PROJECTING CAPITALISM
A History of the Internationalization of the Construction Industry

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The Metropolitan State and the World Market

[I]n the Railway Age, the development of foreign and colonial railway systems abroad out of British capital, when British materials, British savings, and British engineering enterprise were opening up the world for the supply of food and raw materials, was greatly in the interest of this country as well as of the world.1

The construction of railroads seems to be a simple, natural, democratic, cultural, civilizing undertaking.... In fact capitalist threads, by means of thousands of networks connecting these enterprises with private property in the means of production in general, have converted this construction into an instrument of oppression of a billion people (colonies plus semi-colonies), that is, more than half of the population of the earth in the dependent countries....2

In mid-Victorian England it was clear that ""[i]f there is one phenomenon more than another apparent in the mercantile history of the country, it is the constant advance of its commerce over the means of transit....""3 Accommodating the circulation of commodities to their production became the province of civil engineering. As delineated by the British Institution of Civil Engineers on the eve of the railway age in its 1828 charter, the relatively new branch of civil engineering encompassed the

art of directing the great sources of power in nature for the use and convenience of man, as the means of production and of traffic in states both for external and internal trade, as applied in the construction of roads, bridges, aqueducts, canals, river navigation and docks, for internal intercourse and exchange, and in the construction of ports, harbours, moles, breakwaters and lighthouses...and in the drainage of cities and towns.4

These transnational projects creating the general conditions of production were generated by a crucial historical stage in the revolution of world communication and transportation systems that achieved an unprecedented advance in connecting theretofore remote regions. They not only increased the speed, regularity, mass, and certainty of world trade and helped perfect international lending, but also accelerated the disintegration of precapitalist economies everywhere—even if they initially transformed the Third World into de-industrialized exclaves of European capital rather than into capitalist economies in

1Britain's Industrial Future: Being the Report of the Liberal Industrial Inquiry 110 (1928).
2V. I. Lenin, Imperializm, kak vyschaya stadiia kapitalizma, in idem, 27 Polnoe sobranie sochinenii 299, 304-305 (1962 [1917]).
3Joseph Devey, The Life of Joseph Locke 50 (1862).
4Charter, By-Laws and Regulations, and List of Members of the Institution of Civil Engineers 9 (1881).
their own right. In the year 1800, several decades before this revolution had taken place, the German philosopher Fichte observed that no matter how unfavorable their trade balances might be with one another, all European states participated in Europe's "collective spoils" from the rest of the world, which resulted from trade "without adequate equivalent." Construction firms played a critical role in transforming the basis of and intensifying competition for such world-market-mediated profits.

Linking Colonial Mines and Fields to the Metropolis

I know that the English millocracy intend to endow India with railways with the exclusive view of extracting at diminished expenses the Cotton and other raw materials for their manufactures. But when you have once introduced machinery into the locomotion of a country, which possesses iron and coals, you are unable to withhold it from its fabrication. You cannot maintain a net of railways over an immense country without introducing all those industrial processes necessary to meet the immediate and current wants of railway locomotion, out of which there must grow the application of machinery to these branches of industry not immediately connected with railways.

"Railroadization" gave the most powerful impetus to the international economic cyclical upswing during the quarter-century after the revolutions of 1848. But the period also witnessed the construction of canals and dams, such as those built by British and French firms in India and Egypt, largely to promote production of cotton for British textile firms. Egypt will serve as an illustration here.

When the American Civil War caused Lancashire manufacturers to be famished for cotton, Egypt, "[n]ormally a producer of a surplus of grain and cereals for export,...subordinated all other agriculture to the production of cotton; as a consequence the country was dependent upon the outside world for food for man and beast, and in the interior...there was much suffering if not actual famine conditions." After the Civil War and the resumption of cotton exports from the South, Lancashire cotton capitalists again pushed for increased production of Egyptian cotton because they feared that the expansion of U.S. cotton manufacturing would deprive them of U.S. cotton. Dissatisfied with the transformation of Egypt "from a more or less self-sufficient agricultural region to a one-crop country," the British manufacturers urged their government to insure that the proper irrigation works be undertaken in Egypt to meet their needs. After

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6 Johann Fichte, Der geschlossene Handelsstaat, in idem, ibid., 3 Sammlliche Werke 277 (1845 [1800]).

7 Karl Marx, "The Future Results of British Rule in India," in Karl Marx [&] Friedrich Engels, 1:1 Gesamtausgabe (MEGA) 248, 251 (1984 [1853]).


Britain’s occupation of Egypt in 1882, "as the economy moved beyond subsistence and into production for world markets, it lost its tolerance for poor agricultural performance and its capacity to absorb bad years." At this juncture, the British Empire’s engineers began to devote themselves to devising the requisite irrigation systems for expanding the scope and yields of cotton cultivation. This endeavor culminated in the construction of the Aswan Dam by John Aird & Sons, which was completed in 1902. Because, from the perspective of metropolitan capital, Egypt was "an essentially cotton country," projects such as the turn-of-the-century Aswan Dam could be characterized as having "made Egypt."

As one of the foundations of the modern world market, the mid-nineteenth-century transportation revolution also insured that the newly incorporated precapitalist economies became subject to the cyclical rhythms of world depression and crisis emanating from Europe and the United States—the first of which promptly broke out in 1857. This forcible incorporation of largely self-sufficient communities into the world market was synonymous with increasing dependence on world market prices and, given the decline in self-provisioning, the threat of famine for indigenous producers. The British, however, urged the new inductees to examine the advantages. After all, if the African producer would just agree to sell him his cotton so that they could manufacture calico to sell him, "we may lay up our slave squadron, as we shall have removed the great cause of slavery, and the effect must cease. Let the free African have a market for his home-produced cotton, and the motive will be gone for transporting him to grow slave cotton."

The railways that the British colonial rulers, urged on by British manufacturers desirous of importing cotton by way of Bombay, began building at mid-century in India also exemplify the hierarchically internationalizing role of the new means of transportation. "Being constructed primarily from the point of view of the British economy, with the aim of facilitating military security and secondly of getting the raw produce out cheaply and British goods in..., [railways] served to strengthen the complementary colonial relationship and further subordinate the Indian to the British economy." Perhaps the most extreme mid-nineteenth-century example of railroadization in the service of metropole-oriented colonial monoculture was Mauritius. One of the island way stations that Britain so assiduously assembled to protect the empire’s...
sea route to the east before the opening of the Suez Canal.20 Mauri-
tius, with the exception of sugar cane, "raises scarcely anything required for its consumption, but
exports nearly its whole product, and imports all articles required for food and for
its other necessities. Everything grown in the country is sent to Port Louis for
exportation."
21 In such remote and artificially settled monocultures lacking a
resource base for industrialization, Marx's contention that British capital was
unleashing forces in India that would eventually undermine its own rule was less
applicable.
In general the colonial powers in Africa and Asia—especially Britain and
France—pursued the same strategy of building railways to transport minerals and
agricultural products to ports for export and to conquer and control native
populations.22 Even if Cecil Rhodes's fabled Cape-to-Cairo Railway had ever
been completed, it would still have suffered from the defect that the gauges of the
connecting lines were incompatible.23 The sections of the route that Rhodes and
his constructor, George Pauling, did build were, nevertheless, "largely responsible
for the maintenance of British supremacy" in South Africa and Rhodesia.24 The
European powers built roads and railways—as the United States, when it too was
seeking access to colonial resources after World War II, was fond of pointing
out—"with only one idea in mind: to tap the resources of particular areas, and
bring out produce from farms or mines to the seacoast for shipment to Europe."25
They therefore left a deeply sunk infrastructural investment that made it that much
more difficult for the post-colonial states to integrate interior regions and promote
more balanced national development.26
Metropolitan hegemony was so profoundly embedded in colonial policy that,
when imperial engineers during the depression of the 1930s began mooting ""The
Respective Merits of Roads and Railways for Colonial Development,"" their narrow
focus remained the colonies' capacity as markets for Britain's manufactures.27
Consequently, in the twentieth century as in the nineteenth, ""[t]he essential
transportation problem"" throughout the colonial world ""was that raw materials and
commodities produced in the interior had to find their way to a port for shipment.

20 "Works in the Mauritius," 7 Engineer 132 (1859) (on building docks for mailboats to Australia); W.
Baker Brown, History of the Corps of Royal Engineers 143 (1952).
22 See e.g. Virginia Thompson & Richard Adloff, "French Economic Policy in Tropical Africa," in 4
Hagedorn, "Economic Initiative and African Cash Farming: Pre-Colonial Origins and Early Colonial
Developments," in id. at 283, 294-96.
23 "Die Eisenbahnen Afrikas: Grundlagen und Gesichtspunkte für eine koloniale Eisenbahnpolitik in Afrika
24 "The Katanga Railway," 126 Engineer 501, 502 (1918). Long sections of the Cape-to-Cairo Railway
in South Africa and Rhodesia were built by George Pauling's Pauling and Co. Ltd., which between 1894
and 1910 built about 2,500 miles. Id.; "The Rhodesia Railways, Limited," 52 ER 226 (1905); The
Chronicles of a Contractor: Being the Autobiography of the Late George Pauling 129-34, 204 (David
Buchan ed., 1926).
25Frederick Brewster, "Colonial Powers Discuss African Transport Integration," ENR, Mar. 22, 1951,
at 36.
26 See Middlemas, Master Builders at 255-57; Headrick, The Tools of Empire at 192-203; Winthrop
Wright, British-Owned Railways in Argentina: Their Effect on Economic Nationalism, 1854-1918, at 5
Woytinsky & E. Woytinsky, World Commerce and Governments 354-56 (1955). Colonial railway policy
resembled that pursued by the antebellum southern planter class and its northern trading partners in the
United States. See Jonathan Wiener, Social Origins of the New South: Alabama, 1860-1885, at 140-41,
184-85 (1981 [1978]).
27John Spiller, "The Respective Merits of Roads and Railways for Colonial Development," 237 MPICE
546 (1935).
overseas..."28 As late as World War II, representatives of U.S. capital were still repeating the nineteenth-century African colonialists' argument justifying the construction exclusively of railways of penetration—namely, that it would be wasteful to interconnect the countries of Central America by roads or waterways because they produced, exported, and imported the same goods for, to, and from the United States and Europe, and had therefore no need for mutual intercourse.29 And even when, at the end of the twentieth century, such links have been established, multinational Brazilian construction firms still complain of the precarious transportation between Brazil and its main markets in Latin America: "It is cheaper to transport something from the United States or Europe to them than from Brazil. There are no railways, roads, shipping lines, or accessible air transportation."30

Even in the formally independent "financial colonies" of South America such as Argentina,31 the British and French capital that financed the railways insured that they "were built to serve external trade rather than (as in white-settled North America and Europe) to open up and unify the South American continent."32 From the time of capitalist pioneers like William Wheelwright in the 1830s into the twentieth century, the Andean and other South American railways, for example, ultimately accomplished little other than making it possible to exploit mineral resources for export.33 Thus at the turn of the century Peru was still being instructed that the first step in becoming a "progressive" nation was "extending its railway system, following upon the recent movement among capitalists, British and American, towards the opening up of the country's great mining resources."34

In Porfirian Mexico, railroads were designed to transport raw materials to the U.S. border in derogation of agricultural production for local consumption and peasant land ownership; they "served other centers of population only as an afterthought."35 Although the Mexican rail network, unlike that in the rest of Latin America, did run through sections of the country that did not specialize in export production, the railroads nevertheless played a major role in transforming Mexico from a backward into an underdeveloped economy by promoting dependence—even for basic foods—on external flows of capital and technology. A leading U.S. railway journal editorialized that "Mexico is not and never can be, an agricultural country in the sense that our country is. [S]uch a country rarely

28Spiller, "The Respective Merits of Roads and Railways for Colonial Development" at 617 (correspondence contribution by Fred Lavis).
33See Watt Stewart, Henry Meiggs: Yankee Pizarro 345 (1946); Brian Fawcett, Railways of the Andes 31 (1963); Middlesmas, Master Builders at 99, 263-65; Heracio Bonilla, Guano y burguesia en el Perú 61 (1974).
34C. Enock, "Railway Development in Peru," 53 EN 463 (1905).
produces enough for home consumption, if there is any other employment for labor."\(^3\)

The direct beneficiaries of such railroads were, in addition to their foreign owners, the foreign owners of the mines, the products of which they transported, and the foreign suppliers of railroad inputs.\(^3\)

As Railway Age, commenting on the first train to cross the Rio Grande in 1881, phrased it: "The capitalists who have been bold and enterprising enough to undertake the great work of opening Mexico to modern civilization certainly ought to be well rewarded."\(^3\)

In Honduras and Guatemala rail lines were dedicated exclusively to transporting bananas from plantations to ports for export with few positive externalities. More generally, then, throughout Latin America, "railroad networks—and regions—succeeded or failed as the international demand for the commodity they carried."\(^3\)

Exemplary in this sense was the most important railway undertaken in Brazil in the 1860s. Built by a British firm, it played a key role in developing that country's world market-oriented coffee monoculture by making possible cultivation farther inland and then serving "as a funnel...gathering the agricultural products of a vast region and pouring them into the British ships gathered in the harbor."\(^4\)

British (and French) capital pursued a similar policy in the European periphery. For example, when British steel firms discovered that the hematite ore that Britain lacked was to be found in Spain, British capital built a railway in the vicinity of Bilbao in the 1870s to transport the ore.\(^4\)

Because the rail lines in Spain "merely formed the connexion between foreign-owned mines and foreign-owned ships," they were "an alien implantation for which Spain provided merely the subsoil, both as track-bed and as cargo."\(^4\)

The investment required to open up these sources in such exclaves consisted in part of the export of machinery and raw materials, which was "financed and organised in the same way as investment at home and from an economic point of view it is home investment, though geographically located overseas."\(^4\)

Because the colonial and imperialist contractors built the facilitating infrastructure "in the way and at the time they did they bound countries to certain types of development."\(^4\)

In the case of Spain, into the twentieth century "the transport of Spanish commodities between Spanish centres remained prohibitively expensive while foreign goods could be deposited in Spanish ports at overwhelmingly competitive prices."\(^4\)

In furnishing communications in and with the newly conquered nations, private constructors proved to be worthy successors to the construction-engineering organizations accompanying the Roman armies, which had carried out imperial building projects such as roads, harbors, waterways, and fortifications in the conquered provinces almost two thousand years earlier.\(^4\)

Toward the end of the

\(^3\) "Going to Mexico," \(7\) RA 212 (1882).


\(^6\) RA 449-50 (1881) (editorial).

\(^6\) Sanderson, \textit{Politics of Trade in Latin American Development} at 21.


\(^6\) Edward Woods, "Address of Mr. Edward Woods, President," \(87\) MPICE 1, 16-18 (1886).


\(^6\) Joan Robinson, \textit{The Accumulation of Capital} 370 (3d ed. 1971 [1956]).

\(^6\) Middlemas, \textit{Master Builders} at 25.

\(^6\) Treblicock, \textit{Industrialisation of the Continental Powers} at 350.

nineteenth century, as colonial empires became more formalized, the construction-
engineering industry even proudly proclaimed its Roman lineage. Under the
heading, "Engineering Burmah into Tranquility," a leading British trade journal
in 1888 proffered as first among the "engineering methods of suppression" the
building of railways. Just as "[t]he Romans of old pacified conquered countries
by running roads through them," the British should have learned from the recent
experiences of their army and Corps of Royal Engineers in Afghanistan that
pacifying Burma by locomotive rather than the sword would both be cheaper and
open new markets.47 Even American engineers approved of this transvaluation:
"Like the proconsuls of ancient Rome, who were always on the look-out for new
means of communication to obtain supplies for their armies and to transport their
legions with rapidity from place to place, the governors of the English colonies
were intent on opening up highways for trade, commerce, and inter-urban
communication generally."48

Colonial Planning

The same British state that failed to plan the country’s domestic railways
also refrained, in the initial period of diffusion of railroads in the non-European
periphery, from establishing an imperial masterplan to guide the pioneering railway
contractors in selecting profitable overseas routes. The principal exception was
dictated by direct British rule in India.49 Under Governor-General James Ramsay,
the 10th Earl of Dalhousie, who in the mid-1840s had lacked the power as the head
of the Railway Department of the Board of Trade to implement an overall railway
policy in Great Britain itself,50 the government formulated and effectuated a
comprehensive policy. In his influential minute of 20 April 1853, which also
focused on the military advantages of a railway system, Dalhousie was attentive to
the fact that "England is calling aloud for the cotton which India does already
produce in some degree, and would produce sufficient in quality, and plentiful in
quantity, if only there were provided the fitting means of conveyance for it from
the distant plains, to the several ports adopted for its shipment."51 The
government then planned a trunk system to facilitate British policies of expansion
and annexation, especially in the aftermath of the Sepoy Mutiny in 1857, all at the
expense of the Indian taxpayers.52

Dalhousie’s conception of an overall transportation and communications
system did not, however, extend to railway construction by the state. If for no
other reason, he contended that the government did not have enough engineers at
its disposal to undertake such projects on its own account.53 He did, to be sure,
acquiesce in state construction of canals because they "produced no immediate

"stupendous engineering difficulties" that the Royal Engineers encountered in building the mountain line
in the 1880s, see Whitworth Porter, 2 History of the Corps of Royal Engineers 328-33 (1951 [1889]); on
the British military campaigns in the late 1870s in Afghanistan without benefit of railways, see R. Ensor,
49 For an overview of railway construction in the British Empire toward the end of the century, see
Woods, "Address" at 22-53.
50 See J. Clapham, 1 Economic History of Modern Britain: The Early Railway Age 1820-1850, at 417-24
(1926).
51 "Minute by the Most Noble the Governor-general; dated the 20th April 1853," in Railways (India),
75, 6 at 113, 114, 115 (76 PP 1852-53 [481]). See generally Suresh Ghosh, Dalhousie in India, 1848-56:
A Study of his Social Policy as Governor-General 57-92 (1975).
52Middlemas, Master Builders at 82-89.
53 "Minute...dated the 20th April 1853," ¶ 71 at 133.
return’' and would therefore not be built otherwise. This policy was consonant with the position that Adam Smith had articulated three-quarters of a century earlier: The sovereign bore the duty of erecting public works, such as roads, bridges, canals, and harbors, which facilitate ‘‘Commerce in general’’ but the profit from which ‘‘could never repay the expense to any individual or small number of individuals’’ and could therefore not induce the latter to build them.54

Railways, on the other hand, appeared to Dalhousie to fall outside the ambit of traditional public works:

I hold that the creation of great public works, which, although they serve important purposes of State, are mainly intended to be used in those multifarious operations which the enterprise, the trade, and the interests of the community, for ever keep in motion, is not part of the proper business of a Government. [T]he conduct of an enterprise which is undertaken mainly for commercial purposes, and which private parties are willing to engage for, does not fall within the proper functions of any Government.55

In fact, however, the only intelligible distinction that Dalhousie even implicitly identified between canals and railways was that capital was available for investment only in the latter, thus making state intervention unnecessary. If this distinction could be sustained for India, its validity was merely phenomenological rather than categorical, as witnessed by the massive and in part very profitable private investment in canals in Britain in the last quarter of the eighteenth and the first quarter of the nineteenth century.56

The scope of those elements of ‘‘infrastructure’’ that must be built collectively because they are not profitable for capital is subject to a historical process of contraction and expansion.57 Writing (for himself) at the same time as Dalhousie was acting, and taking the English path of railway construction as the model, Marx argued that ‘‘[t]he highest development of capital’’ was the production of such general conditions of the societal process of production not from state taxes, but from ‘‘capital as capital’’ because it indicated, on the one hand, the degree to which capital had subsumed under it all conditions of societal production, and, on the other, the extent to which societally productive wealth had been capitalized and all needs were satisfied in the form of exchange.58

Marx’s model did not, however, underlie Dalhousie’s conception, which provided for a state financial guarantee system for the builders. Marx’s analysis did, however, fit the dilemma of agency regarding the creation of the general conditions of production in a profit-driven society as perceived by those most directly affected—construction-engineering firms. The British trade journal Engineering editorially conceptualized the contradictions of self-valorization of infrastructural capital in what has become the familiar framework of public goods:

How many more times than their cost the roads, bridges, canals, railways, harbours, docks, drainage, and other engineering works of the kingdom have added to the public wealth can hardly be estimated.... It is the complaint of

55‘‘Minute...dated the 20th April 1853,’’ J 72 at 133.
56Clapham, An Economic History of Modern Britain: The Early Railway Age at 75-85.
58Karl Marx, Grundrisse der Kritik der politischen Okonomie (Rohentwurf) 1857-1858, at 431 (1953). For a discussion of Marx’s approach, see Dieter Löpple, Staat und allgemeine Produktionsbedingungen. Grundlagen zur Kritik der Infrastrukturtheorien 61-67, 97-162 (1973). Although Marx wrote extensively on India for newspapers and referred to Dalhousie frequently, he does not appear to have commented on this particular aspect of Dalhousie’s railway policies.
capital that in but few cases can it, when employed in conferring this dividend upon non-investors, obtain more than a tithe, if as much, for itself. No one doubts that it is justifiable, upon every consideration of commercial policy, to embark a thousands pounds of capital in any undertaking which will...effect a saving of from 50l. to 100l. yearly in any process of production or transport. But it does not follow that A is to embark his thousand pounds to secure this saving to B, who embarks nothing, and who will give nothing to A in return. Nor even, were the State to carry out all works of public advantage...would the case be greatly different.... And this would not be a benefit...of public safety, public order, or other good constituting the common weal, but distinct commercial benefit, of which A, favourably placed to receive it, might enjoy a large share, while B, out of the way, but bearing his full burden of taxation, would go altogether without.

It is to speculative enterprise, however, the enterprise that is reasonably, not rashly speculative, that engineers must look for employment.58

Viewed from a different perspective, this contradiction reflects the lack of identity between the systemic need of the capital invested in the construction and operation of railways to self-expand on the one hand and a national developmental policy on the other. As a high-ranking British colonial railway official observed: "Large profits made by railway companies must, as a rule, be considered as taken from the general community for the benefit of the few, and may work incalculable mischief by checking the development of trade."60 The colonies offered specific contexts for the resolution of this contradiction.

Thus the governor-general of Mauritius, which by 1840 had become the chief sugar producer in the empire at a time of rapidly rising British consumption, proposed in 1857 that a railroad be built to connect the scattered sugar estates to the port of Port Louis. The colonial government acted in response to representations by the Mauritian planters, who could not satisfy the increasing demand for sugar by depending on schooners, whose dampness subjected the sugar to depreciation, or on expensive mule and horse cart road transport. Not only did no private company finance construction, but despite the planters' promise to contribute land gratis, "when the time arrived for the fulfilment of this patriotic arrangement, their feelings of liberality had completely vanished."61 Thus from 1862 to 1865 a partnership under Brassey and George Wythes performed the work for a state-owned system financed by the colony's reserve fund and £1 million of colonial debentures.62

In an unusual contribution to the public policy debate about colonial railways within the British Institution of Civil Engineers, in effect a convocation of imperial railway engineers, the surveyor general of Mauritius questioned the need for the rail system in general. Observing that large parts of the island had not benefited at all from the rail line, Colonel Morrison argued that for one-fourth of the cost, the inhabitants could have built a road system covering the entire
island. The counterargument by the colonial government’s consulting engineer, John Hawkshaw, arguably the leading international railway engineer, that the benefits generated by a railway for a country exceed those accruing merely to the proprietors, while surely correct, failed to confront the broader issue of the overall rationality of such colonial monoculture transportation systems. In 1865, when the new lines began operating, sugar accounted literally for 99.9 per cent of the colony’s exports. Three years later the governor reported that annual appropriations for interest and the sinking fund of the railway debt would exceed net receipts of the railway by £40,000-50,000 for many years to come.

Colonial Ceylon offered yet another illustration of the contradictions generated by metropolitan state-supported infrastructure on behalf of world market monoculture. In the 1860s, British coffee planters in Ceylon also successfully urged construction, by private contractors, of a railway line designed primarily to connect their highland plantations with the port of Colombo. During the middle third of the century, the Kandyan Highlands, which had been largely self-sufficient economically, were incorporated into the world economy in accordance with the needs of the British economy: coffee came to account for two-thirds of Ceylon’s exports as it turned into a net food importer. For the indigenous population, however, the railroad “was not a necessity” because the existing road “was sufficient to meet their simple trading needs.”

In one of the most remarkable critiques of the narrow world-market orientation of metropolitan transport policy ever penned for publication by a British colonial official, William Morris, an administrator who had lived for more than thirty years in Ceylon, observed in a letter to The Engineer that although the Colombo-Kandy railway was designed for the European planters and “the indigenous inhabitants of Ceylon...derive no advantage” from it:

still by an apparent anomaly, whilst the coffee lands of the Europeans on the hills are all exempt from the land tax, the lands of the natives are subject to a tax to the Government of one-tenth their produce in grain. Not only is this so, but when providing a guarantee, as security to the shareholders for the interest on the sums to be expended on the Kandy Railroad, the Government, in addition to imposing an export duty on coffee for this specific purpose...have mortgaged the entire revenues of Ceylon as a guarantee; that is to say, to ensure a railroad for the exclusive benefit of the coffee estates, not the produce of those estates alone has been rendered liable to the charge, but the great bulk of the revenue levied off the lands of the natives, in remote regions utterly unaffected by the railroad, have been hypothecated for the same purpose; and thus the taxes on the cultivation of rice in the lowlands, on the distillation of arrack, and on the manufacture of...
cocoa-nut oil and the consumption of salt by the natives at all parts of the coast, as well as the duty on every article imported for their use, are to be given as security for the formation of a railroad to the coffee estates of Europeans in a single district of the hills.  

In vain, Morris, who suggested that coffee monocropping might exhaust the highland soil anyway, urged construction of a comprehensive line which, in combination with restoration of ancient irrigation systems, would have promoted the cultivation of a variety of crops by the native population.  

Not only was Morris’s proposal ignored, but two decades later The Engineer was still editorializing in favor of an extension of the coffee railroad, this time to improve the transport of manure to the coffee plantations in an effort to stave off soil depreciation.  

But the plea came too late: within a few years tea replaced coffee as Ceylon’s next world-market monoculture export.  

In the first decade of the twentieth century, forty years after he had been director-general of the railways and director of public works in Ceylon, Guilford Molesworth confirmed Morris’s critique. In his presidential address to the Institution of Civil Engineers, he agreed both that railways had done little “for the general development of the country and that the same line proposed by Morris “would be of inestimable value...in the development of a country, which, once fertile and prosperous, has now lapsed into uninhabited jungle.”  

If in the 1850s—when native Indian contractors were already performing well—the British colonial government in India lacked enough experienced engineers to build railways on its own, by the 1870s it was able to rely on the departmental system of construction, under which the Department of Public Works, employing a thousand civil and Royal Engineers, built for its own account more cheaply than Brassey could.  

More importantly, even the governor-general had come to acknowledge that the contradiction between the profitability of railway construction capital as guaranteed by public revenue and “satisfactory progress” had to be resolved in favor of state intervention. In his crucial minute of 9 January 1869, Sir John Lawrence rejected the state guarantee system as “placing the State in so false a financial relation to the constructors of railways” in which “[t]he whole profit goes to the companies, and the whole loss to the Government.”  

Anticipating the charge of promoting state socialism, he observed that:

It is often objected to the prosecution of public works by the Government, that it is not proper for the Government to interfere with private enterprise (which is said to be the proper agency by which works like railways should be carried out), and that the Government should not take advantage of its position to prevent the investment of capital by private persons in large public works. Now, the Government of India has for several years been striving to induce capitalists to undertake the construction of railways in India at their own risk...with a minimum

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"Id. at 172-73. Morris was an official of the Eastern Province, which would have benefited from his proposal.  

"Railways in Ceylon," 46 Engineer 80 (1878) (editorial).  

"Bandarage, Colonialism in Sri Lanka at 84-86.  

"Guilford Molesworth, "Address" at 17-18, 36.  

"See Report from the Select Committee on East India (Railways) QQ. 3388-89 at 238, QQ. 3673-76 at 259 (14 PP 1857-58); "Civil Engineers in India," 6 Engineering 441 (1868); "Engineering Progress in India," 15 Engineering 253 (1873) (college for civil engineers staffed by Westerners); "The Indian Public Works Department," 37 Engineering 385 (1884) (1000 engineers by 1877); H. Jagtiani, The Role of the State in the Provision of Railways 124-27 (1924); Knowles, Economic Development of the British Overseas Empire at 337-42; Prasad, Indian Railways at 46-69; Middlemas, Master Builders at 82-89.  

"Minute by His Excellency Sir John Lawrence, Governor General, dated 9th January 1869. Railway Extension in India," in East India (Railways) ¶¶ 9-10 at 20, 22 (47 PP 1868-69 [129]).
of Government interference. But the attempt has entirely failed, and it has become obvious that no capital can be obtained for such undertakings otherwise than under a guarantee of interest, fully equal to that which the Government would have to pay if it borrowed directly on its own account. It is an abuse of language to describe, as an interference with private enterprise, what is only a refusal to support private speculation and to guarantee them from all possible loss by the credit of the State, or to allege that the investment of capital by private persons is hindered by the Government executing works, when private persons refuse to do so at their own risk.7

By eliminating the contractors, the state inaugurated the "departmental system," under which "the whole of the direct profits can be added to the public revenues...."79

Toward the end of the nineteenth century, British colonial administrations elsewhere also became much more interventionist on behalf of colonial capital in contradistinction to the narrower interest of railway constructors and investors. In British Malaya in the mid-1880s, the government began building railway lines by the departmental system in order to link the tin mines to ports. A decade later a similar development got underway in Nigeria and Uganda, where, as the Empire Cotton-Growing Committee later observed, cotton and transport developed in tandem.80 This shift was in large part associated with the social imperialist movement, which became policy when Joseph Chamberlain took over the colonial office in 1895 and pushed the construction of railways in Africa in order to increase the yield of the colonies for Britain.81

A similar process played itself out in the Dutch East Indies. There, too, "planters knew better than to invest money in" railways when the Dutch colonial administration could do it for them.82 Thus by the 1870s and 1880s, the Dutch government began building railways both to pacify the indigenous population and to link coal fields.83

By the turn of the century, and especially in Africa, the colonial military and economic purposes of railways coalesced.84 As the leading French civil engineering journal observed:

The creation of the first railways, in Africa, was imposed at first by the necessities of conquest: transport and supply of troops. As soon as it was possible to broach the question of the valorizing [mise en valeur] of the conquered territories...it was a matter...for each colony to drain the products of the hinterlands toward its ports....85

This military-industrial integration of colonial railways was pithily captured in

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13. Almost three decades before the first railways were built in colonial sub-Saharan Africa, a leading British construction-engineering journal urged that "the more valuable its produce is proved to be to this country...the more promising a field it appears to open up for the triumph of steam." "African Railroads and Agriculture," 2 Engineer 473 (1856).
Cecil Rhodes’s memorable phrase that “[i]n the colonies the railway is cheaper than the cannon and reaches farther.”86 With alacrity the French and German colonialists expressly emulated the British policy of using railways to pacify occupied territories as soon as possible.87 For them it was clear that “the suppression of unruly tribes, the military conquest and subjection of the area to be opened up” was part and parcel of the purpose of colonial railways, which was “to utilize the human labor power in the interior of the country to provide households in Europe with...cocoa, tobacco, coffee, cotton, oil, etc., which every worker needs today.”88

Several systems were available for building railroads in the colonies. At one extreme, firms could be authorized to build and operate lines as private enterprises. Some of the sections of Rhodes’s mineral exploitation-driven Cape-to-Cairo system built by George Pauling fit this description.89 The more typical system involved state guarantees, subventions, and land and mineral concessions. The leading French firm, Societe de Construction des Batignolles, built the railway in the French colony of Senegal under this regime in the 1880s.90 The state could also build railroads either by accepting bids from, or entering into agreements with, contractors, whom it then supervised through a consulting engineer.91 The railways in the British colonies of Sierra Leone and the Gold Coast were built in this way under the supervision of William Shelford’s consulting-engineering firm at the turn of the century.92

Finally, in the departmental system, the colonial government became its own construction organization.93 In the French colonies in Africa, the departmental system was largely run by military engineers of the Génie Corps, which built, for example, the railways in Guinea and Madagascar at the turn of the century.94 Britain also used its Corps of Royal Engineers to build military railways in the Sudan.95 In the early 1880s, the Royal Engineers performed well in contrast with the failure of Lucas & Aird, “an English contractor of world-wide experience,” to complete the Suakin-Berber line.96 The Corps also built the railway to Khartoum in the late 1890s to support the army’s conquest of the Sudan, although a U.S. firm, Pencoyd Iron Works, caused a sensation by underbidding all the British bridge builders for one of the bridges on the route.97 Even under the departmental system, colonial governments still contracted out some work such as

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86Baltzer, *Die Kolonialbahnen* at 15.
87Bourrat, “Rapport” at 1867.
89See Raphael, *The Cape-to-Cairo Dream* at 199-202; Norman Pollock, *Nyasaland and Northern Rhodesia: Corridor to the North* 361-94 (1971); *Chronicles of a Contractor* at 204.
91For Pauling’s scathing view of government engineers in his pre-Rhodes days, see *Chronicles of a Contractor* at 56-61.
92“The Sierra Leone Government Railway,” 52 ER 498 (1905); 163 MPICE 384-86 (1906).
94Baltzer, *Die Eisenbahnen in Afrika* at 1564-1635.
95For an early proposal to develop the corps of military engineers in India, see “Military Engineering,” 16 Builder 29 (1858).
96“The Suakin-Berber Railway,” 39 Engineering 579 (1885) (editorial); Porter, 2 History of the Corps of Royal Engineers at 81-82, 163; Baker Brown, 4 History of the Corps of Royal Engineers 7 (quotation).
97Charles Watson, 3 History of the Corps of Royal Engineers 63-70 (1954 [1914]); F. Baltzer, *Die Kolonialbahnen mit besonderer Berücksichtigung Afrikas* 105-107 (1916); chapter 7 below.
large permanent bridges and harbors, which required special plant and specialized personnel. The colonial governments moved further away from the pure capitalist model not merely because no Brassey or Peto was willing to mobilize or risk his own capital—at least where those governments offered some kind of guarantee system. Rather, the reason that British colonies such as Sierra Leone, Lagos, the Gold Coast, Ceylon, Uganda, and Kowloon as well as the French colonies of Guinea and the Ivory Coast preferred not to authorize the passing of these public works into "domain of works undertaken by capital itself" was that by becoming or employing their own constructional engineers, they eliminated the need for a "middle man in the shape of a contractor" and his profit. Experience under the guarantee system with what today would be called private contractors' cost overruns frequently caused colonial governments to abandon that system. The French colonial government in Dahomey, for example, discovering that the concessions it had made to a private firm (Borelli) were untenable, took over construction itself in 1904. These governments' wish to appropriate or save that profit may, to be sure, have corroborated Marx's point that one of the prerequisites of pure capitalist undertaking in this area is that the share capital involved be satisfied with interest rather than profit.

This tendency to constrain the scope and profits of railway constructors in the colonies overlapped with the rise in the 1890s in Britain itself of a trend among local governments to carry on public works by means of so-called direct labor. Just as the British used the departmental system in the Chinese concession Kowloon to "break the rings" of a few large Chinese construction firms that kept prices high, the direct labor system was designed to curb the corruption associated with contractors and rings in the metropole. As a "progressive" governmental measure, it was also promoted by the labor and "municipal socialism" movements, particularly in the London County Council.

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96 Private Enterprise in British Tropical Africa at 8, 12 (Cmd. 2016, 8 PP 1924 [195]).
97 See Frederic Shelford, "Some Features of the West African Government Railways," 189 MPICE 1, 22 (1912) (discussion contribution by George Denton to the effect that the government built the Lagos line because no one would do it under contract without exorbitant sums).
99 Marx, Grundrisse at 429-30.
100 Private Enterprise in British Tropical Africa at 8; Papers Relating to the Construction of Railways in Sierra Leone, Lagos, and the Gold Coast at 29-30; Correspondence Relating to Railway Construction in Niger (Cd. 2787, 78 PP 1906 [21]); Report on the Construction and Working of the Mombasa-Victoria (Uganda) Railway and Steamboat Services on Lake Victoria, 1903-1904 (Cd. 2332, 13 PP 1905 [317]). The engineer who was the spiritual progenitor of the Aswan Dam estimated that "[i]f the dam could have been built by departmental agency, in the way in which such works are built in India," it would have cost only three-fifths of its cost under the private contractors Aird & Sons. W. Willcocks, 2 Egyptian Irrigation 744-45 (3d ed. 1913).
101 De Renty, 3 Les Chemins de fer coloniaux en Afrique at 167-210. Early and unsystematic efforts at government construction of railways in German East and South West Africa that were expensive and time-consuming purportedly led to government subsidized private construction of railways. Baltyer, Kolonialbahnen at 295-96, 214.
102 Marx, Grundrisse at 428. An American engineer formulated this view at the turn of the century: "It is felt more and more that the only fair way to fix the compensation of the various factors contributing to the creation of public benefits outside the range of competition is to induce the capitalists to furnish their contribution, not by promising them the net earnings which they might get by...charging what the traffic will bear, but by promising the smallest rate of interest for which capital is obtainable in the open market." Joseph Mayer, "Canals Between the Lakes and New York," 26 PASCE 972, 975 (1900).
104 See Caroline Bedale, Michael Paddon, & Peter Carter, "Direct Labour: A Form of Socialised Production in the Construction Industry," in 1 PBE 175 (1980); Linda Clarke, "The Importance of a
Predictably, curtailment of even a small sphere of capitalist production prompted vigorous attacks by the construction industry on this “little mad orgie of socialism.”

Colonial states in the tropics often built their own railways because “private capital would not undertake the risks...not being able to calculate what the cost would be” in unexplored and unsurveyed regions. The areas in which governments planned railways chiefly to move troops in order to maintain control were frequently countries where the very same “disturbed condition hindered” the investment of private capital in railways. Where colonial administrations in Africa had earlier relied on English consulting engineers to let small sections of a line to local contractors, the latter engaged in a bidding war for labor, which not only increased the wage costs that were passed through to the government, but also “produced bad work on the part of the native. He knew if he did not please one man he could walk over to another, who would be glad to get him.” Dissatisfied with these consequences of the transition from slave to free labor, colonial administrators fashioned a system intended to fuse the best of both worlds. They established their own construction-engineering staffs, which “obtained the labour through the chiefs, [and] the labourers obeyed the officials they knew who could...enforce discipline.... There was no counter bidding for labour with the consequent demoralization.” At the turn of the century, for example, after a private firm employed Italian, Indian, Chinese, and Malay workers to build a railway in Madagascar, the French colonial government took over the construction, shifting instead to compulsory native labor.

The departmental system became more and more widespread in the British crown colonies during the latter half of the nineteenth century not (only) because “the mode of production based on capital” there had not yet developed to its “highest stage,” in which “the real community constituted itself in the form of capital.” Given the colonies’ status as exclaves of English capital, that stage need only have been reached in England itself, where individual capitals already felt the limits of the means of transportation and communications in and to and from the colonies. In fact, however, even colonial settlers in Africa felt those limits because they viewed the considerable amount of indigenous labor devoted to human porterage of their commodities as a drain on the scarce labor available for production.

Indeed, colonial governments in Africa promoted railway construction as a means of forging a wage labor force. Thus in 1905, the governor of German East Africa, Count Goetzen, submitted a memorandum in which he characterized construction of a railway in that colony both as made an urgent necessity by the “labor question” and as solving that problem. The crisis that threatened the colony was the lack of labor for the coastal plantations, which could be alleviated either by making labor in the interior accessible or by “rigorously tightening the tax screw.” Failure to do one or the other would bring plantations to a halt, a stoppage that would destroy one of the advantages “that a colony is designed to yield for its mother country.” Construction of a railway line to the interior...
"would immediately solve the labor question for the plantations" by providing access to the large population of the interior and by freeing 40,000 to 60,000 porters for production. In South West Africa, a new railway line was promoted on the ground that it would make available for the diamond mines workers from Ovamboland, who could be employed at one-third the wages being paid to the workers from the Cape Colony. This railway was also applauded as securing for the mine owners an additional quarter-million work days annually by making the ten-day march from Ovamboland unnecessary.

Colonial officials praised as a third by-product of railway construction that African workers who had been successfully recruited to build the lines would be more likely after that experience to become wage workers on the plantations. The declaration of the Brussels Conference of 1890 that the construction of railways to the interior of Africa would be an efficacious means of combating the slave trade "en vue de substituer des moyens économiques et accelerés du transport au portage actuel par l'homme" thus becomes intelligible against the background of the manifest advantages accruing to colonial capital.

The Decline of the Independent Colonial Railway Constructors

By the beginning of the twentieth century, then, the British free-lance contractor, guided by his own judgment as to the profitability of particular projects, was no longer the dominant figure. On the one hand, his entrepreneurial discretion became circumscribed by the changes in the financial system after the crisis of 1866, which conferred greater power on banks, and by increasing competition from European and even U.S. contracting firms. On the other hand, by the last quarter of the nineteenth century, when British global economic superiority began to be eroded by French and especially German and U.S. firms, the new competition generated a second wave of colonial expansion designed to open up new sources of raw materials and markets or to preserve privileged access to already existing ones. The need to control such supplies and markets "through railway penetration was increasingly viewed as part of a British counter-offensive to the challenge of world-wide competition."

State-formulated imperialist political-military considerations supervened as the colonial powers in Asia and Africa became increasingly enmeshed in military hostilities; Britain and France began systematically to interconnect their colonies through rail links. Where, as in Siam or China, for example, informal
imperialism prevailed, construction firms relied heavily on their respective national governments to apply the appropriate doses of pressure to insure that they received profitable contracts.\(^{123}\)

Whether it was the U.S.A. penetrating Mexico and Latin America, Britain dominating India on railways designed for military use, or Germany seeking colonial power along the Berlin-Baghdad route,...it ceased to be a matter of indifference who built a railway or won a concession of land beside it. Brassey leased or was given nearly 30,000 square miles of the Argentine in payment for one of the easiest railways he ever built; but fifty years later the whole diplomatic resources of Washington were used to prevent Cowdray extending his oil empire to control the sources of Columbia.\(^{124}\)

French rule in Indochina presented a somewhat aberrant evolution. Driven primarily by colonial military and political considerations, the government believed that railways, merely by their passage through a country, would create wealth. ... No one foresaw that there was little to transport. Natives, in most parts of the colony, raised only enough for their wants and did not exchange the surplus, if any, because adjacent districts produced the same things.\(^{125}\) Although the purpose of colonial railways was not to create internal linkages but to transport the extracted surplus to metropole, \"[t]he poverty of human and material resources in Indochina meant that there were no obvious accumulations of local capital or extensive markets to capture.\"\(^{126}\) By the mid-1880s even the leading French civil engineering journal recognized that it would be more rational to postpone construction of railways until local agriculture developed products other than rice.\(^{127}\) In spite of this advice, the French colonial state proceeded with construction of politically dictated lines that ran through deserted areas while neglecting the most developed regions. Predictably, graft and the government's financial guarantees meant that the ventures were profitable only for the French contractors and engineers—and certainly not for the tens of thousands of Chinese coolies who died building them.\(^{128}\) Among these French construction firms was Société de Construction des Batignolles, one of the most experienced colonial railway builders, which built the line from Indochina to Yunnan in China in the years before World War I.\(^{129}\)

Foreign railway construction in China also deviated from the British freelance and colonial models. This development peculiar to China was a function of the absence of direct colonial rule.\(^{130}\) Two decades before the wave of concessions that China was compelled to grant to the Great Powers in the wake of the Sino-Japanese War in the mid-1890s, a more orthodox beginning had taken place. In 1875-76, the British trading firm Jardine, Matheson financed a 10-mile rail line

\(^{123}\) See e.g., David Holm, \"Thailand’s Railways and Informal Imperialism,\" in Railway Imperialism at 121-35.

\(^{124}\) Middlemas, Master Builders at 308. On the pressure exerted by the U.S. government on Colombia, see J. Spender, Weetman Pearson First Viscount Cowdray 1856-1927, at 209-10 (1930).

\(^{125}\) Virginia Thompson, French Indo-China 206 (1968 [1937]).

\(^{126}\) Martin Murray, The Development of Capitalism in Colonial Indochina (1870-1940), at 167 (1980).

\(^{127}\) R. Gentilini, \"Les Voies de communication en Cochinchine,\" 9 GC 177-82, 199-203, 225-29, especially at 229 (1886).

\(^{128}\) Thompson, French Indo-China at 207-11; Murray, Development of Capitalism in Colonial Indochina at 166-77.

\(^{129}\) The French Yunnan Railway," 95 Engineer 6, 8 (1913); Joelle Deniot, Usine et cooperation ouvriere Metiers-syndicalisation conflits aux Batignolles 5-7 (1983).

\(^{130}\) Years before British capital introduced railways into China, a journal anticipated the problem of expropriation associated with enterprise in noncolonized areas by threatening that \"it is more than likely that reparation would be exacted in a manner which would forever establish English influence in the East.\" Railways in China," 17 Engineer 341 (1864) (editorial).
between the ports of Woosung and Shanghai both as a profit-making enterprise and as a kind of demonstration in the hope that it would galvanize the same enthusiasm for railroads in China that the Japanese were contemporaneously showing. One of the British contractors, John Dixon, boasted that the introduction of railways heralded "the opening of vast markets for the absorption of our manufactures." The day in 1875 that Dixon dispatched "the first lot of navvies" to China would, The Engineer assured its readers, "be long remembered."

Even as the inauguration of this weapon of capitalist penetration was being celebrated in The Times, a prescient anti-imperialist raised a dissenting voice in its columns. Outlining the objections of China's governing classes, Robert Douglas observed:

The fate of India is a nightmare which is constantly haunting them, and to avoid a similar absorption is the ruling motive of their policy. Seen from this standpoint, the appearance of English engineers measuring out the length and breadth of the land, hollowing out mountains, and spanning rivers would seem to them to be but a foreshadowing of the arrival of English Governors and Viceroyos, and the completion of a network of railroads worked and partly or entirely owned by Englishmen would in their eyes be equivalent to handing over the destinies of the Empire to the hated foreigner.

Steam-driven transportation would enter China's program, Douglas predicted, "when native engineers shall be found equal to the task of constructing lines and locomotives, and when Chinese capital shall out of its abundance supply the necessary dollars for the undertaking." To which Dixon, the contractor, laconically replied: if British capital waited until the Chinese had the capital and engineers to build railways, "we better give up at once."

When the Chinese government bought up and dismantled the Woosung-Shanghai railway a year after it went into operation and packed off the materials and rolling stock to Formosa, foreigners' apprehension increased. The reason for British impatience with these precapitalist rhythms was manifest: "Here is a country extending over nearly a million and a-half square miles, with mineral and agricultural resources capable of infinite expansion and as yet practically untapped, with a population of nearly four hundred millions, who would be only too willing to purchase our productions and sell us their own, if communication with them were only rendered convenient and cheap." A quarter-century after the dismantling, The Engineer was still editorializing that "really it seemed almost to justify the suggestion that China should be coerced into progress for her own good."

By the turn of the century, Japan, Russia, and the Western capitalist powers had embarked on precisely such a program. The rivalry for concessions among
the Great Powers coincided with the emergence of intense Chinese government interest in railways as an element of national development. China's predicament lay in the fact that "China wants railways, but she does not want their construction to be the means of introducing foreign yoke.... [S]he has but to look at the swindling in connection with American railroad construction to know what capitalists from that quarter would do."138 China was, however, unable to avoid this political trap despite the fact that by 1908, under the supervision of Chinese engineers educated abroad, China was building its own railway and would soon be able to dispense with foreign firms.139

When a foreign power entered into a construction agreement with the Chinese government,40 it "secured a new sphere of interest and tremendous profits for its national investors," primarily banks and industrial exporters, in the first instance by "extend[ing] a usurious loan to the Chinese railway administration at almost no risk, since repayment was guaranteed by a lien on government revenues. Then the money so loaned would be promptly returned to the foreigners' pockets as payment for the construction costs charged by the foreign country's railroad contractors."141 In their franker pronouncements, British industrial interests conceded that whereas "there is a considerable case for the concession railway...for a continually increasing market for the products of the concessionaires," "[t]he very natural objection to the concession agreement from the Chinese point of view is that they have no share in the probable profits, which have amounted from 10 per cent. to 20 per cent. on some of the Government railways, after paying interest on the foreign loans."142 But from a metropolitan perspective that identified "industrial development" per se with "the introduction of unlimited foreign capital,"143 such considerations weighed little especially in light of the fact that the capitalist powers also pursued railway building so vigorously in China because it was a source of enormous profit for manufacturers of steel, locomotives, and other materials and equipment.144

Japanese railway contractors, though faced with no foreign competition in their building operations in Korea and Formosa during the period of Japanese colonial expansion, were much more creatures of the state than free-lance entrepreneurs. From the turn of the century on, they worked almost exclusively for the Japanese army, navy or colonial governments. That pattern persisted even as late as the 1930s, when they constructed hydroelectric facilities and mines in occupied Manchuria.145

139See e.g. E-tu Zen Sun, Chinese Railways and British Interests 1898-1911 (1971 [1954]); 59 EN 257 (1908) (letter from Roger Toll).
140See Wang Jing-chun, Railway Loan Agreements of China (1922).
The Case of the Not-So-Ideal Aggregate Capitalist: Palmerston's Obstinate Opposition to the Suez Canal

Lord Palmerston last week did not hesitate to give a very decided opinion as to the Suez Canal question; and if an opinion of his lordship is sufficient to prevent the carrying out of this scheme, it is, of course, shelved for this century at all events.16

No mechanistic one-to-one correspondence ever obtained between the abstract systemic mandate of the "bourgeois period of history...to create the material basis of the new world—universal intercourse founded upon the mutual dependency of mankind" and the requisite means of transportation on the one hand and the actions of capitalists and states on the other.147 Even if "the capitalist mode of production is a historical means of developing the material productive force and creating the world market corresponding to it," the world market cannot guarantee that its human agents will always make rational decisions optimally designed to comply with its imperious demands of developing the means of transportation and communication so as to reduce the time and costs of circulation of capital in the world market.148

A prime example of such globally irrational decisionmaking is the stubborn opposition by the British state to the building of the Suez Canal, which, in the event, benefited British capital most by opening India, China, and eventually Australia to steamship traffic and reducing the circulation time of commodity shipments from a year to three months. In large part this revitalized supremacy of British shipping was based on the Suez Canal's promotion of iron and steel-hulled steamships driven by the new compound engines—which economized on the consumption of coal, thus freeing space for cargo—in which British technology surpassed that of U.S. shipbuilders.149 The increased size of the new ships, in turn, made most harbors and ports obsolete; especially in the colonial regions, "[t]he whole export trade of a country may be hung up if it has to be squeezed through a neck too narrow to accommodate more than a small amount at a time."150 Thus by the turn of the century, a steady demand for expanded port facilities made a British firm, S. Pearson & Son, the world's leading contractor for the requisite dredging work.151

Yet in spite of all these manifest benefits to British capital, and contrary to dogmatic left-academic belief in the quasi-self-executing character of economic imperatives,152 the British state engaged in international intrigues with the Ottoman Empire and Egypt for more than two decades in an unsuccessful effort to frustrate construction of the Suez Canal.153 That Prime Minister Palmerston, one of the great landowners in Ireland and leader of the Whigs before industrialists

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17Marx, "The Future Results of British Rule in India" at 252.

18Marx, 3 Das Kapital at 260; idem, 2 Das Kapital, in Karl Marx [&] Friedrich Engels, 24 Werke 254 (1963 [1885]).

19See Marx, 3 Das Kapital at 81 (chapter written by Engels); Knowles, Economic Development of the British Overseas Empire at 17-18, 316-17; Max Fletcher, "The Suez Canal and World Shipping, 1869-1914," 18 JEH 556-73 (1958); Thomas Marston, Britain's Imperial Role in the Red Sea Area 1800-1878, at 385 (1961).

20Knowles, The Economic Development of the British Overseas Empire at 147.

21Middlemas, Master Builders at 179.

22For one such historically inaccurate account of British capital and the Suez Canal, see Elizabeth Petras, Jamaican Labor Migration: White Capital and Black Labor, 1850-1930, at 55-61 (1988).

23Palmerston, who was the leading force shaping Britain's foreign policy from 1830 until his death in 1865, stated in 1857 that Britain had been working against the canal for fifteen years. 146 PD (3d ser.) 1043-44 (1857).
The Metropolitan State and the World Market

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gained control of that party, failed to function adequately as what Engels later called the personified fictitious or ideal aggregate English (let alone world) capitalist, insuring the average interest of aggregate capital as the real average existence of the individual capitals, is unsurprising. Marx, given his bottomless contempt for Palmerston, should not have been surprised by the latter’s deficiencies as an ideal aggregate capitalist although he does not appear to have commented on Palmerston’s policy with regard to the Suez Canal.

As foreign minister in 1847, recognizing that the canal would necessarily be advantageous to England as the world’s greatest commercial country and sea power, Viscount Palmerston did not oppose its construction. Ten years later, however, Prime Minister Palmerston, obsessed for Great Power political reasons with the canal’s alleged disintegrative impact on the Ottoman Empire, claimed that the Suez Canal was yet another “bubble scheme” “palmed upon gullible capitalists,” and expressed surprise that its promoter, Ferdinand de Lesseps, was speculating on the “credulity of English capitalists” vis-à-vis a scheme hostile to British interests. Palmerston’s parliamentary debate in 1857 with his rival, Gladstone, who would eventually replace him as the head of an industrialists’ party, was revealing. Gladstone told Parliament that although he was not qualified to judge “whether the Suez Canal would be advantageous to this country...no man...could look at the map of the globe, and deny that a canal through the Isthmus of Suez...would be a great stroke for the benefit of mankind.” Palmerston, in contrast, boasted that when Lesseps came “preaching all over England in order to induce English capitalists to give him those means which he is unable to obtain from the rest of the world,” he, Palmerston, had taken the proper “course in explaining to British capitalists that in affording money for the construction of such a work they would be aiding a scheme which was fraught with injury to the interests of England itself.” After listening to such rhetoric during a private audience with Palmerston, Lesseps observed to a correspondent that he had to ask himself whether he was dealing with “un maniaque ou un homme d’Etat.”

Palmerston’s cabinet in the mid-1850s unanimously opposed his position, suggesting instead that the canal be placed under international control. Palmerston’s response—“that it would be best for the French and English Governments to leave this scheme as a commercial and engineering question to be settled by the...money markets of Europe”—was, in the light of his elaborately

119 See Herbert Bell, 2 Lord Palmerston 355-61 (1936).
120 PD (3d ser.) 1044, 1706 (1857).
121 PD (3d ser.) 1667 (1857).
122 PD (3d ser.) 1682 (1857).
124 See 1 George Douglas Eighth Duke of Argyll (1823-1900), at 568 (Dowager Duchess of Argyll ed., 1906) (Argyll was Lord privy seal in that cabinet).
orchestrated diplomatic campaign against the canal, disingenuous. Indeed, in 1858, when the Radical John Roebuck proposed a resolution in the House of Commons to the effect that England’s power and influence not be used to induce the sultan to withhold his consent from the project, Palmerston, who was temporarily out of office, led the forces that rejected the proposal.165

Although a large majority of businessmen opposed Palmerston’s policy,166 he succeeded in ensuring that no one in England subscribed to any of the Suez company’s shares.167 The City appreciated the manifest benefits of shortened transportation links to India. To “the rich and thrusting middle classes...the canal meant only one thing: business.”168 The Daily News, the leading organ of advanced Liberalism, criticized Palmerston’s view as “a senile piece of nonsense on his lordship’s part....”169 Roebuck told members of Parliament that “anything more puerile, he had almost said anile” than Palmerston’s course of action was inconceivable.170 Although in 1855 The Times reported that construction of the Suez Canal was not possible and that the canal itself would not reduce shipping times, it soon experienced a conversion.171 Four years later it asked editorially “what could have persuaded...the mistress of India and the most commercial State on the face of the globe...to oppose a work by which it would be the greatest gainer?”172 And in the age of free trade, when political opposition to the Suez Canal seemed “retrogressive,”173 the leading free trade organ, The Economist, denounced Palmerston’s “selfish policy [as] owing either to some very mistaken theory, or some very awkward management on the part of the Government.”174

That English capital was in general little impressed by a French military threat was underscored by its contemporary backing of the Paris, Nantes, and Cherbourg Railway. In the mid-1850s, the leading English railway contractor, Brassey, together with the railway engineer Locke and considerable English labor, built the line, which was vital to the French military. “The cry raised by many...English newspapers, that Cherbourg was originally planned and designedly executed as a menace to England, did not hinder Englishmen from embarking their purses and their muscles in making this naval stronghold effective by connecting it with the leading lines of railway communication in France....”175

Palmerston’s failure to “foresee the great advantages to be derived by British commerce from this great work”176 was compounded by a false analysis of the Suez Canal’s political-economic impact on Britain’s control over its empire, in particular over India, and on its command of the sea route around the Cape of Good Hope. His real, anti-French, animus, as he revealed in a private letter to the editor of The Times, in response to the aforementioned editorial, was France’s...
alleged object of establishing "a French colony in the heart of Egypt," which would simultaneously enable the French military "to seize the canal...and steam away through the canal to India, sweep our commerce, take our colonies...long before our reinforcements...could arrive by long long sea voyage" around Africa.177 Palmerston's opposition was bolstered by the equally erroneous and/or self-interested high engineering authority of Robert Stephenson. One of the leading British railway engineers and a member of Parliament, Stephenson opined that construction of the canal was impracticable. Lesseps charged that his testimony was suborned because he had also built a competing railway in Egypt, the owners of which desperately wanted to thwart construction of the Suez Canal.178 Stephenson, ever attentive to his reputation among the investing class, responded that he did not want to be viewed as even "tacitly allowing capitalists to throw away their money on...an unwise and unremunerative speculation."179

In 1869 Britain was confronted with the accomplished fact of a canal built by a private French company and under French control. With the aid of a loan from the London Rothschilds while Parliament was not in session, the new British ideal aggregate capitalist, Prime Minister Disraeli, who had equivocated on Suez as Chancellor of the Exchequer in the Earl of Derby's cabinet in 1858, overcame the Victorian state's alleged distaste for interferences with markets and bought half the shares in the Suez Canal in 1875 on the cheap from the bankrupt Egyptian Ismail Pasha.180 Thus in the best of all possible English capitalist worlds, "the Suez Canal was built by French enterprise at Egyptian expense for British advantage."181

Nor was the British ideal capitalist alone in its misreading of the commands of the world market. In its lack of interest in, or condemnation of, the Suez Canal, Dutch capital, in particular as organized in the Amsterdam Chamber of Commerce, also misapprehended the canal's importance for exploiting the Dutch colonial possessions in the East Indies.182


179"The Isthmus of Suez," 6 Engineer 94, 95 (1858) (printing letter from Stephenson to Austria Gazette).

180See 149 PD (3d ser.) 850 (1858); 150 PD (3d ser) 1391-96 (1858); 227 PD (3d ser) 266-67 (1876).

181Rondo Cameron, France and the Economic Development of Europe 1800-1914: Conquests of Peace and Seeds of War 472 (1961). See also Beatty, Ferdinand de Lesseps at 273: "Never more feminine, Britannia had a sudden craving for an article which had been in the world's shop window for years...but had never seemed likely to suit her, and now she wanted no one else to have it." For a concise account of British opposition to the Suez Canal, see Halford Hoskins, British Routes to India 343-72 (1906 [1928]).

182See Ernst Baasch, Hollandische Wirtschaftsgeschichte 524-25 (1927).