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SHOT 50<sup>th</sup> Anniversary Talk

*It's all in how we define technology: bringing gender, race, and power to the center of SHOT*

At the SHOT meeting in 2004 I gave a paper on a session titled “Race and Technology.” It was the only session at the meeting that directly engaged race. And all three of us who presented were white. I have a very clear memory of giving my paper, looking out at the mostly white group (I’d call it a crowd, but I think there were maybe 20 people attending), and thinking that race was perhaps not a core concern for historians of technology.

Today I’d like to share some of my observations on the place of race, primarily, and gender, secondarily, within the history of technology. These are based on my writing of the article that emerged from that paper, along with a subsequent assignment to summarize the place of technology in American Studies as editor of a special edition of the ASA’s *American Quarterly* last year. It is also informed by my recent work on gender and artificial sweetener, where I’ve started considering how techniques I’d previously used to address race can also be used to consider gender.

If we ask ourselves, when considering a technology, what human motivations caused people to accept or reject this, engage or manipulate this, the answer is likely to have something to do with race and/or gender. I’m sure this applies to class as well—and sexuality. In short, all of those categories cultural studies scholars have argued form the subtext of structural or material histories of power...these are constantly at play, shaping our technological world and its effects. This is true even if they appear, at first glance, to be invisible in the “history.” In this talk I’ll use these projects as my entry into the question: how might we “center” technology history on power plays, which have everything to do with race, class, and gender. And what might happen to the histories we tell, if we did?

*The paper & article: making race “come up”*

The article that came out of that race session was on a series of rumored experiments on African Americans between 1903 and 1904 that supposedly were undertaken with the purpose of turning black skin white.<sup>1</sup> I came across the story initially when doing research for my first book: *The Body Electric*.<sup>2</sup> I was working on X-rays and radium, looking at the extensive collection of popular newspaper articles on the subjects kept in

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<sup>1</sup> Carolyn de la Peña, “‘Bleaching the Ethiopian:’ Desegregating Race and Technology through Early X-Ray Experiments,” *Technology and Culture* v. 47, n. 1 (January 2006): 27-55.

<sup>2</sup> C. de la Peña, *The Body Electric: How Strange Machines Built the Modern American* (New York: NYU Press, 2006).

the William Hammer archives at the National Museum of American History. I found two pages of clippings on experiments to “turn black skin white,” or, as it was sometimes referred to: “bleaching the Ethiopian.” I wasn’t sure what to do with the material, so I photocopied it, and kept on working on the main story: early ideas about the fantastic powers of these technologies to alter the body. The white body.

In the end, I did use the material—because it was such a compelling example, I believed, of the power people attributed to X-rays. Not until a book review came out in Technology and Culture did I think again of the experiments. Seeing the “whitening experiments” presented as fact (as I had initially presented them) made me uncomfortable. I didn’t really know it was a fact—it was merely a rumor in several newspapers. So first book done, I decided to go back to the materials and see if the story of bleaching was actually true.

It turns out that it wasn’t. Roughly fifteen newspapers across the country, primarily in the south but also in the northeast, west, and Midwest as well, had reported that numerous black patients had undergone repeated exposure to x-rays (in some cases combined with radium) in order to whiten black skin. In some cases the skin was fully whitened, these reports suggested, leaving “creamy white skin” as a result. There was a great amount of uncertainty about what would happen to these whitened blacks—and a good amount of lamenting the creation of such “abominations” of God’s rules.

It should have clued me in that all of these publications were aimed at whites. In fact, when I examined the black press in search of similar stories I found none. This wasn’t due to a lack of interest in x-rays or radium; numerous stories could be found on those topics. Something else was at work, something that became clear once I looked at the original proceedings of the skiagraphy meeting where the transcript of Henry Pancoast’s presentation was located. Pancoast’s 1903 talk, I found, was ground zero.

What actually happened, as I reconstructed the event, was that Pancoast had given a talk to fellow x-ray physicians (called “skiagraphers”) about his varying success rates treating cancer and other intractable conditions with X-rays. He found the success rate dismal and lambasted those in the profession who touted the “miracles” of x-rays disproportionate to the failures. The one area where he had found success was in treating lupus and keloids, specifically in skin lesions and abrasions. Pancoast showed a number of lantern slides of these successes—because he worked at the University of Pennsylvania hospital in Philadelphia a number of his “charity” patients were African Americans. This, combined with the fact keloids, or the painful buildup of scar tissue, are more common for blacks than whites, explains why so many of his slides featured blacks. In the process of X-ray treatments many of these patients had been burned, destroying their skin pigment. To some in the audience they may have appeared partially whitened.

It is possible to imagine a logical explanation for this: perhaps a journalist or two dozed during the presentation, only to awaken to the mottled images. But we cannot imagine the speed of distribution of this incorrect assertion, nor the apparent ease of its

acceptance, without considering the place culture, specifically fears and fantasies about the impact technologies would have on racial distinction.

Shortly after the first incorrect story appeared on Pancoast's "whitening" experiments, a quack physician in Philadelphia began conducting these experiments on one or two black patients. Additionally, a chemistry student at Berkeley began working on a senior thesis on grey mice—to turn them white. He speculated in the San Francisco paper that he would soon begin work on black humans. The three stories—fiction more than fact—became a fixation in several states. Fears and fantasies of X-ray whitened blacks continued until Thomas Eldridge—the Philadelphia figure—found his laboratory destroyed by fire. Pancoast took the bold step of setting the record straight in several Philadelphia newspapers. And by mid 1904 the story had quieted.

When I went to SHOT in 1904 this was my story: I got this wrong, it never really happened, here's how the story got distorted, there's so little written about race and the history of technology: someone should do work on this. Anthropologist, and SHOT supporter Evelyn Hammonds, our commentator, took me to task in a very nice way. She would do it again as one of the outside readers for the first draft of an article on these experiments that I sent to T & C.

It was, she explained, my job to explain the significance of this story. It was not enough to point to the evidence and say this is really interesting stuff, someone who works on race should figure out what this means. As a historian of technology I should be able to figure that out, she suggested. Here was a compelling conversation happening where material technologies and racialized fears met. As a historian of X-rays, she argued, this was my story to tell. And she kindly pointed me towards several books on late nineteenth-century racial categorization and segregation policy and said get to work.

The challenge was daunting, both for me intellectually in terms of this particular paper and for me personally as a scholar in my fields (primarily: American Studies; secondarily SHOT). As a white scholar, albeit one who grew up in a very diverse, working-class city (Rubidoux, California), I had come to think of myself as one who did not work on race. Perhaps this even informed my choice of concentration in graduate school: in the history of technology, and even material culture, I worked in circles where race was often, at best, a tertiary concern. It wasn't that I didn't want to do race, I would have said if asked back then. It's just that race doesn't often come up: it's not what the archives provide. But I learned in this process that it's up to us as scholars to ask the sorts of questions—indeed begin from the starting points—that enable race to “come up” in our research.

There were several challenges in undertaking this work. The first, and most obvious, was an inadequate archive. John Staudenmeier, in fact, pushed back hard on this when I initially submitted my manuscript to T & C. I had found, through extensive searching in old newspapers, only two stories in addition to the eleven that had initially been in the Hammer archive. The problem was that small papers were infrequently archived; it was the small-town papers that often reported these stories. So how could I document how extensive the discussion of these experiments was? I also could not find internal

documents on the coverage, so it was difficult to say how representative these articles were of editorial interests. Then there was the problem of subjects: who were the people who participated in these experiments with Eldridge? Were there any? Was it made up? There were no names provided; the one image I found did not contain a name. If anyone had willingly undergone these experiments, why? And to what effect? Articles sometimes suggested people were made “half white” and were then rejected by their communities. But how could I believe these musings from the white press?

In the end I decided I had two key pieces of evidence to begin a racial analysis of X-rays: common rhetoric among white journalists and the context of race in the early twentieth century. I thus moved away from material analysis, stories of inventors, advertising materials, and archival records of engagement—my typical tools for technology history. And I moved towards words and spaces—towards an approach that required me to create connections I could not “prove,” to imagine environments I could not recreate.

I found key rhetorical similarities in the stories: discussions of passing, evocations of “creamy white” skin, assertions that the results were “freaks.” Without going into too much detail, each of these rhetorical approaches worked to create a particular context in which X-ray technology was deemed good when it upheld racial distinctions, and bad when it challenged them. By suggesting that many blacks wanted to undergo these experiments in order to pass, whites demonstrated their fears that new inventions might challenge the status quo. Of course, these “experiments” were, in one sense, just the next iteration of a long history of passing innovations from hair straightener to skin cream. On the other hand, it was markedly different than these previous tools: it was a highly respected technology widely understood to have vast, mysterious powers. It was quite different to have a black body whitened by lye than by x-rays. Even if, in reality, neither technology actually worked, the latter certainly seemed that it could work, at least in the white imagination. If we look carefully at the early construction of X-ray “power,” particularly among non-expert whites, much of it involved X-ray visibility. In newspapers (in some cases the very same papers that would cover the story of black whitening), cartoons featured men wearing x-ray glasses and seeing through women’s clothes and renderings of fat and thin bodies revealed identical in skeletal form.

Within this context it makes a good amount of sense that many whites would be threatened by reports that X rays were effectively removing black pigment from skin. It’s telling that in these stories the blacks who are whitened are often described as having “creamy white” skin. Pancoast, in fact, in responding to these rumors said burning black skin would not create white skin but rather sickly grey skin. White journalists, however, traded stories about what would happen with the full absence of pigment on black skin. It was a fantasy, apparently, as no one was ever fully whitened. But the fantasy that bleaching black skin might be whiter than white made the experiments particularly troubling, and believable, for many. Finally, the assertion in almost all of these stories, that even if technology could make blacks white they would be damned by defying God’s plan, made religion trump technological power in the end.

What's significant about all of this is clearer when we look at the cultural context. On the one hand, the nation was rife with debates over racial definitions. Legislatures worked to define black as a particular percentage of ancestry, WEB Dubois discussed the increasing numbers of passers at length, Plessy v. Ferguson determined that separate was equal, enforcing segregation of public spaces and causing public fixations on visible racial differences. Within this climate there was little room for a "neutral" technology of body modification. Added to this the particular fantastical qualities of X-rays and the recipe for panic is set. As several historians have documented, X-rays were deemed miracle forces in the late nineteenth and early twentieth centuries. People speculated that we would soon see the inner truth through x-ray glasses. The "rays" were thought to boost human energy. Combined with radium (with which x-rays were often conflated), they might even reverse the aging process.

In my book I had written about X-ray fantasies: superbody scenarios in which people would grow in intellectual and physical capacity by exposure to the new technology. What I had overlooked was that these fantasies were not universal, they were white. And, they only found oxygen to breathe through the tension with accompanying fears: the fears that this superpower would be applied to the wrong bodies: wrongly gendered bodies, wrongly classed bodies, and in particularly wrongly raced bodies. Had I considered, from the very outset of my inquiry, that I was not looking at the neutral history of "how people adopted a new technology," but rather the specific history of how one group of people impacted by culture (and so therefore embroiled in racialized distinctions) adopted a new technology. Understanding at the point of entry that these attitudes on X-ray power had to have been racialized would have certainly awakened me to the significance of the Hammer archive when I found it; and would have allowed me to discuss the "body power" of X rays in a very different manner.

In the end I didn't have much of an archive, nor had I found people who actually proved my story. But I had found a way to unearth some of the invisible cultural "ether" that surrounded the arrival of X-ray technologies. I came to see that my original story in *The Body Electric* was ½ right. I had done a good job reporting on the visible cultures of technology: the objects, the inventors, the users, the advertisers, the archival record. And this is certainly a "correct" history. X-rays had a materiality; inventors did create the technologies to make them work; products were sold; people did discuss the meaning of X-rays without discussing race and the non-racialized meanings were "true." But I had missed ½: and that was the ½ that provided a rare opportunity to confront the cultural context that presupposes this visible history. The whitening experiment rhetoric lasted about four months—not a long time for a historian; the conversation involved maybe 30,000 people if we total all the newspaper readerships—not a high percentage of the population. But *because* actual written records of racialized thinking are so rare, these "needles in a haystack" are essential for our consideration. For every one journalist who wrote a story on x-ray whitening, certainly ten would have if they'd heard the rumor. For every one white person who read these articles, there were another 100, 1,000, 10,000 who somewhere, at some point, felt anxious about the changes in racial order that were emerging with technological "progress" (consider mass transportation, the

disembodiment of radio and telephone, the rise in technical education for people of color).

X-rays succeeded because the general white American public effectively imagined what they could do—the fantasy of “good” work and the fear of “bad” work. It was a process that enabled people to embrace part of what they could do while exorcising the parts that were too troubling. And, I would argue, *it is a process that is going on all the time with technological innovations*. It’s just that the bad conversation isn’t as readily available in the archive.

Back to Pancoast and his experiments: no one was really trying to whiten skin in any systematic way. And it wouldn’t have worked if they had. But it’s useful—beyond the suggestion as a place to begin for “finding” race in technology history—to consider that this “fiction” probably impacted medical practice, directly. Pancoast stopped using lantern slides of black patients in his presentations for fear of stirring up more controversy. He was very eager to dispel these rumors; more than once he stated in the press (an unusual move for physicians at the time) that “no experiments to whiten skin had ever been undertaken on Negroes” by him or at his hospital. The evidence suggests this controversy may have influenced Pancoast’s willingness to treat black patients as well. He went on to administrative positions at the hospital and in his professional association; he spent more time publishing and overseeing research than conducting it directly on the ground in Philadelphia. How many white physicians found their decision making impacted by race? Imagine the choice to use an innovative technology in the treatment of cancer, for example, if it had lightened skin in 1903? Would Pancoast have been the only one impacted by this story—it did circulate through the entire community of skiagraphers, after all.

More research has to be done to determine the way race has played out in teaching hospitals, or in determining who has early access to new medical technologies—but as this case study suggests, technologies that seemed able to privilege dark bodies over white could not have been regarded as “neutral” in the early twentieth century. Indeed, could they be imagined to be neutral today?

Here it seems useful to quote something I wrote in that article—drawing on the work of historian Bruce Sinclair and considering my own experience:

*Key paragraph: Historians of technology must avoid the seductive tendency to work with their materials as if they constituted race-free zones. This perpetuates inaccuracies and accepts asserts of technological neutrality without addressing the issue that technology has typically been desirable only insofar as it accomplishes “good work”: and that good work, especially as defined during the nineteenth and early twentieth centuries, tended to be work that affirmed existing structures of power, particularly those involving race.”<sup>3</sup>*

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<sup>3</sup> “Bleaching the Ethiopian,” 31; Bruce Sinclair, “Integrating the Histories of Race and Technology,” in *Technology and the African-American Experience: Needs and Opportunities for Study*, ed. Bruce Sinclair (Cambridge, Mass., 2004), 2.

As Rebecca Herzig has argued, we as historians have to “interrogate the tools that make racial hierarchies possible.” This means, most obviously, looking at the calipers and cranimeters and skin lightening and depilatory creams—the actual technologies that enabled whites to distinguish bodies thereby making theirs superior, as well as the tools and techniques used by non-whites to change their bodies to “pass.”

I’d like to suggest that we as historians also consider method one of these tools. We need to find ways to step back and critique the conditions in which innovations are possible (or not) and the specific cultural forces that determine how particular technologies are defined and used as “positive” innovations. Technological artifacts come to exist by resonating with and/or producing particular technological ideologies that appeal to groups of people at particular moments. Technologies, to paraphrase my friend and fellow historian of technology Joel Dinerstein, succeed when they enhance our “somebodyness.”

My core definition of technology has been the material or *systemic result* of human attempts to extend the limits of power over the body and its surroundings. If we begin with objects, we privilege the material reality of technology as it was constituted and disadvantage the ephemeral debates that yielded that material artifact. If technology is the result of attempts to extend the limits of power, it is, at its most basic, the concrete results of individual and collective efforts to increase our “somebodyness” (Dinerstein). Fetishizing the artifact, or imagining that invention happens only by those who actually comprise the object, prevent us from adequately assessing the climates in which technologies are produced (or not) and interpreted by people motivated primarily to enhance their own pleasure and minimize their own pain. And those climates, I would argue, are profoundly shaped by power. And power is absolutely embroiled with race...and gender in American history and culture.

So the X-ray exists, culturally, because of what it does and does not do. And what it does do can be defined as “good” only because what it does not do was confronted, imagined, vilified, and dismissed. The roads not taken are racialized. They are harder to find—but will be easier if we prioritize rhetorics as much as objects; if we learn to listen in conversations about the possible to see the places where power is threatened and hierarchies are maintained.

#### *Power, Race, and System/Inventor Paradigms*

Some of the most compelling recent work in our field is also using power, in a sense, as a starting point to interrogate the role of race in technological innovations. Michael Adas’s *Dominance by Design*, an assessment of the commonalities across multiple U.S. technological interventions in the name of “progress,” argues that decisions about who to dominate and why are often made on the basis of racial difference.<sup>4</sup> In an analysis stretching from colonial engagements with native people to the recent war in Iraq, Adas finds that U.S. policy makers have tended to use what he terms “a civilized level of material culture” as the primary indicator of civilization or savagery. Thus the nomadic practices of native tribes, as opposed to the sedentary mechanized development of Anglo

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<sup>4</sup> Michael Adas, *Dominance by Design: Technological Imperatives and America’s Civilizing Mission* (New York: Belknap Press, 2006).

settlers, rendered them inferior. The inferior weapons of the Vietcong “proved” the U.S. would win the battle, if only its machines and men held out. In both cases, the line between inferior technologies and inferior racial types was blurred: people without adequate objects and systems are quite simply viewed as having less “somebodyness.” And this makes sense when we recall that a primary motivation for technological development in this culture is to exercise power. Defined as the command over objects and the extended power of the singular body, this kind of techno-power has historically rendered people of color, particularly those living with more communal or collaborative values, “dominatable.” Indeed, as Adas demonstrates, dominating such inferiors (who are almost always non-white) is actually a duty of the techno-civilizer: only by bringing superior tools and systems, this logic goes, will these people lift themselves out of the dark ages and enjoy the pleasures of modernity. The fact that this logic has not only not worked (witness Vietnam), but frequently has been revealed to be incorrect (recent studies show Africans as having the highest rates of life satisfaction in the world) has done little to temper it. It is a logic that enables race-based value judgments to be masked as an objective assessment of varying levels of “modernity” and “progress.” It would be interesting to examine the cost, so far, of failing, as a nation, to see that our definitions of techno-progress are racially and culturally ignorant.

Racialized ideas of power have also had a dramatic impact on the lives of individual inventors in the U.S. As Ray Fouché has demonstrated in *Black Inventors in the Age of Segregation* (and I’m sure he’ll talk more about at our session), black inventors understood technological innovation as a means to further their own power at a time when opportunities for control and advancement were limited.<sup>5</sup> Fouché’s take on the “inventor story,” a well-worn trope in technology history, is brilliant because it effectively de-centers the technological object or system as the primary unit produced through technological innovation. Here culture is what drives the production and what is ultimately produced in the end. Fouché’s work argues that we should continue to tell the stories of individual inventors, but we should do that by approaching invention as an individual act motivated by a collective cultural environment and reliant upon a vast network of value-based business and financial networks that determine when and if a particular invention is to succeed.

*Black Inventors* provides important case studies that help us explore what all too often is the invisible role of race in invention. In the first, Granville Woods has all the right talent and the marketable technological innovations. What he doesn’t have is the cultural support to bring that talent and product to market. This story is probably more familiar to us when we think of race: those excluded by structural racism. It is obvious, but perhaps important to state, that every single invention you can point to in American history, at least prior to the 1970s, but arguably even today, is a “racialized” object of invention. It simply wasn’t possible for non-whites to take an innovation through the stages of development to mass production in the majority of cases. The same is largely true for women, but not to this extent. We can, of course, point to those “targeted” inventions: beauty products for women, hair straighteners and skin creams for blacks. But when we

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<sup>5</sup> Rayvon Fouché, *Black Inventors in the Age of Segregation*: Granville T. Woods, Lewis H. Latimer, and Shelby J. Davidson (Baltimore: Johns Hopkins University Press, 2005).

look to mainstream inventions, almost all the ideas that eventually took shape as objects emerged from or were powerfully allied with epistemologies of whiteness. It wouldn't be a bad starting point—if we want to do a better job of interrogating race in our field—to simply take any historical technological object and ask “what would this object look like if it weren't a white object?”

Fouché also provides us with a second impact of race on invention and its results. In the story of Lewis Latimer we have a story that is, in some respects, quite the opposite of Granville. Instead of an inventor having his racial difference highlighted through his technological failures, in Latimer we have an inventor having his racial difference de-emphasized through technological success. Of Latimer Fouché writes (and I know, we're supposed to focus on our own work, but this is too important to to include), “he wanted to fade into this technical world...where he was no longer seen as a black man, but as a raceless member of this environment.”<sup>6</sup> Again, by moving away from the heroic interpretation of Latimer as, primarily a successful inventor, we arrive at a culturally-bound understanding of the role that race played in driving all of Latimer's inventions. We misunderstand the technological product here if we ignore racialized power structures. Latimer's drive to invent was driven first by his desire to inhabit the white world of inventors (the work environments, social organizations) and secondarily because he wanted to create a particular object. His primary invention was himself as a white man.

Such an observation has disturbing implications, perhaps, for those of us looking to combine racial justice and empowerment with a true history of technology. But what that kind of admission enables us to do is admit that people are motivated, again, by power: they are driven to increase their “somebodyness.” Just as in the case of the whites who rebelled against “whitening” X-ray powers, Latimer saw an opportunity in shaping technology to place himself in a more comfortable place in the world. We may, through this work, have to admit that inventors of color, and female inventors, have attempted through their work to fit into a racist, sexist culture rather than challenge it. At the same time, we recognize that attempts to exclude people of color and women from this world of “neutral invention” are also about protecting such racialized and gendered barriers to access.

*The case of saccharin: or why gender must be “raced”*

I want to take the last bit of this talk to play around with this approach. First, I'd like to see what it means to go beyond race, to look at gender through the lens of power, or “technological somebodyness.” Second, I'd like to look back at race, from this vantage point, to demonstrate the importance of asking “what women” in our research. We should not “diversifying” our field by working on gender *or* race. Gender is race.

I am working now on a cultural history of artificial sweetener. I want to look, for a moment, at one part of one chapter: an analysis of the women who initially adopted

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<sup>6</sup> Fouché, *Black Inventors*, 84.

cyclamates for home use in cooking. Cyclamates are intriguing scientific products in that they were not advertised or marketed well into the mid 1950s: instead women found meanings on their own through direct experimentation. In this section I examine cyclamate/Sucaryl (the Abbott laboratories brand name) cookbooks produced by and for women in order to demonstrate that “diet” food initially was about “other” control and scientific expertise rather than exclusively weight loss & self focus.

Postwar cooks faced an important, and oft-overlooked, culinary challenge. Most traditional American recipes were high in calories. And calories were increasingly recognized by health experts as something that had to be cut in order to ensure health. It was a problem that in some senses stretched back to the early proliferation of sugar: women were responsible, on the one hand, for creating the food pleasure that brought children and men to the table. On the other hand, they were to blame if too much pleasure resulted in poor health and habits. The need to achieve a balance between pleasure and effect, however, reached its apex in the late 1940s and early 1950s. As post-war plenty, combined with technological innovation, enabled the white middle class to indulge material desires, concerns about food consumption rose. Much attention has been given to how women changed their own food habits as thinness became a national fixation. Far more attention, however, was originally given to how they would change the habits of their husbands and children.

Recipe books from the 1950s suggest that women did not casually achieve a cyclamate-sweetened dish. Advice varied as to whether one needed tablet or liquid forms of cyclamate, first of all. Poppy Cannon’s *Unforbidden Sweets*, for example, recommended 2 teaspoons of Sucaryl solution to make a “sugarless boiled custard” and 3 tablespoons of “Sucaryl solution” for a “sugarless chiffon cake.”<sup>7</sup> Ruth West’s *Stop Dieting! Start Losing!* published just two years earlier in 1956 used tablet measurements in all its recipes. Here mildly sweetened dishes, such as Apple Betty, require 10 tablets of cyclamate, while highly sweet dishes like cranberry sauce require 40. According to another cookbook, the liquid form was the preferable option. It was also the most expensive. Because of this, numerous cookbooks provide tips on how to buy tablets and turn them into liquid solutions. According to Cannon, women who wanted to save money could buy tablets and find “it’s very easy to make the liquid form yourself.” One needed only to put 48 tablets in a cupful of hot water, dissolve them, and then measure out one teaspoon of liquid for the equivalent of one teaspoon of sugar.<sup>8</sup>

Measuring out 48 tablets, finding a container to hold the cup or water, and ensuring the mixture was fully dissolved was not terribly difficult. It did, however, require effort. It was 48 tablets that were needed, not 47 or 49, meaning that women had to concentrate on the task at hand, sort out in front of them a large stack of tablets, and scoop them up and into the water. Imagining the process enables us to see an exercise more suiting a pharmacist than a cook. Further, there was no guarantee that simply counting those 48 tablets was sufficient to ensure success. As Cannon admitted, there were still variations in the formulas for cyclamates from one batch to the next and between competing

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<sup>7</sup> Poppy Cannon, *Unforbidden Sweets*, p. 56 & p. 107.

<sup>8</sup> *Ibid.*, 21.

pharmaceutical companies. As a result, “it is impossible to say that so much of the sweetener is equal to so much sugar,” she warned readers. The only way to guarantee success was to taste the results and anticipate a certain amount of trial and error.<sup>9</sup>

Like Domestic scientists a generation earlier, these women transformed the kitchen into a laboratory, of sorts, in their efforts to make “good” food. They became the druggists, measuring ingredients carefully in response to a preset recipe and the alchemists working to transform drugs into dinner by monitoring their interaction with various foods. It was a creative process.

In 1956 recipe writer Ruth West urged women to exercise their ingenuity through what she called “de-calorizing” dinner. “America’s traditional recipes were not handed down from The Mount,” she explained. “They were compounded, not in laboratories by white-coated technicians, but by ordinary women in gingham aprons with no hep but that of their taste buds and imaginations.” This, she explained, was the core of American cooking: the creative cook who took the lead in the kitchen and created dishes using her own senses. This, she argued, was just what people could do by embellishing upon her own recommendations in *Stop Dieting! Stop Losing!* The key to this new type of creativity was partnering with the chemists to achieve a new generation of self-made creations. “We need this kind of creative cook to modernize and de-calorize the old anachronistic recipes,” she asserted, a feat that could only be achieved by “using the de-calorized new ingredients food chemists have perfected for us.”<sup>10</sup>

West’s assertions that using artificial sweetener made one a “good cook” are counterintuitive. Considering artificial sweetener from either end of the twentieth century, it hardly seems an ingredient indicative of culinary excellence. For mid-century advocates, however, its association with the laboratory increased its appeal and proved its safety. And now, thanks to its replacement of sugar, there was finally a way to separate the ample American appetite from its troubling effect: overweight and ill health.

In 1957 Myra Waldo published the book that would become a best-seller and make the *Slenderella* slimming system famous. *The Slenderella Cook Book* was aimed at readers who were ready to embrace what Waldo called “an entirely new concept in cook books.” No longer would people have to associate dieting with deprivation; the key, she argued, to “slenderella” success was to make food “interesting and palatable” while delivering lowered amounts of calories and fat than were typical in American diets.

Waldo’s success, arguably, had as much to do with her Sucaryl recommendations as with her world view. She offered a complete vision of this “new concept,” one that at its core assured readers that there was nothing natural about diets that deprived people of good tastes. Nor was there anything virtuous in eating foods recognized primarily as health foods. The problem, as she saw it, was not that people were eating bad food but rather that they were living lives that had gotten out of balance with what they were eating. As

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<sup>9</sup> Ibid., 12.

<sup>10</sup> West, Ruth. *Stop Dieting! Start Losing!* (NY: EP Dutton & Company, Inc., 1956), 12.

a result, it was time to change the food: and thanks to the ingenuity of American women and the labors of food technologists it could now be done.

“Fifty years ago,” explained Waldo, “the modern woman of her day arose at dawn, cleaned her home, prepared three meals a day, baked bread and cakes, washed laundry by hand, took care of several children, and was *physically active all day*.” Thankfully, those days had passed thanks to “the genius of American engineers” who had eliminated “much of the heavy drudgery” from the lives of busy suburban housewives. The problem, however, was that regardless of how busy those housewives were, they were not using what she characterized as their “*larger muscles...that that burn up energy*.” At the same time, they continued to indulge in food patterns that were “inherited” from those hard-laboring grandparents. The resulting weight problems, she believed, could only be combated by addressing the food directly and substituting the old ingredients for new.<sup>11</sup>

Many cookbook authors went further, suggesting that women needed to view artificial sweeteners as a means not merely of ensuring their own health but their family’s as well. Here was the essence of the creative movement Ruth West called “de-calorization.” A good cook could make the same dishes her family had long enjoyed *without them even knowing that the sugar-calories had been stripped away*. West distinguished between the women who cooked and their family members when it came to adapting to the changes of modern eating. Because a woman’s husband and children “are often more conservative in their eating habits than she,” West explained, it was impossible to make them begin to eat “a whole strange new way” without losing “her happy home.” Women could not just introduce unsweetened salads, unsauced meats, and fruit-limited desserts. Thanks in large part to “the new sugarless sweeteners” as well as the “new ways for short-cutting on fats and starches,” West insisted, “a modern cook can recreate the family’s favorite dishes with the greatest of ease.”<sup>12</sup>

In some cases, getting this sort of undetected dietary control may also have been a means of making up for what women could not control. Ruth West urged her cookbook readers to remember that there were particular benefits to working a “substitution” on men. Not only did they have a harder time “getting weight off than women,” she assured, but there was the matter of “alcohol calories” which she characterized as particularly “sneaky to cope with.” In West’s characterization, men were unable to exercise will power over their own desires and needed someone else to intervene. If women could not intervene directly in the barroom they could in the kitchen; substituting cyclamate for sugar then was a way to counteract “two-fisted drinking.” If perhaps avoiding sugar did not have the same psychological or social effects, it did address the common physiological impact of weight gain. Such a rationale, while a minority position among cookbook writers, provided at least some readers with a way to imagine artificial sweetener substitution as enhancing control over troubling aspects of manly behavior.<sup>13</sup>

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<sup>11</sup> Waldo, Myra, *The Slenderella Cook Book* (NY: G. P. Putnam’s Sons, 1957), 15.

<sup>12</sup> West, *Stop Dieting*, 13.

<sup>13</sup> *Ibid.*, 14-15.

At a time where fixations on too little had suddenly turned to too much, saccharin and cyclamates enabled Americans who first engaged them to imagine they might adjust their ingredients instead of their food desires.

The story has much to tell us about the ways in which food and pharmaceutical technologies enable women to exercise control and scientific expertise. It uses a similar approach to what I discussed earlier: to understand the factors that contribute to a technology's success we have to explore the contexts—on the ground—that enable adaptation. In this case, women's meaning making was different from that of the chemists who created cyclamates; even different, to some degree, from the marketers who saw embedding cyclamates in food products as the key to their success. But it's important, I believe, that we bring our commitment to racializing innovation to gender work as well. Women who engage technologies cannot be considered "white" unless proven otherwise. It is important, even in telling this story, that I remember that these "women" were white women. Their technological adaptations were framed, in some way, by a desire for enhanced somebodyness. It's unlikely in 1950 that white women's somebodyness was not racialized. There's also the matter of the women not in this story. Non-white women were cooking in 1955, they were hearing the same messages about plenty and food satisfaction, and having to make them match up with budding imperatives to simultaneously ensure dietary health. This matters: it matters to how we consider the motivations that white women had to use a scientific product; it matters to how non-white women who were left out of this commodity chain navigated the same mixed-message terrain.

To muse on this for just a moment: cyclamates and saccharin were, like many post-war technologies, segregated commodities. Cookbooks with tips on cyclamate use, containers for decorative display, and advertisements for pills and liquid substitutes were all pitched exclusively to white women well into the 1960s. This is not to say that women of color did not purchase saccharin and cyclamates, products available without a prescription merely by visiting the local pharmacy or grocery store. Women of color may have participated in their own process of meaning making. This process, however, did not meet up with the concerted efforts of product promoters until at least a decade after sophisticated pitches were already developed and deployed to white women.

This isn't something that—as a white woman at least—was initially obvious to me. Race never "came up" in this research. It is difficult to locate letters to the editor or other records that would suggest black women were using artificial sweeteners to the degree of white women in the war and post war years. The historical record suggests that one can assume at least a ten-year if not a twenty-year gap between when sweeteners were being used by a significant proportion of white and black women.

Only because I came to this project with a heightened awareness that race is always "coming up" in the history of technologies did I see it, and in seeing it frame this project differently. The whiteness of artificial sweeteners, in fact, have been much of their appeal: they were white products from white people divorced from the brown-skinned labor of sugar. Here it is intriguing—as I do in the larger project—to compare artificial

sweeteners visual rhetoric of the white laboratory with sugar's affiliation with the brown plantation. Rendering race visible here is also important if we are to consider the cultural impact of sweetener segregation: some women, but not *ALL WOMEN* have, since 1945, been told that it was their responsibility to use food science to divorce the pleasure of eating from the effects of excess caloric intake. What impact might that have on disparities in this country between white and black weight gain in the so-called obesity epidemic? How might this impact the characterization of "undisciplined" eaters as non-white? How might the continued promotion of sugared products to blacks (witness the "kool aid" promotions in *Ebony* happening simultaneously with the low-calorie snack promotion in *Ladies Home Journal*) have racialized Americans very ability to *desire* an appropriate amount of calories?

## CONCLUSION

I'm raising more questions than I'm answering. But I hope you see the value of employing a method that enables these questions to be asked. It is our job as historians to help explain the multi-faceted, dynamic ways in which race works to shade our values as Americans. This is particularly important for historians of technology. As a nation that throughout history has equated technology with progress: actively commanding time, space, and people through systems and machines, we can ill afford at this point in time to fail to note that this progress has an unequal distribution along racial lines. The divides are not merely digital: they are infrastructural; they are methodological. Technology has favored white bodies over dark bodies and this has been intentional. Before we can begin to address this divide, and atone for its consequences, we have to jettison any fantasy that technology is a race-free zone.

Opportunities abound to define technology in a more fluid manner, one that takes into account the technological epistemologies of numerous constituents: the engineer and the car customizer, the chemist and the beatboxer. One that sees the history of technology as involving those who are in the room and those who are not; those involved in the story as it plays out and those who set up the context for the story telling to commence. Doing this will invite missing people (as scholars and as historical subjects) to our table: people with perspectives & experiences that are fundamental to a full understanding of our technological pasts and futures.