# Reconciling Eco-Ethics and Aesthetics

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There is a growing consensus that the contemporary model of design practice is ecologically inadequate, regardless of scale. The modernist paradigm of rationalism and consumerism, while successful in meeting our short-term desires, is proving woefully inadequate in meeting our long-term social and ecological needs. This is not news. Thirty years ago Ian McHarg in *Design with Nature*, called for architecture and planning to change the way human interventions are imposed on the natural world.[1] Today, some thirty years later, designers are still making the same admonitions; only the stakes are higher now. In 1992, David Orr, a noted environmental educator and activist, wrote "that the decisions about how or whether life will be lived in the next century are being made now. We have a decade or two in which we must take unprecedented changes in the way we relate to each other and to nature."[2]

Orr describes a global crisis that we all face with little time to resolve. However, unlike other 'world crises' such as the nuclear holocaust or global terrorism, where responses in the built environment could only be minor

and responsive, Orr describes a current state of crisis where design responses can be major and generative. Designers no longer need to be victims. We can be actors. According to the Worldwatch Institute, building construction consumes forty percent of the raw stone, gravel, and sand used globally each year, and twenty-five percent of the virgin wood.[3] In addition, forty percent of the total world's energy usage is dedicated to the construction, operation, and dismantling of the built environment.[4] These activities place a great strain on the earth's living systems, especially if they are not conducted with these systems in mind.

Designers play a significant role in affecting how these resources are allocated and in reducing this environmental burden, but this not happening.[5] The 'environmental knowledge' developed over the last few decades has done little to change our daily lives, let alone reverse environmental degradation.[6] This paradox is especially evident with the design community, whose lack of effective action in the face of such great environmental imperatives is startling. Few among us are changing our practices in order to lessen the harmful effects on the environment, let alone make things better. Yet, few among us would deliberately degrade our natural environment. Most of us want the best for our children. So what explains the resistance to change; despite the knowledge of the environmental issues; despite the valuation of our children's futures?

These questions may be difficult to answer, but it is this paper's position that being informed of a serious problem, being aware of the personal role in contributing to this problem but doing little to resolve this problem is not only paradoxical, it is negligent. This negligence is not only evident in the gap between a designer's thoughts and deeds. It underlies some larger problems for our society as a whole.

This paper looks at this paradox of informed negligence as it pertains to environmental ethics or eco-ethics. It examines the role of aesthetics in possibly resolving this ethical dilemma. It then looks closer at the aesthetics/ethics relationship from the vantage of the object and the subject, and then suggests a new form of design practice based on a strategy of resistance informed by a combination of aesthetics, ethics, and a reinvigorated form of natural responsibility. This reinvigoration comes through widening the orbit of ethical concern, deepening the understanding of environmental issues and developing a greater sense of empathy for use in professional judgments.

## The Rationality Trap and the Paradox of Informed Negligence

Negligence is predicated on a lack of caring and as such, is an issue of values. If design is understood as the material expression of values, it seems that upon examining the work of many designers, environmental issues must rank low on their list of considerations.

This view is borne out in a recent survey of architectural practice for the state of California.[7] When asked to rank the importance of the task to "apply information about the relationship of the natural systems and the built environment to the proposed project", respondents placed this activity 20th from a list of 33 choices producing a mean value of 3.58. This is below the mean (average) importance rating of 3.66 for the entire test.

This result is not surprising. Architecture is a profession bound up in the affairs of the artificial world. Its mandate is often to overcome and transform natural environments into built environments using deeply entrenched economic systems that overweight the short-term and ascribe monetary value to all things. Design education also shares some of the responsibility. Familiarity with ecological issues has only recently been required in schools of architectural education. In the U.S., the National Architectural Accreditation Board Inc. (NAAB) introduced language relating to environmental education objectives in their accreditation procedures only nine years ago. The NAAB lists 'environmental conservation' as one of 37 student performance criteria where students must show an "understanding of the basic principles of ecology and architect's responsibilities with respect to environmental and resource conservation in architecture and urban design". 'Understanding' is defined by the NAAB as the level of performance where students can "correctly paraphrase or summarise information without necessarily being able to relate it to other material or see its fullest implications". [8] This is hardly the level of understanding necessary to overcome the environmental negligence witnessed in the design professions today.

This seems to be the price we must pay to reap the rewards of a technological society. It is difficult to be aware of the dynamics of a climax temperate forest community when we are passing it in a speeding, sealed construction of glass and steel. It is hard to be mindful of things outside when we spend an average of 90% of our time indoors. It becomes difficult to care for things we no longer are sensitive to or sympathetic with. This disconnect between the rational, utilitarian rules of our human endeavors with the natural forces of the world that supports and includes us becomes even more severe in a society where the ends are privileged over the means. This leads to a wide variety of transgressions of the environment, most of which we are unaware of.

This is particularly evident for architectural practice. For example, the specification of an aluminum curtain wall product directly contributes to Jamaican coral reef die-off and the poisoning of the Gulf of St. Lawrence to the extent that the carcasses of resident Beluga whales are considered too toxic for landfills. The 'exurbanisation of America' with its residential sprawl, malls and corporate campuses is radically altering watersheds, consuming arable land, and destroying habitats. Fossil water estimated to be

3500 years old is being used to irrigate office park landscaping in the desert cities of the American southwest. Wood veneers are specified from irreplaceable endangered species or from old growth forests. Mechanical systems of buildings use large amounts of high-grade electrical and chemical energy to overpower shortcomings in the indoor environmental quality resulting from climatically insensitive design. Mountain tops in West Virginia are being shaved off and dumped into their adjacent green valleys to provide coal for the Great Lake steel mills as they produce I-beams for a new shopping mall. Offshore structural steel is specified for its low purchase price despite the unhealthy conditions for its workers and the negative environmental impacts of its production. This all happens, despite the pro-environment declarations of architects worldwide.

Many explanations for this situation have been forwarded. The reliance on economic policies that overrule non-economic issues, the eco-feminist arguments of male gender based culture of domination and exploitation, the growing culture of instant gratification, misunderstandings of the earth as an unlimited resource, concepts of unlimited progress, globalising and rising expectations of lifestyle, myopic and isolated visions of world conditions, all play a role in understanding this paradox of informed negligence. However, many of these positions seem to be subsets of a larger epistemological problem: the consequences of rationalist thought itself.

For insights into this explanation for the disconnect between knowledge and actions as expressed through technological mastery, this paper turns to the Critical Theorists and the work of the Herbert Marcuse who argues,

> Science by virtue of its own method and concepts has projected and promoted a universe in which the domination of nature has remained linked to the domination of man – a link which tends to be fatal to this universe as a whole. Nature, scientifically comprehended and mastered, reappears in the technical apparatus of production and destruction which sustains and improves the life of individuals while subordinating them to the masters of the apparatus.[9]

Marcuse sees humankind as having become victims of its own mastery. If we want the benefits of a technological world predicated on instrumentalisation, we must accept our own instrumentalisation. When a system is put in place that only appreciates the utilitarian value of something, with no regard to its intrinsic worth, it is not surprising that humankind can be viewed in the same way. People valued as consumers, assets, or resources, will not valued for their inherent worth. For example, the anticipated costs of medical and wrongful death litigations were less than the profits of mining vermiculite, so the W.R. Grace Company of Libby, Montana continued to operate for

35 years after the risks of asbestos were acknowledged by the company.[10] This is obviously an extreme case of human instrumentalisation. What is more common is when people are forced to suffer the consequences of environmental degradation brought about by an instrumental, profit-only attitude towards natural resources. Sick building syndrome, asthma and skin cancers are examples of the human consequences of degraded natural environments.

This 'rationality' of production and consumption with little regard to ethical concerns, especially those pertaining to the natural environment, is also found in design practice with its heavy reliance on arguments of first-costs, system efficiencies, and worker productivities. The architectural historian and theorist Alberto Perez-Gomez offers an explanation similar to Marcuse's in his discussion on the 'crisis of rationality'. He quotes Merleau-Ponty's position that a "simplistic view of human experience, derived from the projection of scientific models onto human reality, exemplified by certain aspects of behaviorism and positivistic psychology, has hampered our understanding of the essential continuity between thought and action between mind and body".[11] Gomez maintains that it is through this limited view that architecture is 'subject to the values of technology (and commerce) … its interest is not in meaning, but in a conceptual or material efficiency dominating design and construction … practice has been transformed into a process of production without existential meaning, clearly defined aims or reference to human values.[12]

Similarly, the British aesthetician Roger Scruton describes how this transformation of practice into production reveals a deep and enduring paradox regarding humankind's relationship to nature. He points out that we describe the world in two different ways, as the spontaneous, self-organised world of nature – as the world that contains us, and as the deliberate, intentionally organised world on which we act. In the first case, we are part of nature, subject to natural laws. But in the second case, we stand back from nature, and make choices we believe to be of free will, as persons and as professionals. Scruton points out "it is this illusion of free choice that sustains the belief that architectural practice can be reduced to a system of rational, prescriptive rules …This uniquely modern relation should not be taken for granted; it epitomises the crisis of contemporary architecture,' if not society at large."[13]

While Scruton's definition of nature may be problematic for not recognising it as a human construction, it does perform a useful purpose. As J.S. Mill puts it when describing the world in the same way, "this distinction is far from exhausting the ambiguities of the word; but it is the key to most of those on which important consequences depend".[14] Scruton's 'illusion of free choice' is what is of special interest here. It is this illusion that leads to our environmental predicament.

What are some of the ways our society in general and design in particular can escape this rationalist, technological entrapment? Marcuse offers some answers. He sees science, as it operates in contemporary advanced industrial society, in terms that underscore its intrinsic instrumentalism. The procedures of abstraction, calculation, formalisation, and rationalisation leads him to contest 'the internal instrumentalist character of this scientific rationality by virtue of which it is *a priori* technology, and the *a priori* of a specific technology – namely, technology as a form of social control and domination.[15]

Marcuse suggests that if the old science of instrumental rationalism is behind the domination of nature and humanity in the machinery of the industrial environments, then new scientific practices, linked not to metaphysics of domination but rather to metaphysics of liberation, might alter everything. Marcuse describes this metaphysics as founded on, "a new sensibility – aesthetic, life-affirming, and liberatory in character." It would be based on "aesthetic dimensions and a regard for beauty as a check against aggression and destruction."[16] For Marcuse, 'the rationality of art', its ability to 'project' existence, to define yet unrealised possibilities could then be envisaged as validated by and functioning in the scientific-technological transformation of the world. Rather than being the handmaiden of the established apparatus, beautifying its business and its misery, art would become a technique for destroying this business and this misery.[17] Aesthetics and ethics would work towards the same end: a better, sustainable, if not regenerated world.

A designer cannot help but be sympathetic to this view. Aesthetics does require the involvement of the senses as well as the intellect. By definition, it is predicated on the development of sympathies to the non-rational as well as inputs tempered by thought. Often design defies conventional standards and higher costs to realise particular aesthetic effects. There seems to be a culture of resistance and criticality at the heart of design. Interestingly, these are the same qualities of thinking that are necessary to establish an ethical position in the face of competing pressures.[18]

Unfortunately, the history of design shows us that much more effort goes into looking good than doing good.[19] Despite Marcuse's enthusiasm for art as a means to temper technology, the realities of today's design practice demonstrate a strong disconnect between aesthetics and environmental ethics. Samuel Mockbee and his students of the Rural Studio at Auburn University received worldwide attention because of the strong social and environmental concerns of their architectural works. This attention was received because this kind of design practice is not common. Typically, design practices are dominated by individuals well versed in the exercise of aesthetic judgment but who fall short in having, let alone incorporating an ethical position into their professional

actions, especially as they pertain to the natural world. This may be evidence of yet another shortcoming in the professionally defined realm of design knowledge. In Tom Spector's *The Ethical Architect*, one of the most recent books on the subject of ethics and architectural practice, no mention is made of sustainability, ecology, or environmental justice, at all, anywhere.[20] This absence speaks volumes.

It is this empirical disconnect between aesthetics and ethics that forms the most stubborn barrier to realising Marcuse's vision. Misunderstandings regarding the relationships between aesthetics and ethics abound. Nowhere was this more publicised than in the title of the 7th Venice Biennale International Architecture Exhibition, 'Less Aesthetics, More Ethics'. This title's underlying premise is that these two forms of endeavor are mutually exclusive; one has to be de-emphasised in order for the other to receive more attention. Not only does this kind of thinking run the risk of disengaging the ethical interests of designers who care about aesthetics, it is false. In order to possibly prescribe some means of reconciliation between the two, ethics will now be examined from the perspectives of the aesthetic object and that of the aesthetic subject.

## The Aesthetic Object and Ethics

Typically, aesthetics is examined in terms of the object and the qualities it must possess to initiate an aesthetic response. The focus is on the 'transmitter'. These transmissions form part of the object's meaning. Examining how a work of artifice means sheds light on how ethical and aesthetic considerations interact. Nelson Goodman's work on referencing in architecture,[21] which is an extension of his work on meaning and art, provides a conceptual framework for understanding the way artful things mean aesthetically.[22] Goodman defines an enterprise as aesthetic or artful "only insofar as it signifies, means, refers, symbolises in some way."[23] According to this definition, the quest for adding meaning to an artifact is a quest for making the work artful through some form of reference.

As a good analytical aesthetician, Goodman classifies the myriad varieties of references into four simple categories. These include: 'denotation' or resemblance of the whole work to something external to it; 'literal exemplification' or expressions associated with a work's properties; and 'metaphorical exemplification' or expression of ideas that the work does not actually possess. These three forms of reference can also be linked to produce a fourth category of mediated references or chains of meaning. All of these references are derived from the 'realm of appearances'[24] only, revealing themselves from within the work itself. These manifest references form the limit of aesthetic meaning.[25]

In contrast, other important forms of meaning can come from sources beyond the appearance of the work and often remain

hidden or latent, such as intention, practical function or ethics. This fact of their obscurity makes them easy to overlook, especially by those focused in matters of appearances, as one would expect with design professionals. However, these latent references can have a major impact on the meaning and consequent desirability of a work of artifice.

This is especially true for ethical references. Examples include the beautiful lampshade discovered to be made of human skin, or the delicious appetiser learned afterwards to consist of live monkey brains, or the designer dress revealed by the press to be made in a New York City sweatshop. Here the ethical understanding radically inverts the overall meaning of the works, despite their aesthetic success. These are extreme examples but lesser versions of non-reinforcing relationships between ethics and aesthetics; between looking good and being good, make up the bulk of contemporary design practice. Almost every conventional design decision has a negative environmental impact. This is because most of these conventions arose with little consideration of eco-ethical issues. Time, cost, performance, convenience, and appearance have all taken priority over environmental ethics. It does not have to be this way.

Ethical considerations can affect the production of meaning in a positive manner. This is what should be of more interest to the designer. For example, a beautiful cherry floor has more meaning knowing it came from a local, sustainably managed forest. The concrete wall has more value knowing that much of its cement came from fly ash obtained from scrubbing smokestacks of their airborne pollutants. In these cases, the ethical concerns are not directly reflected in the aesthetic expression, yet they add significant value to the work once understood. In this way, the designed object can form the locus for aesthetics and ethics to mutually reinforce each other in the production of an intentional positive form of meaning, despite their respective differences in origins and reasons for being.

### The Aesthetic Subject and Ethics

Another way to examine the aesthetic/ethic relationship is to look on the reception of the aesthetic experience by the subject, where the focus is on the 'receiver'. The work of Averill, Stanat, and More is relevant here.[26] Unlike Goodman, these authors produce a framework for understanding aesthetic experience as it pertains to a natural, spontaneous landscape, thereby avoiding the thornier references associated with an intentional built environment. Averill et al. analyse aesthetic experience in terms of biological, sociological, and psychological systems of behavior. In their view, "objects are experienced aesthetically if they activate cognitive representations of response patterns that do or did contribute to the survival or enhancement of the species, society, or the self."[27]

While this is difficult to prove in detail, their discussions about predispositions for the aesthetic experience are insightful.

The authors begin by examining the mediating mechanisms, the cognitive processes that enable aesthetic experiences. They argue that sensory mechanisms did not evolve so we could contemplate the beautiful and sublime. Rather, they are simply a prerequisite for mobile organisms to respond to a changing environment. What exists internal to the organism are predispositions to make discriminations and respond. These predispositions form the basis of aesthetic experience.

This explanation is very similar to the Harvard biologist E.O. Wilson's concept of 'biophilia', the 'love of life', claimed as a genetic, universal basis for a human predilection for things 'natural.'[28] Both of these explanations suggest that with the evolution of humanoids as part of a large complex of co-evolving organisms, humankind has developed an innate biological attraction for things natural. Places of abundant water and food not only ensure higher probabilities of reproductive success, they have become visually attractive to us in an archetypal way. This makes sense in an evolutionary context. If members of a species can recognise the complex phenomena of a 'supportive environment' through simple perceptual cues such as vision, they can gain an advantage by being able to exploit the resources early.

Wilson maintains that these archetypal predilections remain with us today, despite our cultural differentiation, influencing many of our aesthetic decisions. His biophilia hypothesis explains why views of water are considered aesthetically pleasing. They are archetypal images of supportive environments. Empirical research bears this out. In a study of Wisconsin lakeshore property owners, the hypothesis that people were attracted to lakeside living for the ready access to angling opportunities was completely refuted.[29] Instead, aesthetics were more important than all outdoor recreational activities combined by a three to one margin. Over 60% of the subjects indicated that they purchased their property primarily for 'solitude and beauty'. A more recent study reached similar conclusions where 'being at the lake means primarily peace and quiet and a closer relationship to the natural world'.[30]

Interestingly, this attraction for supportive environments may be the ancient archetypal source for both aesthetics and ethics. A desire for an aesthetic experience in nature generates a desire to protect and maintain the sources of that experience. Of course, this requires the ability of the organism to sense or be sensitive towards the particular environment it finds itself in. The greater the affiliations with the biophysical world, the greater the advantages that a species has in the evolutionary struggle to adapt, survive, and prosper. These affiliations or empathies, according to Averill et al., form an important, prototypical way of knowing.

As a way of thinking and understanding, we need not deny empathy a place in the human repertoire or subordinate it to a completely rational or scientific mode of thought. On the contrary, we may assume that empathy is itself a natural way of knowing, one that still finds a place in the aesthetic appreciation … and in the intellectual understanding of the world.[31]

Empathy is not only an important epistemological technique, it is argued by some to be the prerequisite for ethical action itself. In his book *Bringing Life to Ethics*, Michael W. Fox maintains that care and concern precede ethical choice and action. It is through empathy that the individual's instinct for the avoidance of pain is transformed into a 'humane' compassionate concern for the welfare of other individuals, both human and non-human species alike. If you are aware, you may care, if you care, you may love, and if you love, you may protect.

This connection of empathy to both ethics and aesthetics explains why art is often used as a new model for tempering the Promethean project. Averill et al. suggest how to develop these new sensibilities, coincidently echoing Marcuse's dream of an aesthetics-based society:

Since the pacification of Nature presupposes a partial mastery of Nature, which is and remains the impassive objectivity opposed to the formation of liberating institutions, a new science would need its guiding illusions from a new sensibility grounded on art.[32]

This argument for art to be used as the model for a new way of understanding the natural world compliments Gomez's argument for undoing the tyranny of rationalist thought in order to free creative enterprise. In all of these arguments, intuition and empathy are seen as critical agents for change, whether building a Utopian society according to Marcuse, creating ethical interventions in the natural world, according to Averill et al., or whether revising artful enterprises such as architecture and design, according to Gomez.

## Reframing Ethics

Empathy is an important form of knowing, especially as it pertains to the aesthetic subject. Empathy is also important, if not essential, in expanding our sensitivities beyond the self to resolve moral issues. Consequently, strengthening our empathic powers will not only return deeper forms of meaning to the practice of the arts and architecture, it can expand and deepen the role of ethical consideration within these practices. However, to do this, the prevailing orbit of ethical concern must be expanded beyond the Kantian model where moral considerations are given only to rational participants, humans. In order for real change to occur in human-nature relationships, all living things must be brought into the orbit of ethical consideration. This requires human empathy to extend beyond our own corporeal shell. The ethical domain must be reframed from the anthropocentric to the biocentric.

When combined with the dutiful aspects of morality, empathy becomes connected to aesthetic experience, where an individual, by a kind of empathetic interjection, may feel involved in what is being observed or contemplated or affected. The non-rational understandings that are derived through our instinctive predilections, feelings and emotions can underpin our judgments about both experiences and actions. An architect who has watched Beluga whales in the St. Lawrence and who is aware of the damage inflicted on them by nearby aluminum smelters will more likely specify 100% recycled content for the aluminum curtain wall panels on the next project. It is the undervalued and over-limited state of our empathies that generates not only the disconnection between architectural aesthetics and ethics, but also much of what ails society as a whole.

So how can this situation change, especially within the design professions? First, in preparing design students, an understanding of ethics must be expanded beyond a basic overview of torte law buried in a one-semester professional practice course. Courseware needs to be offered as required curriculum where students become aware of the full range of ethical issues associated with design practice, while developing ethical reasoning and problem-solving skills. They need to learn about normative theories and ethical frameworks to be able to clarify their own personal values while learning about professional mores. Most importantly, the students must learn how to improve their empathetic understanding of living things unlike themselves through techniques such as role-playing, field visiting, and service learning.[33]

In other professions, ethics education is being taken very seriously. In medicine, many schools offer some form of ethical education through courses, seminars, and 'clinical teaching' every year of the student's attendance. The consensus that ethics education is an important element in the formation of new physicians is reflected in the American Association of Medical Colleges' (AAMC's) *Curriculum Directory*, where all medical colleges in the United States claim to require ethics education.[34] However, it should be noted that upon closer examination, the quality of this ethical education is uneven.[35]

Secondly, all students, not just those of design, should have some basic instruction in ecological stewardship. As renowned environmental educator Anthony Cortese puts it,

> Because all members of society consume resources and produce pollution and waste, it is essential that all of us understand the importance of the environment to our existence and quality of life and that we have the knowledge, tools, and sense of responsibility to carry out our daily lives and professions in ways that minimise our impact on the environment.[36]

Cortese argues that environmental issues should be introduced to all students, regardless of discipline, just as writing skills, numerical fluency or physical education are listed as requisite courseware at most of today's institutions of higher learning.

Finally, design education does not stop with the granting of a professional degree. Many professional associations require lifelong learning as a means to retain the benefits of membership. In most of the U.S. and Canada, architects must earn 18 Continuing Education learning unit hours in each calendar year in order to remain an AIA member in good standing. Eight of these must be Health, Safety Welfare units (HSW), the category that includes ethics and sustainability, along with 27 other topics. While the intention of continuing education is laudable, four hours per year does not seem to be a significant contributor to re-education of the design professional. Perhaps a more effective transformative tool for eco-ethics has been the mainstreaming of the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program in professional architectural practice. Through the pursuit of federal projects that require LEED certification, many firms actively encourage their designers to become LEED-accredited professionals. This is not a trivial task. It requires learning the USGBC study materials and paying a $350 fee to sit for a challenging exam.

This process is changing practice but much more needs to be done. Ultimately, the profession must be re-made, perhaps not to the extent that Marcuse advocates, but re-made nevertheless. Design practice needs to give up its objectivist, rationalist myths about truths of external reality, independent from the social, the historical, and with it the natural. As such, design practice would become aware of its connection to the world it plays such a significant role in creating. Design can change the way energy and materials flow through the world not only to reduce negative environmental impacts but also to participate in the regeneration of all systems, both natural and human made. Through this understanding, a model for design practice emerges which reconsiders aesthetics with resonant, supportive ethics, environmental or otherwise, creating an expanded sympathy to things non-human in order to affect real environmental change.

## Notes

1. Ian McHarg *Design With Nature* Garden City, NY: Natural History Press, 1969.
2. David W. Orr *Ecological Literacy* Albany, NY: SUNY Press, 1992, 3.
3. D. M. Roodman and N. Lenssen *Worldwatch Paper 124 A Building Revolution: How Ecology and Health Concerns are Transforming Construction* Washington, DC: Worldwatch Institute, 1995, 23.

4.  Ibid.

5.  Gary Pask 'Introduction: Sustainable design isn't taking hold ', *Canadian Eco-Architecture* May, 2000, 3.

6.  Timothy W. Luke *Ecocritique: Contesting the Politics of Nature, Economy, and Culture* Minneapolis: University of Minnesota Press, 1997, 195.

7.  State of California, Department of Consumer Affairs, California Architects Board CAB Practice of Architecture in California, Survey of architectural practice in California, 1998.

8.  Taken from the NAAB website at http://www.naab.org/ information1726/information_show.htm?doc_id = 15297. 2004. It should be noted that the wording for this performance has been changed for the 2004 edition. It is now called 'sustainable design'. However, it remains at the level of 'understanding' as defined in the text.

9.  Herbert Marcuse *One Dimensional Man* Boston: Beacon Press, 1964, 166.

10. Shannon Dininny, Ericka Schenck Smith and Benjamin Shors *Fall from Grace: The Libby Asbestos Trajedy* The University of Montana/Missoulian Special Report Series, http://www. missoulian.com/specials/fallfromgrace/, 1999.

11. Merleau-Ponty *Phenomenology of Perception* London: Routledge and K. Paul, 1962, 13–63.

12. Alberto Pérez-Gómez *Architecture and the Crisis of Modern Science* Cambridge: MIT Press, 1983, 8.

13. Roger Scruton *An Intelligent Person's guide to Philosophy* London: Duckworth Press, 1996, 22.

14. J.S. Mill *Nature, The Utility of Religion and Theism* London: Savill, Edwards & Co., 1874, 8.

15. Marcuse, 157–158.

16. Ibid., 146.

17. Marcuse, 247.

18. David M. Bersoff 'Explaining Unethical Behavior Among People Motivated to Act' Prosocially' *The Journal of Moral Education* May, 1999 Vol. 28, No. 4.

19. Thomas A. Dutton and Lian Hurst Mann 'Modernism, Postmodernism, and Architecture's Social Project', in Thomas A. Dutton and Lian Hurst Mann (eds) *Reconstructing Architecture: Critical Discourse and Social Practices* Minneapolis: University of Minnesota, 1996, 3.

20. Tom Spector *The Ethical Architect: The Dilemma of Contemporary Practice* New York, Princeton University Press, 2001.

21. Nelson Goodman 'Che Cosa Significa Costruire, E Quando E Perché' *Domus* May 1996, 17–28.

22. Nelson Goodman *Of Mind and Other Matters* Cambridge: MIT Press, 1984, 55–71.

23. Goodman, 'Che Cosa Significa Costruire, E Quando E Perché', 17.

24. Derived from discussion of the 'priority of appearance' in Scruton *The Classical Vernacular: Architectural Principles in an Age of Nihilism* Manchester: Carcanet Press, 1995, 152.

25. For a more complete description, see my paper 'Reflecting Nature: Design as a Biophilic Response', Twentieth Anniversary Carleton University Conference on Design Ottawa: n.p, 1999, 95–105.

26. James Averill, Petra Stanat, and Thomas More 'Aesthetics and the Environment' *Review of General Psychology* February, 1998, 153–174.

27. Ibid., 153.

28. Edward O. Wilson *Biophilia* Cambridge: Harvard University Press, 1984.

29. Lowell Klessig *Recreational Property Owners and Their Institutional Alternatives for Resource Protection* Madison: University of Wisconsin, 1973.

30. Patricia Shifferd and James Palmer *Being at the Lake: Problems of Organisation in a Vacation Community*. Report Prepared at Northland College, Ashland, Wisconsin for the Wisconsin Department of Natural Resources. Northland College, Ashland, 1997.

31. Averill et al., 166.

32. Ibid., 150.

33. For examples of the author's pedagogy, see Jack Elliottt 'Teaching Sustainability to Tomorrow's Interior Designers' http://www.metropolismag.com/html/sustainable/case/ TomorrowsInteriorDesigners.html, 2004.

34. American Association of Medical Colleges. Curriculum Directory 1998–1999, 27th ed. Washington, DC: Association of American Medical Colleges, 1998.

35. James M. DuBois, PhD, DSc and Jill Burkemper, PhD 'Ethics Education in U.S. Medical Schools: A Study of Syllabi' Academic Medicine 2002 77: 432–437. In this study of U.S. medical schools, most respondents 58% teach ethics only as one component of a larger required course. Ethics might receive 20 or more formal classroom hours or no formal time at all, relying on faculty to engage ethical issues in their courses and on clinical rounds.

36. Anthony Cortese, 'Education for an Environmentally Sustainable Future,' *Environment Science and Technology* 26: 6 1992: 1108–1114.