics course must be taught by an environmental philosopher, not a "sustainable" architect with a cursory knowledge of the relevant issues within this discipline.

In addition, subjects that deal with larger context issues would always be paired with more focused ones. A structures class (taught in the engineering department) might be given with a philosophy of technology course (taught in the philosophy department) and a history course (perhaps taught in a history or art history department) under the studio umbrella. At the beginning of each semester, the design faculty would convene the "teams" (not as a "head", but as a facilitator) to discuss and outline semester goals so distinct disciplinary material could be integrated to highlight potential ramifications for the studio project. Mid-term and final critiques could assess how well students understood larger context issues, incorporated this information into all levels of their project, and utilized the knowledge base of other disciplines.

To conclude, the roles of technology and ethics in regards to sustainability must be revalued to transcend the mentality of the technological "fix" which forces us to be only tactical, when we must really be strategic. The emphasis for being sustainable must become more than increasing the efficiency of our technology in regards to energy and focus on formulating innovative design processes that seek integration into surrounding ecosystems. The sensitivity necessary for this is only possible if attaining a better understanding of the complexities and fragility of the natural environment is considered the highest priority. This is an ethical stance, one that demands a reflective relationship with a particular context and a clear respect for "difference." Again, this involves the formalization of a strategy, because we must understand our goals clearly, but the paths to reaching these cannot become artificially fixed or unnecessarily uniformed.

As Ivone Gebara reminds us, "...any ethics is always an ethical prelude that can never become a totalitarian and static system. It must always be attentive to the complexity of situations and to new elements that occur" (GEBARA/174). To date, architects have been addressing sustainability as a kind of technological appliqué to conventions founded upon an internalized design agenda that has not changed considerably since the time of Vitruvius. In ways, architectural practice and education are truly closed systems. For "sustainability" to meet the needs of the current crisis it must be envisioned as an open and flexible means towards a greater understanding of the environment that questions the entirety of the design process continually. The strength of this attitude is that one must choose only to begin and then be open to the lessons learned and the understanding that is forthcoming.

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