CUBAN RAILROADS, 1830-1868: ORIGINS AND EFFECTS OF "PROGRESSIVE ENTREPRENEURIALISM"

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Interesting enough in itself, the early history of the Cuban railroads is also an intriguing subject for analysis since it highlights various specific characteristics of colonial Cuba. Furthermore, an investigation into origins and consequences of this early railway era provokes some reflections on more recent development strategies and problems.\(^1\) Roughly speaking, earlier historiography on the Cuban railroads has reflected two opposites evaluations. There has been a chauvinist tradition, underlining the precocity of this colonial society and the progressiveness of its elites in establishing a railway network.\(^2\) However, as the economic and political situation of the sugar island worsened in the present century, a more negative evaluation came to the force. The linkages between the railroad construction, the development towards monoculture and the dependence on capitalism from abroad were stressed, leaving little ground for contentment. This latter interpretation became quite doctrinal in post-Revolutionary Cuban historiography, and was underscored in recent "Western" scholarship. A systematic and extensive history of the Cuban railways has not yet appeared, however.\(^3\)

The first railroad boom, 1830-1868

The railway age may be said to have started with the inauguration of the famous Manchester-Liverpool track in 1830. Already in this same year preparations for a railroad on Cuba began, supported by the Spanish crown and colonial authorities as well as by representatives of the Cuban elites.\(^4\) Financial and organizational problems delayed the

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actual construction for several years. However, on November 19, 1837, the first track of the Havana-Güines line was opened up: still earlier than in any other Latin American country, earlier than in Cuba's Metropolis Spain. In fact, Cuba was among the first countries in the world to enter the railway age.

The extension of the railway network in the period up to the late 1850s was swift. Thereafter, an economic depression and probably a certain point of saturation retarded the planning and realization of new projects, though the implementation of ongoing constructions accounted for a substantive extention in the period up to 1868. The outbreak of the first anti-colonial war in 1868 and economic stagnation then produced a slack in railroad construction, which lasted until the 1880’s when there was a second boom, this time also in private plantation lines.5

The expansion of the railroad network in the period up to 1868 is indeed impressive. By 1850 some 535 kilometers had been constructed; in 1865, already 1216 kilometers were in use.6 Except for the first one, all projects had been planned, executed and financed by private enterprises. By 1860, the total of capital invested by these corporations amounted to nearly 30 million Cuban pesos. This is a significant amount; one estimate puts the total of investments in sugar production, the key sector of Cuban economy, at about 185 million pesos in the same period.7

Colonial government and private initiative

The first railway was constructed between Havana and Güines, centre of the most important sugar producing region in that period. Nominally, the colonial government was in charge of the whole operation. In fact, the colonial Junta de Fomento (Development Board) which administered the railway enterprise acted on behalf of the Cuban elites.8 The first plans for the Havana-Güines railway had been pushed by individuals and institutions representative of the Cuban bourgeoisie, proposing that a limited liability corporation would carry out the project.9 This last proposal was not carried out because the local capitalists refrained from transferring part of their individual fortunes into such an, as yet, insecure enterprise. The alternative resolved the problem conveniently. The project was eventually financed by a loan, contracted under Spanish guarantees in London. In this way, the Cuban elites did obtain their desired railway, without however having to risk their own fortune with it.
The Spanish stand in this matter is not inexplicable. It was based on the expectation that, once proving itself profitable, the first railway would give an impulse to whole series of new projects. This was stated explicitly in a letter of the chairman of the Junta de Fomento to his Spanish superiors, defending a governmental start "so that it can serve as an example, without ruling out that the enterprise will be transferred to private persons once the project is completed, and the fear of risks that always holds back the most important capitalists has disappeared".10

Once in exploitation, the above-mentioned railway did indeed prove itself very useful and profitable. Various individuals expressed their interest in buying the railway and the Junta de Fomento prepared a public scale. The Spanish government consented willingly, not in the least because of its urgent need of money, and therefore reluctance in continuing outstanding debts, caused by the Carlist wars at home.11 On March 26, 1842, the railway was transferred to a private enterprise.12

All other railway lines were constructed and exploited without significant financial support on behalf of the colonial government. Madrid provided some privileges, though. Apart from granting perpetual or very long term concessions, it facilitated the actual constructions by the introduction of a law on compulsory expropriation of lands and by the exemption of import duties for all necessary materials.13

A glance at a railway map dating from 1868 shows clearly the drawbacks of this dominance of private enterprise. Impressive though the total extension of the railway network may be, its geographical dispersion is quite unbalanced. The bulk of the tracks are concentrated in the region to the South and East of Havana, leaving only scattered connections in the rest of the island. The obvious East-West railway, which would have unified the country in a geographical sense, had not been constructed at all.

MAP: THE RAILROAD NETWORK IN 1868

Not only the disadvantages stemming from this lack of comprehensive planning, but also the occurrence of technical and organizational deficiencies obliged the Spanish government to introduce a Railway Regulations Act in 1858, to be implemented by governmental inspection.14 This did not, however, detract from the dominance of private enterprise in any significant way.
The initiators

From the late eighteenth century onwards, Cuba had been involved in a swift development towards a plantation economy, based on the production of sugar and, to a lesser degree, tobacco. Coffee, the third export commodity, dwindled sharply in importance from the 1830s onwards.\(^5\)

It is usually agreed on, that this “sugar revolution” was initiated by the Cuban criollo elite, who thereby broke through the rigid framework of Spanish mercantilism. In the early nineteenth century this group was reinforced by several families of recent immigration from Spain, coming to form what was later denominated as the “sugarocracy”. Only after the 1830s did a circle of Spanish merchants and financiers regain its former power, without however making a switch back from the “sugar revolution” which had proved itself very profitable to planters, merchants and the Spanish crown alike.\(^6\)

Around 1830, however, the planters were still dominating Cuban decision making. A further expansion of the sugar production seemed feasible and highly profitable, provided only that three bottle-necks be taken away: the lack of labour, high production costs, and the transportation problem. The first problem was resolved by means of the, since 1820 illegal, slave trade. The second only partially, by innovation in the industrial part of the sugar mill; agricultural innovation would take much longer, however. The transport problem, finally, needed drastic measures, since neither traditional road construction nor attempts to use water transport had proved successful in the specific geographical circumstances of the island. The construction of a railway network seemed to offer the solution, needed so desperately by these entrepreneurs, to this problem.

It is therefore not surprising, to find planters among the leading figures in most of the railway enterprises. As mentioned above, the first railway was promoted by the Junta de Fomento; the planters exercised an important influence, both direct and indirect, in this colonial institution. The Junta was cooperating with the Sociedad Económica de los Amigos del País in this project, the latter a brains trust of the same Cuban bourgeoisie. Documents relating to the sale of the Havana-Güines railway demonstrate that the most important planter families were aspiring to buy the line; those that eventually did acquire this railway, denominated as “the few” in popular language, may be considered part of the top layers of the Cuban bourgeoisie.\(^7\)

It seems inappropriate, in this context, to enumerate in detail the individuals and families engaged in the railroad enterprises. Some conclusions that seem warranted on the basis on previous research may however be repeated here.\(^8\) First of all, the initiators, exploiters and
shareholders of the most important railway companies can be found among the leading circles of the Cuban sugar bourgeoisie.19 Secondly, their outspoken interest was the expansion of sugar cultivation by way of improvement of the transport facilities.20 Finally, though the revenues of the principal companies seem to have been satisfactory, it is unlikely that profit seeking in the railway business itself was a predominant motive for the initiators; the principal task of the railways was the improvement of infrastructural conditions for the sugar production, which by itself would thus continue to give highly rewarding profits.21

What is so striking in the conduct of the Cuban bourgeoisie in the construction and exploitation of the railway, is not only its energy, but also its resolute self-consciousness vis à vis the Metropolis and its success in achieving the results strived for. We find here an entrepreneurial spirit and an eagerness to introduce innovations that seems quite ahead of its time, certainly bearing in mind the colonial status of this "Pearl of the Antilles".

The fact that the East-West connection was not constructed until the beginning of the twentieth century underlines the independency of the Cuban bourgeoisie with regard to the colonial government. The Spanish authorities had tried to interest potential investors in this ferrocarril central since the 1850s, but without success.22 This is easily explained. The central railway would serve for military-strategic purposes, vital to colonial government. Cuban investors, however, were only interested in these purposes as far as it concerned the military protection of their belongings against possible slave insurrections. The very fact that the railroad constructions had been concentrated in the sugar producing regions, where most slaves lived, had already satisfied the planters' need for efficient military protection.

This drawback notwithstanding, the railroad system in general did provide the Spanish government with important strategic gains. In an early stage of the railway boom simultaneous construction of telegraph systems alongside new tracks was imposed, thus facilitating rapid communication in emergency cases. Transport of military troops in these circumstances was a further significant strategic advantage. The logic value of an extensive railroad system thus was a prime motive for government involvement in the business, like it was to be in other Latin American countries later on. Spanish government did not want to pay for it, however. Since capital for the Cuban railroads had to be raised by local entrepreneurs, no railroad of military significance could be constructed if there was no direct economic gain to be made from it by potential fund raisers.

In conclusion, the driving power behind the first railway boom was
the Cuban "sugarocracy", showing a remarkable independence in its proceeding. Only later did it become clear that the sugar revolution, and with it the construction of the railway network, tended to weaken, rather than strengthen, the economic situation of Cuba. Pursuing its own short term interests, the Cuban bourgeoisie stimulated in the long run the so-called "development of underdevelopment" that would promptly undermine its own position as well. A conduct and results that, by the way, fit quite well into the description given by Eric Williams in his famous Capitalism and Slavery, regarding the elites of Caribbean plantation economies in general.23

Labour for the railroads

According to contemporaries, the cost of railway construction were lower in Cuba than in most other countries.24 Apart from positive geological circumstances and the above-mentioned exemptions on duties for imported materials, two factors account for this relatively low budget construction, both reflecting the particular social structure of Cuban society. These explanatory factors are the cost of manpower and that of the lands needed.

The construction of the Havana-Güines railroad is relatively well documented, being executed by a state enterprise. Though the technical cadre had to be contracted at high costs in the United States and England, the bulk of its labour could be obtained at very low cost, as we can observe in contemporary documents. The actual construction was carried out by a scratch band of slaves, contract labourers, military prisoners, emancipados who were nominally free but forced to work, and wage earners.25

This labour force was heterogeneous in its juridical, economic, linguistic and racial characteristics. Probably this heterogeneity facilitated the policies of the management, who tried to enforce an extremely strict labour discipline on all workers. A military regime, hard work and bad food lowered labour costs; it implied labour unrest, escapism and high mortality as well.26 About the level of mortality one can only guess; fragmentary findings do suggest a frightening number of casualties, though.27

Some insight into the use of semi-forced labour may be obtained concerning the European contract labourers. The first contingents, probably some 5,600 in all, were imported from New York, though denominated after their major component as "Irishmen". Their incapability to accommodate themselves in a short time to the tropical climate and their resistance to the rigid discipline soon made the management look for more suitable contract labourers. These were found in the Canary Islands, one of the poorest parts of Spain itself. Of
these contract labourers, 927 were imported, replacing the "Irishmen" completely. Eusebio Valdés Domínguez, the first historian of the Cuban railroads (1878), stated that the majority of both groups died or fled; nevertheless, the savings made possible by the use of this type of labour in stead of wage-work may have as high as 50%.[28]

Successive constructions were also based on the use of (semi-) enforced labour. Whereas the Junta de Fomento, however, could not openly use slave labour because of its official status and the fact that the necessary slave trade was already illegal, the private enterprises were not disturbed by these inconveniences. These corporations therefore hired or kept in possession slaves all through the forties and fifties; in the following decade, however, slave-prices became inhibitingly high.[29]

As in the sugar plantations, a solution to this problem was found in the use of imported contract labour. This type of labour made a significant contribution to the relatively smooth transition from a slavery based economy to one of free wage work; the vanguard role of the railroad companies in this matter was significant. As mentioned above, contract labourers from Europe were imported for the construction of the Havana-Güínes railway. This example was followed by many other companies. Many shippings of contractees from the poorest parts and classes of Spain arrived.[30]

Most important however was the import of contract labour from China. Started in 1847 by the Junta de Fomento, this trade proved to be a great success to the sugar planters and the railway companies alike.[31] One engineer calculated that the use of Chinese coolies had resulted in a 68% saving on the construction of his railway, in spite of deaths and flights.[32]

Generally speaking, we may thus conclude that the bulk of the labour for the railroads was performed by types of (semi-) enforced labour, these types still being cheaper than free wage labour in a Cuban economy that was always desperately in need of labour at the lowest possible cost. Construction nor exploitation led to a break with the predominant labour relations on Cuba, in these first decades. This explains why a labour movement did not yet develop in the railway sector, unlike experiences in countries like Argentina and Mexico, where the constructions were realized on a wage work basis.[33] We must however add to this that Cuban and Spanish wage workers seem to have been obtaining increasingly more jobs as lower employees. It is difficult though to estimate to what extent this happened in the period under study.[34] Only at the end of the nineteenth century did unionization gain momentum. The breakthrough of free wage labour had of course preceded this development.
Impact on agrarian relations

As stated above, the low costs of necessary lands also contributed to the comparative cheapness of railroad construction in Cuba. Here again, we find many characteristics of its social structure reflected.

Contrary to a country like the United States, where the government gave away "an empire of land" to railway companies, thus stimulating them into opening up vast virgin areas,\textsuperscript{35} concessions in Cuba were only granted for the narrow track where the lines had to be laid. In the first decades, railways were constructed in already populated and cultivated areas. Obviously this could cause troubles with the landowners involved; for this reason Spanish government introduced a law on compulsory expropriation.\textsuperscript{36}

The importance of the availability of such a law cannot be underestimated; in other countries the absence of such a last resort seriously retarded railroad construction. Its application in Cuba may however have been modest. This can be explained by reference to prevailing conditions of landownership. Petty farming did exist in the regions involved; we do find claims of indemnification made by such peasants in official papers, but nowhere signs of organized protest.\textsuperscript{37} Whether this silence reflects a bias in the sources, a lack of peasant organization or simply the fact that peasants were not bothered too much by the first railways, remains a guess at present.

On the other hand, large landholders were usually all too eager in offering their land, for free or at low cost, hoping to benefit directly from the transport facilities offered by the railway. After all, the construction served large-scale farming, their source of income. The directing board of the Havana-Güíes railway put it more cheeringly, reporting on the construction in 1836. Compulsory expropriation would only be necessary in the case of "the small proprietors who at first, not abreast of the advantages that the railroad will offer them, worried because they thought themselves severely injured". On the contrary, the "large proprietors, with a better insight and an outspoken interest in the actual advantages offered to the public" had not only been as generous to tolerate many inconveniences on their lands, but also to refrain as yet from claiming indemnifications.\textsuperscript{38}

Such "generosity" was repeated in many subsequent occasions. For this reason, indemnification costs were probably low in most constructions.\textsuperscript{39} There are no indications of land speculation, the principal parties interested in the construction already owning most of the necessary lands in advance. The rest had to accept the facts of life. Even had they wanted to, the scattered small peasants could not protest jointly, as happened for example before and during railroad
constructions in Mexico.\textsuperscript{40}

Did the railroads contribute to the decay of small-scale peasant production? In the long run, certainly, by their significance for the development towards monoculture. As to a more direct dislodging of small-scale farming, we cannot draw clear conclusions. Again, there are no records of social protest. Maybe there was none at all. A sugar producing area like that of Güines, for example, had already been clearly of smallholders at the end of the eighteenth century.\textsuperscript{41} On the other hand, in the fewer cases where railroads opened up areas of relatively low density of population, the problem may not at all have arisen, with tracks projected through as yet hardly cultivated areas.

There must however have been some indirect impact on agrarian conditions as well. For instance, rail transport did push out part of the traditional transportation system, based on carts, mules, etc. This injured both cattle-raising and the former transporters, resulting in social tensions, at least as regards the latter group. This probably led to the false suspicion that displaced carters had inspired the alarming slave insurrections in the district of Cárdenas in the early forties.\textsuperscript{42} Recently a railway had been constructed in this area, taking over the transport of sugar to the harbours, traditionally left to these carters.

Social savings and monoculture

There can be no doubt that the greater part of the railways was planned and indeed functioned in the service of sugar production. Calculations accompanying the proposal for the Havana-Güines railway stressed the variety of products to be transported by rail, though the bulk of the products from the Güines area was already expected to be sugar.\textsuperscript{43} Subsequent extensions of this railroad were aimed directly at sugar production, like most of the proposals for other railroads.\textsuperscript{44} Analysis of cargo data underlines the conclusion drawn by the Public Works Office in 1866: "(everbody knows) that the greater part of the railroads (-) has been conceived principally at the service of the sugar plantations by facilitating and cheapening the transport from the plantations to the harbours".\textsuperscript{45}

This does not mean, however, that only sugar products were transported by rail. Some minor railways were constructed for other transports, while most of the companies derived some revenues from non-sugar transports as well.\textsuperscript{46} As to the cargo from the harbours to the hinterlands, these consisted mainly of food, textiles, etc. for the plantations. In this way too, the rail network stimulated the development towards a plantation economy.

The transport of passengers, finally, provided a subordinate though not at all negligible part of the revenues; in the period 1861-
1864 this amounted to some 30% of total revenues made in this branch. As time proceeded, and with it the expansion of sugar production and particularly the construction of private sugar railways, the share of passenger revenues would dwindle.

The improvement of rail transport over previous methods proved enormous for the sugar production. It seems probable that the direct savings in total production costs for the sugar complex diminished with at least 10%, owing to the drastic fall in transportation costs. The Cuban case seems to make a strong point in favour of the thesis that railroads produced their most significant economic benefits in those natural environments, where pre-rail road or water transport innovation had not proved feasible.

Of course, there were indirect benefits too, notably the opening up of regions previously outside the radius of commercially exploitable land. To make an estimate of these indirect gains would require very sophisticated climetrical methods. For instance, one should assess the value of existing (pre-rail) regional production more systematically in order to figure out the exact contribution of newly opened up lands, thereby taking into account the overall development of agrarian productivity during these decades. This research has not gone into that; it is questionable anyway whether the available sources allow for something significantly better than guesswork.

Modern economics stresses the importance of adequate infrastructural conditions for developmental potentiality. Improvement of transport facilities is thus supposed to stimulate commercialization and hence production for regional, national and even international markets. Furthermore, the reduction in transportation costs involved makes for social savings which can be transmitted to as yet underdeveloped production sectors. Historical research has supported such assumptions for various Latin American countries.

In this respect, the Cuban experience is contradictory, and disappointing. Far from stimulating production for local or national markets, it had the above-mentioned one-sided effects, pushing towards monoculture. Thus, production narrowed, marginalizing most of the traditional crops. Foods and textiles could be imported much cheaper than produced at home, where, furthermore, nothing yielded such high profits as sugar cultivation. Lowering both import and export costs, the rail network inhibited rather than stimulated agricultural diversification.

As to the allocation of the social savings, the same holds true. Obviously, the lowering of production costs strengthened Cuba's international competitive power, and thus prolonged the possibilities of making huge profits out of sugar production, even though prices
were falling steadily. Transport innovation proved itself a successful solution to the problem of international competition, but at the same time an inhibition to more drastic innovations, notably in the agrarian part of the sugar production. This was still based on the increasingly expensive and inefficient slave labour. Only in the eighties did the introduction of private railways on the expanded sugar *centrales* result in direct improvements of agrarian productivity and new savings on manpower within the sugar complex. The elimination of slave labour had however preceded in stead of followed this.

For our period we must stress however that the improvement of transportation delayed the coming crisis of slavery-based sugar production for some decades, postponing the transition from slavery to wage-work. Ironically, the Spanish government had already in her comments on the Havana-Güines railway stressed that agrarian innovation had to follow the railroad construction, if international competitive power of Cuban sugar was to be improved structurally.\(^{52}\) Its for once “modern” suggestions were apparently too disturbing to find a willing ear with the Cuban bourgeoisie.

Crisis had not yet struck, though. Sugar production was yielding such profits, that there was no incentive to invest in other economic sectors.\(^{53}\) Most of the profits in the sugar business, including the new savings realized by the railroads, were therefore reallocated in the same sector, apart from the share for conspicuous consumption of the elites. Elementary business economics inhibited a diversification policy financed by the reallocation of the social savings made possible by rail transport.

The failure of a “Rostowian” take-off

From its very start, the iron horse has had the nimbus of modernity and economic progress. Not wrongly, though this appraisal may have been exaggerated, prompting Fogel into mocking “It is the hero theory of history applied to things rather than persons”.\(^{54}\) The contrast between the current appraisal and Cuban reality is striking, however. Though among the first to enter the railroad area, Cuba was still an underdeveloped and very poorly industrialized country, more than a century later.

We may confront this historical record with the blueprint of economic development given by W.W. Rostow in his famous *The stages of economic growth*. Following Rostow, economic growth is a cumulative process, wherein a slow formation of essential preconditions is followed by a swift “take-off into self-sustained growth”, leading to complete industrialization in a next-to-automatic sequence. In the take-off phrase, a “leading sector” is supposed to trigger off the economy
by means of several spin-off effects.

Rostow states that railroads gave a decisive impetus to some of the most important take-offs: "Just as the financing and management of the railroads set many patterns for large-scale industrialization on a wider front, so also, it was in the technical experience of building and operating the railways that a good part of the foundations was laid for the march of the Western world into maturity".55

To understand why this does not apply to Cuba, we may inquire into the working of external economies, suggested by Rostow. This applies, first of all, to the vertical, or backward linkages. This refers to innovation in supplying enterprises following the example of the leading sector; this exchange of innovative impetus could also start to function the other way around, from supplying sectors to the leading one.

It is easy to see why the railroads did not perform this role of a growth-generating leading sector in the Cuban experience. Just as would happen in other Latin American countries, the technological superiority of the British and American producers was such as to make virtually futile any attempt to start a national railworks industry, at least without a government-backed infant-industry protection. Such a policy of import substitution avant la lettre was not implemented. The necessary materials were all imported from the United States and, to a lesser degree, England. Neither construction nor exploitation could therefore offer an impetus to the development of a national industry. Spanish government was not at all interested in stimulating such industrialization. The exemption of import duties over railroad materials was conceded with the simple marginal note "in Cuba there does not exist like in the Peninsula the need to protect an industry that does not exist".56

Vertical external effects did not occur in other sectors either. Feverish investigations had yielded the disappointing conclusion that the Cuban soil did not contain coal; fuel was therefore supplied by the import of coal from Great Britain first, later by the use of wood, in spite of Cuba's own resources partly imported from the United States. Utility construction did not benefit in a significant degree, since most stations were unsightly loading-berths. The impact on road construction was even negative, since all efforts and capital were now directed towards the railroad constructions.

As a second category, Rostow defines "lateral effects", referring to the rise of new types of employment in the modern sector, of an industrial climate and a tertiary sector (banking, etc.). The Cuban case is somewhat more positive in this respect. As a matter of fact, the construction of a railway system improves the communication infras-
tructure. Furthermore, the high demand for capital to be invested in the constructions gave the impetus to the development of a more or less modern banking and credit system. Of great importance in this respect was the breakthrough of the limited liability corporation. Whereas in 1830 it had proved impossible to erect such an institution for the construction of the Havana-Güines railway, it was exclusively such enterprises that constructed subsequent railway lines, collecting their own capital. The spreading of this institution greatly facilitated the attaining of the capital intensity needed in an industrial economy. In fact, this breakthrough is the most important contribution of the railroads to the emergence of an industrial climate.

As to this somewhat vague concept of "industrial climate", one may observe that the success of the railway did procure a certain premium on progressive "entrepreneurial spirit". This had nothing to do with other types of labour involved, however. Most of the technically skilled came from abroad, especially contracted for the constructions. Even though towards the fifties Cuban and Spaniards won ground in this respect, educational facilities in the technical field did not develop concurrently. As to the bulk of unskilled labour, it was already stated above that this, far from modernizing current labour relations, was dominated by types of (semi-) enforced labour as well.

With regard to "derived growth", we are faced with a conceptual problem that greatly detracts from the value of Rostow's "non-communist manifesto". One of the most attractive points in his theory of growth phases has undoubtedly been the perspective promised: once in motion, economic development proceeds more or less automatically. The function of a concept such as "derived growth" seems to stress the self-evidence of the breakthrough far more than serving as an analytical tool. Everything (population growth, rise of the per capita National Product, development of new economic branches and sectors, etc.) seems to gear in the same, promising direction.

We are however faced with the reality that the Cuban railways did ensure a significant rise of the Gross National Product, without effectuating the magic breakthrough. The same holds true for the sugar production as a whole. Quantitative growth was impressive, but had little to do with real economic development. Cuba remained agrarian, and underdeveloped.

Why was there no take-off? We have already described above the lack of satisfactory spin-off effects. An explanation of this deficiency should refer, however, more directly to the heart of the matter, being the internal conditions of the Cuban economy and its international position.
Rostow greatly stresses the importance of innovation, of technical possibilities for increasing production and the emergence of new branches of industry. On the contrary, he is quite vague about the domestic sale prospects, in other words the existence of sufficient purchasing power. Certainly with respect to private consumption, this relates not only to the level of Gross National Product and the size of the national market, but also to income distribution and therefore to social conditions.

Cuban reality did not coincide with the implicit assumptions of the Rostowian model, in this respect. The dominance of (semi-) enforced types of labour, and the social conditions in general made for a very low level of overall domestic demand. Food and clothing for the slaves were marginalized by the development towards a plantation economy, implying negligible effective demand for new products on the part of this peasantry. The extremely lop-sided income distribution concentrated purchasing power within a small elite, that satisfied most of its wants on far-away markets.

In other countries the construction and exploitation of railroads led to an influx of wage-workers, hence to a monetization of the economy and to an upsurge of effective demand for locally produced goods. Especially interesting is the Brazilian case, where the authorities precluded railway companies from employing slaves with an eye on both inhibiting competition with agriculturalists for labour and urging the companies to recruit labour from abroad, thus stimulating immigration. In contrast, the railroad workers in Cuba were not dissimilar from the rest of the Cuban working population, unfree or at best free but with very limited purchasing power. Hence they provided only a weak stimulus to local and regional markets and, consequently, production.

In short, there was no significant domestic demand for national products, neither agricultural nor industrial. The railroads reinforced this by way of their cheap transport of imports, which had been financed by the exports, equally cheaply transported. Thus, the emergence of both local markets and industrial sectors was unremunerative. The infrastructural effects of the railroads were rather narrowing than "spinning off".

This plantation economy did not develop in concordance with sectors producing foodstuffs for local consumption, much less artisanal or industrial sectors. Most of the island having roughly the same geographical conditions, there was not even a natural limitation to the development towards one single plantations economy, as the twentieth century would witness. The private railways of the sugar *centrales* and the *ferrocarril central* would facilitate this second sugar revolution.
As the map indicates, the *ferrocarril central* was to be the back-bone of this plantation economy.

**MAP: THE RAILROAD NETWORK IN THE BEGINNING OF THE TWENTIETH CENTURY**

Imperialism?

The question of insufficient growth-generating conditions at home is connected with a second problem neglected in Rostow's theory: the disrupting influence that more developed and powerful countries may exercise on a newcomer. As pointed out above, it was the Cuban bourgeoisie that launched the island into the railway era.\(^{58}\) Its independence in managing its own affairs might be surprising, the long-term effects nevertheless proved desillusionary. This applies to the results of the sugar revolution in general; more specifically to the railroads as well.

The railway connexion proved to be the channel *par excellence* through which foreign influence acquired a steady hold on the Cuban economy. The import of foreign know how, capital and industrial products (i.e. railway equipment) all diminished Cuban independence. As to the railway-business itself, it resulted in a starting denationalization. In 1875, all public railroads were still owned by Cuban companies; towards 1900, some 70% of the capital invested was British.\(^{59}\) In the first half of the present century, nearly all railways were in British and American hands. Cuba had not only lost the illusion of wealth based on sugar, but even the possession of the very instrument that made the sugar revolution possible.

This might well be denominated as "imperialism". It should be stressed, however, that this process was not at all inflicted on a passive, backward country. It had at least the bourgeoisie willing enough to take the first initiatives on its own, and naive enough (or should we say "marked by the spirit of their times"?) to expect optimal results for itself.

**Conclusion**

Shortly after the first railway had been concluded, its principal engineer, the American Alfred Cruger wrote: "What this island of Cuba needs, to develop its as yet concealed potentialities, and to increase prodigiously its population, is the general introduction of a system of communications by railroads; that question is beyond any doubt, because it is proved that it produces in all countries and cases more than one expects".\(^{60}\)

So it did, but is was wealth nor real economic development nor
genuine independence, in the long run. This analysis of the first decades of the Cuban railway era has tried to demonstrate why, given social and economic conditions at that time, the railroads did not produce the positive effects associated with it in some current economic theories.

The divergence of Cuban reality from a Rostowian blueprint leads to the conclusion that this model cannot be applied to the case under study. Of course, particular circumstances, like the dominance of slavery and the drive towards extreme economic specialization may be said to account for this. We should question, however, the relevance of the present theory to other developing countries as well. After all, both high vulnerability to international political and economic forces and insufficient growth generating social conditions at a national level seem to be characteristic for most of the developing world. The programmatic value of a "non-communist manifesto" that fails to take these basic problems in due consideration is disappointingly meagre.
Het spoorwegnet kort na 1900
the railroad network shortly after 1900

Het spoorwegnet kort na 1868
the railroad network in 1868
This article was written in 1981. Since, several studies have been published both on Cuban railways and on the broader context of sugar and labour relations in mid-nineteenth-century Cuba. Unfortunately, there was no possibility to include some of the issues raised in these studies in argument of the present article.

NOTES


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4 Goizueta analyses the role of the railways specifically, but highly schematic; Felix Goizueta-Mimo, Azúcar amargo cubano: monocultivo y dependencia económica (Madrid: Instituto de sociología y desarrollo del área iberica, 1972). This was originally published as Effects of sugar monoculture upon colonial Cuba, by the University of Pensylvania.


5 In 1900, all public railways together accounted for 1792 kilometers, the private railways for 1199 kilometers. In 1935/36, the public railways counted with 4957, the private with 9167 kilometers. Luis de Sena, “Compendio de la legislación ferroviaria en Cuba”, Rev. de la Soc. Cub. de Ingenieros 30 (Dic. 1937), 941-944.

6 Mariano Torrente, Bocejo económico de la Isla de Cuba, 2 vols. (Madrid: Pita, 1852), I, 177.
Memoria sobre el progreso de las Obras Públicas en la Isla de Cuba. Desde 1 de Enero de 1859 a fin de Junio de 1865 (La Habana: Impr. del Gob., 1866), doc. no. 45.

7 Thomas, Cuba, p. 123.
8 Oostindie, Burguesía.
9 ANC, Real Consulado y Junta de Fomento (hereinafter cited as RC), leg. 129 exp. 6374.
10 Villanueva, chairman of the Junta de Fomento, to the Minister of Finance, February 17, 1834.
AHN, Ultramar, Fomento, leg. 33 (1) (1).
11 Maximiano García Venero, Cien años de ferrocarril en España, 4 vols. (Madrid: RENFE, 1948), I, 43. Secretary of State to Spanish governor (Capitán General), Febr. 28, 1839 and Minister of Finance to Superintendente Villanueva, April 25, 1839; both in AHN, Ultr., Fom., leg. 33 (2)(5).
The Real Orden of April 20, 1839 confirmed the Spanish stand.
12 Real Orden of March 24, 1842; ANC, RC 126/258. And R.O. May 12, 1842, AHN, Ultr., Fom., leg. 42 (2).
13 Specific regulations can be found in documents relating to various enterprises, notably in ANC, RC; and, in retrospective, Memorial que acompaña al plano general... AHN, Ultr., Fom., leg. 42. The most important general regulations were listed in Apéndice no. 7 of the Memoria General de Obras Públicas en la Isla de Cuba (La Habana: Imp. del Gob., 1861).
14 Real decreto, instrucción, pliego de condiciones generales y modelo de tarifa para la construcción y explotación de ferrocarriles en esta Isla, su fecha de 10 de Diciembre de 1858. Equally reproduced in the above-mentioned Apéndice, Memoria 1861.
15 Aggregate trade figures, given by Jacobo de la Pezuela y Lobo, Diccionario geográfico, estadístico, histórico de la isla de Cuba, 4 vols. (Madrid: Mellado, 1863-1865), are reproduced in A study on Cuba, by the Cuban economic research project under chairmanship of José R. Álvarez Díaz (Miami: Univ. of Miami Press, 1965), p. 128. As to the shares of the principal exportcommodities in the value of agricultural production, these were in 1830 approximately 18% for sugar, 9% for coffee and somewhat over 1% for tobacco; in 1861 this had changed to 61%, 2% and 15%, respectively. Total value of agrarian production had more than doubled, meanwhile. Figures for 1830 based on Ramon de la Sagra, Historia económica (La Habana: Arazoza y Soler, 1831), reproduced in Study, p. 65; for 1861 on Pezuela, Diccionario, I, 38-39.
16 Trade liberalization had not at all been complete. The Spanish Tresury profited from high tariffs on trade; high tariffs on imports from other countries had provided Spanish agriculture and industry a superb market for its expensive and therefore in other places unsalable products.
17 Notably, the families Alfonso-Aldama, Poey, Cespedes and Drake. See Documentos and Oostindie, Burguesía. A governmental Commission described the "few" indignantly as a "complot of monopolists" with far too amiable relations with the chairman of the Junta de Fomento, Villanueva.
Rodrigo, Comisión Regia, to Secretary of State, October 27, 1839. AGI, V (Gobierno, Audiencia de Santo Domingo, hereinafter simply V) leg. 1341.
18 Oostindie, Burguesía. Zanetti and García make the same point in their forthcoming Caminos; they disposed over various sources in the ANC that are as yet not available to other researchers.
19 Zanetti, Caminos, states that the Spanish merchants-financiers did gain considerable influence from the late 1850s onwards. This holds true, for example, for La Gran Azucarera, a corporation that possessed both sugar plantations and railwayshares; its principal shareholder was the Spanish Queen-Mother. See José Miguel González Jiménez, El ingenio San Martín (La Habana: Biblioteca Nacional, 1967), p. 9 and Thomas, Cuba, pp. 138-139.
20 See under "social savings and monoculture".
21 Round about 1860, best profits were made by notorious sugar lines, that also disposed over the largest capital: the companies of Havana (9.94%), Regla (7.74%), Matanzas (7.51%) Coliseo (11.62%) and Puerto Príncipe (8.94%). Most profitable was the copper-railway El Cobre (20-24%, following Pezuela, Diccionario, II, 359); this was however a very small enterprise. Desillusionary was the negligible profit of the Ferrocarril del Oeste; ranking third in capital invested, it produced a mere .74%, obviously due to its late start and the absence of significant sugar production in the region. All figures calculated from ANC, Gobierno Superior Civil 1013/35190.
For a comparison, we may point at estimations that profits on invested capital for a typical sugar plantation increased from a mere 3.29% in 1831 to 9.13% in 1846 and even 18.7% in 1863. The estimations, made by contemporaries and cited in Goizueta, Azúcar amargo, p. 129, are however
dubious.
22 This *ferrocarril central* was finally constructed in the early 1900s by the American Van Horne, stimulating greatly the American penetration in Cuban railways. Thomas, *Cuba*, pp. 464-466.
24 A high colonial functionary estimated the average costs per kilometer at 27,300 pesos for Cuba, for the U.S.A. at 31,180, Germany 64,360 and France 66,450 pesos (Study, p. 119). L.V. Abad, “En el primer centenario de los ferrocarriles cubanos (1837-1937), *Rev. Bim Cubana*” 32 (Nov. Dec. 1937), p. 182, produces figures indicating that the principal companies had their constructions up to 1860 effectuated slightly below this Cuban average.
25 According to the management, the following numbers had been provided by the government: 140 prisoners (up to December 20, 1836) by the Capitán General, by the Junta de Fomento 87 *emancipados*, 145 slaves and 200-250 *cimarrones*, recaptured run-away slaves; Cuadro del Camino de Hierro... 30 de Junio-1837, AHN, Ultr., Fom., leg. 33 (1)(4). To this we must add the contract labourers and wage workers. Totals are hard to estimate. Villanueva mentions in an official letter the successful control over a labour force of 1500 men, which seems feasible; AHN, Ultr., Fom. leg. 33 (1)(1) no. 8766.
The English-Spanish treaty on the abolition of the slave trade stated that the Africans found on captured slave smuggler ships would either be sent back to Africa or be nominally freed but subjected to a five year’s team of apprenticeship in the colony. The latter possibility was widely misused, for instance in the use of these *emancipados* as slaves in the railroad construction.
26 See for example ANC, RC 8/538, 130/6378, 130/6379, 130/6383, 130/6388, 130/6389, 131/6407.
27 Correspondence relating to a conflict over fees for burials carried out by the local priest shows that in a particular parish (Cerro) 340 slaves had died (ANC, RC 37/1745). A recent memorial in a Cuban newspaper put the total of deaths on the 28 kilometer track Havana-Bejucal (opened in 1837, a year before the completion of the entire line to Güine) at 1100 (José J. Masó, “La tortudex de mister Cruger”, *Juventud Rebelde*, Nov. 11, 1982, p. 2). Not being accounted for in the article, this horrifying figure can however not be checked on its reliability.
29 One of the most important railway investors, Domingo Aldama, received in 1847 (a sign of his times) 30 slaves in exchange for 30 of his shares in the Matanzas railway, worth in total 15,000 pesos; one slave was apparently worth 500 pesos. (Archivo Histórico Regional de Matanzas, Cuba, FondoMiscelánea de Expedientes, ferrocarriles (hereinafter ARM, ferk.), leg 1/2.). In 1872 the Havana railroad company had to pay no less than 7,734 pesos for 7 slaves, so the slave-prize had double (Compañía de Caminos de Hierro de La Habana, *Informe* (La Habana, 1872), p. 6.
31 Pérez de la Riva puts the total of Chinese coolies imported in this period at 124,813, not counting those perished at sea; Juan Pérez de la Riva, “Demografía de los Culles Chinos en Cuba (1853-74)”, *Revista de la Biblioteca Nacional* *José Martí*, 57:4 (1966), p. 58.
32 Ferro-carril del Oeste, *Informe que el Ingeniero Administrador... presenta a la Junta Directiva provisional* (La Habana, 1859), p. 17.
34 Zanetti seems to have found sufficient justification for this thesis.
37 Claims for indemnification to be paid by the management of the Havana Railway Company can be found in ANC, RC, legajos 131-135.
38 *Diario de La Habana*, June, 4, 1836. Both in AHN, Ultr., Fom. leg. 37 (1) and ANC, RC 130/6388.
As a share in the total construction costs, the indemnification costs for the Havana-Granma railway were. 1% (Estado E, que manifiesta el cargo total del Camino de Hierro en 31 de Diciembre de 1838; AHN, Ultr., Fom., leg. 33 (2)(5)). For the period 1842-1858, after its sale, this was still only 1.36% (ANC, RC 164/7691). The same share for the Ferrocarril del Cobre, 1.6%, the Matanzas Railway 3.9%, the Cienfuegos Railway 2.7% (Memoria que acompaña... AHN, Ultr., Fom., leg 42; ANC, RC 164/7691; Pezuela, Diccionario, II, 349). Budgets for the Cárdenas and Regla Railways estimated the indemnification expenditures to be made as negligible (Empresa del ferro-carril de Cárdenas á Soledad de Bembé, untilted, dating from 1839; Compañía del Ferro-carril de la Bahía de la Habana á Matanzas, Memoria (La Habana, 1860), p. 47). Only those of the Ferro-carril del Júcaro seem to have been higher (Memoria que acompaña... AHN, Ultr., Fom., leg. 42; ANC, RC 164/7691).


Moreno, Ingenio, I, 142.

Domingo Del Monte, “Memorial dirigido al Gobierno de España sobre el estado de Cuba en 1844”, in Escritos (La Habana, 1929), I, 161-163; and Ely, Cuando reinaba, p. 497.

Espediente instruido... May 5, 1833; AGI V leg. 1340. See also AHN, Ultr., Fom., leg. 33 (1)(2); Memoria Aug, 27, 1839, Apendice, Camino de Hierro exp. no. 1, AGI V leg. 1340.


Memoria sobre el progreso, p. 77.

An example of the former category is the small Ferrocarril del Cobre, constructed for the transport of copper from the El Cobre mines to the harbour of Santiago de Cuba.

Memoria sobre el progreso, docs. 51-54.

According to calculations of the contemporaries Ramon de la Saga and Jacobo de la Pezuela, the share of transport costs in total expenses for a sugar plantation would have diminished from 17% in 1830 to 6% in 1859; these are however unverifiable figures. Zanetti puts the total of savings for sugar production at 10-20%; obviously not either a figure beyond doubt; (Oscar Zanetti and Alejandro Garcia), Papel del ferrocarril en la concentración de la producción azucarera (La Habana: Dirección de Capacitación, 1977), pp 16-17.

See for instances the contributions to “Some transport problems in developing countries”, Tijdschrift voor vervoerswetenschap, 15:1 (1979).


Irony has it that alongside the very first railroad track an opposite development seems to have occurred. The extension of the network facilitated the eastward expansion of sugar production, thus stimulating some small-scale food production for the Havana market in the Guineas area, now abandoned by sugar. Julio LeRiverend Brusone, Biografía de una provincia. La Habana (La Habana: Instituto del Libro, 1960), pg 350.

53 See the estimated profits, mentioned in note 21.
54 Fogel, Railroads, p. 236.
56 Secretario del Consejo de Ministros, Nov. 11, 1858. AHN, Ultr., Fom., leg. 42. 'Peninsula' means Spain, of course, in this context. Italics by the author.
57 Lewis, Railways and industrialization.
58 See also Oostinde, Burguesía.
59 In 1935/36, of the investments in public railroads 18% was Cuban, 45% British, 37% American; of the mileage, 22%, 41% and 37% respectively. Sean, Compendio, pp. 941-944.
60 Alfred Cruger, Informe... sobre el ramal de Guanímar (La Habana, 1839), p. 49.