

Building Havemeyer Hall: Charles Frederick Chandler and the Sugar Refining Industry

By Anne-Laure White

Columbia University & Slavery Course

2017

King's College was a colonial college established in 1754. Its campuses stretched up the Hudson Valley, promising its elite white male attendees to “enlarge the Mind, improve the Understanding, polish the whole Man, and qualify them to support the brightest Characters in all the elevated stations in life.”[1] The college in New York moved twice, each time shedding a collection of buildings and archives. It carried legacies in the documents that survive and the ideas that, both subconsciously and intentionally, frame its internal and external philosophies, projects, and repercussions. Its legacies, then and now, have been mediated through the people that shaped the school – the professors, students, trustees, administrators whose ideas and money paved the campus Columbia stands on today, as well as those whose labor literally and metaphorically built the school. The latter group of people has gone unrecognized, discarded over the course of the school's physical and mental transitions, willfully left behind and written out of archival memory.

I will tell the story of Columbia University through one individual – chemistry professor Charles Frederick Chandler (1836-1925). Chandler is remembered in university archives and contemporary accounts of Columbia's history. At the 100th anniversary

celebration of Havemeyer Hall, Chandler's mentorship style was honored; he encouraged students to set up "their own laboratories, first at other universities and later in industry."^[2] Yet within his archives, a silenced and yet omni-present story lingers. Chandler's story at Columbia is not simply autobiographical or even institutional. It is the story of one academic mediating and formulating Columbia University's corporate and public interests, often under the benign aura of respectability and professionalism. It is the story of a private university, the story of New York City, and the story of a transnational system of profit, exploitation, and slavery.

Charles Frederick Chandler came to Kings College when its Manhattan campus was still in midtown. A student of chemistry at a time in which the field was only recently emerging, Chandler went to Germany to get his Ph.D. at the University of Gottingen. He became a tenured professor at the young age of 27, only one year after joining the college. In 1864, one year into his tenure, Chandler helped found the School of Mines, the precursor to the School of Engineering.

A force behind Columbia's growing reputation in the scientific community, Chandler's chemistry research gained public exposure thanks to his contributions to commercial and industrial research. Chemistry was developed as an industrial discipline, and as an early pioneer in the field, Chandler encouraged his students to continue along that trajectory. His students went on to take commercial positions, as either researchers, consultants, or analysts for oil companies and refineries. In the classroom, Chandler likely told anecdotes about his own work in these fields. A 1922 letter from former student E.H. Leslie asks Chandler for recommendations for a book that he is working on called "The Story of Oil."^[3] He recalls a story that Dr. Chandler would likely have told in class, "about the saying of the natives, when the first oil well was drilled, to the affect that 'You might as well drill for whiskey – you'd have better chances of finding it.'"^[4] While Chandler was an expert in multiple industrial fields, his particular focus was sugar refining.

The sugar refining industry dominated New York City's industry and finance for the greater part of the nineteenth and twentieth centuries. By the 1855 census, there were 15 sugar refineries in New York City, with 1,272,000 dollars invested in real estate,

1,257,000 dollars in machinery, and 4,507,000 dollars annually invested in raw materials (the majority of which refers to raw sugar). Annual financial production was 12,167,000 dollars in 1855. The New York Chamber of Commerce reported on the centrality of sugar refineries in the 1855 census: “upon these vast interests depend largely the prosperity of the whole community.”[5] Sugar refineries employed around 214,899 people on the East Coast, where at least 24,833 different establishments made up some part of the sugar refining trade.[6]

Domestic raw sugar was often imported from Louisiana plantations and if not refined in Louisiana factories, then processed in refineries in the Northeast. The Chamber of Commerce found that the average of three seasons in the year 1859 saw around 60,700 bales of sugar exported from New Orleans directly to New York. Under the same calculations, 251,400 bales were exported to other coastal ports.[7] New York imported a significant amount of foreign sugar, receiving a totally of 225,100 tons of foreign unrefined sugar in 1858.[8] Most of this foreign sugar came from Cuba, where North American sugar interests shaped the economy and labor conditions, even as people in the North were able to claim a moral distance from the plantation economy. César Ayala argues that not only was the metropole as deeply entrenched and formative to the plantation economy as its local governance, but that the metropole, as a financial center, was actually the actor driving the plantation economy. Plantations were central to sustaining the metropole’s financial well-being. The Northern United States, despite its ability to remove itself from physically confronting slavery, drove the transnational slave trade even after abolition in the United States. In Cuba, where the majority of Northeast sugar refineries sourced their raw materials, slavery was legal until 1886. The transnational web of sugar production and slavery pushed Cuba to become New York’s most abundant producer alongside a few other Caribbean Islands. Ayala shows, for example, that “the still less developed island of Puerto Rico also experienced a sugar boom from 1800 to 1850 as a result of international changes in sugar supply generated by the Haitian Revolution.”[9]

Hiding behind a geographic divide, sugar refineries claimed moral distance not only spatially, but also legally. As proceedings against trusts and sugar refineries escalated

in the late nineteenth century, legislation distinguishing production from manufacturing became particularly important for big sugar families, like the Havemeyers, for whom Charles Frederick Chandler was a consultant and friend. The refineries absolved themselves of accountability even as they directly profited from the enslavement of people of African descent. In 1907, the American Sugar Company's annual report continued to emphasize this separation from production, writing, "The company is not a producer of sugar... it is not interested directly or indirectly in any such lands (i.e. lands that produce sugar cane)."[10] The company references investigations conducted by the House of Representatives Committee on Insular Affairs, which investigated sugar refining interests in the Philippines. In reality, not only was the American Sugar Refining Company dependent on "such lands," but the company held direct investments that profited from hugely unequal conditions of labor and production. In 1906, the Cuban American Sugar Company saw the direct entrance of North American finance capital into post-abolition Cuba, represented by a group of refiners tied to the banking conglomerate City Bank. The board included people like Henry Havemeyer (American Sugar Refining Company), Cyrus McCormick (International Harvester), and James H. Post (National Sugar).[11]

Charles Frederick Chandler's research was instrumental to the creation of efficient sugar refining processes for refiners like the Havemeyers. He also offered consulting work and, as legal issues mounted against the sugar conglomerate in the late nineteenth century, he was repeatedly called on to testify in court. I will address this in more detail later, but first I will elucidate the context in which Chandler began his research on sugar refining. Clearly, the domestic and international sugar trade was central to New York City commerce and finances. Much of the city's population was also dependent on and shaped by this transnational trade.

Before Chandler became a chemist at Columbia, when slavery was still legal in the United States, enslaved people were bought and sold in the city. Slavery was finally fully outlawed in New York City by 1827. Yet Cuban interests were not only mediated across the ocean by brokers but were embedded into the public and private life of New York. With close relations and interests in Cuba, the Martense family lived on Flatbush

Avenue, Brooklyn, and owned a significant amount of property in the rest of the city.[12] They frequently bought and sold black people as slaves in the city. One of their deeds is signed by William Cornell, the cousin of Cornell University's namesake. Cornell sold "the rights to a certain negro wench named Jade and her child" to Garret Martense.[13] Related to the Martenses, an Italian immigrant named Juan Scorser living and operating a plantation in Havana repeatedly requested United States citizenship. He argued that he should be given citizenship because while plantation mortgages necessitated a constant managerial presence and required him to spend time away from the United States, he spent a good portion of time in Brooklyn and considered himself to be steeped in New York City social and economic life.[14] The Martense family illuminates the ways in which New York City was entrenched in the transnational slave trade, and was itself a site of slavery. As a metropole booming with sugar refineries, New York City actively relied on and perpetuated slavery internationally. During Chandler's career, slavery continued to proliferate in Cuba. His employers directly relied on this slave trade. His salary and the Columbia chemistry department's success were bound into profits stolen from the labor of enslaved people.

One of Chandler's most important employers was the Havemeyer family. The Havemeyer family's sugar refining company would become one of the most significant corporate forces in nineteenth and early twentieth century American industry. In the early nineteenth century, William Havemeyer and Frederick Christian Havemeyer came to New York City to work as sugar bakers under Edmund Seaman. The brothers rented Trinity Church's land on Vandam Street to start their own refinery in 1807. The business was successful. In 1828, the brothers retired and passed on their business to their sons, William F. Havemeyer and Frederick Christian Havemeyer Jr. William Frederick Havemeyer graduated from Columbia College in the class of 1823.[15] The American Sugar Refining Company notes that his time at Columbia left him with "that mental discipline and classical knowledge which has so largely assisted him in his mercantile career." [16] During his sophomore year, he entered his father's refinery, which had changed names to W & FC Havemeyer.

In 1842, William Frederick Havemeyer became the mayor of New York City, solidifying the family's power in business and politics. Frederick Christian Havemeyer Jr. collaborated with his son, Theodore Havemeyer, to establish Havemeyers & Elder. They moved the business to the Williamsburg waterfront, where Havemeyer claimed there was "good deep water, plenty of labor, and... space to build." [17] Theodore Havemeyer and his son, Henry Osborne Havemeyer, went on to expand the sugar refining business into one of the country's most monopolistic and totalizing industries. In 1887, Henry Osborne Havemeyer consolidated multiple refineries into the Sugar Refineries Company in order to regulate prices and ensure control over the sugar market in the United States.

Chandler joined Columbia College during the Civil War, and went into research on sugar refining shortly after. Domestic sugar prices spiked after the start of the Civil War, but sugar-refining companies did not experience excessive losses. The year of 1859-1860, when mounting tensions between North and South were having significant agricultural and industrial economic consequences, actually saw the highest level of sugar consumption since 1858. [18] Sugar consumption dropped significantly the next year, with the outbreak of the Civil War. The New York Chamber of Commerce attributed the drop to "the paralysis which prostrated nearly every branch of commerce" in the face of "political panic, its baneful results entailing monetary embarrassments, destruction of confidence, total derangement of interior exchanges, and, for a time, almost entire cessation of business." [19]

The year of 1861-1862 was odd, and countered the developments in the sugar industry that would follow throughout the rest of the war and after. Not only did it see the decrease in total consumption of raw sugar of all kinds (411,650 tons against 464,673 in 1860), but it also saw an 18% decrease in foreign consumption. [20] Nonetheless, refineries imported 503,280 tons of sugar from Cuba that year, and the island would remain vital to the sugar refining industry from that point on. [21] In the Chamber of Commerce's 1862 annual report, members predicted that domestic sugar was no longer reliable, and might be inaccessible for such a long period that the West Indies and Cuba would need to fill in gaps in the market. The report reads:

The crop of Cuba, Porto Rico, and most of the other West India Islands, now being made, will, according to present prospects, be a full average one, and those of producing countries will be abundantly able to make good the serious deficiency that we shall experience in the withholding of the domestic crop.[22]

After abolition, sugar refineries increased the consumption of foreign sugar, particularly from Cuba and other colonial Caribbean islands, where people worked for incredibly low wages or where plantations depended on the labor of enslaved people of African descent. While slavery was clearly the reason behind structural changes in sugar refining, it often went unnamed. In the Chamber of Commerce's reports from 1864-65, one year after Chandler joined Columbia's permanent faculty, slavery is alluded to in vague terms: "the causes of the high rates that have ruled and still prevail are so obvious, that it is unnecessary to dwell upon them at any length. The domestic crop, that in former years supplied so large a portion of our wants, is, for the present, no more." [23]

Chandler was just beginning his career in industrial chemistry at this critical turning point in United States industry and finance. He joined Columbia in the midst of the Civil War, only one year after the Emancipation Proclamation. The sugar refineries he worked for had shifted their strategies after abolition, working to create a stable place for themselves in the transnational sugar trade as domestic crop became less dependable. In 1866, 403,497 tons of sugar were imported compared to 362,243 in 1865 and 214,099 in 1864.[24] Estimates of crop from Louisiana were slowly increasing from around 35,000 hogsheads up to 50,000, but "even should the yield reach the highest figure, it will form a very small item toward supplying the aggressive want." [25]

Louisiana crop was expected to contribute only marginally to sugar refineries, and could not be expected to increase "until capital flows more readily, and in greater abundance, into this channel, and a better organization of labor obtains." [26]

The New York Chamber of Commerce stood with the Union, and frequently criticized secessionist states and even the institution of slavery. Yet it marginalized the issue to a Southern moral problem, writing reports on how "the southern people have, many of them, been looking to and laboring for the extermination of the black race from this

country.”[27] This kind of language allowed the North to distance itself from slavery, even as sugar refineries continued to expand and in fact developed into one of the country’s most powerful and indestructible corporate forces during Chandler’s time as a consultant. Chandler similarly distanced his work from the institution of slavery, despite a clear understanding that the industry he worked for depended on the production of sugar cane by enslaved people of African descent.

Chandler often collected magazines and publications detailing new strategies for sugar refining. Some directly referenced Chandler’s work. If Chandler’s knowledge of the international slave trade and its relationship to sugar were at all in question, these articles show that he must have known that slavery drove the sugar refining business. One publication in the “Chemists Manual” details the geography of the production and manufacturing of cane sugar, in which “of late, there has been a distinction between sugar cultivated by slave and that by free labor; the latter comes from Jamaica, Abrades, Demerara, Antigua, Trinidad, Dominca; the former from Cuba, Havana, Brazil, St. Crois, and Porto-Rico.”[28] The article directly links these sources of sugar to the American market, which, “besides the above-named sugar... deals with New Orleans, Mexico, Honolulu, and sometimes with Egyptian sugars.”[29] Another document from 1848 details the costs of running a plantation in Cuba, with one section referring to the price of “Negros.”[30] Chandler knew that the Havemeyers and many of the other small refineries he consulted for, before they coalesced into the Sugar Trust, were buying sugar produced by enslaved people. Chandler also supported the refineries’ efforts to distance their work from slavery by organizing their legal structures to distinguish between production and manufacturing.

Chandler’s papers also include articles discussing the implications of the Civil War on sourcing raw sugar for refineries, echoing the documents published by the New York Chamber of Commerce. In “The Louisiana Sugar Crop,” the aftermath of abolition is described as a problem for sugar cane production. The article discusses potential solutions to “the labor problem,” reviewing a book on the same matter: “in a short review of the labor market the author gives it as his judgement that ‘negro labor is becoming more and more scarce, trifling, and unreliable even at the highest wages paid. The old

men only are found working on plantations, the young and best hands having settled in villages or cities, and the women having entirely withdrawn from the fields.”[31] The author accuses Northern intervention of manipulating black laborers in the South. Were it not, he argues, “for the carpet-baggers, who depend upon the negro vote for their own advancement, and who go from plantations preaching to them not only politics and a false philanthropy but also hostility to their best friends and employers, the negro would still be the best laborer in Louisiana.”[32]

The author calls the post-abolition labor situation in the South “defective,” and proposes that lower class European men should be encouraged to immigrate to the South to fill in the gaps. These articles illuminate the cultural and political arguments that Chandler was enmeshed in as part of the sugar industry. He may very well have disagreed with some of the claims made by these authors and been theoretically opposed to the practice of slavery, but he nonetheless owed his wealth and prestige to the international slave trade. In Chandler’s public record, he did not speak about slavery, and he only criticized certain monopolistic or fraudulent aspects of the sugar industry at the turn of the century in private correspondence. That the industry was predicated on slavery was acknowledged as a fact, but its political implications are absent from Chandler’s archives.

As an industrial chemist and professor, Chandler’s students frequently followed his path. Students like Marcus Benjamin, Henry A. Mott, Jr., Frederick Wiechmann, J.H. Tucker, and P. Ricketts all went on to study and publish on the refinement of sugar and its chemical properties for commercial use.[33] Chandler helped develop refining practices. For example, he contributed to the use of Boneblack as a refining tool, which was animal charcoal used to “purify” sugar. As a scientific resource for refineries, Chandler contributed to the development of a systematized hierarchy of sugar based on color and level of refinement. As sugar cane production was increasingly outsourced out of the United States after abolition – even as industries like beet sugar began to crop up – American sugar refining companies established their relevance to American dietary life through pseudo-scientific sugar grading systems.

While the documents I cite here come primarily from the late archives of the American Sugar Refining Company, the discourse around sugar and whiteness extends further back, and provides a necessary framework for understanding the way that refining companies penetrated white American consciousness. Chandler's contributions to industrial chemistry were particularly important given the pervasive discourse of whiteness associated with sugar. Refining was seen as mediating not only a nutritional lapse between brown and white sugar, but also a racialized cartography of purity and whiteness. Disassociating from the brown sugar produced by black labor refineries were "pure" spaces that whitened sugar for consumption by a white American population. As a 1921 article from *The Louisiana Planter* writes, "the American sugar refiner turns out as fine a grained white sugar as he can in order to secure the highest degree of whiteness." [34]

The refining company was central to the industrial and financial development of New York City and, the pseudo-scientific discourse around sugar refining was founded and owned by the Havemeyer family. Chandler consulted for as many as three generations of Havemeyers, beginning with the Havemeyers & Elder refinery on the waterfront in Brooklyn, New York. In an 1876 article called "Sugar and Sugar-Refining," the company appealed to the superiority of refined sugar in racialized terms, adopting pseudo-scientific language of cleanliness. Sugar should be refined to remove potential contaminants, the article argues, as "surely our medicines should be pure as well as our food." [35] This initial appeal to a "rational" need for sugar refining is then mobilized into an American exceptionalism and affirmation of the superiority of whiteness: "The refining of sugar was therefore by a 'manifest destiny' sure to follow and accompany its advent as an important article of commerce." [36] The refining process takes on explicitly racialized meanings by way of this 'manifest destiny,' which serves to distinguish white America from "carpers and cavaliers who to this day are not ashamed to exhibit their ignorance by proclaiming that the beautiful and well-nigh perfect processes of purification are only shrewd devices for adulterating the pure brown sugar of the gentle and honest savages by the admixture of chemical ingredients to disguise the color, but destroy the strength." [37] The article upholds refining as the mediator between a "pure"

white sugar and the “brown sugar of the gentle and honest savages,” explicitly racializing its consumption and cultural significance.

The article employs dualistic meanings of the word “pure,” which Sidney Mintz interrogates in his essay, “Color, Taste and Purity: Some Speculations on the Meanings of Marzipan.” Mintz elucidates two distinct but simultaneously employed meanings of “pure”: “By ‘pure’ we do mean natural, unspoiled, simple, earthly. But we also mean by ‘pure’ safe, biologically cleansed, scientifically aseptic, germ-free. The contrast in meaning centers on two rather dissimilar views of nature which, perhaps oddly, many of us appear to hold simultaneously.”[38] In the Havemeyers & Elder article, the “pure” sugar is initially associated with its cleanliness – would we rather experience “confinement to a diet of raw jaggery, and a lingering death by cutaneous diseases and saccharine trichinae” which the article calls “an inadequate punishment for these vilifiers”?[39] Yet its centrality in the American diet links sugar to an unspoiled, earthly food, as “one of the most nutritious of vegetable principles.”[40] Sugar therefore took on the pseudo-scientific privilege of purity as cleanliness and the culturally powerful significance of an unspoiled, “natural” good, mediated and secured by refining companies like Havemeyers & Elder. By 1876, Chandler had been working for the company and had developed multiple chemical processes that refineries used to process sugar. One of the most important at the time was boneblack, which the article calls a “decolorizer of solutions” and which Chandler would continue to work on, developing cheaper and more efficient applications for boneblack.

After a shift in bureaucratic structure, the American Sugar Refining Company began publishing quarterly magazines called “The American Sugar Family” to appeal to mainstream white American consciousness. The magazine assumes the nutritional legitimacy of white sugar, as well as its cultural significance. In 1918 hearings before the 75th Congress of the United States, Food Administration Director Herbert Hoover affirmed the cultural centrality of sugar. Senator Henry Cabot Lodge asked his estimate of “the lowest amount of sugar that a normal human being requires,” with the assumption that sugar was healthy.[41] Hoover replied:

That is more or less a question of morale. The use of sugar has grown during the last 100 years into our culinary and dietetic life to act as a sort of binding material on which our cuisine so largely revolves. Therefore the maintenance of the household consumption is desirable beyond all question; and to cut the sugar consumption in the household too low has a more depressing effect, infinitely, on a population than to cut off its manufacturing use.[42]

The American Sugar Refining Company's magazines pushed Hoover's argument that sugar was "a sort of binding material on which our cuisine so largely revolves." Their magazine used pseudo-scientific and racialized language to impress the centrality not only of sugar but of white sugar, therefore situating refineries as mediators for the maintenance of white purity in the United States. Quoting Hoover, the ASRC's 1918 article, "Sugar Refining in the United States" glorifies a lineage of sugar refiners, from the Livingstons, Bayards, Cuylers, Roosevelts, and Vancortlandts to themselves, the Havemeyers: "all these, by turning brown sugar into clean, white loaves of table sugar, added to their fortunes and helped to establish the refining industry in the United States." [43] The movement of the sugar trade was hierarchized in terms of increasing purity, and served to isolate the white Northeast both from the moral problem of slavery and the brown sugar that it produced: "the first is the manufacture of the raw sugar – a brown, moist sugar, containing impurities –and the second is the refining of this sugar into higher grades of varying degrees of color and crystals." [44]

Chandler used similarly moralizing language, describing sugar refining as a culturally rich industry. In his publication, "New Patent Process for Purifying Bone Black," Chandler explained the basic science of the animal charcoal refining process that he developed and its integrality to "the art of Refining Sugar." [45] Chandler's language echoes the exceptionalist narratives of the American Sugar Refining Company's magazines. He similarly appeals to an idea of the United States as culturally and morally superior, evidenced by the "whiteness" of the sugar and the sophistication of artistic and scientific processes used by Northern corporations. Crediting his own work, Chandler writes, "the whole of this art, which is one of the most important of our times,

is based on the use of bone-black. “[46] Chandler of course recognized the financial significance of the sugar industry:

If we consider the extensive scale on which the operations of sugar refining are carried – the great number of men employed in the refineries, the vast amount of capital invested in the business, and the great commercial value of the products obtained – we must look upon bone black as one of the most important agents employed in the arts.[47]

Chemists like Chandler provided a scientific legitimacy to the whitening of sugar, a legitimacy that would be challenged in a series of accusations of adulteration leveraged against sugar refineries on the Northeast Coast. From 1866-1873, Chandler served as a chemist on the New York City Municipal Board of Health. Afterwards, from 1874-1883, he was the President of the New York Metropolitan Board of Health. This position granted the refiners who employed him a broad access to legislative and public issues that they might run into. At the same time, it put Chandler in a more complicated position in his managing of public health concerns.

On December 5, 1878, the New York City Department of Health sent the New York Chamber of Commerce a report detecting adulteration in regional barrels of sugar sold by refineries around the city. As President of the Department of Health, Dr. Charles Frederick Chandler had written and sent the report documenting traces of tin salts, free acids, and artificial glucoses. These materials were not naturally occurring in sugar, leading Chandler to conclude that they were intentionally added to “defraud the customer.”[48] Even in small traces, these contaminants were potent enough to be a health concern.

The Department of Health followed up on this initial report with a resolution to “cause analyses to be made from time to time of the sugar and syrup sold in the city.”[49] The Department would allocate resources to ensure that the sanitation department could conduct random checks to monitor sugar products and hold sugar refineries accountable for their products. The repercussions of contaminating sugar supplies are not detailed, but the repeated abuse of power by sugar refineries after this resolution

indicate that it did little to prevent adulteration. Yet the threat of more government regulation was enough to shock the Havemeyers.

One day after the Department of Health's resolution, on January 4, 1879, Theodore Havemeyer wrote a letter in the Chamber of Commerce minutes. As a member of the Chamber of Commerce, Havemeyer was both addressing his fellow leaders in finance in New York City and drafting a response to the Department of Health. He called the scientific analyses "one-sided" and cited Dr. Chandler himself as a source. Chandler and Havemeyer had clearly spoken about the matter privately, where Chandler had informed him that "the sugars tested by him, and on the analysis of which he based his Report to the Chamber of Commerce were taken chiefly from Mr. Earle's stock, and that the analysis was made at the request and expense of Mr. Earle."^[50] On these grounds, Havemeyer contested the results and proposed a new set of tests:

As I feel the public have a right to know whether what they purchase is or is not unadulterated sugar I herewith hand to your honorable body Five Hundred Dollars (\$500), which I would ask you to place at Professor Chandler's disposal, so as to enable him to employ all the aid necessary to make a full and complete analysis of the refined sugar made by New York Refiners.^[51]

Chandler's personal papers indicate that he had likely already defended the Havemeyers on similar grounds. His personal documents collected from 1875-1878 include an article in which he is quoted saying that while some refined sugars may contain traces of tin, they are too marginal to be considered a danger to public health. This directly contradicts his statement from the Department of Health, where he argues that even in small amounts, contaminated sugars are potentially detrimental to the well-being of consumers.

While Chandler continued consulting for Theodore Havemeyer and Henry Osborne Havemeyer, the late 1870s saw his interests divided among different refiners. William T. Booth, the owner of the New York Steam Sugar Refinery and partner in Edgar & Booth, hired Chandler to work for two hours every morning. Booth paid Chandler \$1,500 a year for his services, equal to his academic salary. Before Chandler's December report on

sugar adulteration, Booth voiced strong distaste for the practices of the Havemeyer refinery, suggesting that they were adulterating their sugar and actively defrauding customers. On September 18, 1878, Booth asked Chandler if he had “read Theo H’s testimony yesterday in regard to adulteration he has testified that no [...] of that kind even entered his Refinery. Have you a report of the analysis of the sugar from which [...] was taken?”[52] Then, on October 8, 1878, Booth uses harsher language: “What do you think of Henry Havemeyer today – has there been a greater crime committed for years?”[53] It appears that Booth is again referring to potential contaminants in sugar, accusing the Havemeyer family of intentionally adding detrimental substances to their white sugar.

Booth’s correspondence with Chandler indicate that even Chandler’s Department of Health report was likely to have been encouraged by external financial interests. Booth implies that Henry Havemeyer asked the Board of Health to analyze the refinery’s product in the first place, writing on November 27, 1878, “I see by this day’s paper that Mr. H. Havemeyer has asked the Board of Health to investigate his Refinery and its product.”[54] Yet Booth implores Chandler to be critical and careful in his analysis of the Havemeyer refinery. “I desire to call your attention to the fact of the great difficulty of any one, even a Refiner, finding out anything in regard to the work of a Refinery in a short visit... and would suggest that the Sanitation Inspector should use caution in regard to what he may state,” he writes.[55] As a highly respected academic and chemist, Chandler was a precious commodity for sugar refiners. His word gave legitimacy and “scientific” authority to refining. Over the next few decades, conflicting interests would attempt to buy and sway Chandler’s public voice. One of his letters from the late 1870s reads, “The sugar question is becoming very difficult to control, so much interest is felt in it by so many persons that it is almost impossible to prevent them from rushing into [...]”[56]

Not only did Booth put pressure on Chandler, but he also used his connection to the chemist to consolidate his own place as a reputable refiner in New York City commercial scene. A letter from Lawrence Reade to Professor Chandler indicates that Booth’s rivalries with refiners like the Havemeyers manifested themselves publicly.

Reade wrote to Chandler, concerned about the adulteration of syrups and sugar products with tin salts. He says that he had suspected this fraudulent behavior “for some time,” but that finally “Dr. Booth of Booth & Edgars Sugar Refiners informed me that tin have been detected in the syrups of some other sugar refiners.”[57] Reade writes to Chandler hoping that he will use his position in the Department of Health “in order that they may take the measures they deem necessary to repress the evil.”[58]

While Chandler was patient with Booth’s accusations, he dismissed Mr. Reade’s charge: “I am in a position to say that the minute quantity of tin found in the syrup, only two hundredths of one percent, is in no way dangerous, or even at all injurious, and the matter does not possess in my opinion, any importance whatsoever.”[59] Booth and Chandler’s relationship strained as conflicting interests of Booth and the increasingly strong Havemeyer sugar monopoly intensified. Booth consistently accused the Havemeyers of adulteration. In 1885, one of Chandler’s assistants, Dr. Mortrou, conducted an analysis that displeased Booth.[60] Booth sent Chandler a letter, writing,

I was very much hurt yesterday to learn that Prof. Mortrou (whose views on the use of the salts of him and other sugar adulterants appears in the tribune today) claimed that he had compared views with Dr. Chandler and that Dr. C agreed with him. You have been our chemist for years... we have been compelled to give up the sugar business and after years of hard honest work, forced to ask the indulgence of our creditors because other refiners could underwork us and sell cheaper than we could by using these salts of tin for bleaching, which you would not allow us to use in our refinery.[61]

Booth’s growing frustration appeared to be with Chandler’s allegiances to the Havemeyer family. Booth’s letter insinuates that Chandler allowed the Havemeyers to get away with adulteration.

The sugar industry reached its most contentious moment right after the abolition of slavery in Cuba, when Henry Osborne Havemeyer joined with eleven sugar refineries to form the Sugar Trust in 1887. H. O. Havemeyer and John Searles initially created the Sugar Trust as a holding company, where they could own stocks and then distribute to refiners in a proportion equivalent of their output. Immediately after their formation, “the

trust... raised the price of refined sugar and reduced the price of unrefined sugar.”[62] The trust’s formation came directly after the abolition of slavery in Cuba, and seems to have been an attempt to control a market that threatened to become more autonomous. The Havemeyers were at the heart of this scheme, as Ayala writes, “the Havemeyer family held the primary position in the trust for two interconnected reasons. The Havemeyer and Elder Plant was the largest in the United States and most efficient in the world,” and the Havemeyer family was at the center of politics and commerce in New York City.[63]

The trust mobilized to maintain control not only over sugar prices, but also over the source of production. The Spanish American War was pivotal to keeping American sugar interests in place. Maintaining a strong commercial empire in United States finance required reconfiguring the Cuban economy to meet sugar-refining interests. The Sugar Trust used its status as a holding company to maintain that it did not deal with production, even as it meddled in foreign affairs to ensure a consistent, cheap source of labor for the production of sugar cane. Over the course of the 1890s up until 1907, the government repeatedly investigated the Sugar Trust, prompting the company to rename itself the American Sugar Refining Company. Court proceedings consistently called on Charles Frederick Chandler to testify as a scientific resource, particularly on deliberations of the sugar tariff.

The color of the sugar again was again central to discussions of the sugar tariff. Tariff was determined based on the sugar’s “grade,” or its color. The American Sugar Refining Company graded from C (brownish yellow) to Standard A (pure white). The Sugar Trust profited from the tariff, because their monopoly on prices allowed them to dictate the terms of the market for their own sales. They supported the use of the polariscope, which refiners like Booth called susceptible to fraudulent use. In court proceedings on the tariff, Booth implored Chandler to side with him against the polariscope, as he found his opinion unpopular in court. During the court proceedings, Henry Havemeyer sent Chandler a letter saying, “I would very much like to talk with you – some new developments have taken place and matters are approaching a crisis.”[64] Meanwhile, Booth asked Chandler to support him and help “upset Mr. Havemeyer’s plans to adopt

the polariscope and put a stop to this fraud which has ruined the sugar trade.”[65] Chandler ended up siding with Booth. Yet as the trust gained power, Chandler’s relationship with the Havemeyer family solidified.

As a consultant for multiple sugar refiners in New York City, Chandler navigated first intra-commercial and later national disputes, providing scientific analyses and court testimonies where necessary. The academy, United States government, and commercial leaders considered him one of the most important chemists working in the sugar industry, and his testimony had a powerful effect on court proceedings. As a consultant for some of the wealthiest refiners in the world, Chandler’s interests were bound up in an industry that drove the slave trade in Cuba and that perpetuated exploitative labor practices around the world even after slavery was abolished.

In 1892, as Columbia University began to plan its move to Morningside Heights, Charles Frederick Chandler wanted to ensure a permanence to the power and prestige of the chemistry department. He reached out to Theodore Havemeyer, asking that he donate money for the construction of a chemistry building. Chandler proposed that Havemeyer build the hall to commemorate his father and family: “Your father has played so important a part in New York in its commercial and civic affairs.”[66] Havemeyer Hall would be a testament to the Havemeyer family’s integral financial and political contributions to Columbia University. It would be a symbol of the importance of Columbia’s chemistry department to the development of sugar refining processes and the broad legitimacy of the sugar refining industry. Chandler wrote:

I have had it on my mind for some months that you might be willing to give this building to Columbia College. You have always been very interested in chemistry and its applications, and you certainly could not build a more handsome monument, which would last forever, than the “Havemeyer Laboratories” to be erected on that splendid site for Columbia College.

Your family has played an important part in New York in its commercial and civic affairs that I think it would be eminently proper to perpetuate it in connection with something good; certainly, a first class chemical establishment, something of a museum and

laboratories, would be a source of never ending interest and value to this community.[67]

Construction of Havemeyer Hall began shortly after. Columbia estimated the building's value at \$516,488.[68]

In 1892, Chandler proposed that Theodore Havemeyer donate money for a “handsome monument, which would last forever” to memorialize the strong, interwoven relationship of Columbia University and the Havemeyer family. Today, the building is a testament to the corporate interests that built the university. Charles Frederick Chandler mediated Columbia University's private interests, the sugar refining industry, and an international trade predicated on the enslavement and exploitation of people of African descent. As the “rational” interlocutor for the sugar industry and the United States government, Chandler gave legitimacy to the Havemeyer family even as he navigated the conflicting interests of competing refiners in the late nineteenth century. Sugar's authority played out in racialized narratives of purity and whiteness, situating the sugar refining industry at the very core of white American identity in the post-abolition period.

Like many people in the North, Chandler and the Havemeyers often ignored the actual conditions of sugar cane production. They were aware that slavery undergirded nearly all sugar-refining interests, but a divided metropole-plantation relationship allowed them to perpetuate slavery while absolving themselves of guilt thanks to geographic distance. Charles Chandler's legacy should trouble a private university that continues to extract profit to sustain itself, even at the cost of public well-being. We should look at Chandler's intentional silence on slavery to reflect on and speak out about contemporary silences. For many, Havemeyer Hall continues to represent institutional and educational prestige. Yet its legacy is embedded in a violence that built the brick and mortars of Columbia University, New York City, and its industrial interests across the country and world.

Endnotes

- [1] “A Brief History of Columbia” *Columbia University: About: History* (Columbia University, 2017), <http://www.columbia.edu/content/history.html>
- [2] Nelson, Bob, “100 Years of History in Havemeyer” *Columbia University Archives, Vol 22., Issue 8* (Columbia University Record, November 1, 1996), http://www.columbia.edu/cu/record/archives/vol22/vol22_iss8/record2208.22.html
- [3] Leslie, E.H. (1922, January 9) [Letter to Charles Frederick Chandler] Charles Frederick Chandler Papers, 1847-1937, Columbia Rare Books and Manuscripts Library (Box 42, Folder 5), Columbia University, New York, NY
- [4] Ibid
- [5] New York Chamber of Commerce (1858). Chamber of Commerce Industry Records, 1768-1984, Columbia Rare Books and Manuscripts Library (MS #1440, Box 88, Folder 1, Series II, Vol. 1), Columbia University, New York, NY, p. 19
- [6] Ibid
- [7] New York Chamber of Commerce (1859). Chamber of Commerce Industry Records, 1768-1984, Columbia Rare Books and Manuscripts Library (MS #1440, Box 88, Folder 2, Series II, Vol. 1), Columbia University, New York, NY
- [8] Ibid
- [9] Ayala, César J., *American Sugar Kingdom: The Plantation Economy of the Spanish Caribbean, 1898-1924* (University of California Press, 1999)
- [10] American Sugar Refining Company Archives, 1907-1915 (Box 1, Folder 1), Brooklyn Historical Society, Brooklyn, NY
- [11] Ayala, César J., *American Sugar Kingdom: The Plantation Economy of the Spanish Caribbean, 1898-1924* (University of California Press, 1999)

[12] “Boerum Hill Historic District Designation Report” *Landmarks Preservation Commission* (City of New York, 1973),
http://www.nyc.gov/html/lpc/downloads/pdf/reports/BOERUM_HILL_HISTORIC_DISTRICT.pdf

[13] Cornell, William, “Deed” (1842) [To Garret Martense] Martense Family Papers: Sugar Refining (Martense Collection, Miscellaneous Papers) Brooklyn Historical Society, Brooklyn, NY

[14] Ibid

[15] “Campus Morningside Heights 1 of 3 – 1890s- 1950s” Buildings and Grounds Collection 1755-2007 (1880-2000), Columbia Rare Books and Manuscripts Library, (Series III: Morningside Heights Campus, Subseries 1: Buildings, Folder 4), Columbia University, New York, NY

[16] Havemeyers & Elder, “Sugar and Sugar-Refining” (American Sugar Refining Company, “Pamphlets, Articles, and Images” ; 1876, 1918, 1941, 1944, 2000), 1876

[17] Schneider, Martin, “When Brooklyn Controlled the Nation’s Sugar” *Brooklyn Daily Eagle* (Brooklyn Daily Eagle, May 2012), <http://www.brooklyneagle.com/articles/when-brooklyn-controlled-nations-sugar>

[18] New York Chamber of Commerce (1859-1860). Chamber of Commerce Industry Records, 1768-1984, Columbia Rare Books and Manuscripts Library (MS #1440, Box 88, Folder 3, Series II, Vol. 1), Columbia University, New York, NY

[19] Ibid

[20] New York Chamber of Commerce (1861-1862). Chamber of Commerce Industry Records, 1768-1984, Columbia Rare Books and Manuscripts Library (MS #1440, Box 89, Folder 1, Series II, Vol. 1), Columbia University, New York, NY

[21] Ibid

[22] Ibid

[23] New York Chamber of Commerce (1864-1865), Chamber of Commerce Industry Records, 1768-1984, Columbia Rare Books and Manuscripts Library (MS #1440, Box 90, Folder 1, Series II, Vol. 7), Butler Library, Columbia University, New York, NY, p. 10

[24] New York Chamber of Commerce (1866-1867), Chamber of Commerce Industry Records, 1768-1984, Columbia Rare Books and Manuscripts Library (MS #1440, Box 90, Folder 3, Series II), Butler Library, Columbia University, New York, NY, p. 7

[25] Ibid, p. 9

[26] Ibid

[27] Conway, Thomas, "Report read before the Chamber of Commerce of the State of NY on the Introduction of Capital and Men from the Northern States and from Europe into the Southern States of the Union" (1866, June 7) [Late Assistant Commissioner Bureau of Refugees, Freedmen, and Abandoned Lands, State of Louisiana]. New York Chamber of Commerce Records, 1768-1984, Columbia Rare Books and Manuscripts Library (MS #1440, Box 90, folder 3, series 2), Butler Library, Columbia University, New York, NY

[28] "Chemists Manual," Charles F. Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209, Series III: Subject Files, Box 258, "Sugar Articles and Publications"), Butler Library, Columbia University, New York, NY, p. 408

[29] Ibid

[30] "Sugar – Bolvin, Louiseau, Chandler Patent," Charles F. Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209, Series III: Subject Files, Box 261, Folder 5), Butler Library, Columbia University, New York, NY

[31] "The Louisiana Sugar Crop: The Yield of the Cane Fields of the Pelican State," Charles F. Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209, Series III: Subject Files, Box 260, Folder 4), Butler Library, Columbia University, New York, NY

[32] Ibid

[33] Warner, Deborah Jean, "How Sweet it is: Sugar, Science, and the State" *Annals of Science, Volume 64, Issue 2* (Annals of Science, 2007),

<http://tandfonline.com/doi/full/10.1080/00033790601098020?src=recsys&>

[34] Dymond, John, Editor, "The Sugar Markets" *The Louisiana Planter and Sugar Manufacturer* (New Orleans: Louisiana Planter, January 1, 1921)

[35] Havemeyers & Elder, "Sugar and Sugar-Refining" (1876) Havemeyers & Elder: American Sugar Refining Company Archives 1907-1916, (Box 2: Pamphlets, Articles, and Images 1876; 1918; 1941; 1944; 2000), Brooklyn Historical Society, Brooklyn, NY

[36] Ibid

[37] Ibid

[38] Mintz, Sidney, "Color, Taste and Purity: Some Speculations on the Meanings of Marzipan" *Stichting Etnofoor, jaarg. 4, Nr. 1* (ETEN, 1991), p. 103

[39] Havemeyers & Elder, "Sugar and Sugar-Refining" (1876) Havemeyers & Elder: American Sugar Refining Company Archives 1907-1916, (Box 2: Pamphlets, Articles, and Images 1876; 1918; 1941; 1944; 2000), Brooklyn Historical Society, Brooklyn, NY

[40] Ibid

[41] Ibid, p. 580

[42] Ibid

[43] "Sugar Refining in the United States" Havemeyers & Elder: American Sugar Refining Company Archives 1907-1916, (Box 2: Pamphlets, Articles, and Images 1876; 1918; 1941; 1944; 2000), Brooklyn Historical Society, Brooklyn, NY

[44] Ibid

[45] Chandler, Charles F., "New Patent Process for Purifying Bone Black" (1875-1878) [Sugar Articles and Publications *Wochenschrift fur Zuckerfabrikation*]. Charles F.

Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209, Series III: Subject Files, Box 258), Butler Library, Columbia University, New York, NY

[46] Ibid

[47] Ibid

[48] Department of Health of New York (1878, December 5) [Letter to the Chamber of Commerce]. New York Chamber of Commerce and Industry Records, 1768-1984: Series VII: Correspondence, 1804-1979, Columbia Rare Books and Manuscripts Library (Folder 26: Sugar – 1879-1881), Butler Library, Columbia University, New York, NY

[49] Department of Health of New York (1879, January 3) [Letter to the Chamber of Commerce]. New York Chamber of Commerce and Industry Records, 1768-1984: Series VII: Correspondence, 1804-1979, Columbia Rare Books and Manuscripts Library (Folder 26: Sugar – 1879-1881), Butler Library, Columbia University, New York, NY

[50] Havemeyer, Theodore (1879, January 4) [Letter to the Department of Health]. New York Chamber of Commerce and Industry Records, 1768-1984: Series VII: Correspondence, 1804-1979, Columbia Rare Books and Manuscripts Library (Folder 26: Sugar – 1879-1881), Butler Library, Columbia University, New York, NY

[51] Ibid

[52] Booth, William T. (1878, September 18) [Letter to Charles Frederick Chandler]. Charles F. Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209 Series III: Subject Files, Box 260, Folder 7: Sugar – Correspondences), Butler Library, Columbia University, New York, NY

[53] Booth, William T. (1878, October 8) [Letter to Charles Frederick Chandler]. Charles F. Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209 Series III: Subject Files, Box 260, Folder 7: Sugar – Correspondences), Butler Library, Columbia University, New York, NY

[54] Booth, William T. (1878, November 27) [Letter to Charles Frederick Chandler]. Charles F. Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209 Series III: Subject Files, Box 260, Folder 7: Sugar – Correspondences), Butler Library, Columbia University, New York, NY

[55] Ibid

[56] Author unclear, Charles F. Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209 Series III: Subject Files, Box 260, Folder 7: Sugar – Correspondences), Butler Library, Columbia University, New York, NY

[57] Reade, Lawrence [Letter to Charles Frederick Chandler]. Charles F. Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209 Series III: Subject Files, Box 260, Folder 7: Sugar – Correspondences), Butler Library, Columbia University, New York, NY

[58] Ibid

[59] Chandler, Charles F. [Letter to William T. Booth]. Charles F. Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209 Series III: Subject Files, Box 260, Folder 7: Sugar – Correspondences), Butler Library, Columbia University, New York, NY

[60] His name appears to be Mortrou, but penmanship is unclear.

[61] Booth, William T. (1885) [Letter to Charles Frederick Chandler]. Charles F. Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209 Series III: Subject Files, Box 260, Folder 8: Sugar – Correspondences), Butler Library, Columbia University, New York, NY

[62] Ayala, César J., *American Sugar Kingdom: The Plantation Economy of the Spanish Caribbean, 1898-1924* (University of California Press, 1999)

[63] Ibid

[64] Havemeyer, Theodore [Letter to Charles Frederick Chandler]. Charles F. Chandler Papers, 1847-1937 (1864-1925), Columbia Rare Books and Manuscripts Library, (MS #0209 Series III: Subject Files Folder 9, box 260: sugar- correspondence, 1868-1904), Butler Library, New York, NY

[65] Ibid

[66] Chandler, Charles Frederick (1892, August 26) [Letter to Theodore Havemeyer]. Charles F. Chandler Papers (1847-1937), Columbia Rare Books and Manuscripts Library, (MS #0209, Box 43, Folder 3), Butler Library, New York, NY

[67] Ibid

[68] Buildings and Grounds Collection 1755-2007 (1880-2000), Columbia Rare Books and Manuscripts Library, (Series III: Morningside Heights Campus, Subseries 1: Buildings, Folder 4, Campus Morningside Heights 1 of 3 – 1890s – 1950s), Butler Library, New York, NY