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From Container to the Uncontainable

Media surround us constantly. The ways in which we interact with them are representative of both the challenges we face as a society and the solution we deem to be best in account of our interests and abilities. In the last century, humanity has undergone a period of transformation, creating the idea of a manufactured object, and then repeatedly marginalizing its intrinsic worth by way of simplifying and exponentially increasing the processes and distribution systems involved in getting these goods from creator to consumer. The most indicative material of this paradigm shift is one that – quite literally – permeates our lives and, as a consequence of our established way of life thus far, can be found everywhere: plastic. This material is the epitome of the industrial revolution's incessant chase to find a 'one size fits all' solution to the challenges of life. We have suffered the consequences of this hubris. Aside from changing our lives for the better, and worse, however, plastic is an extremely salient contemporary medium. Its many forms means that it is present in every setting, and the extent to which it is currently addressed as the next problem that we have to solve mean that it is no longer a 'background' medium. Plastic is not an intrinsically faulted medium; it is simply the wrong tool for the job. It lends itself to many current issues because it is a near eternal medium, almost exclusively used for the manufacture of temporary vessels and goods. Plastic has become both the optimal medium from which we draw containers and a byproduct for which there is no containment, and as infrastructure, it has broken down and is now visible to all.

Before unpacking the state of plastic today, it is relevant, as with any medium, to understand its origins and the context in which it was designed and realized. Plastic has always been a medium designed to solve someone else's problem. The first synthetic polymer that was commercially viable was Bakelite. Already, this material was designed as an alternative to scarcities of ivory and silk, and the success "and proliferation of [Bakelite and its successors] was driven less by a need to develop new technologies… than to simply replace the objects we already had – but at a price and in a quantity that helped to instantiate a middle class defined by consumption." (Davis, 348-349). At the cultural turning point post-WWII, it was paramount that goods be made cheap and available to spur the boom the economy was experiencing. The success of Bakelite as a design material overshadowed its flaws. Bakelite is created using hazardous materials that are both unnatural and prone to becoming airborne, which happened often as the polymer was brittle and cracked. The lack of information on the risks meant that no authority could establish or oversee proper health codes or disposal procedures (O'Brien). This sets the tone for how plastic materials shape and are shaped by today's practices.

Plastic as a material has also become synonymous with distinct cultural ideas. The ability of neural tissue to change in accordance with learned experience is referred to as plasticity. It is the measure of how adaptive the brain is, whether it is able to fit the mold into which it is placed. This word highlights the etymological origins of 'plastic,' from the Greek plastikos, meaning "fit for molding, capable of being molded into various forms." Plastic as a material is designed as being a flexible polymer, and different grades have a tradeoff between 'plasticity' and durability. All plastics share the characteristic of being molded, being given form, definitionally as a medium being formless before our intervention. As the neurological word suggests, plastic is extremely adaptive. It is packaging and protection; it is construction and foundation; it is

expression and customization. The only limits on the forms that this medium can take on is whether we can shape it, and if there is an audience willing to consume it.

For something to be ‘plastic’ also refers to its inauthenticity. While cost effectiveness and resource abundance are prime motivators to manufacture using plastic, it is understood today that this is ultimately a tradeoff, one made on the behalf of the consumer and not necessarily for their benefit. The modern consumer likely maintains the belief that there is a more expensive alternative: one that is more durable in quality, and is not a consequence of penny pinching in order to raise profit margins. Plastic is also used to refer to silicone, which, especially in the context of anatomical augmentation, is seen as ‘filler’ and an alternative to natural, which is considered to be worse. From these two examples, it is clear that plastic as a material and as a medium has embodied the traits that at first propelled it into prominence, and this reinforces the connotation that plastic has for many people today.

Plastic excels in ‘fitting the mold’ and reducing the manufacturing cost of the objects that it is turned into. So what does plastic actually get turned into? Primarily, at least in today’s industry, plastic is the material of choice when designing those things that are not meant to last. Temporary fixtures, especially those with limited use and therefore cannot be justifiably priced at a higher point, are the main molds which plastic is used to bring into being. The most synonymous example of the temporary fixtures made with the medium are disposable bags and packaging. When they were first made to replace paper grocery bags, the average consumer likely did not plan on extending the life of the bag past the walk from their station wagon to the kitchen counter. The use and reuse of grocery bags today is an idea that was conceived as a temporary solution to the rising misuse of plastic and the poor treatment of the plastic waste problem, which will be discussed shortly. In terms of efficiency, it is clear that this material,

which can be produced and formed en masse, is ideal for a thing so trivial that its usefulness is outlived a few minutes after it is put to work. Why should the bag be worth anything more than a few cents? More generally, any commodity that is mass produced and meant to have a shorter lifespan is best suited by plastic or some derivative. Perhaps plastic is too good of a solution for this problem, but it is the most sophisticated solution at hand right now. Is the money saved in production worth any related costs?

Arguably, the highest price associated with plastic is the environmental effects that result from its production and the lack of systems in place to deal with the materials after they are, and these costs are increasing exponentially. Over the past few decades, the problem of climate change and the role of humanity in it has surfaced and become a primary concern, particularly in how much time is left before it is no longer a problem that can be solved within our means. Many factors are at fault for the increased global temperature, and this is not a comprehensive breakdown of the global climate situation. Plastic and its production, however, has an undeniable impact on the changes seen in the environment.

The Center for International and Environmental Law identifies roughly 850 million metric tons of greenhouse gasses to the atmosphere, including incineration. This is only in the creation and destruction of the material. This effect is much harder to grasp with only figures, and is not as visible as the other consequences of our obsession with plastic. The much larger, and arguably more immediate issue, is the fact that there is litter strewn all across the planet. A university study posits that a potential 540 million metric tons of plastic waste is unaccounted for, either on land or at sea (Ionescu), and plastic waste has been discovered in places that humans are physically incapable of inhabiting, the deepest trench in the ocean, and the highest peaks on the surface.

It is not just that plastic is present in our environments. Plastic is present in the flora, the fauna, and even us. The breakdown of plastics is not a clean process. Instead of degrading into basic components, small pieces of plastic break down into miniature shards, known as microplastics. These are present in our waterways, and enter the food chain at the lowest levels, accumulating as animals are consumed up the chain. Microplastics are a major problem because they have been shown to have the potential to carry toxins and interfere with biological processes (Mato et al). At this depth, the overarching problem of plastic is too much to grasp for the average person.

What does it say that this is such a big deal now? We as a species have been polluting the surface of the planet with our plastic waste since we began making it, then with no knowledge of how it would affect the environment, and presently with no regard for it. Plastic is infrastructure; for better or worse, our society in its current form depends on the continued manufacture of plastic goods for many systems to remain operational. For the consumer, they must be able to purchase their goods, plastic products/packaging included, and then discard it in the manner agreed upon, and think nothing more of it. That the pollution and adverse effect on the environment has become so bad that it is now unavoidable means that this infrastructure has failed. As Edwards discusses in *Infrastructure and Modernity*, media are not salient. They are made mundane by the forces that be, be they "corporations, governments, [or] advertisers" that are pushing something else onto us. This allegory applies perfectly to the plastic crisis. Of course it is in the best interest of the main polluters for the population to not realize the scale of the problem. The infrastructure in question – the system of disposable, single use plastic – was flawed from the beginning, and did not take into account the well being of the population working under this infrastructure (people that benefit from a healthy environment that is not

experiencing global warming). Plastic is both media and an example of infrastructure, and deeply flawed at that. The literal "infrastructure" associated with the medium, i.e. the factories, mining installations, incineration stations, distribution networks, and market that takes as raw materials the product of this labor and produces goods is all part of this infrastructure, and its continued operation in this flawed state is fueling the problem of climate change.

The products of this infrastructure lead to the stage in the plastic life cycle that we are familiar with: goods, made for the consumer to be used and reused until it comes time to replace them. As mentioned, plastic in this stage takes on many forms. It forms our toys and tools and replaces those scarce resources that are unrealistic as mass-market materials. Plastic, then, has an interesting relationship with containers. Most of the literal containers today are also made of plastic, but plastic as a material embodies perhaps one of the most versatile 'container technologies' developed by man. Following the arguments outlined by Sofia in *Hypatia*, plastic is that material that forms nearly all of our cups, our cabinets, our houses, and even the replacements for some of our bodily organs. It forms the environment in which we live and develop, and delivers those needs that we want for throughout that development. The use of plastic in the creation of these containers creates an interesting tension to the containers discussed in the work. While Sofia never definitively focuses on the end of life plan for the containers described, it can be extrapolated from the types of forms discussed that they were designed with long-term use in mind (a tool shed/farmhouse will not need to be replaced every few years). One of the key functions of a container technology is to take in from a source in times of abundance, and preserve that resource over time, eventually releasing when needed. A novel consideration is when the container itself becomes something that needs to be contained. In effect, what is the container for the degrading plastic waste that continuously amasses

globally? Where and how can it be stored, and under what circumstances will it be released? The ongoing waste management issue suggests that the answers to these questions are not as attainable as expected. Moreover, I would argue that, contrary to Sofia's argument, plastic is not an 'intelligent' technology. While the objects themselves may fulfill their roles to specification, the material is not taken into consideration. The constant slow breakdown of synthetic fibers that are not dealt with make any product made of plastic a poorly designed container. The material also fails to acknowledge the very real limitations of supply of raw materials in the production of the container.

And what is the proposed solution for the plastic commodity once it has spent its life and can no longer serve its purpose? As stressed thus far, simply throwing it away as a single-use item adds to the already incredibly large problem of pollution and leeching microplastics. Recycling, though an ideal solution in theory, only accounts for 14% of waste that is even sorted out of the landfill (Garcia). To fix the current infrastructural problem of plastic, one must rethink the infrastructure. In their book, *Cradle to Cradle - Remaking the Way we Make Things*, McDonough and Braungart ponder the design problem of the plastic infrastructural system and highlight pain points that need to be addressed in the creation of a solution. One of the ways in which they detail these deficiencies is through the example of downcycling, a practice which takes reclaimed goods that are no longer serviceable and break them down to create an entirely new product. All of these downcycled goods are "made of things that were never designed with this further use in mind, and wrestling them in to this form has required as much energy – and generated as much waste – as producing a new carpet." (Braungart & McDonough, 4). Throughout their book, they detail novel solutions to the general overconsumption crisis using a

novel intersectional understanding of environmentalism and architectural design to design spaces and physical solutions that meet the best of both worlds.

Plastic is an infrastructure that has assumed a position of dominance over our modern commodified society. The fact that it developed over time and has origins based in the industrial and productivity boom before a better understanding of the environment and its fragility were formed leads to a poor infrastructural foundation. We have made no effort to change the systems under which we consume plastic, and will not see any change without a complete re-evaluation of our values and assessing the real cost of sacrificing our global ecosystem. Plastic as a medium is able to express many things, but it is unable to do on its own. It is a container with no plan, poorly designed and without further consideration. The inability of this material to care for itself in the long term as a container ought to is indicative of the fact that it is a synthetic, a substitute for that which we would have preferred.

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