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**COLOUR POPS, NEW CAR
SMELLS: THE FEMINIZATION
OF SARAN BEFORE SARAN WRAP**

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Abstract

This article examines the early history of the aesthetics of the car and how our relationship to the car has been influenced by designs that were made possible by the advent of plastics. It proposes that the plastics first used in car interiors shaped our relationship to cars, through their off-gassing that we experience as the ‘new car smell’ to masculine and feminine aesthetics in car design that are employed to sell them to consumers. The introduction of plastics, and in particular Saran (PVDC), allowed for a replication of a traditional domestic aesthetic. This led to a feminization of the car interior designed to sell cars to women, and shaped our contemporary experience of cars.

Keywords

Plastics, Gender, Replication, Consumerism, Domestic Aesthetics.

I came home from the hospital in a 1969 Volkswagen Fastback named Orville, that had been sold to my young parents for \$100 a couple of years prior by a family friend. Already nine years old, and having survived as many Montreal winters, its utilitarian maroon paint must have stood out against the November snowstorm that they drove to the hospital in, my mother in labour, the week prior. There wouldn't have been such a thing as an infant car seat in 1978, my mother would have held me in her arms in the front seat as they drove the hour-long drive home to our place in Hudson, Que.

I only have the vaguest memories of Orville. By the early eighties it was a rusting hulk, dripping oil onto cardboard on the driveway. What I do remember, though, is the smell of the interior. The bottom had rusted away, so there was a strong smell of motor oil inside. Mixed with that, there was an acrid smell of the vinyl seats disintegrating, their unstable early plasticizers nearly fully leached out after 15+ years of the extremes of Canadian weather speeding along the process. As distinctive as “new car smell,” there is also a very specific “old car smell” that is just as evocative as its counterpart. I remember crawling into the car, four or five years old, slightly in awe of this old hunk of steel with a human name. Its cracked vinyl seats broke open and exposed the polyurethane foam inside them; the steering wheel and gearshift knob were a hard plastic made shiny by hand oils, the windows yellowed due to the polyvinyl butyral interlayer of the safety glass. A mix of volatile organic compounds, the petrochemicals that made up a decaying modernity as we shifted into the postmodern 1980s.



SARAN

LOOK! *Seat Covers* OF LUSTROUS *Plastic* FOR YOUR CAR!

THE NEWEST STYLE note in motor cars is seat covers of smooth, lustrous plastic—custom made and woven from the remarkable Dow plastic, SARAN. This innovation in car slip covers offers light, attractive pastel shades—or, perhaps, transparency to actually reveal the tints of the upholstery—in every way lending new smartness and distinction to the car's interior.

Now, for the first time, seat covers in light colors are practical because SARAN is quickly and easily cleaned with just a damp cloth. There is no danger of the colors running. You can ride on these seat covers in wet bathing suits, if you like. If windows are left open, have no fear of damage from summer showers. For, SARAN is waterproof plastic.

There is plenty of ventilation with SARAN seat covers—they're cool! The smooth surface permits you to slide easily into modern low cars without difficulty or the slightest danger of catching clothes or hose. The value in these new seat covers is exceptional because SARAN will out-wear the life of the car.

While, currently, seat covers of SARAN are custom made only, they are significant of a marked trend.

They provide a striking example of the constant efforts of manufacturers to adapt plastics to numerous new products.

WORKING WITH YOU FOR AMERICA



DOW

CHEMICALS INDISPENSABLE TO INDUSTRY

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN
New York City—St. Louis—Chicago—San Francisco—Los Angeles—Seattle—Houston

1941

Figure 1: Saran seat covers advertisement. Originally appeared in Fortune, 1941. From Dow Chemical Company. "Saran," 1941. Advertisements from the Dow Chemical Historical Collection, Box 2. Science History Institute. Philadelphia.

The history of polyvinylidene chloride (tradename: Saran) shows where this plasticized modernity began, in depression era America. Saran's adaptation into brightly coloured protective seat covers makes apparent a feminization of plastics and, by extension, a domestication of the automobile interior. It also tells the story of how automobiles are advertised and consumed, and how the aesthetics of plastics play a large role in gendering the automobile interior as female in contrast to the masculinized exterior. Plastics offered the ability to replicate other materials, and the *ersatz* traditional aesthetic applied to the automobile in turn emphasized plastic's fakeness – the simulacrum – resulting in the reification of the 'real.' Our conceptions of and relationships with cars, plastic, and the domestic, were likely influenced by the confluence of Saran, the automobile, and an attempt to relive an aesthetic of the past.

In April 1936, *Modern Plastics* ran an article about the Ford Motor Co. using soybean plastics in their vehicles. At that point only “garnish trim”¹ was being made out of soybean plastic, which encompassed only ten to fifteen pounds of the total weight of the car, but by 1940, a fully plastic prototype was available for the media to witness. A “brittle looking septuagenarian [Ford] picked up an ax[e] and swung it with all his might”² into the side panel of the prototype for photographers to record and report on the event, astoundingly showing the axe bouncing back without harm to the vehicle. The plastic futurism that was common during the interwar years, and finding its most overt expression in the many World Fairs of the time, was evident in how it was reported, as the “fenders of this Buck Rogers material... withdr[e]w from minor collisions... like unhurried rubber balls.”³ At around the same time, and not to be outdone by Ford Motor Co, the Pontiac “Ghost Car” was revealed at the 1939 New York World's Fair by General Motors. The clear plastic car was a part of a display about the future mobility of America, titled “Highways and Horizons,” designed by Norman Bel Geddes. The car was made from Plexiglas from Rohm and Haas and was one of the most popular exhibits at the Fair.⁴

The Ghost Car had the strange and prescient effect of both making plastic prominent and erasing it entirely. A Plexiglas shell for an automobile allows the viewer to see what plastic usually precludes: its inner, working parts, the intelligibility of a disappearing mechanical age. As Meikle writes,

until the advent of plastic, most objects, even complex ones, appeared as rationally intelligible assemblages of various parts and materials; they did not seem smoothly, inviolably whole. But plastic contributed to a syndrome of ignorance about technological processes by enclosing them in irreducible molded forms whose deceptive simplicity found its clearest expression in the streamlining of the 1930s.⁵

The Ghost Car, appearing at the end of the decade that embraced streamlined and art deco designs, foretold a postwar future where plastic would become what Gay Hawkins calls the “Skin of Commerce” – transparent and shiny, emphasizing the “real” goods inside.

While the entry of the US into the second world war interrupted the production of a mass-produced plastic car, the imaginaries of the possibility survived well into the 1950s. The original body of the Corvette was a Fiberglas shell, designed in much the same way as the prototype-cum-Disney attraction, the Monsanto House of the Future: a “monocoque” or “single egg” design paradigm (figure 3, left). Even though the Corvette is an iconic design, it was never widely produced, owing mostly to the low-tech and artisanal nature of fiberglass lay-up (figure 3, right). General Motors started producing them at three per day, and peaked at thirty-three per day, in comparison to the roughly 7500 cars per day produced with steel during the same time period. Although fiberglass was a common material for institutionalized mid-century modernism, most famously in the Eames molded shell chairs ubiquitous in schools and bus stations, its form never achieved domesticity in the frankly modernist way the plastics industry had hoped for postwar.

Instead, an *ersatz* traditionalism became dominant. The materials of the future were relegated to what Jeffrey Meikle calls a “damp cloth utopianism” where everything could be easily cleaned with the wipe of a damp cloth. As I will show, the dominance of an *ersatz* traditionalism was partly because thermoplastics like polystyrene, polyethylene, and the one I focus on here, polyvinylidene chloride, became the most ubiquitous plastics postwar, replacing the interwar hard thermoset plastics such as Bakelite and urea formaldehyde. Concurrently with the shift away from the hard thermoset plastics to the softer thermoplastics, what was *made* of plastic shifted from objects that could be considered more masculine to those that could be considered more feminine. Radios, desk lamps, telephones and fountain pens made of Bakelite are four prominent examples of iconic interwar plastics, meaning that the office desk of the average white-collar worker (i.e., male) would have been one of the surest places to find plastics in the interwar years. In contrast, some of the most iconic objects made of plastics of the postwar years are Tupperware, hula hoops, kitchenware and beanbag chairs, which are all distinctly feminized, infantilized and highly domesticated. That shift – from masculine to feminine products – dictated a concomitant devaluation of the material, which allowed for its eventual easy disposal.

This feminization and domestication came about through the introduction of an *ersatz* traditional aesthetic in the production of plastic products in order to reach out to women as consumers. This aesthetic changed from a forward-looking technologically utopian mentality to



Figure 2: The Pontiac "Ghost Car" exhibited at New York's 1939 World Fair. From Motor Cities National Heritage Area "Stories of the Week" Section, published August 27, 2017. "1940... Ghost Pontiac!" by x-ray delta one is licensed under CC BY-NC-SA 2.0
Figure 3: The Monsanto House of the Future (left) and Corvette body (right). "Monsanto House of the Future - June 12, 1957–December 1967" by MidCentArc is licensed under CC BY-NC-SA 2.0, "National Auto Museum, Reno - John Wayne's 1953 Chevrolet Corvette" by The Brucer is licensed under CC BY-NC-ND 2.0.

a conservative return to a familiar past. The change was primarily driven by a post-war response to the lived traumas so many experienced. What resulted from this regression was the proliferation of plastics into the domestic sphere, which both accustomed us to the ubiquity of the material in childhood and transformed how plastics are conceptualized, as a confluence of cleanliness, functionality, and disposability. Furthermore, the plastic quality of these new plastics, their chameleonic capacity to make manifest seemingly infinite forms, textures, and colours, led to the creation of ‘the fake’ not through a false authorship, but instead through a false material. Replicas could be created in the appearance of the original through using plastics. This is exemplified in the application of Saran as car seats. This application of novel chemistry allowed plastics to achieve domesticity and ubiquity, considerably increasing consumption of plastics, through an *ersatz* aesthetic of traditionalism, a reflection of the past rather than a look towards the future. What resulted from this is a shared experience of the aesthetic of plastic through our interaction with car interiors.

Our aesthetic experience of the car has come about as a result of this feminization and domestication of the car interior, which paralleled both the invasion of our homes with plastic disposables and the planned obsolescence of consumer goods in general, to create more (and faster) conspicuous consumption. The machine aged and futurist beauty of the 1920s and 1930s were still found in a few forms, for example fins on cars were a mundane postwar expression of a former utopian futurism. But the bubble top, flying saucer cars envisioned in the 1940s never came to fruition. Plastic instead found its place in areas like vinyl seating that imitated leather, giving rise to the near universal cultural referent of the “new car smell” that its off-gassing creates, as well as its converse – the cracked vinyl failure of plasticizers leached into the environment. Nowhere did that *ersatz* traditionalism find fuller expression than in Saran car seats, and the history of its development and integration as a material into our everyday surroundings begins to reveal the complexity of our relationship to plastics and how culture and gender have shaped our contemporary conceptions about it.

Before Saran wrap became a genericized trademark for wrapping leftover food products, it lived an entirely different life as an “easy care” fabric in 1940s and 1950s automobiles. Saran is better known to chemists as a copolymer of polyvinyl chloride (PVC) and polyvinylidene chloride (PVDC) and came about as a result of manufacturers’ attempts to create an easier plastic to work with than straight PVC. PVC was one of the first fully synthetic thermoplastics to be perfected, by Waldo Semon at BF Goodrich in 1926. But PVC is a finicky plastic to create, as the melting point and the vaporization point are extremely close to each other.⁶ Mulder and Knot posit that if PVC was not

one of the first plastics to be synthesized, it would never have been scaled the way that it was, as it was so difficult to manufacture.⁷ The research into copolymers was therefore to overcome the problems with respect to its manufacture, and not because it was desirable to have different formulations; copolymerization made the plastic more able to be worked, rather than understood.

Of the many investigations into copolymers, there were two that became commercially successful: Vinylite and Saran. Vinylite was a copolymer of polyvinyl acetate (PVA) and PVC and found its original home in replacing shellac in records, which still have the eponymous moniker. Saran was developed more slowly and was only introduced on the eve of the Second World War in Europe. Saran was subject to the massive World War Two scaling of plastics that many in the industry experienced; the new materials proved lightweight, unbreakable, and – importantly in a world that was quickly becoming fully electrified – having dielectric insulating properties. Saran film during World War Two played a role strikingly similar to the Ghost Car of a few years prior: that of a clear skin, protecting the mechanically intelligible (and far more important) ordnance underneath. It would preface its existence as a wrap for food products, in that it was largely used to “keep moisture in its place” when shipping ordnance overseas.⁸

After World War Two, the plastics industry was eager to move into a greatly expanding consumer market. Meikle points out that the thermoplastics that were invented in the interwar period were not so much plastics invented with a specific purpose in mind, but instead with an enduring curiosity that begot “materials for which markets were later invented.”⁹ Plastics may well have remained a far smaller portion of the materials market if it were not for the fact that Germany, without a colonial base to draw from, understood far earlier the importance of a robust chemical industry to be able to create replacement materials cut off from embargoes or other wartime sanctions.¹⁰ While the US had spent the time from the end of the first world war to the beginning of the second creating and greatly enhancing their chemical industry, the Germans still had an edge when it came to synthetics – whether they were moulding materials, pharmaceuticals, or weaponry.¹¹ While most people know about the enormous amount of government money that allowed the Manhattan Project (to build the nuclear bomb) to go forward, the lesser known (but second biggest in terms of government expenditure) project was the “Rubber Reserve” project.¹² As the US was nearly entirely dependent on rubber plantations that became inaccessible after British Malaya fell to the Japanese in 1942, Government Rubber-Styrene (or GR-S) took on enormous strategic importance. From an annual output of just 231 tons in 1941, an unprecedented cooperation between government, academia, and industry allowed a massive scaling project to take place, and in four short years, the US was creating 70 000 tons per month of GR-S.¹³

The strategic importance of rubber to create tires for vehicles meant that many of the things that used rubber as a textile, particularly for waterproofing, were left looking for substitutes. PVC and Saran were the materials that they found for these purposes. Notably, Saran was used to modify combat boot insoles to be breathable. They were therefore able to dry in the constantly damp jungle climate of the Pacific Theatre, and did not rot the way that leather or canvas did.¹⁴ PVC and Saran were also used to create the first air inflatable rafts and other protective rain equipment, as well as solar stills to be able to collect fresh water when stranded on a lifeboat at sea.¹⁵ All of these wartime uses translated easily into postwar consumer products – the solar still became a child’s beach ball, the inflatable life raft became a fun day at the beach, and so on.

Dow Chemical company had different aspirations for Saran, however. Seeing the explosive wartime and postwar successes of DuPont’s new invention, Nylon,¹⁶ Dow was very interested in creating a similar market with Saran (figure 4). The copy in the advertisement for Saran reads “the first great change came in our own day with the development of plastics... rayon, Celanese, nylon. Dow... contributes Saran.” With a traditional Chinese block print that depicted heavily orientalist motifs of women weaving the plastic threads, the intention was undoubtedly to meld the traditional with the new, attempting to draw comparisons between traditional methods and looks of the old with the magical materials of modern synthesis. Although Dow’s aspirations were clear, what they would actually do with Saran did not come to fruition until it was clinched as a fabric for the New York Subway seats (figure 5).

Modern Plastics magazine, writing in 1944, points toward its “high tensile strength, abrasion resistance, and non-absorptive qualities... very much in demand for... [r]ailroads, buses, theatres, hospitals and public buildings... [due to] its sanitary qualities.”¹⁷ Saran yarns also have “many postwar possibilities in decorative fabrics, partly because... of improvements they facilitate in weaves and colo[u]rs... dye is incorporated into the resin solution and is therefore permanent... This quality makes possible the weaving of pastel upholstery fabrics, which hitherto were too delicate for cleaning.”¹⁸ The fact that plastic fabrics allowed for pastels to be used in upholstery applications for the first time anticipated a feminization of synthetic textiles, and the postwar obsession with pastel pinks and greens materialized due to its marketing as a “trouble-free” fabric, for a “carefree life.”¹⁹ The Rockwellian depictions of smiling women in cars (Figure 1) gave the impression that Saran would be perfect for the modern housewife, releasing them through technological miracles – much like the washing machine and the dishwasher – from the menial labour that a pre-plastic world dictated, allowing them to take advantage of the freedom of the open road.



Figure 4: Saran, as a textile, advertisement. Dow Chemical Company. "A New Chapter in the Story of Textiles," 1946. Advertisements from the Dow Chemical Historical Collection, Box 4. Science History Institute. Philadelphia. <https://digital.sciencehistory.org/works/cghob88>. Figure 5: A postwar New York City subway car, featuring woven Saran seats. "New York Transit Museum" by kevin.hackert is licensed under CC BY-NC 2.0

At the same time as those colours became possible, marketing to the suburban housewife became ubiquitous. While automobiles themselves were still very much masculinized and associated with steel, the automobile “accessories” were plastic and meant to appeal to women, in a clear postwar feminization and infantilization of plastics. In cheerfully coloured pastels or tartan prints evoking kilts and perhaps uniforms, the seat covers were meant to protect and keep fresh the “real” upholstery underneath them. They were distinctly marketed to women as an easy-care alternative, no matter how messy the children might be. Saran’s protective function morphs here from a masculinized packaging for ordnance – clear so that the important mechanical object could be seen underneath it – to a frivolous and feminized covering for the masculinized automobile. Over and over again the pictures to advertise Saran show smiling women in gloves and hats, seemingly happy with the plastic skin so conveniently provided for them. Even though the material is meant to improve durability, the material itself is not meant to be durable – it is meant to change with fashion and the proclivities of the feminine. To this day, many marketing campaigns to sell cars to women follow the “shrink it and pink it” advertising paradigm, instead of focusing on the safety and ease of use concerns that consistently poll top of mind when female car shoppers are asked for their priorities.

In contrast to the interwar years, where Bakelite and its thermoset cousins enjoyed an extraordinary reputation as a utopian and democratizing material, postwar Americans wanted to return to a more traditional aesthetic. Rather than expressing the frank modernism that many machine-age and Art Deco designs had first utilized plastic to do, the return to a traditional aesthetic meant that plastics had to be relegated back into being *ersatz* materials. Instead of the streamlined shapes and rounded corners of the 1930s, the decade of the rise of industrial design gave way to the very modern horrors of the Second World War, and some scholars attribute the regressive attitudes of the 1940s and 1950s to the collective recoiling from the effects of the atomic bomb.²⁰ But because plastics, especially thermoplastics like PVC and Saran, had been so dramatically scaled during World War Two, there was now a glut of the materials without a war machine to absorb it. In the years immediately postwar, plastic was often the only material available for consumer applications, as metals took far longer to come off of restriction postwar than plastics did; and then returned to restriction during the Korean War from 1951-1953.

The plastic-as-plastic aesthetic that existed throughout the 1930s, while surviving in places like Italy with designers like Ettore Sottsass and his iconic Olivetti typewriter (Sottsass begat the Memphis group in the 1980s) and Giulio Natta’s invention of polypropylene, did not continue its design aesthetic in mid-century North America.²¹ Instead, plastic became once

again the great imitator: fake glass, fake leather, fake wood, and fake ceramic were all products of the petrochemical industry. They all found their expression in cars, in one way or another: safety glass is two panes of glass sandwiched on a thin layer of polyvinyl butyrate, fake wood dashboards have long been made of laminates, imitation leather seating feels unmistakably sticky on a hot summer day. The sharp scents of PVC and Saran are those that make up the majority of the “new car smell” considered desirable enough to be mimicked on paper pine tree air fresheners. Those scents, though evocative, have been attributed to a variety of ill effects, up to and including carcinogenic. Rather than being allowed to be beautiful in its own right, plastics like Saran were only allowed to be a domesticated good: the alchemical utopian potential of the 1930s being replaced by a rather more mundane damp-cloth cleaning utopia of the 1940s and 1950s. The movement from alchemical to domestic utopian potentials was part of a larger trend that feminized and infantilized plastics on their way to their devaluation as a material that was ultimately disposable, and best ending up in the trash can.

What the reader therefore sees in the advertisements above represents the interstitial space between durability and disposability, a transition that passes conspicuously through domestication. Barthes, writing in 1957, posits that plastic is the “very idea of its infinite transformation... it is ubiquity made visible.”²² But to have the literal miracle of the transmutation of matter, plastic pays a price: no longer bourgeois, as other imitation materials had previously been, plastic “has climbed down, it is a household material. It is the first magical substance which consents to be prosaic.”²³ The devaluation of plastic continued as the baby boomers grew up, the material came to represent everything that was wrong with mainstream society. To drop out of that “plastic existence” was to embrace a back-to-land aesthetic – greens and browns, natural fibres like cotton or wool, long hair and beards never touched by plastic disposable razors. As the baby boomers hit adulthood, they rejected the plastic domestication of their parents and childhood, rebelling against the materials of modernity.

Plastics were so dramatically demonized during the 1970s, and the word changed so thoroughly to mean phony or fake, that many in academia and the materials industry working to perfect new and better types of plastic rebranded themselves in the 1980s. Hard plastics became “composite” materials, or resins, or polymer matrices, or glass reinforced polymers (more commonly known as GRP); plastic textiles became microfibres, or spandex, or “high-tech wicking” fabrics, or the green-washed bamboo rayon;²⁴ plastic woods became “engineered,” plywood, fibreboard, or chipboard. Those materials find purchase with a large population of people who do not realize that “carbon fibre composite,” for example, is plastic. Today, plastics make up fifty

percent of the volume of a vehicle, while only encompassing ten percent of its weight, and carbon fibre composite is popular amongst gearheads everywhere, as it further lightens the vehicle and allows it to go faster (as well as looking distinctively part of custom car culture).²⁵ While plastics recognized as plastics are today coded as literal trash, plastics rebranded can be high-value again (as anyone who has ever looked at the prices of a carbon-fibre composite bicycle knows). The rebranded plastics have also become distinctively masculine again, with many of their applications finding purchase in highly specialized and gendered subcultures of custom cars, bicycles and athletics. While there may be a nascent awareness of the fact that the “wicking” material is, in fact, simply polyester, the rebranding is so complete and effective that there is zero association between that “performance” material and the cheap looking suits of the 1960s.

In conclusion, far from the original utopian potential of an “all-plastics” car, postwar thermoplastics became the materials we all love to hate today, and they did so through their domestication and devaluation. As complicated as North America’s relationship to the automobile is when viewed through the current lens of rampant consumerism and climate change, so too are plastics that are used in the automobile to create the environs of the car – a perfect capsule of domesticity to protect those inside from the realities of the outside world. That Saran became the skin of the automobile suggests that the protections go both ways. It is an ethic of gendered care applied to that interior: delicately coloured, clean smelling, shiny, and without depth, much as the stereotypical housewife of the 1950s was meant to be. But a perfect plastic materiality is a temporary one at best, as the literal cracks show up after the plasticizers have leached into the air and affected the endocrine systems of those inhaling and ingesting them. The interior of the car becomes a corporate externality as knowledge around phthalates and reproductive problems become ubiquitous, and as a result Saran (PVDC) is no longer used in automobiles (or, even, Saran Wrap) anymore. The miasmatic new car smell, once coveted, has now become something to avoid.

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² Jeffrey L. Meikle, *American Plastic: A Cultural History* (Rutgers University Press, 1995), 155.

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⁴ Robert Tate, “Looking Back at the Pontiac Ghost Car,” MotorCities National Heritage Area, August 27, 2017, <https://www.motorcities.org/story-of-the-week/2017/looking-back-at-the-pontiac-ghost-car>.

⁵ Meikle, *American Plastic*, 112.

⁶ M. Kaufman, *The First Century of Plastics: Celluloid and Its Sequel* (London: The Plastics and Rubber Institute, 1963), 75.

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¹⁵ "Solar Stills Lead to Inflatables," *Modern Plastics*, June 1950.

¹⁶ Pap A Ndiaye, *Nylons and Bombs: DuPont and the March of Modern America*, trans. Elborg Forster, *Studies in Industry and Society* (Baltimore: JHUP, 2007).

¹⁷ "The Case for Synthetic Textiles," *Modern Plastics*, September 1944.

¹⁸ "The Case for Synthetic Textiles," 188.

¹⁹ {Citation}

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²¹ Giampiero Bosoni, "The Italian Way to Plastics," in *The Plastics Age: From Modernity to Post-Modernity*, ed. Penny Sparke (London: Victoria & Albert Museum, 1990), 75–85.

²² Roland Barthes, "Plastic," in *Mythologies: Roland Barthes*, trans. Annette Lavers, *The Complete Edition* (New York: Hill and Wang, 1972), 97–99.

²³ Barthes.

²⁴ "FTC Charges Companies with 'Bamboo-Zling' Consumers with False Product Claims," Federal Trade Commission, August 11, 2009, <https://www.ftc.gov/news-events/press-releases/2009/08/ftc-charges-companies-bamboo-zling-consumers-false-product-claims>.

²⁵ Gina-Marie Oliver, "Plastics in Automotives," American Chemistry Council: Plastics Division, *Automotive Plastics*, 2020, https://www.automotiveplastics.com/wp-content/uploads/2019-Jan-KS-Approv-Auto-Lobbying-Factoids_2-Pages_RK-ACC-Stats.pdf.