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Re-Machining Domesticity: A Technological Inversion of Standards

Modern kitchens and bathrooms are adept at the art of denial. These two rooms, compared to other domestic spaces, are paradoxically the most intimately linked to our bodies and the most determined to deny their relationship to the body with the use of cold, hard materials, and their determination to preserve and protect against the "dangers" of natural cycles of life and decay. Waste is carried magically away: We need not confront the detritus of our own bodies and lives, or think of where such things end up. Water, heat, and cold appear quietly and instantly at the flick of a switch, devoid of their attendant sensory associations. Food is processed and packaged to appear as sterile and unnatural as possible. The following projects each challenge in some way traditional relationships between domestic appliances and life processes. Towards this goal, the very notion of domestic appliance is re-imagined as something which might mediate the distance between "machine" and "nature," rather than creating ever starker dichotomies.

The concealments enacted by our appliances are at least in part due to deliberate design. Modernists like Richard Neutra, to name just one well-known designer, believed that modern domestic technologies heralded a new era of ascetic bodily health and purity. For him, hard, sharp geometries and spar-
drained empty, and whose surfaces heated up like an old-fashioned hot water bottle. Now recall your fiberglass or ceramic-tiled shower stall or tub. Modern kitchen and bathroom fixtures are of course made of rigid materials because of the durability and hygiene they provide. As a result, kitchens and bathrooms are cold and repelling to the touch, not to mention dangerous. The choice of such materials is unique to plumbing fixtures and kitchen counters. Nowhere else in the house are surfaces that contact the body so un-human. Soft Sink is an attempt to replace the hard surfaces of sinks, countertops and bathrooms fixtures with a softer, more sensuous material. Silicone rubber is a remarkable elastomer that has the softness and flexibility of human flesh, is chemically inert, and maintains its properties through a wide range of temperatures. Initially, it was only economically feasible for surgical implants and other critical applications. Soft Sink seeks to expand the use of silicone as a surfacing material. The first prototype explores a temporary solution, whereby a cast silicone skin is laid over existing sinks to absorb impact and reduce noise. The material is so soft that it can be easily cut, and should be replaced every few months. In the second prototype, the silicone serves a structural role as a much larger sink membrane suspended from a rigid frame.

To uniformly distribute loading in the second prototype, the mold was produced by gently slumping a sheet of acrylic. The resulting catenary form appears more organic than tradition-
sinks, and only deforms minimally when full of water. To increase tear resistance the silicone was embedded with an elastic mesh fabric. Future prototypes will completely replace the rigid exoskeleton in order to produce large, soft, fleshy, encompassing objects like bathtubs and toilets. The next prototype will consist of a rigid endoskeleton surrounded by muscle-like foam encased in a silicone skin. These objects will not have the weight, fixity, or cost of traditional fixtures. They can become mobile and temporary to fit the requirements of individual users in a way more similar to fashion and consumer electronics. In exchange, they will be safer, more comfortable, and warmer to the touch. For the first time, the hygiene and convenience of modern fixtures attempt to mimic the softness and warmth of biological tissue. Domestic machinery thus begins to affirm rather than reject the human body it purports to serve.

HeatSink

Water appears at our taps without any evidence of the energy consumed on its journey or embodied by its temperature. A far cry from the comforting whistle of a teapot, or the refreshing sight of a ladle of cool water drawn straight from the well, the kitchen tap as a mechanical device presents hot water and cold water as the same substance, devoid of their bodily and physical associations. HeatSink seeks to re-invent the physical pleasure of water through an operation of synesthesia. A small solid-state device attached to the faucet aerator illuminates the stream of water with colored light that varies according to the temperature of the water. The water becomes a graphical user interface that adds a layer of information without interfering with the function of the faucet. The invisible physicality of heat and cold are made manifest, in the same way that the whistle of a teapot has become automatically associated with heat and its attendant joys and comforts. This simple device demonstrates how new technologies can create sensory experiences that connect us with the processes that nourish and clean our bodies.

Dish Maker

Mass production necessitates that products have a single form (and often a single use) while in our possession. For this reason we fill our closets, cabinets and garages with collections of things in case we eventually need one of them. Material and labor are wasted in the eternal washing and storing of such goods. What if we could produce what we needed when we needed it, and recycle it into something else when we have finished using it? Dish Maker seeks to replace cabinets and dishwashers with a micro-factory that produces a variety of dishes on demand and recycles them when you are finished eating. By taking advantage of shape memory properties of amorphous polymers, the appliance consumes little energy to shape and re-shape plastic into plates, bowls and cups. Dish Maker softens acrylic pucks at low temperature and gently deforms them to a variable depth. Once the plastic is reheated under slight pressure, it returns to its original flat shape for storage. Unlike industrial processes that melt plastic, DishMaker uses considerably less energy, does not release toxic substances and contains an entire “cradle-to-cradle” product life-cycle within itself.

Living Food

Like factories, farms and their associated lifestyle have been reduced and relocated away from residential areas. Subsequently, fresh fruits and vegetables have all but disappeared from our urban or suburban homes. In their stead, we buy unripe fruits and vegetables in bulk and store them in refrigerators where they lose their flavor, their crispness, and juice, suspended in an unnatural state of preservation. Or we resort to frozen packages and canned items that retain none of the color, texture, or beauty of the original produce. What if food could not only be preserved, but easily grown in the kitchen? Living Food seeks to replace the refrigerator with a life-support system for store-bought fruits and vegetables without the space requirements and climatic restraints associated with outdoor gardening. Rather than slow the metabolism of plants, this live storage solution provides them with a bright, humid environment where they can stabilize and even begin to grow roots and multiply. Living Food produces high-intensity light with relatively little energy consumption by targeting peak absorption wavelengths. Vegetables and plants are fed nutrient solutions by aeroponic misting (if they have no roots) or by a polymer gel (if they have roots). Early versions have tripled the life of leafy greens such as basil, while scallions and other plants with roots can keep growing for months. For houses with gas stoves, the carbon dioxide generated by the stove could be ducted through the living food cabinet to enrich the plants’ atmosphere. It can significantly improve the quality of what we eat on a daily basis.

Conclusion

The mechanisms that have allowed us to enjoy modern bathrooms and kitchens have spurred a denial of the processes that take place in these spaces. The materials, forms and traditions we have come to expect in these spaces deny the sensory nature of cleansing, consuming, and disposing. New materials and processes can bring back a sense of humanity to these harsh, hermetic environments. By re-appropriating some elements of agrarian and nomadic life into the home, we can gain a new sensory experience of the things around us. The prototypes in this paper reveal how profoundly our spaces are
bodies, respond to them, delight them, and ultimately imitate their designs and desires.

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determined by ideas that arose in the industrial revolution and how significantly our environment can change if we question those material assumptions. New materials and processes can bring back the experience of softness, organic-ness, and sensuous physicality without relinquishing the convenience associated with modern domestic machinery. Instead of bumping against porcelain in the morning and scalding ourselves at the sink, shattering dishes, and picking through rotten lettuce, we can be surrounded by appliances that accommodate our