

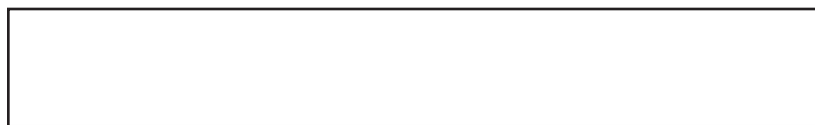


an industrial designer's ethic

a study: Products for Urban Ecology

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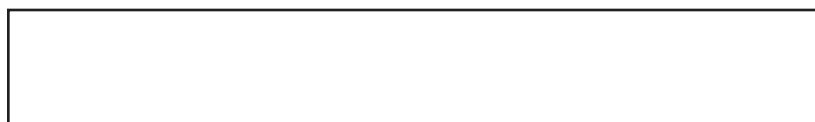
this thesis is submitted to the faculty of
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Mitzi R. Vernon, chair







A. E. Cromer



Ed Dorsa

table of contents

PREMISE	RESEARCH	WORKS	CONCLUSION
			
(life cycle)	(birth)	(reproduction)	(decay)
the ethic	urban ecology	studies	conclusion
5	13	21	41

Reproduction.

Seed cards. *Seeds of Change Catalog*, Annual Seed Book 1998. p.13

Bromeliaceae *Vriesea procera*. M. Mee, <<http://www.nmnh.si.edu/botart/1365.jpg>>

Flowers. Andy Warhol, *Flowers* (New York: te Nueus, 1998.)

Harvest. Merser, p. 46.

Monet's Waterlilies. Murray, p. 23.

Death.

One Dozen.

Seedlings. Squire, p. 15.

Columbine. Albert Richards, <<http://www-personal.umich.edu/~agrxyr/>>

Canopy.

Frank Lloyd Wright's Waterlilies. <<http://www.wrightcatalog.org/Waterlilies.html>>

Babylon. Larrinaga, <http://ce.eng.usf.edu/pharos/wonders/Gallery/gardens_color.jpg>

Garden City Diagram. Girardet, p. 55.

Reach.

Smell. Merser, p. 45.

Grey-Wilson, pp. 12-13.

Birth.

Culinary. Merser, p. 78.

Botticelli's La Primavera. Murray, p. 27.

Coconut planter. <<http://www.go-nuts.com/gallery/gallery2.htm>>

Mother Earth. Merser, p. 11.

Fleur-de-lis. Squire, p. 124.

Beauty of the Backside.

Tree ecology. Wolverton, p. 17.

Indian carpet. Walker, p. 111.

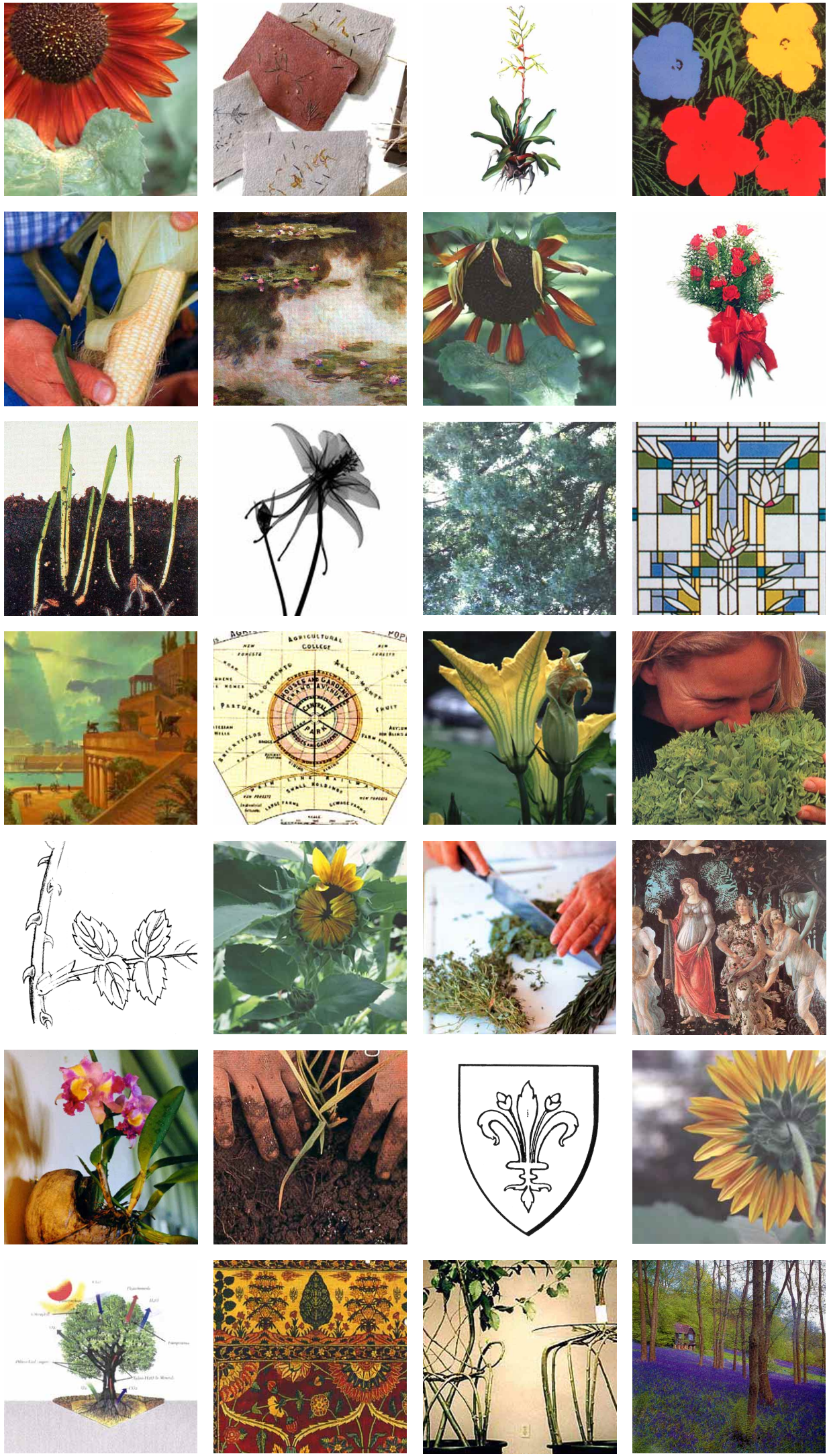
Growing furniture. Reames, <<http://www.wizzards.net/arborstu/>>

Lavender fields. Squire, p. 14.

Living Silk.

Magnetic Garden.

All photos by author, except where noted.



emotion smell taste color light life structure biology health food joy
play potential texture sex earth poetry woman form nature culture

A study to understand what the flower represents for me.



“SUSTAINABILITY”: *Latin: sustenir, to hold up, to support from below* (1) capable of being borne or endured; supportable, bearable. **1789** *T. Jefferson* “no generation can contract debts greater than may be paid during the course of its own existence.” (2) capable of being upheld or defended (3) capable of being maintained at a certain rate or level. **1997** *B. Lachman* “...longterm, integrated, systems approach to...economic, environmental and social issues.”

an ethic

This body of work aims **to discover opportunities for industrial design to support sustainable ways of living in a materialistic society**. At first glance, sustainable living and product design seem incongruent. Perhaps through investigation of the nature of product design and models of sustainability, a plan can be established which actually strengthens the reality of each in light of social, economic and environmental issues.

The ideal of living sustainably is daunting. As defined by the United Nations World Commission on Environment and Development, "sustainable development" is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Not only is environmental consciousness vital for the future, it is essential for human health today. Currently, citizens of industrialized countries are eroding both their environment and health through rampant consumption and pollution, in the name of “progress”. One sustainable model which proposes living in equilibrium is the **natural life cycle**. In this model, the waste of one is the food of another. Nature does not operate in moments, but rather in fluidity, always moving towards balance, always using materials, always processing waste.

Industrial design has the potential to promote sustainability issues because it is founded in **distribution**: mass production of a single item distributed to many. Much in the way that a dandelion uses the wind to spread its seed, products could use the free market to spread ideas. The concept is democratic, allowing for freedom of choice of the individual, as a consumer. This model relies on the individual rather than the institutions of government and industry.

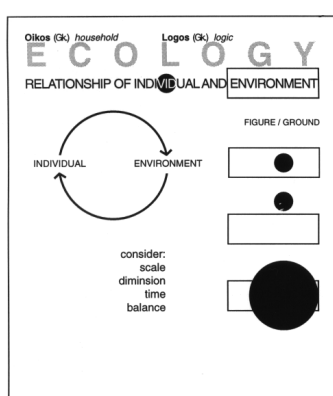
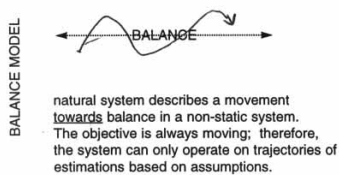
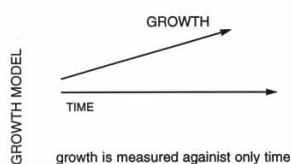
Unfortunately, this strength of product design is presently not being maximized, but rather prostituted. Instead of using product marketing to send a message, marketing today is about making a buck. (Several corporations, Benetton, Saturn and Ben and Jerry’s, have profitably supported sustainable social and environmental agendas.) Product designers must therefore challenge the concept of market value, speaking directly to the consumer with the product. This is possible by breaking down product mythologies, exposing the unsustainable realities they represent, including sweatshop labor, resource destruction and production pollution.

The goal is not preservation or even conservation, which do not allow for change over time. **The goal is awareness of ecologies and our changing role within them.** Rather than taking either a doomsday or a retroactive stance, **this work demands proactive questioning, to allow for both progress and balance.**



(life cycle)

E C O N O M Y

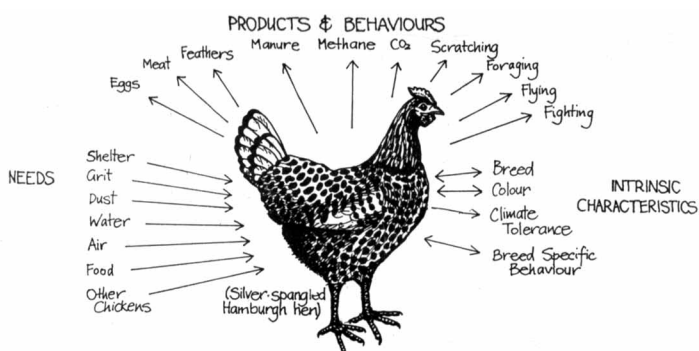


Three Ages of Woman. Gustav Klimt, *Gustav Klimt Women* (New York: Rizzoli, 1985), p. 89.

¹ Center of Excellence for Sustainable Development. “Overview of Sustainable Development Definitions and Principles.” <http://www.sustainable.doe.gov/overview/definitions.html> (30 Aug. 1999).

The complexity of producing products sustainably has lead designers to many different inquiries: theoretical, material, environmental, economical, and social.

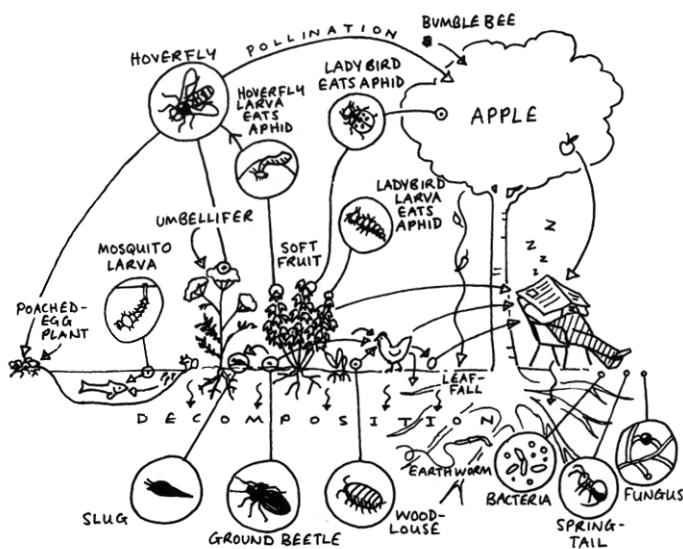
Designing and producing products within the natural life cycle seems a daunting challenge given modern technological innovation and dependence. A direct translation of the success of cyclic design is PermaCulture. Developed by Bill Mollison in the 1970's, PermaCulture uses scientific knowledge to design self-sustaining agriculture.



permanent agriculture PermaCulture design is a system of assembling conceptual, material, and strategic components in a pattern which functions to benefit life in all its forms. The philosophy behind permaculture is one of working with, rather than against, nature; of protracted and thoughtful observation rather than protracted and thoughtless action; of looking at systems in all their functions, rather than asking only one yield of them; and of allowing systems to demonstrate their own evolution's. ²

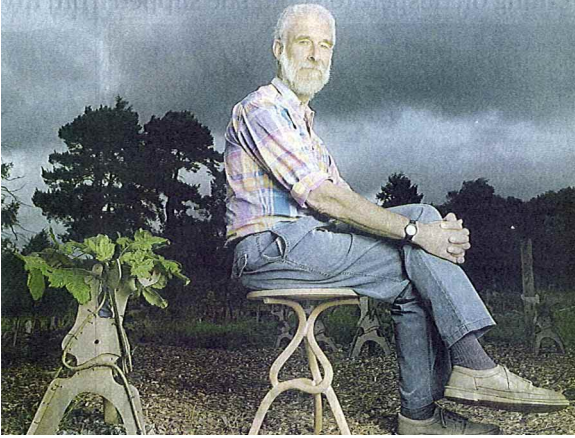
His method assesses energy use, material consumption and waste production of every element of the farm. He situates each to benefit mutually from the others. His system relies on natural biodiversity to ensure continuity (stability) in times of change (instability). The cyclic model is always moving toward balance.

The same life cycle methodology underpins architect William McDonough's philosophy of "waste=food." Within the lifecycle (production, use and disposal) of a building or product, there are many opportunities for green decisions to be made:

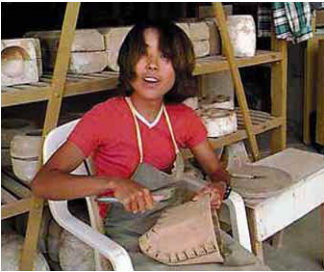


Production:	resource
	use
	energy consumption
	by-products/waste/pollution
	distribution
	energy
	labor
	marketing/packaging
Product Use:	product operation
	waste generated
	energy consumption
Disposal:	transport
	energy
	labor
	landfill

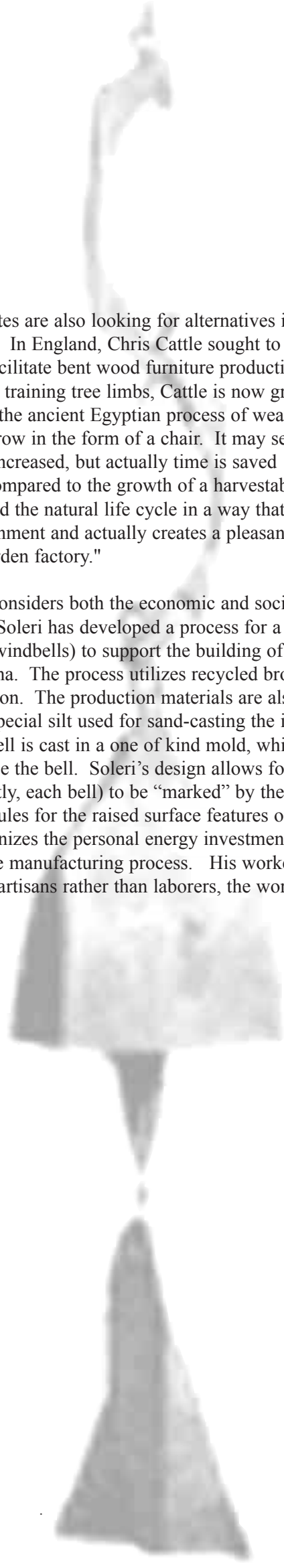
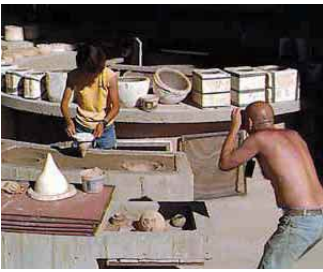
Looking at a product with this holistic viewpoint allows for a genuine evaluation of the nature of a product and its successes and failures with respect to sustainability. Also, these perspectives allow for collaboration with professionals who are not specifically designers, but may hold the same values or ethics. For example, McDonough is currently cataloging and evaluating the impact of the range of materials available for the construction of buildings. He is working also to develop alternative materials to be made available to designers and for use in his own work.



Sustainability advocates are also looking for alternatives in production processes. In England, Chris Cattle sought to train trees to specified arcs to facilitate bent wood furniture production. Instead of stopping at training tree limbs, Cattle is now growing chairs; rediscovering the ancient Egyptian process of weaving limbs together to literally grow in the form of a chair. It may seem that production time has increased, but actually time is saved significantly, when compared to the growth of a harvestable tree. Cattle has manipulated the natural life cycle in a way that is not harmful to the environment and actually creates a pleasant work environment, the "garden factory."



Paulo Soleri's work considers both the economic and social impact of design decisions. Soleri has developed a process for a sustainable product (windbells) to support the building of the town of Arcosanti in Arizona. The process utilizes recycled bronze and ceramic from the region. The production materials are also from on-site, particularly special silt used for sand-casting the individual bronze parts. Each bell is cast in a one of kind mold, which must be destroyed to release the bell. Soleri's design allows for each mold (and subsequently, each bell) to be "marked" by the maker. By defining a set of rules for the raised surface features of each bell, the design recognizes the personal energy investment of the workers as well as the manufacturing process. His workers are thereby employed as artisans rather than laborers, the work giving back to its maker.



Rooster Impact Diagram. Mollison, p. 38.
 Natural Lifecycle. Graham Bell, *The Permaculture Garden* (London: Thorsons, 1994), p. 31.
 Chris Cattle. <<http://popularmechanics.com/popmech/feat/1HFEATM.html>>
 Arcosanti Ceramics. <<http://www.arcosanti.org/images/WWWPhotos/pict.html?970507>>
 Arcosanti Workshop. <<http://www.arcosanti.org/images/WWWPhotos/pict.html?970505>>
 Arcosanti Foundry. <<http://www.arcosanti.org/images/WWWPhotos/pict.html?980122>>
 Arcosanti Windbell. <<http://www.cosanti.com/>> cc3.jpeg.

² Bill Mollison. *Permaculture: A Designer's Manual*. Tyalgum: Tagari, 1992.
³ William McDonough. "Design, Ecology, Ethics and the Making of Things." 7 Feb. 1993. <<http://minerva.acc.Virginia.EDU/~arch/pub/sermon.html>> (3 Sept. 1998).
⁴ Chris Cattle. "Growing Furniture: No assembly is required" 16 Aug. 1997. <<http://server.wizzards.net/arborstu/cattlenf.html>> (30 Aug. 1999)
⁵ Paulo Soleri and Scott Davis. *Paulo Soleri's Earth Casting*. Peregrine Smith: Salt Lake City, 1984.

MAYBELLINE

MAYBE SHE'S BORN WITH IT. MAYBE IT'S MAYBELLINE.



As a mass-market endeavor, Industrial Design has the intrinsic advantage of distribution, which offers the opportunity to potentially provoke change through the physical manifestation of an idea. The breadth of the potential audience is enormous. By relying on the free market to "vote," via sales, a product begins to represent a voice in a culture. The marketing or presentation of the product and its idea become essential if a product is to be a banner for change. Unfortunately, marketing can also manipulate the consumer into buying false green products.

Companies sell an idea based on the perception of what the market desires, or by seducing the market to have a particular desire. At present, the marketing of "nature" is rampant. Most cosmetic's pride themselves on their natural qualities: "naturally fresh", "healthy and natural", "natural clean look", "maybe she's born with it". Products that are not healthy to our environment or our bodies (in terms of detergents and production processes) are presented as good for our "healthy look", not our actual health. The marketing of "green" has so swept the country that it is hard to not see it in the marketplace.

Language loses value when overused, misused, or used to misrepresent the actual nature of their products. As a result, regulatory boards have had to define such words as "organic" to avoid product misrepresentation and subsequent consumer confusion. Because of this, the "green" movement is too general of a cause to pursue and perhaps almost a moot point in terms of gaining an edge in the marketplace. In fact, the misuse of the terms "green" and "eco" have the potential to damage the environment, as consumers believe in products which may actually be harmful or worse still, consumers may falsely believe they are doing their share for the movement.





Recently more media attention has been devoted to environmentalism, working standards, and health issues. Such coverage has exposed unacceptable working conditions in third world countries and environmental disaster rooted in corporate negligence or irresponsibility. This data could be used to advantage in the marketing of products. For example, due to media coverage of agribusiness and pesticide use, the organic food industry has been experiencing a boom in sales. Unfortunately, the organic food consumer is a limited percentage of the population, primarily within the higher income brackets.

One of the goals of marketing greener products should be that their *green-ness* is not the selling point; that is not what makes the product exceptional; but rather that ecology is a given; products ought to be marketed based on their contribution rather than compliance. The contribution ought to be a desirable challenge rather than a tedious chore; presenting the environmental movement in a positive, enriched manner, as opposed to a threatening one.

This thesis proposes that **"green" begin to be an inherent quality of products, rather than a gloss-over selling point.** Then, the "doomsday" attitude toward global ecological responsibility and balance can be converted into a positive pursuit, a way of living; integrated into the daily act, as for example, happened with recycling. This process need not depend on the institutions of government or corporate business; instead it should rely on the desire of the designer to seize the gauntlet that's been thrown down and present sustainable alternatives to the willing consumer.



Maybelline Ad. <<http://www.maybelline.com/>>

Composting Toilet. John Schaeffer and the Real Goods Staff, *Solar Living Sourcebook* (White River Junction: Chelsea Green, 1994), p. 351.

Wal-mart Plastic Shopping Bag. <http://www.walmartfoundation.org/env_prod.html>

Organic Consumers Association Logo. <<http://www.purefood.org/>>

Harmony Canvas Shopping Bag. <<http://www.harmonydirect.com>>

Filipino Sweatshop. <<http://wccx.wcc-coe.org/wcc/assembly/decfest.html>>



Consumable: Biodegradable packaging



Durable: Personal computer



Unmarketable: Toxic waste drums

The final and perhaps most important aspect of the free market with respect to the development of green products is the idea of value. Paul Hawken cites German Dr. Michael Braungart's concept for the redefinition of economic value of products and services. He proposes three product types: consumables, durables and unmarketables.⁶ **Consumables** are products that are produced to be biodegradable; an example being biodegradable shampoo packaged in a compostable bottle made of beets. These products contribute to a 100 percent renewable waste stream. **Durables** are more complex products which are marketed as services; televisions are leased from a manufacturer rather than individually owned. These products are the domain of a business and they accept responsibility for the parts. Hawken's thought is not only for reuse of products but better design for the remanufacture of parts and serviceability and longevity. The last product type are **unmarketables**; these are wastes that have already been generated which would be stored in storage facilities until research discovers ways to renew these materials in an ecologically safe way. This economic valuing structure would redefine the way we design for and, as consumers, approach the market. Such a radical shift in responsibility would require global change. At present, the uneducated consumer is faced almost exclusively with slick marketing strategies.

Biodegradable Packaging. <<http://www.battelle.org/polymer/organic.htm>>
I-mac Personal Computer. <<http://www.apple.com/imac/dv.html>>
Toxic Waste Site. <<http://dailyrevolution.org/allgood/990123.html>>