

Chapter 2

Meeting Subalternity, A Constant Challenge in Cuban History

Nothing is more similar to the myth of the bird phoenix than the social and political history of Cuba during the past century. From 1898 to our days, the country has dealt with a rebirth approximately every 30 years: from the North-American occupation of the island as a solution to the war of independence, to the revolution of 1930, from the latter to the Revolution of 1959, and from that to the economic crisis and the consequent reconsideration of the social model of the country caused by the disappearance of real socialism of Eastern Europe, begun in 1989.

[Martínez Pérez 2006, 9]

Abstract The need to overcome the condition of subalternity—first from the colonial dominance of Spain, and then from the economic and political hegemony of the United States—in order to gain true independence, underlay the thought and practice of Cuban freedom-fighters throughout the 19th and 20th centuries. Exponents such as Félix Varela, José Martí, Enrique José Varona, Manuel Gran and Ernesto Guevara were aware that the spread of culture and the development of modern scientific education and research were essential, not only in order to gain political independence but also for the crucial challenge that would follow, i.e., cutting loose from the condition of subalternity. This challenge was closely interwoven with the shaping of a particular national and cultural identity, commonly called *cubanía* (Cubanity), a blend of Spanish and African cultural influences. Under US rule and the bloody dictatorships that characterized the 1930s and 1950s, Cuba underwent a profound social and cultural ferment that was to prepare the country for the great upheaval triggered by the handful of young guerrillas who adventurously disembarked from the boat *Granma* on 2 December 1956.

Keywords Subalternity · Hegemony · Cubanity · Transculturation · Yellow fever · José Martí · Carlos Finlay · Spanish-American war

2.1 Cultural Emancipation as a Condition for Full Independence

Although the exceptional results of Cuban science have been obtained since the victory of the Revolution, one can trace the early roots of awareness of the need to overcome the condition of subalternity to the past history of Cuba, which shows many particular and original features compared to all the other Latin American and Caribbean countries.¹ A first evident fact is that Cuba was the last of these countries to reach independence.² After the independence of the thirteen British colonies in 1776, the French Revolution of 1789 and the subsequent independence of Haiti as well as the Napoleonic occupation of Spain led to the independence of Argentina in 1810–1816, Paraguay in 1811, Venezuela in 1811–1819 (in the context of the ‘Gran Colombia’, which in 1830 was divided into Ecuador, Venezuela and Colombia), Chile in 1818, Peru in 1821 (which Bolivia separated from in 1825) and Mexico in 1821–1823. By contrast, Cuba did not free itself from Spanish colonial dominion until 1898, to pass, after the Spanish-American War, under the hegemony of the new emerging imperial power of the United States. Under Spanish rule, the royal power strongly opposed and prevented the development of cultural autonomy and of a modern education system in Cuba. All the more significant it is, then, that the most representative Cuban figures of the 19th and 20th centuries—such as Félix Varela, José Martí, Enrique José Varona, Manuel Gran and Ernesto Guevara³—were aware that the diffusion of culture and the development of modern scientific education and research were essential not only in order to get real political independence, but also for the following challenge of cutting loose from the situation of subalternity.

2.2 A Coherent Intellectual Path

At the beginning of the 19th century, the Catholic priest, Félix Varela (1788–1853), who is said to have first taught Cubans to think (Rodríguez 1944), introduced the innovating spirit of the Enlightenment in Cuba, under the enlightened and

¹An extremely useful collection of documents of Cuban authors and short essays on Cuba’s history, politics and culture is in: Chomsky et al. (2003).

²A personal view of the peculiarities of Cuba’s modern history, with special attention to the aspects of its cultural and scientific development, has been discussed by A. Baracca in “The Cuban ‘exception’: the development of an advanced scientific system in an underdeveloped country”, in the volume Baracca et al. (2014, 9–50). This introduction is followed by “A short critical bibliographical guide”, by D. Basosi.

³Guevara was not actually Cuban. He was born in Argentina, but he played a primary role in the Cuban Revolution and in its further developments, and is usually associated with Cuba.

progressive direction of Bishop Espada,⁴ and introduced modern contents of physics as early as 1817 (Torres-Cuevas 1995; Altshuler and Baracca 2014). However, his consciousness was much broader: indeed, when he was elected in 1822 as a representative to the Spanish *Cortes*, he voted in favour of partial autonomy of Cuba from Spain and wrote an influential treatise in favour of the abolition of slavery. As a consequence of these positions, he had to seek refuge in the United States and came to the conclusion that full independence was the only solution. Varela shared the destiny of exile with other intellectuals of this time, like José María Heredia (1803–1839), the first great Cuban poet.

José Martí (1853–1895) deserves the credit of having been the first (not only in Cuba, but for the whole of Latin America) to clearly develop full consciousness of the strict connection between culture and power, the indissoluble tie between the attainment of political independence, real democracy and justice without slavery, and emancipation from the condition of subalternity. He not only became the inspirer and leader of the Cuban independence movement, but also was one of the great turn-of-the-century Latin American intellectuals, one of the most influential orators and writers of that period and a forerunner of Modernism in literature. Although Martí never lived to see Cuba free (he was killed on May 19, 1895 in the first battle in which he took part after landing in Cuba to take part to the war with Spain), he is considered the great national hero: his busts and portraits are found everywhere in Cuba. Forced by the colonial regime to live at length in the United States, he could assert: “I have lived in the monster and I know its entrails”.⁵ Travelling in Mexico, Guatemala and Venezuela, he realized the poor results the popular masses had obtained with independence. Martí perfectly grasped the real contents of US “democracy”, and was the first one who understood with great lucidity the roots of US imperialism and the expansionist ambitions that already predominated in US government circles: once the “conquest” of the West was completed, the United States was preparing to expand towards the Antilles and Latin America. This convinced him of the urgency of the liberation of Cuba, in order to prevent this expansion, which would decide the destiny of the Continent. With this aim he launched a heartfelt call to the whole southern Continent in his *Nuestra América* (Our America, 1891), an expression which radical movements have at present taken up again all over the Continent:

⁴Juan José Díaz de Espada y Fernández de Landa (1756–1832), who had taken up his diocesan post at the beginning of 1802, was an enlightened person, who waged the struggle against Scholasticism (Figueroa y Miranda 1975).

⁵José Martí, letter to Manuel Mercado, May 18, 1895, <http://www.historyofcuba.com/history/marti/mercado.htm>. Last access March 16, 2016.

... the pressing need of our America is to show itself as it is, one in spirit and intent ... The scorn of our formidable neighbour who does not know us is our America's greatest danger. And since the day of the visit is near, it is imperative that our neighbour knows us, and soon, so that it will not scorn us.... Once it does know us, it will remove its hands out of respect.⁶

From our point of view, it is important to note that Martí emphasized the importance of education as a crucial factor in the formation of the Cuban nation, independent from Spanish and US educational systems (Quiroz 2006; Strong 2007). Unlike Simón Bolívar, who still relied on the Enlightenment concept of education as an individual form of liberation, Martí was inspired by US-American and British models. He specifically proposed science education, the study of nature, as an instrument for individual autonomy, and the way for promoting social progress, because “to study the forces of nature and learn to control them is the most direct way of solving social problems” (Martí 1953, I, 1076). He thought that Cuba could achieve real independence only when the necessary skills were developed to overcome the economic, political, social and technical underdevelopment inherited from the Spanish colonial regime: “Being educated is the only way to be free” (Martí 1975, Tomo 8, 289).

2.3 Early Cuban Advances in Medicine

In the course of the 19th century Cuba boasted important scholars in the fields of medicine and natural sciences, who made decisive contributions to the problems of tropical diseases (Pruna Goodgall 2006). Some of them had studied for some years in Europe. In 1803 the physician Tomàs Romay (1764–1849) introduced the anti-smallpox vaccine. The naturalist Felipe Poej (1799–1891) documented Cuban fauna and in 1877 founded the *Sociedad Antropológica* (Anthropological Society); in the last years of his life he accepted evolutionary theories, abandoning his religious faith (Pruna Goodgall 1999). Alvaro Reynoso (1827–1888) studied in Paris, and applied Liebig's concepts to agriculture, proposing a scientific system based on the physics and chemistry of soils for the cultivation of sugarcane.

Carlos J. Finlay's (1833–1915) story deserves special emphasis, since it anticipates in some sense the present American-Cuban controversies in the medical therapeutic field. When the Ten Year War began in 1868, Dr. Finlay (known to Spaniards as a rebel sympathizer) went to live in Trinidad. He returned to Cuba in 1870, and in 1879 he had the opportunity to work with the first American Yellow Fever Commission. He spent years studying mosquitoes and refining his theories, and dedicated over 70 scientific articles for medical conferences and journals to the yellow fever disease, which had caused thousands of deaths in Cuba. By 1881,

⁶A complete copy of “Our America” can be found online at http://writing.upenn.edu/library/Marti_Jose_Our-America.html. Last access March 16, 2016.

Finlay had become convinced that the causative agent in yellow fever was a mosquito, probably a member of the species *Aedes aegypti*. In 1881, however, Finlay was virtually alone in accepting the mosquito–yellow fever connection. His speech of that year to the International Sanitary Conference in Washington, D.C. fell essentially on deaf ears. In 1900, during the first US occupation of Cuba (1898–1902), a US medical commission led by Dr. Walter Reed went to Havana to study the disease.⁷ At first the US scientists did not pursue Dr. Finlay’s “mosquito” theories, certain that it was “filth” that spread the yellow fever virus. When all their experiments failed, they began to look over Finlay’s 19 years long research. A member of the commission, Jesse Lazear, in agreement with Walter Reed, decided to test Finlay’s hypothesis by letting himself be stung by a mosquito. He died as a consequence of the experiment. Reed then took advantage of this, but his final report on the aetiology of yellow fever failed to even mention Finlay’s theory and research. In it, he took credit for himself for the discovery of the transmission of the disease. Mosquito control programs were introduced throughout Cuba (and in the Panama Canal zone, where work had stopped due to yellow fever outbreaks and many deaths), and the disease was brought under control. In recognition of Reed’s contributions to medicine, the Cuban government appointed him the nation’s chief health officer and president of the Superior Board of Health in 1902. It took some years before the scientific community finally acknowledged Reed’s fraud and Finlay’s priority. It was not until the unanimous approval of the motion presented by the Cuban delegation to the 10th International Medical History Congress, held in Madrid, Spain in 1935, that they recognized that Finlay was the first to scientifically prove that the mosquito *Aedes aegypti* was the transmitter of the disease. In 1954 the International Congress of Medical History formally and officially acknowledged his contribution to the solution of the yellow fever problem, and a symposium in commemoration to him was held in Philadelphia in 1955 (Yellow fever [1955](#)). Before his death in 1915, Finlay was nominated for the Nobel Prize seven times.

2.4 An Aspect of Subalternity: Early Introduction of Advanced Technologies *Versus* a Delay in Basic Sciences

In the meantime, the first scientific institution had been established in Cuba. Proposals for the establishment of an Academy in Cuba had been put forward as early as 1826 by a series of scholars led by Tomás Romay and Nicolás José Gutiérrez, but they remained for long ineffectual. Finally, in light of the scientific developments discussed above, in 1861 Queen Isabella II authorized the founding of the *Real Academia de Ciencias Médicas, Físicas y Naturales de La Habana*

⁷On the following events and controversy: Cirillo (2004).

(Royal Academy of Medical, Physical and Natural Sciences of Havana: Pruna Goodgall 1994, 2003; Clark Arxer 1999), the first Academy of Sciences in the Americas (analogous Academies were founded in the US 2 years later, in Argentina 13 years later, and in Mexico 23 years later). The considerable lag that occurred between the early introduction of advanced technologies and the delay in the advancement of science and higher education in Cuba in the 19th century is revealing of the nature of Spanish colonial rule in Cuba, and of the increasing penetration of American economic interests (Baracca 2009). Cuba was not particularly rich in natural resources or ore reserves, nor did it develop important transformation industries, apart from that of sugar cane. The island was a source of added value for goods mainly thanks to its strategic geographical position between Latin America, Europe and the United States.

This role was enhanced by the supremacy of the United States on Cuba's trade since the early decades of the 19th century. In this respect one should remark that Cuba suffered indeed not one, but two subalternities at the same time: the direct one, from Spain, was more detrimental, but that from the United States was to imply, as we shall see, more lasting consequences. Already, as soon as in 1826 the volume of Cuba's trade with the United States exceeded that with Spain of almost a factor three (de la Sagra 1831, 200–205). An authority like Fernando Ortiz (1881–1969), a renowned Cuban historian, anthropologist and ethnomusicologist, emphatically asserts:

... in 1850 the trade of this country with the United States exceeds that with its Spain metropolis, and the United States definitely assume its natural geographic condition of purchaser market of the nearby Cuban production, but also its privilege as economic metropolis. Already in 1881 the Consul General of the United States in the Havana officially writes that Cuba is an economic dependence of the United States although politically it is still ruled by Spain (Ortiz 1963, 64).⁸

Under these conditions, one can understand that Cuba needed neither the contribution of modern scientific knowledge and higher education, nor of particular technological advances in industrial production, as they were instead required, for instance, in Mexico for the development of some industrial fields, like mining industry, minerals and metals. This permits us to understand certain technical innovations in Cuba, such as the introduction of the steam engine in the *ingenios* for cane manufacture, in spite of the abundant supply of slaves, the development of railways, and the fight against tropical diseases. In fact, the island's strategic position lent it great relevance for communication and information technologies, and facilitated the rapid spread of some of the most advanced technologies of the nineteenth century (Blaquier 2009). Interestingly enough, these technologies were not imported to the island from Spain, but from the United States and Britain, and in

⁸Cuba's multifaceted relationships with the United States from the early nineteenth century to the island's semi-colonial status in the early twentieth century is the subject of the work by Lorini (2007).

these fields the country anticipated and out-performed its colonial mother-country, while it lagged behind from the purely scientific point of view.

One may therefore suppose that Cuba's flexibility and openness towards technological innovations has in turn contributed to creating a cultural climate and a fecund material basis for subsequent scientific take-off and development. It is difficult, in fact, to believe that the remarkable advances in science after 1959 could have sprung up without fertile soil.

2.5 The Forging of a National Identity, the Ideas of "Cubanity"

In this connection, some remarks ought to be added regarding the versatility, receptiveness and broad-mindedness of Cuban culture, since these features will turn out to be crucial especially in order to interpret recent scientific developments. Cuba is indeed a peculiar melting pot of ethnic and cultural influences from three continents and civilizations. This shaped and strengthened a peculiar kind of national and cultural consciousness and style. As the renowned writer, Abel Prieto—then president of the *Unión de Escritores y Artistas de Cuba* (Union of Cuban Writers and Artists) and former ministry of culture—expresses the process:

The formation of a properly Cuban culture was an arduous process, long, hard, of zigzags, setbacks and searches, which accompanied in their avatars the creation of national identity; sometimes preceded it; in others, it was dragged by it. The multiplicity and diversity of its ethnic and cultural components, the fierce resistance of the Spanish metropolis to the independence of Cuba, the crucible of the anti-colonial wars, marked in a very peculiar way the birth and first steps of Cuban identity.⁹

As an expert of the Cuban Afro-American tradition has written,

The Revolution's national ideology of *cubanismo* claims that a homogeneous national culture has been born out of the hybridity.¹⁰

Fernando Ortiz (1881–1979) coined the term *cubanía*, or *cubanidad* (Cubanity), insisting on the reciprocal influence that various groups had on each other in the creation of a new national identity (Ortiz 1964). Ortiz developed the original concept of 'transculturation' to account for an interpretation of Spanish and African cultural influences in Cuban national identity that acknowledged the ongoing influence of the customs, traditions, and cultures of all those partaking in scenarios of cross-cultural contact and exchange (Font and Quiroz 2005). As he wrote,

⁹Abel Prieto, "La Nación y la Emigración" (I Conferencia), La Habana, April 1994 <http://revolucioncubana.cip.cu/wp-content/uploads/2012/12/conf01.pdf>. Last access March 15, 2016.

¹⁰Paula Sanmartín, 2005, "*Custodians of History*": (Re)Construction of Black Women as Historical and Literary Subjects in Afro-American and Afro-Cuban Women's Writing, Dissertation thesis, University of Texas, Austin, p. 39, <https://www.lib.utexas.edu/etd/d/2005/sanmartind11923/sanmartind11923.pdf>. Last access March 15, 2016.

this process does not consist exclusively in acquiring another culture, ... rather, the process also necessarily implies the loss or uprooting of an original culture, which could be termed a partial deculturation, as well as the consequent creation of new cultural phenomena which could be described in terms of a neoculturation (Ortiz 1995, 102–103).

The above mentioned specialist remarks:

Any of the definitions given of *cubanismo*, the most important ideological force in Cuba, have emphasized both political and cultural (especially literary) aspects. Antoni Kapcia describes it as both “a political search for ideology, articulation and identity that preceded and followed 1959; and a literary search for an individual and collective identity”.¹¹ This populist nationalism already defined the intellectual tradition that originated with Martí, and therefore by considering this figure as creator of the Revolution, Castro is appropriating the same discourse. In fact, populism and nationalism are vividly present in Castro’s famous speech to artists and intellectuals in the first years of the Revolution, “*Palabras a los intelectuales*” [Words to the Intellectuals] (1961).¹²

Indeed, this sense of a strong national identity emerges in the most representative Cuban writers. As an instance, the Cuban writer and poet José Lezama Lima (1910–1976), considered one of the most influential figures in Latin American literature, writes in a private correspondence:

Cubanity does not lie in showy tourist attractions, but in an ineffable underground tenderness, a being-not-being, the waving of the breeze, a certain lack of definition, a mixture of the earthly and the stellar. The most solid Cuban tradition may be looking forward to the future. Few peoples of America have been as determined to leap into the future so violently, with a shock of premonition. That is why there is a certain convergence of the generations. We are all marching towards a goal, somewhat distant and uncertain. This vagueness is convenient, it enriches us because it is limitless. Cuban means possibility, fantasy, fever for the future. We need to spread this character throughout the world.¹³

2.6 The Frustration of US Occupation

The War of Liberation from Spain, carefully prepared by Martí, broke out in 1895. The Cuban army obtained substantial gains, but the intervention of the US, which had been feared by Martí, frustrated the ambition for independence. In fact, the two-fold military intervention of the United States in 1898 against Spain in Cuba and in the Philippines brought an end to Spanish colonial rule,¹⁴ and actually

¹¹A. Kapcia. “Revolution, the Intellectual and a Cuban Identity: The Long Tradition,” BLAR 1:2 (1982): 63–78.

¹²Paula Sanmartín, op. Cit., p. 352.

¹³José Lezama Lima, *Cartas a Eloísa y Otra Correspondencia*, Verbum Editorial, Madrid, 2013, pp. 102–103.

¹⁴A fundamental work on Cuba’s relationship with the two “empires”, the Spanish and the American, remains: Pérez (1983). The more recent Pérez (2007), is an investigation on Cuban-US cultural relations from 1850 to 1959.

marked the beginning of the US-foreign politics of intervention in the world, exactly as Martí had foreseen. As an irony of destiny, Spain suddenly passed from a hegemonic, although declining, colonial role, to a subaltern one, a change that is too pertinent to the subject of our present study. As a matter of fact, the double humbling debacle and destruction of the Spanish fleets in 1898, in the Pacific and the Caribbean, by the United States arrived as thunderbolts to the Spanish public opinion. In June 1899 the deputy Eduardo Vicente exclaimed at the Spanish *Cortes*:

I will never be tired to repeat, leaving aside false patriotism, that we follow the example that the United States has given us. This country has defeated us not only because it is stronger, but because it has a level of instruction higher than our one; certainly not because they are braver. No Yankee has clashed with our fleet or army, rather a machine invented by some electrician or engineer. These ones have won the fight. We have been defeated in the laboratory and the offices, not on the sea or the ground (cited in Turin 1959, 375).

During the military occupation of Cuba by the United States (1 January 1899–20 May 1902), and the following nearly six decades (May 1902–January 1959) of restricted independence of the new Cuban Republic, important changes were introduced in the national education system.

Under the military occupation, Enrique José Varona (1849–1933), a Cuban writer, philosopher, and educator, was appointed Secretary of Education and Fine Arts, and introduced a modernization of the Cuban educational system, based on the supremacy of public over private schools and inspired by modern pedagogical ideas. Varona was well aware of Cuba's subalternity to the United States, and that without technical-scientific development (although without radical social changes, impossible under the US occupation) and the start of a process of industrialization, the objective of real independence was an illusion. In a letter (15 October 1900) he wrote to the Cuban doctor and anthropologist Luis Montané¹⁵:

You want to know the spirit that guided me when I undertook the reform of our education institutions. [...] I acted in the spirit of legal defense of the people of Cuba; a defence within its possibilities and in the field of the possible [...] We have to compete in the field of industries and in the field of sciences with the North Americans. And if we want to avoid being completely cancelled from this field we have to educate ourselves as the Americans do... [I] will transfer the fight to the only battlefield where we can fight. We are dealing with a social phenomenon and the consequences of an unavoidable law. The only way to avoid the possible dangers of these consequences is to become part of the conditions producing this phenomenon.

The so-called *Plan Varona* (30 June 1900) put emphasis on active scientific and technological education, in place of the former emphasis on arts and the humanities, though unfortunately he did not increase the teaching of basic sciences, such as mathematics and physics (de Armas et al. 1984; Altshuler and Baracca 2014). Generally speaking, the organization of the University of Havana followed that of American Universities.

¹⁵We thank Dr. José Altshuler for bringing this quote to our attention.

2.7 Social and Cultural Ferments Under US Rule

The following decades were for Cuba a period of crisis, characterized by a web of economic underdevelopment, government corruption and submission to foreign imperial interests, US intrusions and even further military American interventions. In this situation, the original goals set forth for the University by Varona could not be implemented. In particular, the level of the scientific disciplines in Cuba before the Revolution of 1959 depended on social and political conditions that inhibited the technological and scientific evolution of the country. The majority of the Cuban economic and political elites, as well as foreign powers, exploited the island and had no interest in any kind of autonomous development. This situation lasted for the whole period of Spanish colonial and, in different ways, of US-American imperial domination, during which an elite of sugar producers impeded any real advancement of society, especially as regards scientific progress.

However, the problem of cutting loose from the new subalternity to the US empire that had replaced colonial domination, although in different form, as Martí had clearly foreseen, inspired the most lucid minds, despite the resurfacing of strong annexationist political currents.

A revival of progressive and anti-imperialist movements all over the continent was triggered by the student struggles that broke out in 1918 at the University of Córdoba in Argentina and rapidly spread to labour unions and leftist political parties, carrying strongly progressive, anti-private, anti-military, and anti-imperialist goals. This movement not only led to the radical reform and democratization of Argentinian universities, but constituted an epic of emancipation that opened a heroic phase in the development of Latin American universities.

In Cuba these events produced the development of a radical movement, which started in 1923 at the University of Havana, where students proposed a program of reform that aimed at the eradication of the archaic teaching methods then prevailing, and the dismissal of some professors for their evident incompetence. The full reform program was not achieved, but some of the most incompetent professors were replaced by new ones, often proposed by the students themselves. Among these, the physicist Manuel Gran (1893–1962)—a graduate in architecture, civil engineering, and physical and mathematical Sciences from the University of Havana—was put in charge as substitute assistant professor of the two courses of *Física Superior*. In the following years Gran played a very important role, profoundly renovating the discipline by introducing a rigorous approach marked by solid mathematical foundations, problem solving, and practical experiments (Altshuler 2014). The new standards of rigour and method introduced by Gran strongly influenced the teaching of the subject, both at the university and high school levels. Its range was so broad that it was adopted as a useful first introduction to many scientific and technical topics not covered in ordinary courses.

The 1923 reform movement was the start of what has been called the “critical decade” in Cuba (1923–1933), in which the student movement was deeply involved in the struggle against the bloody tyranny of president Machado, who was

overthrown in August 1933. In the same year, further measures aimed at modernizing and updating the teaching of physics were introduced both at the university and the high school level, where a number of well-trained teachers was now available. The courses of mathematics and biological sciences were also modernized.

In 1927 another important scientific institution was established in Cuba, the *Instituto Finlay* (Finlay Institute), having as its institutional duty the training of future clerical workers for the sanitary administration; later on, it developed departments for treating tropical diseases with vaccination (Pruna Goodgall 2006, pp. 224–227). In 1937 *Instituto de Medicina Tropical “Pedro Kourí”* was created.¹⁶

However, on the whole the situation in Cuban universities¹⁷ remained substantially unchanged until 1959, though in the 1950s the regime of Fulgencio Batista did try to promote some sectors of research, as well as some international collaboration, for instance in nuclear physics. When in the mid-1950s the Atoms for Peace campaign was promoted, programs for the construction of nuclear power plants were proposed in almost every country of the western block, including Cuba. However, nobody in the country was actually trained in the field. An exception was Marcelo Alonso, who took graduate courses in physics at the University of Yale, and started a modest laboratory of Atomic and Nuclear Physics at the University of Havana.

2.8 The Weight of Subalternity. Contrasts in Pre-revolutionary Cuba

Even after the modernizing measures of the 1920s and 1930s the general level of scientific development in Cuba had remained modest. Secondary instruction had reached a fairly good standard, for the sectors of the society that had access to it. For instance, in Cuban high school education the teaching of physics was included not only in the curriculum of those who chose the sciences branch in their final (5th) year, but also in the basic curriculum that had to be followed by all students. In the universities, the courses in physics, mathematics and biology, although modernized and made more rigorous, remained basically limited to the 19th century classical theories (Altshuler 2014; Altshuler and Baracca 2014). In physics, for instance, the courses did not cover the modern fields of relativity theory or quantum mechanics. Indeed, not until the late 1950s did Marcelo Alonso introduce the first notions of

¹⁶Pedro Kourí (1900–1964), was a prestigious Cuban physician and researcher.

¹⁷Besides the University of Havana, there were the *Universidad de Oriente* (Eastern University) in Santiago de Cuba, that had been functioning unofficially as a private institution since 1947, and was made public in 1949 (Méndez-Pérez and Cabal Mirabal 2014), and the Marta Abreu University in Santa Clara, created in 1952.

quantum and nuclear physics. In the biological sciences, the traditional fields of natural history (zoology, botany, geology) had been updated, but the most recent advances, particularly in the field of molecular biology, were not taught. But, above all, genuine research work was neither performed at the academic level nor required for graduation. The job of higher education was almost exclusively the education of the neo-colonial elite and the preparation of secondary school teachers. In any case, the sound level reached in the basic courses produced a foundation of qualified teachers, as well as good textbooks. The rapid take-off of Cuban sciences after the Revolution would not have been possible without this minimum of scientific infrastructure and basis of trained personal.

Besides this renovation of scientific disciplines, the younger generations promoted a lively and original revival in all cultural fields, including music, literature and the visual arts.

In general, in spite of its explosive contradictions and social inequalities and the discrimination against Blacks, in the 1950s the country was actually not underdeveloped: Cuba ranked second in Latin America for average pro-capita income, and among the first five on the basis of other social-economic indicators. The country also boasted one of the best standards of healthcare on the continent, not very far behind those of the United States and Canada. It ranked 11th world-over and third in Latin America for the number of doctors in proportion to the population, although the situation was decidedly worse in rural areas and especially in the Eastern Province. However, Cuba's health sector was unequal: there was only one university hospital and medical school; the private sector predominated, while the public system was rudimentary; two-thirds of the 6300 physicians lived in Havana (Baker 1975; Feinsilver 1993).

For all this period, the Cuban economy continued to be highly dependent on US foreign investments. Difficulties were looming on the horizon, since these investments were gradually being redirected towards oil and industry, with the result that Cuba fell from its place as first investment market for North American capital to the second in 1940 and third in 1956, after Venezuela and Brazil. At the same time, Cuban entrepreneurs preferred to employ the cheap, unskilled labor of impoverished land-workers instead of investing in costly machines. Consequently, hardly any technical innovations were introduced in Cuba in this period, either by importing machines or by developing them inside the country.

2.9 *Granma* Disembarks the Revolutionary Leaders

Meanwhile, the Batista government became a more and more despotic, corrupt regime. The traditional parties became Batista's accomplices, taking part in governments and in the elections of 1954 and 1958. But by the end of the 1940s and the early 1950s the revolutionary movement and its organization were growing. Although Fidel Castro's assault on the *Cuartel Moncada* in Santiago de Cuba of 26th July 1953 was a failure, he managed to transform the trial that followed into a

denunciation of the regime (*La historia me absolverá*, History will absolve me).¹⁸ Released thanks to popular pressure, he went into exile in Mexico, where he prepared for the invasion of the Island.

Then on 2nd December 1956, 82 combatants led by Castro landed in the Eastern Province from an overloaded boat named, *Granma*. They were initially decimated, but the revolution that was not only to overthrow Batista's regime, but also to free Cuba from its condition of subalternity to the US empire, had been started—by barely a dozen rebels, whose leaders were not yet thirty years (Fidel Castro was 29, Ernesto 'Che' Guevara 28, Raul Castro 25, and Camilo Cienfuegos 24).

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¹⁸For the full text, see for instance: <https://www.marxists.org/history/cuba/archive/castro/1953/10/16.htm>. Last access March 15, 2016.

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