Figure 1. Boiling House of the Sugar Plantation Santa Susana, Justo Germán Cantero, 1857. Image of the interior of a nineteenth-century Cuban sugar factory. Note the enslaved people in the foreground feeding sugarcane refuse into the furnaces. This plantation used 632 enslaved laborers housed in two barracks. Source: http://slaveryimages.org/s/slaveryimages/item/1336

Figure 2. Sugar Plantation Flor de Cuba, Justo Germán Cantero, 1857. Image of the interior of a nineteenth-century Cuban sugar factory showing machines, white supervisors (center), and African slave laborers. In 1857, this plantation used 409 African and 179 Chinese slave laborers. Source: http://slaveryimages.org/s/slaveryimages/item/1337
“Sin azúcar, no hay país.”¹ So said José Manuel Casanova, former head of the National Association of Plantation Owners of Cuba, highlighting the importance that sugar monoculture has had in shaping modern Cuba. But where there is sugar, there is coal, oil, and slavery—a confluence of natural resources and human forces extracted (from non-White bodies and the earth alike) and formed through colonialism into what I call Black energy. Shaped by entangled geobiopolitical infrastructures of supply and subjugation—from resource extraction to African slave labor, and from industrial machinery to fossil-fuel combustion—Black energy² runs through the development of Cuba’s colonial, and later revolutionary, subjectivity: its collective consciousness formed as an expression of racialized class struggle, a quest for national identity, and global conflicts over territorial and ideological sovereignty. In other words, Cuba’s very identity, as a mulatto culture and a developing state, is historically bound to European and North American energy-industrial empires.³

¹ Translated: “Without sugar, there is no country.” A common saying among Cubans, this statement is attributed to José Manuel Casanova. See: Antonio Santamria García, Sin azúcar no hay país: la industria azucarera y la economía cubana (1919–1939), (Seville: Universidad de Sevilla, 2001).

² In this sense, I don’t use the term Black energy exclusively as a racial term but rather as a phrase that captures the interconnectedness of African slavery and fossil-fuel production during Cuba’s development under colonial rule. Nevertheless, I would be remiss not to acknowledge the structural racism that led to the violent histories of oppression, dehumanization, and exploitation of African and other indigenous non-White people under colonialism and slavery. As a morally corrupt confluence of racial capitalism and eventual Euro-modern “scientificity” of human classification, colonialism, slavery, and modernity itself partitioned humanity along a hierarchical and self-serving Culture/Nature dialectic that falsely equated human Blackness with non-human earthliness (and consequently, human Whiteness with godly rationality) as justification for the ownership and exploitation of Black bodies. While the cultural, religious, and tribal connections to the earth of some African and other non-White Indigenous people are out of the scope of this article, I vehemently, and in the strongest possible way, reject any contemporary use of the term Black energy that dehumanizes human Blackness or, as Kathryn Yusoff says, "presses an inhuman categorization and the inhuman earth into intimacy.” See: Kathryn Yusoff, A Billion Black Anthropocenes or None (Minneapolis: University of Minnesota Press, 2018.)

³ It should also be noted and acknowledged that Spain also enslaved Asians and Indigenous Amerindians in its conquest.
While Cuba's dark colonial histories of slavery have been well documented, much remains to be explored about the associated histories of energy that conditioned the political and ideological landscapes within which the 1959 Cuban Revolution developed. For just as José Martí claimed in 1891 that "The colony lives on in the republic," these energy histories show us that colonialism also lived on in the revolution. In other words, Black energy, whether extracted from enslaved Black and Indigenous bodies as labor or from the earth as fossil-fuel, kept colonialism alive as an object of revolutionary struggle. For while the Revolution made colonialism visible through its struggle against imperialism, its industrialization efforts kept it operative within Cuban socialism by enabling new forms of global dependency, racial capitalism, and earth extractivism.4

In this sense, Cuba never gained full independence; as with most of the “New World,” it has always been subjugated to geopolitical power over resource supplies, access, and distribution. In other words, Cuban subjectivity—its collective consciousness and the evolution of that consciousness within both colonial and revolutionary imaginaries—was shaped by and, in turn, shaped resource politics throughout Cuba’s struggle for sovereignty. Through Black energy, supply and subjectivity fused into Cubanidad, the essential Cubanness of an otherwise internally fragmented Cuban identity. As this article will show, both labor and oil conditioned the political possibilities of governance. As colonial and capitalist forms of property, the energy extracted from exploited bodies and land produce and are produced by ownership regimes that perpetuate racially and environmentally unjust settlement patterns and distribution practices within geopolitical structures of imperial dominance. Supply, in other words, is never just there; it is there waiting to be negotiated, cultivated, and distributed—indeed, waiting to be supplied. In revolutionary Cuba, the scars born from centuries of racism and exploitation coalesced with a failed pursuit of industrialization and energy autonomy to form a Cuban socialist project subjected to both North American and Soviet world powers. Within this complex web, architecture makes its appearance as what Michelle Chase calls an encuentro, as an encounter between the city and the country that occupies Cuba’s most historically vivid fault line: the time before and after the Cuban Revolution.4 In what follows, I examine ways in which Revolutionary Cuban architecture, indeed the Revolution itself, was entangled with and subject to energy politics and productive relations between three dominant world powers: Colonial Spain, the United States, and the Soviet Union.

White Sugar, Black Energy

Cuba’s sugar industry can be traced back to 1595, yet it remained relatively modest until the industrial revolution, when fossil-fueled steam engines reconfigured the relationship between human and machine power. That is, fossil fuels—first coal, then oil—transformed the territorial and demographic landscapes among Cuban capitalists, colonial statesmen, and their rural others as they fueled a growing network of sugar mills and plantations linked by advanced manufacturing processes, modern building systems, transportation infrastructures, and racist distributions of land and labor. In this sense, Black (industrial) energy—its natural (re)sources, extraction processes, and modes of distribution—makes its appearance in Cuba across geographic and temporal scales. This energy not only reconfigured Cuba’s geopolitical relationship to Europe and the United States (and, as we shall see, the Communist Bloc), it also reinforced its subjection to these empires by upholding divisions between rural spaces of production and urban spaces of consumption. Inherited from colonialism and given new political form through the 1902 Platt Amendment, this latifundist divide—the hierarchical ownership, partitioning, and distribution of time, space, property, energy, education, wealth, and labor—would eventually animate the moral and ideological underpinnings of the 1959 Cuban Revolution.


In her 1974 article, “Architecture and Revolution: Cuba, 1959 to 1974,” Susana Torre analyzed the effects of latifundia, sugar production, and resource extraction on Cuba’s rural-urban development. “Through a low level of productivity,” she said, “Cuba exclusively purveyed raw materials in unilateral commercial trade (60 to 70 percent of all exports were to the U.S., the same percentage of all imported goods were from the U.S.). Land ownership was one of latifundia and the land itself was almost exclusively (under)used for monocrops, mainly sugar.” 8 Indeed, the Cuba that Fidel Castro inherited on January 1st, 1959 was already bound to a colonial-imperialist system that subjected it to US geopolitical interests: seventy-two percent of its plantations, forty-seven percent of its sugar industry, ninety-five percent of its public services (including electricity and communications), and ninety percent of its banks were owned by US corporations. These recent dynamics can be traced to a much deeper history. For as a strategic colony in the Caribbean, Cuba’s energy infrastructure and sugar empire was fueled by and, in turn, fueled a steady supply of African slave labor.

As both the largest sugar producer and exporter in the New World transatlantic trade network and the last nation-state in the Americas to abolish slavery, Cuban plantations and sugar mills supplied the Spanish and later the Dutch, British, and French empires on the backs of enslaved African people and indigenous Amerindian land. Instituted in 1555 when Spanish military conquistador Diego de Velázquez requested *douce negro* ("twelve blacks") to help build the colony’s eastern plantation towns, slavery became endemic to Cuba’s built environment. By 1610, a mere fifty-five years after French pirate Jacques de Sores burned Havana to the ground, roughly half of the city’s population consisted of the very enslaved people who rebuilt it. By 1810, the enslaved population had doubled. And between 1841 and 1861, White Europeans were a minority. As slavery was being abolished in the 1880s, two distinct social classes emerged: owners and workers—the former capitalist cane farmers (*los colonos*), the latter proletarian cane cutters (*los macheteros*).

At that time, Cuban sugar mills were designed to articulate this division of labor in the control and distribution of Black energy. 6 Unlike most Antillean sugar estates, Cuban plantations were organized around factories. Factory types were either centralized or axial, with the boiling house (*la casa de calderas*)—the molten heart of fuel and natural resource combustion—either centrally located among other production spaces or positioned as an end point of a main axis (figs. 1-2). In both cases, the processual movement around or toward the boiling house rendered the sugar-making process legible. Factory plans were typically cruciform or rectangular with an evenly spaced, columnal grid to regulate the production line and requisite resources and machinery. Boiling houses worked systematically in relation to two other manufacturing spaces: the milling house (*la casa de ingenio*), which contained a steam-powered grinding mill with horizontal iron rollers to squeeze cane juice; and the purging house (*la casa de purga*), a double-height space connected to the boiling house by iron tracks used to transport sugar-filled molds for draining and processing. Other spaces included animal and livestock storage, blacksmith and carpentry workshops, adobe and lime kilns, and fuel storage spaces to house bagasse, a sugarcane byproduct used as biofuel to produce heat, electricity, and building materials.

In these plantation spaces, architecture collaborated with legal mechanisms and other objects of slavery to exercise power through mechanization, strict regulations of time, and spatio-biopolitical strategies of visibility, confinement, and even public punishment and execution. 9 Here Black energy was subject to two kinds of power: the weaponized rationality of the Enlightenment and the brute physical force of colonial domination: The former subjected enslaved people (and natural resources alike) to extreme rational planning; the latter subjected enslaved people (and natural resources alike) to extreme rational planning;
10 In some cases, the grassland plots reserved for cultivating animal feed were also used as "gardens" and "views" for enslaved people.

11 Limited legally to 25 lashes, flogging was the preferred form of physical punishment sanctioned by the 1842 Slave Code. Other sanctioned forms included imprisonment, chains, and shackles. See: Toral, “The Architecture of Nineteenth-Century Cuban Sugar Mills,” 143.


13 Ibid.


15 In his book, *Carbon Democracy*, Timothy Mitchell argues that energy transition from coal to oil was key to consolidating global capitalism and was motivated, in part, by preventing sabotage of the production and movement of energy resources in protest against unjust labor conditions. In the Cuban case, energy sabotage came from multiple angles: the Cuban nationalization of American-owned refineries, the manufacturing of energy scarcity through the US embargo, and the undermining of global oil markets through Soviet-Cuba trade agreements all set the stage for a geopolitical landscape of competing energy regimes. For more on the role of oil in the establishment and global distribution of democracy, see: Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (London: Verso, 2013).


the latter subjected them to torture and physical abuse carried out by plantation overseers and their agents (the mayoral and the contramayoral, respectively). Tall bell towers, which served as monumental symbols of White religious power, time-structuring devices, and observatories, were centrally located to enforce oversight of the sugarhouse, cane fields, and slave quarters. Galleries (galerias), elevated open spaces placed above courtyards, enabled slave masters to survey their human and non-human properties. And slave barracks designed using strict geometric, U-shaped floor plans near factories partitioned enslaved people in bare, dehumanizing cells that opened onto surveilled, interior courtyards. To prevent revolt, barracks also included punishment cells (cepos), collective open kitchens, prisons, dungeons, and in some cases, flogging spaces called tumbaderos.

While these dark architectural histories of slavery and resource extraction remain largely written out of contemporary heritage discourses and practices in Cuba (as many restoration and preservation projects in Old Havana currently show), their racist legacies haunted the Cuban Revolution and were deeply embedded in its ideological formation. Foundational projects such as agrarian reform, mass housing as a human right, public education, and the pursuit of national sovereignty through energy autonomy and industrialization bear such traces. As parts of a broader decolonization effort, these agendas marked the decisive yet turbulent first decades of the Cuban Revolution, and played a major role in the formation of a revolutionary subjectivity that Ernesto “Che” Guevara called the “New Socialist Man.”

Black Energy and Revolutionary Subjectivity

As Marx has shown us, there is no revolutionary subjectivity without revolutionary practice, without a collective that participates in actualizing revolutionary change. Thus the production of Cuban revolutionary subjectivity materialized through what Che called a “dialectical unity between the individual and the mass” that effectively dissolves the ontological difference between state and subject. Animated by an unwavering anti-capitalist ethos, this dialectical process was enabled by supply infrastructures—of a reconfigured proletarian labor force, a just redistribution of land, Soviet planning and building methods, and regulated sugar-for-oil markets—that interwove narratives and practices of economic development and postcolonial freedom with industrialization and energy independence. These infrastructures also made the Revolution itself immanent in the daily lives of Cuban citizens, subsuming everyday life into revolutionary practices that reconditioned their socio-economic relations and cultural experiences for and within a project of total revolutionary change.

In the process, the Revolution made colonialism immanent to the formation of Cuban revolutionary subjectivity through narratives and practices that kept Cubans radically attuned to the violent injustices of settler occupation and exploitation. In other words, Black energy systems were seen as the most vivid oppressive forces against the full development of Cuban sovereignty and identity. But, at the same time, Black energy also became key to Revolutionary development. After all, the Revolution’s equalizing functions, economic reforms, and social justice programs required not only massive amounts of work and energy, but also control over Cuban supply sources and infrastructures. Hence, if Cuban sugar mills and plantations shaped racialized divisions of disposessed labor, energy, and property in Cuba’s colonial development, the Revolution flattened these hierarchies by repossessing proletarian labor, agrarian land, and energy infrastructure, all of which played “a role in shaping the working class and its own consciousness.”

The 1959 Agrarian Reform, designed to leverage the unwavering support of a historically marginalized rural peasantry for an emancipatory socialism aligned with Soviet planning and ideology, was central to
shaping this consciousness. Through Agrarian Reform, labor and oil were recast as revolutionary means of freedom, as opposed to colonial products of subjugation. However, freedom from one imperial regime required subjugation to another. For whether in subjection to the US or the USSR, Black energy kept colonialism alive within a Revolution fighting for its “right to exist” in a Cold War geopolitical landscape of energy dominance, ideological supremacy, and sabotage.15

Sweet Slick Revolution and the Geopolitics of Industrialization

On October 26, 1959, nearly 11 months after the armed insurrection against Fulgencio Batista, Fidel Castro held a one million person rally in Havana in a national(ist) display of power to protest foreign and domestic counterrevolutionary measures. In this characteristically long speech, Castro set sugar, oil, and agriculture at the center of a postcolonial struggle for national development and independence. “Why do the farmers support the Revolutionary Government?” he asked. “Why do the people defend the Revolutionary Government?...because we have been defending the people...we have been carrying out [agrarian] reforms.” He continues,

The problem is if we plant rice, we interfere with foreign interests; if we produce lard, we interfere with foreign interests; if we produce cotton, we interfere with foreign interests; if we cut down electric tariffs, we interfere with foreign interests; if we make a Petroleum Law, like the one which is about to be decreed, we interfere with foreign interests; if we carry out a Land Reform, we interfere with foreign interests; if we make a Merchant Marine, we interfere with foreign interests. If we try to find new markets for our country, we interfere with foreign interests. If we attempt to sell as much as we buy, we interfere with foreign interests.16

Conscious of Cuba’s geopolitical subjection to the United States, Castro’s statements bind oil, agriculture, industrialization, and, as we shall see, architecture to the full development of Cuba’s sovereignty. They also bind revolutionary subjectivity to postcolonial nationalism. For if we accept Che’s notion that revolutionary subjectivity requires the ontological dissolution of state and subject, then in revolutionary Cuba, the “New Socialist Man” is also a newly liberated Cuban one.17 As the
Figure 5. José Martí Housing District, Santiago de Cuba. Note the thin, curved, perforated precast concrete panels: a modification to the Soviet model made by Cuban architect Hugo D’Acosta to filter tropical breezes and Cuba’s intense sunlight. Photo: Francesco Lorenzetti / Alamy Stock Photo.
Cuban Minister of Industry, Guevara saw industrialization as key to revolutionary development, asserting that “the Agrarian Reform is no more than a step...and that the next goal is the industrialization of the country.”

Later, he claimed that nationalized electrification was key to controlling Cuba’s rhythm of industrialization.

Based on Castro’s and Guevara’s statements, we can draw a line from revolution to oil: there is no revolution without resources, no resources without industrialization, no industrialization without electricity, and no electricity without oil. But whose resources? And whose oil? By the end of the nineteenth century, the US had invested in major energy infrastructure in Cuba, mainly to supply electricity and gas to plantations and sugar mills. Later, Cuba added oil and petroleum-based fuels to its coal-based energy systems. And by 1959, the crude refined to generate Cuban electricity and petroleum was part of a powerful US energy empire that included three American-owned refineries: Esso, Texaco, and Shell. In other words, Cuba’s dependence on foreign oil assured its subjectification to the structural inequalities of a US-dominated global energy system.

“We have no energy sources, no oil, coal, or hydroelectric power,” Castro acknowledged. “We will always have to depend on others for our supply of energy, raw materials, and food—just as other countries depend on us for their supply of sugar, nickel, and other products.”

In short, Castro saw energy independence and investing in oil extraction and production as essential to Cuba’s Revolutionary project. But unlike the one million people Castro called to the plaza on that late-October day, he could not simply summon oil at will. Between 1960 and the end of the Cold War, Soviet oil and machinery, bought with Cuban sugar, fueled the Revolution’s industrialization efforts under a broader Cuban-Soviet trade agreement drafted in February 1960. The Cuban-Soviet Sugar Trade Agreement coincided with several national planning initiatives focused on reversing the geo-economic inequalities between Havana—a site of bourgeois excess—and rural Cuba—a site of capitalist exploitation. Law 135, enacted March 15th, 1959, reduced all rents in half. The Agrarian Reform Law, enacted May 17th, 1959, realigned resources equitably between Havana and the interior; it expropriated agricultural land from capitalist owners and redistributed rural housing, infrastructure, and labor. The Urban Reform Law, enacted October 14th, 1960, ended land speculation by capping rents at 10 percent of family income. At the same time, a number of pivotal events reshaped Cuban-US-USSR sugar and petro-politics for decades to come.

When the US stopped supplying Cuba with arms in May 1960, Castro turned to the USSR for military support. On July 6th, 1960, President Dwight D. Eisenhower retaliated by ordering the US to reduce its Cuban sugar purchase by 23 percent of the quota established by the Sugar Act of 1948. On that same day, Castro decreed Law 851, entitling Cuba to nationalize US-owned properties within its sovereign borders. In October 1960, after Castro reportedly met a KGB official to formalize trade with the USSR, Eisenhower stopped American oil exports to Cuba, leaving the island with Soviet crude that US oil companies refused to refine. Castro nationalized the Esso, Texaco, and Shell refineries, and the US retaliated by manufacturing decades of scarcity through a series of crippling trade embargos. After failed attempts throughout the 1960s at economic diversification and energy independence, Cuba joined the Council for Mutual Economic Assistance (COMECON) in July 1972 to acquire oil security thanks to the Soviet Union. But Soviet oil came with other demands. In exchange, the USSR garnered access to Cuban subsoil to supply the Eastern Bloc with rare minerals and metals and to Cuba’s dominant sugar market.

As a result of these trade agreements, Cuban architectural design, practice, education, and production was subjected to Soviet knowledge, technology, and construction methods within a weakened “Cuban road to socialism.” For, if under American imperial capitalism, the US owned Guevara, Man and Socialism, 1967.
18 Eric T. Gettig, “Oil and Revolution in Cuba: Development, Nationalism, and the U.S. Energy Empire” (PhD diss., Graduate School of Arts and Sciences, Georgetown University, 2016), ProQuest (10271843), 408.
20 According to Cuban journalist Nirvo López Pellón, striking oil would turn Cuba “into the richest country on earth: sugar and oil, the one, sweet and white, the other, coveted and black; the two wheels upon which to travel happily in this world: food by which the world lives, and energy by which men and nations move...At any moment [these efforts] can change the entire economy of the country, that is what we hope.” See: Nirvo López Pellón, “Nuevas Esperanzas en el Petróleo Cubano,” Bohemia 51, no. 16 (April 19, 1959): 46.
22 The Council for Mutual Economic Assistance was a Soviet-led economic pact between and among the Eastern Bloc and other non-aligned socialist states in response to the US-led Marshall Plan of 1948. Through COMECON, Cuba was able to subvert its subjection to the US energy regime by tapping into supplies of Soviet oil below market value under the Bucharest Formula. The Bucharest Formula set prices based on bilateral negotiations for one-year periods. Based on average world-market prices, the formula was intended to “clearly” international trade of the effects of speculation and monopoly capitalism. The sharp and steady increase of global oil prices resulting from the Israeli-Arab conflict in October 1973 permanently ended the use of the formula. See: John M. Kramer, “Soviet-CEMA Energy Ties,” Problems of Communism 34, no. 4 (July-August 1985): 32-47.
Cuba's means of production, under Soviet socialism, the USSR owned the knowledge of Cuba's means of production. As a result, Cuba's dependency on Soviet prefabricated technology—and the knowledge and oil needed to run Soviet plants—indebted Cuban architects and engineers to imported prefabricated concrete construction systems adapted to Cuba's tropical climate (fig. 3). Although the speed and efficiency of these systems was seen at the time as key to rapid industrialization and national development, Soviet technological investment and Cuban commitment came with ulterior motives, often under the guise of solidarity.

For example, after Khrushchev saw Ciclón, a short documentary film by Santiago Álvarez about the devastation caused by Hurricane Flora in 1963, he donated a Soviet KPD large panel construction factory capable of producing 1400-1700 prefabricated dwellings per year using a Soviet system that Cuba renamed Gran Panel. Adapted from the postwar French Camus System, the Gran Panel was a linear cast concrete panel system used in Cuba throughout the 1960s and 70s to supply a vast prefabricated housing program for the masses (fig. 4). And, yet, as Alexander D’Hooghe notes, it was also disseminated as a Soviet “civilizing device” through which “the organization of space would be subordinated completely to the purpose of increasing production.” In submitting to the “civilizing devices,” Cuba traded one form of coloniality for another as its rural built environment increasingly bore the cold, austere surfaces of a new bureaucratized Cuban-Soviet aesthetic.

But Ciclón also highlights the different environmental conditions of Cuba and Eastern Europe: one humid and tropical, the other dry and continental. In Cuba, architecture and construction must address intense heat, humidity, rain, and wind; in the USSR, as Cuban engineer Víterbo O’Reilly observed, it had to consider also subzero temperatures, ice, and snow. Some climate-driven modifications were made to the Gran Panel: architect Hugo D’Acosta, for example, thinned, perforated, and curved the panels used in the José Martí Housing District to gain lightness, cross ventilation, and formal dynamism (fig. 5).

Conclusion

As evident in Cuba, where there is supply—whether slave labor, forest land, coal, sugar, technology, or oil, there is subjection and subjectivity. Indeed, Black energy powered the development of Cuba’s sugar industrial-complex and the centuries of racism and capitalist exploitation it left behind. These colonial legacies of sugar monoculture and their associated architectures of discipline and distribution animated the Cuban Revolution’s moral compass and rural/urban planning initiatives, including a comprehensive reorganization of agricultural, productive, and domestic space through radical agrarian reform. In its quest for postcolonial, national sovereignty, Cuba attempted to escape US geopolitical hegemony by pursuing energy independence and investing in oil extraction and production. Sabotaged by its own subsoil and the crippling US embargo, Cuba turned to the USSR for oil and technology to fuel its Revolution, trading Caribbean sugar for Eastern European crude and machinery. Soviet prefabrication plants, manufacturing technologies, and bureaucratic processes, in turn, subjected socialist Cuban architecture during the 1960s and 70s to the USSR’s global socialist project, to what Nikita Khrushchev called “successful industrialization”—a major “improvement in the quality and reduction in the cost of building” thanks to a total reorganization of “the work of architects and designers.” Hence, while many scholars render Cuba’s “Gray Period” as strangled by soul-numbing Soviet ideology and bureaucratism, repositioning socialist Cuban architecture within broader histories of energy opens up powerful and often overlooked politico-aesthetic dimensions hidden within a deceptively austere surface (or, for that matter, prefab module). For just as there is no country without sugar, there is no revolution without architecture, and no architecture without supply.