Episode 07: The Social History of Plastic
Trace Material: Stories from the Plastics Age

Ava Robinson:
So far this season, we've talked about the lives of inventors, housewives and factory workers. And we've talked to historians, conservators, and scientists. All in the attempt to understand the social history of plastic.

Burgess Brown:
Because plastics' journey is long and winding, we wanted to take this episode to back up and think about the big picture. Think of it as an audio "Too Long, Didn't Read."

Ava:
And thank you so much to those of you who have been listening all season long. Welcome back to Trace Material: Stories from the Plastics Age. I'm Ava Robinson.

Burgess:
And I'm Burgess Brown. This will be the last time you hear our voices for a little while, and when we do return, we'll be discussing exciting new content with our focus as always on stories about the intersection of our lives and the lives of the materials that surround us.

Ava:
We're still in the planning stages for the next season, so if you have any material stories that you think we should trace, please let us know by reaching out on our socials or via email at healthymaterialslab@newschool.edu.

Burgess:
Before we dive back into the story of plastic and how we got to where we are today, we want to acknowledge that not all of these episodes have been the easiest to digest.

Ava:
We've heard from listeners that many of the topics we covered this season, from the little-known history and health impacts of PVC to the powerful lobbying behind the creation of recycling have made them feel angry or upset.

Burgess:
And looking back, Ava and I were also pretty upset researching and writing some of these episodes. The story of plastic is often a frustrating one. But, we'd encourage you not to dwell in those feelings of despair and, in whatever way is accessible to you, turn those feelings into action. We'll talk a bit more about that at the end of the episode.

Ava:

When history feels difficult, we believe that's usually when it's most important to talk about it. We never wanted to tell stories that everyone knew. We wanted to understand, but also to challenge, the widely understood narrative around plastic.

Burgess:
But before we say goodbye, let's back up and dig in.

[Music over clips from the season: "Now, the dictionary tells us that a plastic is any substance which is capable of being molded…" "We're having a party, a Tupperware party [crowd cheers]…" "A new domain of man's own creation…" "Is everything made of plastic? Almost…"]

Ava:
For many Americans, the idea of plastic is inextricably linked to the idea of the future. For over a century, our feelings about the fate of our culture and of plastic have mirrored each other. And, as we discussed in the last episode, right now if you get into a discussion about the use of plastics, it's likely to turn into one about the tenuous future of the planet.

Burgess:
And we all have a lot of questions about the future and how it intersects with our use of plastics: How are we going to get rid of the floating islands of ocean plastic? Or is there a safe way to make or dispose of plastic at all? And *what* do I do with my leftovers?

Ava:
But a century ago, plastic represented a new world order. It was a material that instilled hope in the American people. Hope that the future would be more egalitarian and hope that we would avoid depleting the world's natural resources.

Burgess:
Jess Walthew, Cooper Hewitt conservator who was featured in our first two episodes this season, graciously jumped back on the phone with us to give us a broad strokes overview of the past century's relationship with plastic.

Jess Walthew:
So in the late 19th century, there are these substitutes that start to be developed and the substitutes are in order to make more prolific, in fact, these very trendy, beautiful polymers that exist in nature. So we have tortoiseshell horn, ivory, and bone. Those are all materials that have this natural feature of plasticity because they're made out of generally protein structures and things like keratin and chitin, all of these kinds of different biological structures that are meant to be durable and resilient in their natural uses, like as part of animals bodies, those polymers start to be replicated in semi synthetics.

Ava:

It's a very worthy reminder that although the definition of the word plastic has shifted in common parlance to mean something that is derived from petrochemicals, that many naturally-occurring materials also have plasticity or plastic qualities. The plastic that we know so well today was originally created to mimic those materials.

Jess:

By the turn of the 20th century, there were really, a real proliferation of substitute products on the market. So very convincing imitations of tortoise shell and ivory and bone that could have the properties of translucency, that could be resilient, that could also have these really beautiful, shiny surfaces. So imitating these natural polymers. And then, in the course of the 20th century, a lot of these new novel, synthetic fully synthetic polymers come, and they explode the possibilities of different, different types of colors, different types of, you know, engineering uses where plastics can really become these very sophisticated materials of many, many different adaptable physical properties.

Ava:

The beginning of that explosion centered around a very popular material called Bakelite, and a man named Leo Baekeland. To start the season, Burgess and I told the story of that material in particular:

[Music and clip from Episode 1: The Fourth Kingdom]

Burgess:
In the early 1900s, investors were interested in plastics that had very specific purposes, and that would replace a naturally-occuring material. So Baekeland thought that to sell Bakelite, he would have to sell a specific use.

Ava:
But Bakelite wasn't just a replacement for vulcanized rubber. It's problem was that it could actually do quite a lot of things.

Burgess:
But still, he went with his drawings for valve parts and bobbin ends to a presentation in front of industrial leaders in 1909. Think early 1900s Shark Tank.

Ava:
And it was there that Bakelite really became a game changer.

Burgess:

Oh yeah. What Baekeland had brought these Wall Street tycoons was a plastic that could be molded into anything and then hardened and polished. It wouldn't burn, or melt, or crack.

Ava:
And that made it great for valve parts. But it also made it great for a whole host of commercial goods.

Burgess:
And Wall Street noticed that.

Ava:
Flash forward to 1924 and Baekeland was what he never wanted to be: a businessman. And Bakelite was being used for what he called, "fancy goods," that mostly didn't interest him. But money, as it so often does, had taken over his invention.

Burgess:
That year he graced the cover of Time magazine. And I mean his headshot took up the entire cover. He sat in a suit and tie, with small glasses and a lush mustache, looking every bit the dignified businessman. Under his name, Dr. Leo H. Baekeland, Time printed a quote: "It will not burn. It will not melt."

Ava:
Bakelite wasn't being sold as a single product anymore. It was being sold as the future.

[Music]

Burgess:
In 1924 the future of plastic was shiny and bright. Science was leading a new way forward, and opening up a new world of opportunities for manufacturers. It would be clean, orderly, and rational. And jumping forward 30 years to the golden age of plastics, those predictions seemed to come true.

Jess:
Throughout the bulk of the plastics age, which we're sort of thinking of like the development of all of these different polymers, by the end of the 1950s and sixties, most of the polymers that we know today are already on the market and being modified and tinkered with endlessly.

Ava:
In the story of plastics, war brought the greatest innovation. During World War II, plastic production increased by 300%. Nylon was invented as synthetic silk to be used for parachutes, ropes, and helmet liners. Plexiglass was used in aircraft windows, and the microwave was invented by a company that is still the world's largest producer of guided missiles. Countless types of new plastics were made for the battlefield, and when the war was won, adapted by the marketplace and sold as an essential part of American domestic life.

Burgess:
But few objects represent 1950s Americana in the way that Tupperware does. It's one of the more famous post-war plastic adaptations, and was invented by a man named Earl Tupper who saw himself as an ideological descendant of Baekeland. But Tupperware wasn't the immediate smash hit that Bakelite was. For Tupperware to become as culturally significant as it did, it took very clever marketing from a woman named Brownie Wise.

Ava:

In our second episode, we spoke with Alison Clarke, author of Tupperware: The Promise of Plastic in 1950s America.

Alison:

Brownie Wise really did exemplify the rags to riches kind of stereotype of the American dream. She was a divorcee. She was abandoned by her husband and had medical bills to pay for her young son. And that's how she started selling door to door. It was only through that kind of drive as being an outsider, a single mother, a divorcee, outside the kind of suburban culture that Tupperware came to exemplify, that she was really driven to, to create this product as a kind of mega icon.

Alison:

She appeared in women's magazines throughout the 1950s. And there were extraordinary insights into things like her eating habits, how she liked to snack on hamburgers last thing at night and eat ice cream sundaes, and that she liked to make her own sort of couture style dresses. She had her own canary that was dyed pink to match Tupperware bowls and a Palomino pony. She became this extraordinary cult figure for other women that would travel across America to Florida to visit her.

Burgess:

For Brownie Wise, Tupperware wasn’t simply a plastic food storage container that would lead to a more organized kitchen. It was also a cultural signifier that represented her, and women like her. She glamorized plastic and Tupperware into something desirable.

Ava:

And she clearly reveled in excess. As the inventor of the Tupperware Party Plan system, she brought women together in a community of consumption. But it’s that celebration of materialism that no longer feels possible in our increasingly plastic world.

Burgess:

In the 1950s, America was awash in new glamorous, fun plastic products. And while we’re still surrounded by plastic today, more often than not it doesn’t feel fresh or fun. In our most recent episode, we discussed how people, especially young people, are conceptualizing plastic today with a high schooler and activist, Grace Cuddihy.

Grace Cuddihy:

Ideally we wouldn't use plastics at all, but at the same time, is it really feasible to imagine a world without them? And I think that that's like a very tough question and also another, again, a question of class and a question of accessibility. So something that we talk a lot about is circular supply chains and also like corporate responsibility. For us, if we are going to have a world with plastics and that's something that we need, plastics can't just sit in a landfill. They need to be continuously reused.

Burgess:

Constant consumption has caught up with us. And the plastic industry is slowly trying to shift to align with the new generation's values.

Jess:

Right now there is a big campaign about circular plastics. Circular plastics are being touted by even the most sort of like mega producers and users of plastics. So the major beverage companies have made a pledge to increase the circularity of their production, and they are putting commercials on during, prime time TV that are showing how they're trying to re-engineer their bottles to first use less plastic and second use plastic that can be entirely sent back into the recycling stream. And their idea is to, to capture back every single bottle that they produce. And so we're entering a new, a new phase of producer responsibility, and this is the most important thing I think for this entire plastic story is to shift responsibility away from consumers who in the last 50 or 60 or 70 years have shown themselves to be entirely terrible at identifying plastics, recycling plastics, re-using plastics, essentially asking, asking consumers to be in charge of this is really a poor way of managing this crisis, this environmental crisis.

Ava:

Okay, so we're (hopefully) entering a new phase of producer responsibility, but how did this shift from consumer to producer happen? Why did it happen? And what does it mean for American consumerism overall?

Burgess:

We tell much of that story in the later half of the season. The history of plastic in the second half of the 20th century is completely intertwined with the power of corporations. Large companies and corporations have always, by definition, been interested in profit. Capitalism has a long history of contributing to the depletion of materials and species until profits dwindle. But when plastics became popular in the early twentieth century and then boomed in the post-war period, they set off an era of unprecedented production, marketing, and consumption.

Ava:

And that overproduction and overconsumption started to have consequences. We talked to Melissa Miles from the New Jersey Environmental Justice Alliance about the legacy of harmful environmental and health impacts that industry has left for Newark, New Jersey.

Burges:

Over the last several decades community organizations fought against the building of 26 incinerators in New Jersey, and they successfully beat back 25. Although the waste management companies said that these incinerators would be safe, communities did their own research that disputed that.

Ava:

Newark, a predominantly Black city, is home to the one that they couldn't beat back: the Covanta-Essex garbage incinerator, where tons of garbage, including plastic waste, goes to burn everyday.

Burgess:

Melissa broke down what exactly the Environmental Justice movement is and why it's so important in a city like Newark.

Melissa:

The environmental justice movement, or EJ movement as it's often called, is basically folks who are impacted, who come from communities that are impacted by environmental pollution. It looks different in different places. There are places where, you know, the EJ communities may be impacted by transportation infrastructure and other places where it may be pipelines and other places where it may be drilling and other places where it may be fracking and other places where it may be you know, just the siting of, of energy plants. So different communities have different issues, but there are some that seem to be common and one of them is race. If you are a person of color, you're more likely to live around pollution than white people in many states. That is a fact in New Jersey.

Melissa:

It's the number one determinant of whether or not you live around pollution and the same is true throughout the nation. And the second determinant is income. So those are the lines that sort of connect environmental justice communities. So you even have poor white rural communities that are environmental justice communities, but the movement really grew out of black communities, brown communities, indigenous sovereign communities and nations that were just tired of being dumped upon and began to take it upon themselves, to organize and to you know, fight for a change.

Burgess:

Plastic comes from somewhere. It comes from pipelines, and oil refineries, and cracker plants. All of those places, no matter how well they are designed, pollute and significantly degrade their surrounding areas. The people who live close to the refineries face profound health impacts. As Melissa said, in America, the people who are more likely to be part of those frontline communities are people of color.

Ava:

And by the same token, plastic goes somewhere too. It goes to landfills, and incinerators, and recycling centers. It doesn't disappear. It doesn't decompose at the rate that organic waste does. We truly don't know how long many plastics will last.

Burgess:

We talked about the origins of recycling programs with State Assemblymember Steve Englebright from Suffolk County, New York, who in the late 1980s passed one of the country's first plastic bag bans.

Ava:

However, that ban was short lived, as Big Oil came to the county on the tip of Long Island in full force to try to convince the county legislature that recycling would be a better alternative.

Steve Englebright:

It turned out to be something that attracted more attention than I thought. You know, I didn't expect to have our legislative chamber filled with lobbyists. We'd never seen anything like that before in the county legislature. Maybe one or two a year, we might have a lobbyist, but not dozens.

Steve:

I knew that this was an industry that was basically coming out of Big Oil. And I knew the likelihood was that there was going to be a lot of pushback to just do whatever they were already doing. Just keep that going. They were making a lot of money and they didn't want to have somebody say wait a minute, you have a durable material, use it for a long term durability purposes. But don't translate that into every time somebody has a bite of lunch.

Burgess:

After working at it for 30 years, Steve was finally able to help pass a statewide plastic bag ban, and push for more producer, rather than consumer, responsibility. That's a shift that many of the folks we spoke with this season advocated for. Here's another one of our guests, SIMS Municipal Recycling Center Education Coordinator Kara Napolitano.

Kara:

And, you know, at Sims where we're really pulling for, for extended producer responsibility or EPR in New York state, basically this legislation, it puts the financial responsibility of recycling or disposing of a packaging back on the producer. So this EPR bill focuses on packaging and paper products. So it's basically, if you made it, you have to have a serious hand in, in the disposal and the managing of this material, once it becomes waste.

[Music]

Ava:

The story that will stick with me the most from this season, the one I'm sure I'll catch myself thinking about whenever I pass a factory, walk by a house covered in vinyl siding, or buy a children's toy, was the story Jerry Markowitz and Billy Bagget helped us tell about PolyVinyl Chloride.

Burgess:

Now those two episodes from the middle of our season are about the cancer risks in factory workers and consumers that were exposed to Vinyl Chloride. And the story told there is complicated. I don't think we'd do it justice by playing a condensed clip for you here. So this is just a little plug to go back and listen to House of Documents and Out of the Factory in full.

Ava:

But what we can do is share some words of wisdom from Jerry Markowitz. He's the author of *Deceit and Denial: The Deadly Politics of Industrial Pollution.* And he's spent the majority of his career elbow deep in documents that detail exactly how deadly corporate greed can be. This is what he thinks the future might hold for us all:

Jerry Markowitz:

Well I guess I, I am old-fashioned enough and I'm old enough to believe that the truth will set us free. That the more information we have, the better we are able to deal with the issues that are confronting us and the industry version of that is: be a better consumer. But my version of that is that we need to hold industry responsible and we need to ensure that the government holds industry responsible so that we as consumers and we as the public, are not confronted with impossible choices. And that, that for me is the most important part of doing this work, that you give individuals an opportunity to harness their power as people who vote, people who are part of communities, to really change the kind of society that has been handed to us.

Burgess:

Sometimes when we look at crises as big and complicated as the one we're facing now with plastic, it can feel impossible to feel anything but powerless. But, listening to Jerry shifted that for me. We can measure ourselves not just in individual power and influence, but in collective power. At the top of the episode we talked about the feelings of doom and gloom that often accompany these kinds of stories and that it's important not to let those feelings overwhelm us. We chatted with our colleagues here at Parsons Healthy Materials Lab (who've been dealing with these feelings collectively for decades) about how they turn despair into collective power. They've shared with us stories, resources, and organizations that have kept them motivated and you can find those listed on the webpage for this episode at healthymaterialslab.org/podcast.

Ava:

What the study of the past makes clear to me above anything else, is that the future is wide open. The small actions that create large twists and turns in our future are hard to guess. While plastic leaves a lot of people feeling hopeless, and I for one certainly do believe that we need to change our consumption patterns, our collective doom isn't set in stone.

Burgess:

Ava, would you say the future could take many shapes?

Ava:

Sure…

Burgess:

That maybe it's moldable, transformable... even plastic?

Ava:

[laughs] Oh my god, have you been waiting all season to make that pun?

Burgess:

Oh, yeah. The future is plastic. In the way Jess Walthew taught us to use the word plastic, meaning we make whatever we want out of it. And hopefully we can take the lessons we've learned from the past, understand what went wrong and what went right, and build something better.

Ava:
From Parsons Healthy Materials Lab, this has been Trace Material.

[Credits]

Burgess:
Alright Ava, final credits of the season. Want to take us out?

Ava:
Absolutely. *Trace Material* is a project of Parsons Healthy Materials Lab at the New School. It is produced by me, Ava Robinson...

Burgess:
And me, Burgess Brown.

Ava:
Our project director is Alison Mears and our research assistant is Olivia Hamilton.

Burgess:
If you've enjoyed this season, please take a moment to let us know on Apple Podcasts. A rating or a review really does make a difference.

Ava:
This season of Trace Material was made possible by funding from the National Endowment for the Humanities and support from Friends of Healthier Materials.

Burgess:
Our theme music is "Rainbow Road'' by Cardioid. Additional music from Blue Dot Sessions.

Ava:
And, although he's been a bit quiet about it, some of the music was composed by our very own Burgess Brown.

Burgess:
So if you hated the music I don't want to hear about it.

We'd like to say a few quick thank you's. Jess Walthew from Cooper Hewitt was a guest in like… half our episodes this season and her passion for plastics and encyclopedic knowledge was a massive help to us throughout this process. So thank you Jess!

Ava:
And we'd like to thank our amazing team at HML. You've heard their voices on the credits this season, but they've also been behind the scenes providing support and expertise. A particular shout out to our communications team Cristina, Elinor, Shirin and Jordan. And to our directors Alison Mears and Jonsara Ruth for their leadership and guidance.

Burgess:
Last but not least Olivia Hamilton has been our stellar research assistant throughout the season and has absolutely crushed it. We couldn't have done it without her. Be sure to check out Olivia's *other* environmental podcast called "World is Burning."

Ava:
Thank you all so much for listening and learning with us. We hope you'll join us again for Season 3 of Trace Material.