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The Political Economy of the Channel Tunnel: An International Business-Government Perspective

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The promotion of and investment in the Channel Tunnel was a challenging multinational affair drawing in institutions from several countries. In this paper, I concentrate on the promotion of the abortive tunnel project of 1957-1975 and the ultimately successful venture a decade later, focusing on governments and companies in Britain, France, the United States, and Japan. I identify the management and sharing of risk as the critical elements in the Tunnel's political economy. Here, the difficulties produced by the "quadripartite quilt" of negotiations involving two governments (Britain and France) and two tunnel companies are at center stage, though I also argue that American involvement was important in the first project, and Japanese financial support was critical in the second. The debates concerned the type of crossing, questions of ownership versus licensing and regulation, and the importance of making public investment in related and supporting infrastructure. The Channel Tunnel has significance as a prototype of public-private partnership in Britain, and I draw lessons from the experience, referring in particular to the challenges presented by the "infrastructure project circle."

The promotion of and investment in the Channel Tunnel was a challenging, multinational affair, drawing in institutions from several countries. In this paper, I focus on the promotion of the abortive tunnel project of 1957-1975, and on governments and corporate players in Britain, France, and the United States. My perspective, given the availability of access to source materials, is primarily British.[1]

Two key elements in international collaborative projects are the entrepreneurial and the project management functions. These functions are particularly critical when projects require large capital expenditures,

[1] The paper draws on material assembled for Terry Gourvish, *The Official History of the Channel Tunnel* (London, 2006).

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have long-lived and (often) non-transferable assets, and require long periods to amortize investment costs.[2] Many banks apply the term "project management" to any large contract, while others are more precise, linking credit support with both the sponsors and the beneficiaries of a given project. In Britain the merchant banks, the major clearing banks, and specialist investment banks all became involved in the process as the traditional demarcations in the City began to break down in the 1970s. The services provided by financial institutions in the new environment were many and varied, ranging from advice and consultancy, to placing and underwriting, and direct investment.[3] At the same time, the larger construction and engineering companies began to offer project finance as an adjunct to their basic service as contractors. In much of this activity, American institutions led the way.[4]

Large projects, especially infrastructure projects, involve many actors, and historical analysis requires one to move across many corporate boundaries. With international projects such as the large European tunnels and the Channel Tunnel, there are other players, too, including more than one government. Finance lies at the root of such activities. Investment and underwriting require specialist knowledge, risk-taking, and an innovative approach. Where several players are involved—investors, financial institutions, corporate enterprises, governments—the management and sharing of risk becomes of paramount concern in the negotiation of contracts and the management of the project itself. In this paper, I exploit the archives of Technical Studies, Inc., and Rio Tinto plc to illustrate the opportunities and difficulties encountered. Both Technical Studies and Rio Tinto-Zinc (RTZ) were actively involved in the first serious attempt to build the Channel Tunnel in the late 1950s, which ended with the British government's decision to abandon the scheme in January 1975. I direct particular attention to the nature of entrepreneurial intervention in mega-projects, the challenge of the public-private interface, and the "Large Infrastructure Project Circle."

Project Finance: Archival Opportunities and Challenges

Entrepreneurship in the form of risk-taking, investment, and innovation may not always be easy to capture, given the nature of the surviving archival records. The problem is multiplied the nearer to the present one gets, with crucial decisions being hatched by telephone, fax, and latterly e-mail. The difficulty in tracking the origins and nature of enterprise in

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[2] Antonio Estache and John Strong, "The Rise, the Fall, and ... the Emerging Recovery of Project Finance in Transport," IBRD Report No. 433/2385 (2000), 3.
[3] David Kynaston, *The City of London*, vol. 4: *A Club No More, 1945-2000* (London, 2001), 340-43, 563-67, 601-3.
[4] Prominent here was the Project Finance Group of First Boston. See Jeffrey Brown, "Project Finance," n.d., AN191/134, The National Archives [hereafter, TNA].

relation to investment and project management has affected the history of the Channel Tunnel, which has had a very long gestation period with several abortive efforts. Financial bodies such as banks often changed ownership; we quickly forget abandoned projects, which rarely escape the processes of records management. Even where a project is organized and financed within the public sector, private sector agents may be involved as contractors or financiers, and a full account will depend on success in obtaining access to corporate archives. Additionally, there is no assurance of access to private archives. The fact that a firm has commissioned a history provides no guarantee that the files cited will survive or be accessible over the longer term.[5] However generous the access, it is very unlikely that papers will continue to exist that deal with the creation of a financial consortium and the development of its strategy under competitive conditions. As anecdotal evidence for the British brewing industry reveals, such activities were deliberately shrouded in secrecy, with the use of code words and meetings held on remote moors or in small hotels.[6]

In the Channel Tunnel's long history, the surprise appearance of James Sherwood, president and chief executive officer of Sea Containers, as a candidate in the competition to win the concession to build a Cross-Channel Link, is testimony to the tactical value of confidentiality. His Channel Expressway scheme shook many, for before revealing the bid in October 1985 (the governments' deadline for receipt of proposals), this entrepreneurial American had been a stalwart supporter of Flexilink, the anti-tunnel lobbying organization.[7] At the outset of a scheme, a complex web of contracts and transactions is erected. Not only are these relationships difficult to chart, but some of the key elements also may be difficult to establish after the event, given the conduct of such activities in a commercially sensitive environment.

Project management, a specialist element in corporate activity, is a comparatively neglected area in business history. Where a large infrastructure investment is involved, this function, which may be defined as the process of combining resources in planning mechanisms designed

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[5] Kathleen Burk, *Morgan Grenfell, 1838-1988: The Biography of a Merchant Bank* (Oxford, U.K., 1989), reveals that Lord Harcourt (chairman of Morgan Grenfell, 1968-1973) was a key player in the Channel Tunnel Study Group. The author refers to specific Channel Tunnel files, but applications to the company and its new owners, Deutsche Morgan Grenfell, to see these have so far proved unsuccessful.

[6] K. H. Hawkins, *A History of Bass Charrington* (Oxford, U.K., 1978), 130-31, 139-59; Terry R. Gourvish and Richard G. Wilson, *The British Brewing Industry, 1830-1980* (Cambridge, U.K., 1994), 449-50, 459-80; John Noulton (Eurotunnel), interview with author, 2003.

[7] *Financial Times*, 1 Nov. 1985, p. 1; *Times*, 2 Nov. 1985, p. 2; Drew Fetherston, *The Chunnel: The Amazing Story of the Undersea Crossing of the English Channel* (New York, 1997), 105.

to build an end product, is clearly a vital one.[8] Although historians have devoted considerable attention to the building of the railways, one of the major examples since the Industrial Revolution, there has been less interest in examining the dynamics of more recent schemes—for example, tunnel building, nuclear power installations, and the larger airport complexes. However, no one doubts the importance of project management in bringing such projects to fruition, and there is an extensive literature dealing with methodologies and systems designed to optimize contemporary activities (for example, PERT (Program Evaluation Review Technique); RAMP (Risk Assessment and Management of Projects); BOO (Build-Own-Operate), BOO[T] (Build-Own-Operate-Transfer); BLT (Build -Lease-Transfer).[9] Here, some lessons are immediately apparent. As Peter Morris and George Hough have observed, one of the fundamental weaknesses of the first Channel Tunnel project in the 1970s was "the absence of a clear owner and owner organization" and consequently the lack of an overall "supremo" able to "champion" the project, a problem repeated with the second, more successful, project a decade later.[10] In the 1970s much of the difficulty arose from the decision to appoint two sets of project managers, one British and one French, in a structure with two corporate entities, one British and one French. Complexity and an encouragement to divided decision-making were the inevitable result (see Figure 1).

Mega Project: The Channel Tunnel, 1957-1975

The archive deposited by Frank Davidson of Technical Studies, Inc., at the Harvard Business School provides insights into the entrepreneurial approach of the project financier.[11] Far from maintaining an aura of secrecy, Frank Davidson has done much to encourage the publicizing of his efforts, by depositing archives, assisting the author of a major book on the Channel Tunnel, and writing a book on Macro Projects.[12] On project management, the role played by Rio Tinto-Zinc (now Rio Tinto plc) and its subsidiary RTZ Development Enterprises (RTZ-DE) in developing the 1974-1975 tunnel works emerges from the Rio Tinto archives. These also shed light on the entrepreneurial and financing activities of the leading

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[8] Yen Yee Chong and Evelyn May Brown, *Managing Project Risk: Business Risk Management for Project Leaders* (Harlow, U.K., 2000), 73. The Channel Tunnel is included as a case example, 83-84.

[9] See Peter W. G. Morris, *The Management of Projects* (London, 1994), 27-31, 171, and following pages; Chong and Brown, *Managing Project Risk*, 68; Estache and Strong, "Project Finance in Transport," 2-3.

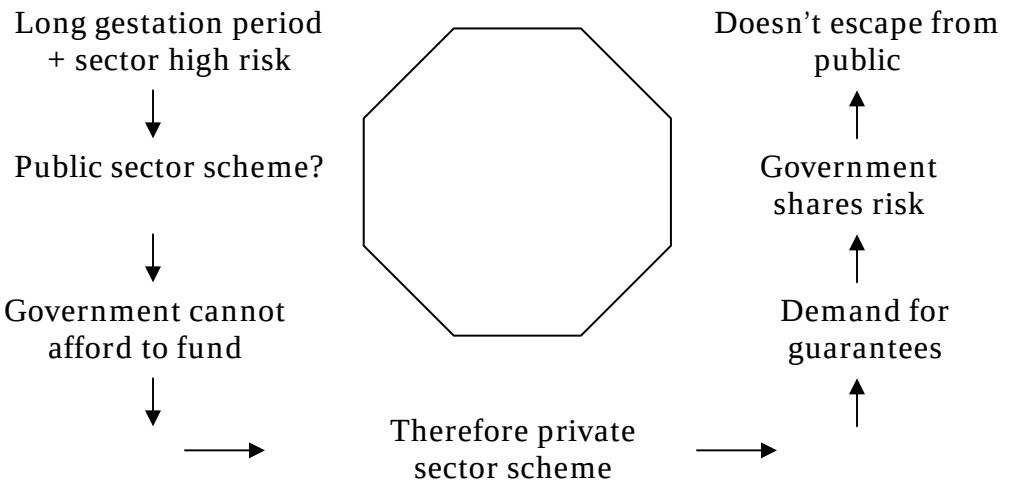
[10] Peter W. G. Morris and George H. Hough, *The Anatomy of Major Projects: A Study of the Reality of Project Management* (Chichester, U.K., 1987), 37-38, 195, 252.

[11] Technical Studies, Inc. [hereafter, TSI] Archive, Harvard Business School.

[12] Fetherston, *Chunnel*; Frank Davidson, *Macro: Big is Beautiful* (London, 1986).

players, notably Sir Val Duncan, Sir Mark Turner, Alistair Frame, and also Duncan Dewdney and Lord Shackleton of RTZ-DE.[13]

FIGURE 1
The Large Infrastructure Project Circle



However, before we examine the extent of this entrepreneurial activity, we need to establish some basic facts relating to the promotion of the first tunnel enterprise during the period 1957-1975. Here there is no shortage of secondary works, though few of them have dealt with the project financing and project management aspects in any depth.[14] The first serious proposal to drive a tunnel under the Channel came in the mid-1950s, and much of the entrepreneurial, and to a lesser extent financial, impetus came from the United States. An energetic and imaginative New York lawyer, Frank P. Davidson, and his French wife, Izaline, suffered a stormy channel crossing in 1956. After this adventure Davidson got together with a number of influential Americans to "do something" about a tunnel. This eclectic group included Frank's brothers, Alfred and John; his brother-in-law, Arnaud de Vitry, a senior oil executive; Cyril J. Means, former arbitration director of the New York Stock Exchange; William Buchan, a well-connected British public relations consultant; and Claude

[13] Rio Tinto plc [hereafter, RT] Archives, London.
[14] For example, Michael R. Bonavia, *The Channel Tunnel Story* (Newton Abbot, U.K., 1987); Donald Hunt, *The Tunnel: The Story of the Channel Tunnel, 1802-1994* (Upton-on-Severn, U.K., 1994); Fetherston, *Chunnel*; and Laurent Bonnaud, "The Channel Tunnel, 1955-75: When the Sleeping Beauty Woke Again," *Journal of Transport History*, 3rd ser. 22 (March 2001): 6-22.

Arnal, an engineer.[15] Then, in December, Davidson wrote to the old British and French tunnel companies offering them the prospect of "dollar funds."[16] Professor Means was dispatched to Europe to make contact with these companies and with the Suez Company, which, having lost the canal, was looking for new investment opportunities. Lobbying of the British Foreign Office, the British Embassy in Paris, and the French Ministry of Public Works also occurred.[17] The outcome was the formation of Technical Studies, Inc., in 1957 as a vehicle to provide American finance for a full technical investigation into the prospects for a tunnel. Dillon Read, J. P. Morgan, and Morgan Stanley provided financial support.[18]

A more substantial Channel Tunnel Study Group (CTSG) was created in July 1957. Operating as an international financial syndicate, the Group had four stakeholders: the existing British and French tunnel companies, which had nineteenth-century origins; the Suez Company; and Technical Studies. Two distinguished figures were installed as co-chairmen: René Massigli, the former French ambassador in London, and Sir Ivone Kirkpatrick, former Permanent Under-Secretary at the Foreign Office.[19] The CTSG lost no time in commissioning a major feasibility study. A preliminary report from the engineering consultants Brian Colquhoun & Partners was followed by detailed work undertaken by a large group of leading contracting, engineering, and financial institutions, embracing geological surveying, civil engineering, traffic forecasting, finance, and legal requirements. In all, over £500,000 was spent in preparing what was in effect a preliminary prospectus. In March 1960, the CTSG was able to present both governments with a report offering to construct, own, and operate (BOO) the Tunnel. In July, a more considered statement of the anticipated economic benefits was added.[20]

Before a decision to proceed with the project, a great deal more work was done, including a joint Anglo-French evaluation by civil servants in 1963 and a full geological survey in 1964-1965. Successive governments examined the idea of granting the CTSG a concession, sometimes encouraging it, at other times asking for more study. Finance proved the stumbling block, however, and specifically the Group's contention that private capital could not be raised without major concessions: tax exemptions, government guarantee of the bond issues, protection against

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[15] See Fetherston, *Chunnel*, 55-56; Davidson, *Macro*, 39-40; Frank P. Davidson, communication with author, 15 Nov. 2001.

[16] Frank P. Davidson to Channel Tunnel Co., 14 Dec. 1956, Davidson to Société concessionaire, 17 Dec. 1956, TSI Archive, vol. 1.

[17] See correspondence in TSI Archive, vols. 1-3.

[18] Davidson, *Macro*, 96.

[19] Channel Tunnel Study Group [hereafter, CTSG] Supervisory Board Minutes, 26 July 1957, 4 Feb. 1958, TSI Archive, vol. 62.

[20] CTSG, *Report 28th March 1960*, and *The Economic Benefits of a Channel Tunnel* (25 July 1960); Fetherston, *Chunnel*, 55-74.

cost over-runs, and other assurances. From the Davidsons' perspective, part of the problem lay in European suspicions about the involvement of American finance, and the nature of the risk-reward bargain: that is, the extent of the rewards entrepreneurs could gain in return for their risk taking. Thus, while some, like Lord Harcourt of Morgan Grenfell, welcomed the prospect of American finance, others wished to confine the project to European funding, especially if, as seemed likely in some periods, public sector financing was the obvious route. Thus, there was considerable alarm when Alfred Davidson reported in 1959 that about half the capital might come from the Americans, a concern compounded by the difficulties the French had at the time in financially participating in the scheme.[21] Indeed, skepticism and enthusiasm existed in almost equal measure inside Whitehall and the Quai d'Orsay. Equally, the American bankers were suspicious of European motives and made it clear that they, too, required a range of government guarantees if they were to make an investment on that scale. At times, they nursed doubts about how serious the Europeans really were about the Tunnel.[22]

Despite these obstacles and the tortuous political negotiations that accompanied them, the Davidson group continued to maintain an interest. They were not actively involved in the negotiations with the two governments, which were left to Harcourt and Kirkpatrick and their French counterparts, but they maintained a watching brief and occasionally became involved directly. The fact that the leaders of the Group, whose mastery of technical and financial details was limited, sometimes gave Ministers a bad impression particularly worried them.[23] Although the respective transport ministers, Ernest Marples and Marc Jacquet, announced an agreement to proceed with a rail tunnel in February 1964, much remained to be done, and both governments displayed considerable caution.[24] The CTSG was contracted to conduct a more thorough geological survey, but by the time that was completed, a Labour Government had replaced a Conservative administration and the thinking had changed.

In 1966, following a second Anglo-French report and a further affirmation of government intentions, this time by Barbara Castle and Edgard Pisani, it was clear that a new model was in play. The intention was now that the private sector would construct the Tunnel, but the public sector would operate it. Nevertheless, this change did little to accelerate decision making, and there were skeptics inside the British government

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[21] Sir Roger Makins (Treasury), conversation with Alfred Davidson, 26 Nov. 1959, T224/228, TNA.
[22] CTSG Supervisory Board Minutes, 21 June 1960, TSI Archive, vol. 64.
[23] A meeting of Ernest Marples with American interests in Jan. 1960: R. Gordon Wasson (vice-president, Morgan Guaranty Trust) to Harcourt, 19 Jan. 1960, TSI Archive, vol. 97.
[24] Marples, *Parl. Deb.* (Commons), 6 Feb. 1964.

who were arguing that the model was flawed. The Castle-Pisani statement ushered in two years of protracted negotiations with both the French government and the private sector that ultimately did little to advance the project.

By May 1967, the three financial consortia that had emerged were invited to submit detailed proposals. In addition to the CTSG, there was an Anglo-French-American group headed by Warburg and the Banque de Paris et des Pays-Bas, and an Anglo-French-American-Italian group, led by Hill, Samuel and Banque Louis-Dreyfus. Discussions with the parties went on into 1968, and the process of selection proved a headache. None of the consortia stood head and shoulders above the others, and while government officials were of a mind to encourage some merging of the parties, it was clear that CTSG, for so long a front runner, now no longer enjoyed that position. It had shaped a proposal that, with its greater involvement of French financial interests, found favor with the French rather than with the British. It was also offering to put up the highest amount of equity, although at £5 million it was not a large sum. However, British officials were concerned that the Group had shown little evidence of being able to act as a coherent team, and they felt that new blood was required on the British side. By April 1968, the consortium led by Hill, Samuel appeared to be in the lead from the British perspective. With the French inclined to choose CTSG, the negotiations stalled.[25]

After a Cabinet reshuffle, it fell to Castle's successor, Richard Marsh, to find a way out of the labyrinth. The result was an unsatisfactory compromise. With none of the financing proposals compliant, the three consortia were invited to respond to a second round with more specific guidelines. The intention was to complete the process by October 1968, but political unrest in France put paid to that timetable, and there was a belated announcement of a revised deadline of January 1969.[26] By this time, the CTSG was becoming both disheartened and marginalized. The Davidsons, after over a decade of involvement via Technical Studies, were exasperated with European procrastination, and their efforts within CTSG were more and more focused on obtaining adequate compensation for their investment since 1957. Indeed, the government would allow a response from CTSG in the second round only if they could settle the compensation claim lodged in 1967.[27] The founding promoters could not have been happy to see that the revised guidelines bound the successful consortium to a further study period, a further appraisal of viability, and more geological work, in addition to the submission of detailed engineering drawings and tender documents. Moreover, the two

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[25] John Barber (British Ministry of Transport) to Roger Macé (French Ministry of Transport), 18 April 1968, MT144/95, TNA.
[26] Marsh, *Parl. Deb. (Commons)*, 23 Oct. 1968.
[27] MT, Notes for the Guidance of Private Groups, Oct. 1968, MT144/73, TNA.

governments of course reserved the right to abandon the project "for any reason."[28]

In November 1969, CTSG's claim for compensation was finally resolved, the government agreeing to pay £3 million, and the Group entered into negotiations with Hill, Samuel about the prospects for producing a joint proposal.[29] These discussions were still proceeding when the Conservatives returned to office in June 1970. It fell to John Peyton, of all the British transport ministers the most enthusiastic about the Tunnel, to negotiate with the consortia. In fact, although CTSG's prospects seemed more remote, in the end only Technical Studies disappeared. The successful consortium, led on the British side by Harcourt and Jock Colville of Hill, Samuel, included the core elements of the previous three bidders. Hill, Samuel and CTSG merged their interests and were strengthened with the addition of Warburg and White, Weld & Co. (see Table 1).

It was the consortium of July 1970 that took the project forward. There was a long period of protracted negotiation before heads of terms for the preliminary agreement were signed in both countries in September 1971. Interim studies of the financial and economic prospects were completed in July 1972, and then in October the preliminary agreement itself ("Agreement No. 1") was signed. This provided for Phase I, a final study period, to be completed by July 1973. "Agreement No. 2," together with an Anglo-French Treaty, signed in November 1973, provided for Phase II, a period of trial construction, for completion by July 1975. Phase III would see the construction and opening of the Tunnel.

Two companies, the British Channel Tunnel Company (BCTC) and the Société Française du Tunnel sous la Manche (SFTM), were established, and two project managers were appointed—on the British side RTZ-DE and on the French SITUMER (later strengthened by the addition of CGE-Développement). The treaty was never ratified, however, because the Channel Tunnel Bill had not passed through all of its parliamentary stages when the project was abandoned in January 1975. Concern expressed by the incoming Labour administration about the escalating cost of a rail link from London to the Tunnel was instrumental in the decision of Anthony Crosland, the British Secretary of State for the Environment, to pull the project. Abandonment was a severe blow, casting a shadow over Anglo-French relations for some time. For the Davidsons the disappointment was immense. Technical Studies failed to obtain any compensation for its involvement, while the other partners in CTSG were compensated under the terms of Agreement No. 2.[30]

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[28] Ibid.

[29] Alfred Davidson, memo. 2 April 1969, TSI Archive, carton #13, f64; Alfred Davidson to Frank Davidson, 16 Sept. 1969, ibid. f.63.

[30] The agreement to pay CTSG, transferred to the BCTC, was "null and void" when the project was abandoned in 1975. See Slaughter & May to William

TABLE 1
The Channel Tunnel Consortium, July 1970

British Sub-Group	French Sub-Group
The Channel Tunnel Co.	Compagnie Financière de Suez
Morgan Grenfell & Co.	Compagnie du Nord
Robert Fleming & Co.	Banque Louis-Dreyfus et Cie
Hill, Samuel & Co.	Banque de Paris et des Pays-Bas
Kleinwort, Benson	Société Nationale des Chemins de Fer Français
S. G. Warburg & Co.	Banque Nationale de Paris
White, Weld & Co. (U.S.)	Crédit Commercial de France
The First Boston Corporation (U.S.) (Later joined by: Morgan Stanley (U.S.), Rio Tinto-Zinc, and British Railways Board)	Crédit Lyonnais
	Société Générale
	Banque de l'Union Européenne

Project Management

This attempt to build a Channel Tunnel provided many lessons about the organization of large and complex international infrastructure projects. Here we focus on the project management elements and more specifically on the appointment of RTZ-DE as British project managers. Rio Tinto first became involved in the project during 1969-1970 when Sir Val Duncan, the company's chairman and chief executive, was approached by a promoter of a bridge-tunnel-bridge scheme for the channel, based on the U.S. Chesapeake Bay bridge-tunnel project in Virginia, completed in 1964. Rio Tinto responded by examining the broader possibilities under the codename "Rollercoaster."[31] In October 1969, Alistair Frame, its leading engineer, rejected the idea of a Chesapeake-type scheme, but instead expressed enthusiasm for a rail tunnel and made contact with the consortium led by Lord Harcourt.[32] Links already existed, because Sir Mark Turner, the deputy chairman of consortium member Kleinwort, Benson, also sat on the board of Rio Tinto. Duncan and Turner not only had rescued Rio Tinto in the 1950s; they also proved to be dynamic players in the diversification–fueled acquisitions of the 1960s and early 1970s,

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Merton (Channel Tunnel Investments), 13 Feb. 1975, TSI Archive carton #14 f11; Alfred Davidson, Note, 15 Oct. 1975, Frank Davidson to Roger Smith (Peat Marwick Mitchell), 17 Dec. 1990, carton #13 f7, 63.

[31] Sir Val Duncan to Lord Gladwyn, 15 Aug. 1969, BOW756 (80/1.25.5), RT. On Chesapeake Bay, see TSI Archive, vol.85.

[32] Alistair Frame to Duncan Dewdney, 9 and 17 Oct. 1969, BOW756 (80/1.25.5), RT.

which had seen the creation of Rio Tinto (in 1962) and its expansion into large-scale, capital-intensive natural resource projects.[33]

Turner was well aware that the banks could not build a tunnel without professional assistance, and he recognized that effective management of the engineering side would be a critical element. Duncan had told Harcourt at an early stage: "we are naturally interested if the set-up is right."[34] From the perspective of the governments and the promoters, good project management would be necessary if the project were to progress satisfactorily—that is, close to time and budget. Rio Tinto could lay claim to extensive experience in the field, and the company enjoyed a good reputation in Whitehall. It had impressed civil servants with a presentation at a project seminar held at Peterhouse, Cambridge, on the part it had played in the large hydroelectric scheme at Churchill Falls, Canada, opened in 1971.[35] In August 1970, Duncan met Harcourt to discuss the potential for Rio Tinto's involvement in the Tunnel as project managers on the British side. It would prove to be an episode with wider ramifications.[36] Shortly after the meeting, Rio Tinto set up a subsidiary company, RTZ-DE, to provide "large-scale project management capability." Led initially by Duncan Dewdney as chairman (he was an executive director of Rio Tinto, 1968-1972) and then by Lord Shackleton, Labour's leader in the Lords (1968-1974), the subsidiary was to handle the management and supervision of building and construction for Rio Tinto activities where expertise was lacking. The Tunnel, retaining the codename "Rollercoaster," was one of its first concerns.[37] By September, discussions between the British Sub-Group and Rio Tinto had reached the stage where they thought it appropriate to involve the Minister of Transport, John Peyton, and after a series of exploratory discussions among the parties, including the French, Peyton met Harcourt and Duncan on October 16, 1970, for serious talks.[38]

Negotiations between the parties proved difficult, however, illustrating the gulf in the respective approaches of bankers and project managers.

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[33] Jehanne Wake, *Kleinwort Benson: A History of Two Families in Banking* (Oxford, U.K., 1997), 367, 390; Terry Gourvish, "Beyond the Merger Mania: Merger and De-Merger Activity," in *Britain in the 1970s: The Troubled Decade*, ed. Richard Coopey and Nicholas Woodward (New York, 1996), 236-40; Charles Harvey, *The Rio Tinto Company: An Economic History of a Leading International Mining Concern, 1873-1954* (Penzance, U.K., 1981), 305-10.

[34] Duncan to Harcourt, 13 Oct. 1969, BOW756 (80/1.25.5), RT; Fetherston, *Chunnel*, 75-76.

[35] "Record of a meeting held at RTZ on 19 August 1970," BOW756 (80/1.25.5), RT.

[36] Ibid.

[37] RTZ-DE Board Minutes, 5 Oct. 1970, 20 April 1971, RTZ-DE Report & Accounts, 1970-1, in SRR925, RT; *Daily Telegraph*, 6 Oct. 1970; *Times*, 18 Feb. 1971.

[38] Note of meeting held on 16 Oct. 1970, MT144/161, TNA.

From the project managers' perspective, there was disquiet about the initial shape of the scheme, with Rio Tinto expressing strong criticism of what they felt to be a typical bankers' deal. They disliked the fact that the proposed "equity" was essentially equivalent to preference shares with limited participation, and criticized the remuneration formula for giving too much to the public operating authority. The banks had accepted this arrangement, thought Rio Tinto, because they favored a risk-averse, low-return strategy, and expected to derive the main benefits from financing and debt management activities. Rio Tinto much preferred a high-risk, high-return strategy, wishing to take a large equity stake in partnership with the governments.[39] By this time, of course, the "heads of terms" had been submitted, and Harcourt was at pains to point out that the document, unsatisfactory as it might appear to a private sector outsider, was the product of months, if not years, of negotiation with the two governments and their officials.[40] Consequently, Rio Tinto, like its predecessors, was forced to compromise. At the meeting with Peyton, the company argued that it believed a greater expenditure would be required in the study periods, and reaffirmed its desire to participate in the equity, suggesting a stake of some £5-10 million. More significantly, it argued strongly that a unitary management structure was required for the several stages of the project.

News that the French were contemplating construction by two separate and autonomous national teams was regarded with dismay. This approach, thought Rio Tinto, would hamper technical and cost control and encourage significant cost overruns. Duncan went further than this. He argued that it would be preferable if a single organization (50 percent public, 50 percent private) handled both construction and operation. However, British officials from the Department of the Environment pointed out that, given the tortuous negotiations required to get this far, "it would not be timely" to raise such a major modification at this stage. Rio Tinto was therefore encouraged to consider its fallback position, a willingness to work within the existing framework for an adequate return on an equity stake.[41] Nevertheless, subsequent events revealed that the company' fears were well founded.

Criticized in some Whitehall circles for their somewhat abrasive style, Rio Tinto brought a fresh attitude to the proceedings as novices. One of their first reactions was, revealingly: "if 18 banks, 2 governments, and 2 railways are involved, to say nothing of 2 construction companies, then the pace of progress will be very slow, and may stop altogether."[42] The

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[39] Rio Tinto, "Rollercoaster: The Presentation [sic] Situation," 14 July 1970, BOW756 (80/1.25.5), RT.

[40] Rio Tinto, "Rollercoaster, Record of a Meeting...," 19 Aug. 1970.

[41] "Final Draft Memorandum to the Minister of Transport from Rio Tinto-Zinc Ltd., 16th October, 1970," n.d., MT144/161, TNA.

[42] Allen Sykes (RTZ-DE) to Dewdney, 5 Sept. 1970, BOW756 (80/1.25.5), RT.

French, though not opposed to the involvement of Rio Tinto, were clearly wary about presentation of any ideas outside the current framework. They had approached project management in a quite different way, arranging for an engineering consortium ("Sofremanche," subsequently SITUMER) to work on a fee-only basis. The possibility that Rio Tinto's requirements might upset the delicate balance of British and French participation, referred to as the "*moitié-moitié* principle," was an obvious concern.[43] Eventually, Rio Tinto, together with the American Bank Morgan Stanley and the British Railways Board, agreed to join the British sub-group of the consortium. Rio Tinto obtained an option to take 20 percent of the founders' capital of £1 million.[44]

While discussions took place that led to the signing of the "heads of terms" in September 1971, Rio Tinto made it clear that it was intent on increasing private sector participation in the project. It achieved a measure of success in that the British and French companies agreed to increase the founders' capital to £2 million upon signature of the preliminary agreement (No. 1), and to raise a minimum of 10 percent as risk capital during the subsequent construction period. However, there were problems relating to the studies (where there were squabbles between the British and French parties), the plans for private financing, and meeting the insistence that there should be adequate rewards for work done, including management fees. Work began on studies of technical feasibility, construction costs, and traffic forecasts in April 1971 and was completed in July 1972. The most worrying aspect of the exercise was the divergence between Rio Tinto, working with Coopers Brothers (subsequently Coopers & Lybrand), and SITUMER, working with SETEC-Economie, over assumptions and methodology. An early meeting of the working group was informed that the French and British documents appeared to differ on "every meaningful point." These differences were most pronounced in the approach to the traffic and revenue studies. "High" and "low" toll scenarios were constructed. The former, favored by SETEC, adopted charges based on the sea ferries' current rates (in real terms); the latter, advanced by Rio Tinto/Cooper Brothers, envisaged that competition would force prices down. British officials thought that neither option represented the likely state of affairs if the Tunnel were built. They regarded the high toll option as unrealistic because the current high tolls were the product of a car-ferry cartel that was already under investigation by the Department of Trade and Industry (and was subsequently referred to the Monopolies Commission in September 1972).[45] On the other hand,

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[43] See Morris and Hough, *Anatomy of Major Projects*, 25.

[44] Sykes and John Stanley (RTZ-DE) to Turner, 3 June 1971, BOW756 (80/1.25.5), RT. The participation of the other newcomers was more modest.

[45] Working Group on the 1972 Studies Report Minutes, 1 May and 6 June 1972, MT144/438; Cabinet EPC Minutes, 17 and 27 July 1972, CAB134/3487, TNA; Monopolies Commission, *Cross-Channel Car Ferry Services: A Report on the*

further work was required on the competitive reaction of operators in order to validate the low toll model. Traffic assumptions also varied, the British consultants being more skeptical about the extent of holiday traffic. There was an unusually large amount of Anglo-French fencing, fueled by suspicions in Paris about the project being "RTZ-led."

What did and did not constitute private capital in Britain and France was another frequently discussed matter, as was the differing nature of the capital markets in the two countries. These issues continued to give rise to significant differences of position within the British and French sub-groups. While the British financiers, encouraged by RTZ-DE, favored "true" equity, the French were happy with the existing concept of "participating preference" shares with a guaranteed return.[46] The two sides also differed in their ideas for phasing the risk capital. In 1972, the initial financing plans anticipated the expenditure of about £25 million by 1975, with £4 million in the form of founders' shares that would be made available from May 1972 to June 1973. The British, who had to go to the market for their funds, lacked the resources to provide their portion of the founders' shares immediately. This compromised the intentions of the French, who, with access to "in-house" resources via their nationalized banks were prepared to put up the founders' capital immediately. However, they were unwilling to commit themselves to the rest before agreement with the governments in 1973, which prejudiced British chances of raising money on the London market. As Dewdney observed with characteristic understatement, these plans were "mutually inconvenient."[47] Another bone of contention, at least on the British side, was the governments' insistence on operation by a public authority, which, Rio Tinto claimed, would make the task of raising capital much harder.[48]

From the perspective of the British government, there was some anxiety that, because Rio Tinto was both project manager and consortium member, the British sub-group would be in possession of useful "signals" from the studies before the government knew the contents. Although this information asymmetry did not arise, the study findings remained a critical component in the bargaining between the governments and the promoters. It was thus no surprise when Harcourt's response to Peyton included the observation that the results had made it essential for the British banks to re-examine the financing plan for the project. While the Anglo-French Group was prepared to put up 50 percent, or £2.5 million, for Phase I, it could commit no more than 10 percent, or £2 million, for

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Supply of Certain Cross-Channel Car Ferry Services, 15 Oct. 1973, published on 10 April 1974, *Parl. Papers*, 1974, viii.

[46] "Note of Meeting Held on 8 December 1971," MT144/178, TNA.

[47] Dewdney, File Note, 31 Jan. 1972, MT144/228, TNA.

[48] Rio Tinto, 2nd draft annual conference paper, 4 Jan. 1972, BOW 757 (80/1.25.5), RT.

Phase II. However, if circumstances allowed, it would use its "best endeavours" to raise up to 30 percent (£6 million).[49]

The intention was that the significant question of the project managers' agreements would be resolved before the signing of Agreement No. 1. They were not to be included in Agreement No. 1, but the Anglo-French Group wished to sign them contemporaneously, and the British government took a strong interest in the negotiations among RTZ-DE, SITUMER, and the British and French tunnel companies. For civil servants, the fee scale was the central area of concern. Here the key element was that RTZ-DE's thinking changed substantially between its involvement in 1970 and the summer of 1972. At first, the company felt that £25,000 a month for one hundred months might be appropriate as a fee. This amounted to £5 million for the British and French managers, or 1.4 percent of the capital cost. Later on, it insisted that the investment opportunity was now "much less rosy." The company had given up all hopes of a genuine equity investment, while the likely return on its so-called equity was unlikely to be attractive.[50] Consequently, Duncan encouraged Frame to increase the level of management fees, and in July a draft management agreement with the British Channel Tunnel Co. was sent to the Department of the Environment (DOE), which proposed a much higher remuneration for RTZ-DE.

There was to be a two-tier structure comprising a fixed element of £5 million and a variable, performance-related element, dependent on the difference between out-turn and forecast costs. If the actual cost of the Tunnel matched the forecast, the payment would be £7.5 million. Assuming that the French project managers were rewarded on the same basis, the fees would amount to £10 million fixed (2.7 percent) and £15 million variable (4.1 percent).[51] This demand not only provoked Peyton, who warned Duncan that he would have to defend the fees in Parliament, but also upset the French, who felt fees should be lower.[52]

In September 1972, only days before Agreement No. 1 was due to be signed, a substantially revised proposal was put to the DOE, followed by a formal letter from Harcourt to Peyton asking that they agree on the sums to be paid to RTZ-DE before signature. Harcourt envisaged a fixed fee of £3.8 million (£38,000 a month for 100 months), and a shared variable element of £5.5 million, if the forecast cost held. If the French received the same fixed fee, the total would be £13.1 million, or 3.6 percent. In addition, Mott, Hay, & Anderson and SITUMER would be paid £4 million in engineering fees. RTZ-DE defended the grand total of £17.1 million, or

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[49] Harcourt to Peyton, 3 May 1972, MT144/236, TNA.

[50] Frame, Note for File, 29 March 1972, BOW 1010 (80/1.25.10); Duncan to Harcourt, 17 Aug. 1972 (two letters), BOW 757 (80/1.25.5), RT.

[51] Draft Project Management Agreement, 17 July 1972, MT144/482, TNA; Dewdney to Duncan, 21 Sept. 1972, BOW 1010 (80/1.25.10), RT.

[52] Dewdney to Duncan, 19 and 21 Sept. 1972, BOW 1010 (80/1.25.10), RT.

4.7 percent, as lying within the 4-6 percent range deemed appropriate for major projects of this type.[53] British civil servants continued to express some unease, and traded precedents. However, because there was no time to give the proposal the necessary detailed study, and the French had their own ideas about fees, the DOE suggested that in order to allow signing of Agreement No. 1, the general framework would be accepted as the basis for further negotiations.

There were fears that Rio Tinto might withdraw if not accommodated, and Peyton, on Duncan's prompting, even wrote to Robert Galley, the French Minister of Transport, to make an appeal for "unified project management."[54] Nevertheless, the British government insisted on following the timetable. RTZ-DE submitted yet another schedule of fees in mid-October, asking BCTC for £3.8 million as a fixed amount, plus a £2.75 million variable, performance-related element. The French managers and SITUMER expected to receive £1.74 and £2.75 million in 1972 prices.[55] However, the signing of Agreement No. 1 in October 1972 occurred without project management contracts in place.[56]

Government officials were still unhappy with the remuneration proposed, but the rather exceptional circumstances made it hard for them to assess what a "fair" fee should be.[57] After intensive negotiations in December 1972, they reached the basis for an agreement early in the following month. RTZ-DE accepted a reduction in the fixed fee to £3 million and payment of a higher, performance-related element of £3.25 million (if there was no over-run in construction costs), but in BCTC equity instead of cash.[58] There was little satisfaction with the outcome. The Treasury, which had expressed considerable doubt about the deal, gave it its blessing only when Peyton said that otherwise the project would be compromised.[59]

Further complications emerged over the course of 1973. The undertaking to adjust the payments for post-1972 inflation produced a considerable amount of squabbling over calculation methods, much of it

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[53] Frame to Sir Eugene Melville (DOE), 25 Sept. 1972, Harcourt to Peyton, 26 Sept. 1972, MT144/482, TNA. Payments to RTZ-DE during Phase I were to be at the lower rate of £25,000 a month.

[54] Dewdney to Duncan, 4 Oct. 1972, RTZ-DE, Note on "Channel Tunnel-Project Management Fee," 6 Oct. 1972, Peyton to Galley, 6 Oct. 1972, BOW 1010 (80/1.25.10), RT; Melville to Sir Idwal Pugh (DOE), 5 Oct. 1972, MT144/482, TNA.

[55] Harcourt to Peyton, 26 Oct. 1972 (draft sent to DOE, 11 Oct.), MT144/482, TNA.

[56] Dewdney to Melville, 11 Oct. 1972, MT144/482, TNA.

[57] Melville to Pugh (DOE), 5 Dec. 1972, MT144/483, TNA.

[58] Frame to Melville, 8 Jan. 1973, MT144/484, TNA. SITUMER was to receive £1.44m. fixed and up to £3.25m. variable.

[59] Patrick Jenkin (Financial Secretary, Treasury) to Peyton, 25 Jan. 1973, MT144/483, TNA.

directed at the variable fee, which was to be paid in shares. The project managers also demanded insulation from circumstances beyond their control. However, the main source of difficulty was the discovery that the proposed indexing would conflict with the impending application of the government's counter-inflation legislation in November.[60] In these circumstances, it was scarcely surprising that the British government was unable to endorse a draft agreement until November 17, the signing day of the main documentation. This circumvented the Counter-Inflation Act by forecasting future inflation rates and referring only to cash sums.[61] Even then, this was not the end of the story, proving once again that the devil was in the details. All along, there had been problems in obtaining French agreement to the proposed arrangement with RTZ-DE. Successive transport ministers expressed concerns. Galley wanted a greater proportion of the payment to be performance-related, and he foresaw difficulties in paying the variable element in shares to SITUMER, which was expected to wind up after the construction period.[62] Galley's successor, Pierre Billecocq, was also unhappy with the disparity in the fee structure, a departure from the "*moitié-moitié*" principle. At the eleventh hour, he rocked the boat by revealing that the French side proposed to strengthen its project management team by hiring Compagnie Génerale d'Électricité, indicating that this step would lead to a demand for equality of fee payments. It was not until February 1, 1974, that he was able to consent to the British contract, signed February 5th.[63] The lengthy wrangling over fees illustrates the gulf in approaches between private sector managers and civil servants concerning issues of risk and reward.

The promoters and the respective governments also spent much of 1973 haggling over the risk-reward bargain for the tunnel investment. They advanced numerous formulas, reaching an impasse in the summer when the companies expressed the view that they would not be able to raise any equity on the terms suggested. The suggested remuneration formula was to be a share in gross receipts ("x") and a share in net receipts ("y"), with a reward for private money raised in Phase II defined by a multiplier element ("n"). In earlier talks precision had been avoided, but now the companies were armed with the study results, though there was some suspicion within government circles that this information, particularly estimates of revenue growth, might be manipulated to the

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[60] See Frame to Melville, 10 Aug., and 1 Nov. 1973, MT144/484-5, TNA.
[61] Melville to Harcourt, 17 Nov. 1973, MT144/485,TNA.
[62] See "Project Management Fee: Minister's meeting with Sir Mark Turner—11 December 1972," n.d., MT144/483, and CTSU, "Summary Note of Meeting on 4 January 1973," 5 Jan. 1973, MT144/484, TNA.
[63] Billecocq to Peyton, correspondence, 21 Dec.–4 Feb. 1974, Susan Fogarty (DOE) to Harcourt, 4 Feb. 1974, MT144/486-7, TNA; Agreement, 5 Feb. 1974, CAR 646 (B1/R9/S10), RT.

private sector's advantage.[64] Advice given to the British government by Hambros Bank that a fair return should be 14 percent pre-tax indicated values for "x" and "y" of 10 and 5 percent, respectively. The tunnel companies opened the negotiations with values of 32 and 10 for "x" and "y," and a suggested multiplier of 1.8. They added that if they were successful in raising more risk capital, then the value of "y" should increase on a straight-line basis, reaching 90 if the risk capital amounted to 30 percent.[65] The government, taking additional advice, believed that this formula would produce an unacceptable return of 34 percent.

In the lengthy negotiation period that followed, it was clear that this was not merely a battle between private sector "greed" and government "prudence." In exchanges between Peyton and Billecocq, it emerged that the French were more interested in setting values of "x" and "y" that would encourage raising capital than in haggling, as the British were prepared to do, over the profit-sharing arrangements between the public and the private sectors. A figure of 32 for "x" was acceptable to the French, but, of course, they could afford to take such a stance, because nationalized bodies made up a substantial part of the "private" group in France.[66] The British, on the other hand, continued to resist, seeking formula values that would satisfy all requirements: enabling the companies to raise equity, the governments to receive a share in the profits from the beginning, and preventing the companies from making excess profits in later years. However, the government's counter-offer of "x" = 8, "y" = 2.6, and "n" = 1.2 was quickly rejected by the companies. The failure to agree on terms unsettled the Rio Tinto project management team, and the French Minister warned that unless an agreement was reached, his government might seek to carry forward the project "by other means."[67] The deadlock was eventually broken by an ingenious adjustment to the formula, adding a fixed element ("f"). In September 1973, values of "f", "x" and "y" of 11.0, 8.7, and 3.0 were agreed, providing an initial net return of 16 percent. The multiplier "n" was to be set between 1.4 and 1.2. Using the more pessimistic estimate of revenue, the government could expect 19 percent of the profits in the first year, rising to 75 percent by 1990.[68]

In spite of this wrangling, the involvement of Rio Tinto in the Channel Tunnel was clearly positive. For example, they completed Phase I of the project (the studies) under budget, a fact noted in a British government

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[64] See Fogarty, reported in DOE Channel Tunnel Agreement No.2 Working Party (CTAWP) Minutes, 17 May 1973, MT144/268, TNA.
[65] Hambros, discussion paper, May 1973, MT144/268; Frame to Peyton, 7 June 1973, MT144/272, TNA.
[66] Rowe & Pitman, Note, 11 June 1973, MT144/268, Peyton to Billecocq, 20 June and reply, 22 June 1973, MT144/272, TNA.
[67] Meeting at Lancaster House, 31 July 1973, MT144/256, TNA.
[68] Geoffrey Rippon (SoS for Environment), Memo. 4 Sept. 1973, CAB130/702; Melville to Peyton, 5 Sept. 1973, MT144/274, TNA.

White Paper.[69] After the tunnel companies had placed the equity capital for Phase II in February 1974, operations began in earnest. Contractors began work at Sangatte, near Calais, and at Shakespeare Cliff, near Dover, and RTZ-DE increased its responsibilities by taking on the project management functions of the British tunnel company in March. Notwithstanding the further complication of the entry of CGE-Développement [CGE-DE] as lead manager on the French side, relations between the two sets of managers improved over the course of 1974, largely as a result of the good relations established by Alistair Frame and Jean Gabriel of SFTM.[70]

Abandonment was as much a disappointment to RTZ-DE as it was to other players in the game. If the tunnel companies nursed concerns about higher risks, and were anxious to protect their right to compensation, there is no evidence that the project managers wanted to abandon the scheme. As investors in BCTC, Rio Tinto received its share of the compensation payments to BCTC, totaling £8.5 million. It also helped to run the project out in an orderly fashion, leaving a portion of bored service tunnel on the British side that was eventually incorporated into the service tunnel of the successful scheme opened in 1994. However, this was clearly a case of "once bitten, twice shy." Almost immediately after the sealing off of the tunnel works, enthusiasts (including the Davidson Brothers, who tried to revive the idea around a cheaper "mousehole" single-bore) approached the project managers. However, RTZ-DE was firmly in favor of a twin-bore tunnel, and was not inclined to invest so much management effort again so soon after its disappointment.[71] The Davidsons stayed in the game, although in an increasingly marginal role, and went on to examine a tunnel construction system based on submerged caissons.[72] RTZ-DE agreed to work with CGE-DE in evaluating the single-bore idea in the period 1975-1977, but they eventually made it clear that their interest had faded.[73]

Issues and Lessons

The Nature of Entrepreneurial Intervention

The TSI and Rio Tinto archives, together with Britain's public records, give valuable insight into the creation of a financial consortium, and provide

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[69] DOE, *The Channel Tunnel*, Cmnd.5430, Sept. 1973, para.1.4. The cost was £5.1m., versus the budgeted £5.4m. RTZ-DE Minutes, 3 Dec. 1973, CA 128 (B1), RT.

[70] Hunt, *Tunnel*, 138.

[71] RTZ-DE, "Review of a Two-Tunnel System," Aug. 1975, Frame to Frank Davidson, 20 Aug. 1975, TSI archive carton #14 f11-12.

[72] Davidson, *Macro*, 100-101.

[73] RTZ-DE Board Minutes, 4 Aug., 10 Sept., and 17 Dec. 1975, 11 June 1976, 11 July 1977, SRR0925, RT.

abundant evidence of the limits to the "entrepreneurial spirit" within a promoting group. The CTSG pressed hard for the tunnel and provided enthusiasm and determination whenever civil service caution and the nervousness of ministers threatened to bring proceedings to a halt. In addition, the Group undertook the pioneering work from which all else followed. The determination was by no means only American. The abiding memory among tunnel watchers in the 1950s and 1960s was of Leo d'Erlanger, banker and chairman of the Channel Tunnel Company, presiding optimistically over annual meetings, and of Lord Harcourt, with his impeccable governmental and banking pedigree, pursuing the cause in numerous meetings behind the scenes. But Alfred Davidson, Technical Studies' voice in Europe, was equal to them both, striding the boards in London and Paris, often exasperating the British and the French in equal measure, but above all, promising the kind of entrepreneurship that had financed the London Underground at the turn of the century, and, more recently, the Chesapeake Bay complex. However, the impression left by the case study is that there were distinct limits to the risk-taking the private sector was prepared to bear.

The engineers and contractors, just as much as the banks, were anxious to limit the area of risk and to increase government guarantees. As an international project, the tunnel also provided political tensions. The experience of Technical Studies shows that, although the CTSG was truly an international joint venture with significant French support from Suez, de Rothschild, and the French railways (SNCF), the American component grated on the French at a time when Jean-Jacques Servan-Schreiber was warning Europe about the dangers of the *défi américain*.[74] Furthermore, the fact that the Group's approach to the project was so firmly identified with French ideas helped muddy the waters of Anglo-French relations while giving the French government much too optimistic a picture of the prospects for private investment. The shortcomings of a rather ill-fitting amalgamation of speculators, financiers, and mixed-economy companies were fully revealed during the consortia competition of 1967-1970, especially when the CTSG was unable to find its promised £5 million in equity.

The Public-Private Interface

The difficulty of reconciling public sector investment with private sector financing has been a substantial one in the British case. We see this in the flirtation with private sector involvement in public projects in the 1980s, constrained as it was by the restrictive conditions imposed by the Treasury in 1981 (known as the "Ryrie Rules"). In addition, more recently, public-private funding problems arose in the concept of the "Private Finance Initiative" (PFI). In the case we are examining here, the fact that the French position was very different from that of the British compounded

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[74] Jean-Jacques Servan-Schreiber, *Le défi américain* (Paris, 1967).

the difficulties. Many of the financial partners were, in fact, public sector banks, and there was more experience of "mixed-economy" companies ("*sociétés d'economie mixte*") where shareholding was both private and public.

Complicated as it was by Anglo-French participation, the Channel Tunnel project of 1957-1975 illustrates all the difficulties of reconciling public and private perceptions of risk and reward. There were wide differences of opinion at all stages. For example, as one of the bankers involved in CTSG observed, "Governments do not appear to understand the absurdity of requiring that the more risky the project appears to be, the more equity capital should be raised."[75] Over its two decades, the project had lurched from a public sector to a private sector investment, with public sector operation by the end of it—though, ironically, the escalating cost of the putative public investment in a British rail link substantially contributed to its abandonment.

The problems in reaching agreement at the various stages in 1970-1975 exposed the sheer difficulty of negotiations among four parties with very different interests; the danger of judging and managing the project by reference to "financiability" (whether or not the private capital could be raised) rather than to viability; and the fundamental dilemma of control over a public/private enterprise.[76] It may be too much to assert, with Michael Bonavia, that the Channel Tunnel was prejudiced from the moment in 1966 that it became a public-private partnership. However, there is no escaping the fact that there were substantial problems with the "tartan quilt" of quadripartite negotiations.[77] British civil servants were disappointed with the behavior of the British private company in attempting to maximize profits while at the same time shifting most of the risk to taxpayers. The BCTC's insistence on basing its return on investment on pessimistic assumptions about traffic growth was particularly exasperating, and in meeting after meeting, Harcourt, Frame, and Naylor whittled away at the risk element.[78]

The private sector's experience of Whitehall was equally frustrating. The difficulty in getting the two governments to pledge unequivocal support for the project tried the patience of businesspeople used to a more straightforward environment. At times the civil servants made something of a meal of abstruse points of detail, their behavior all the more galling to Rio Tinto and the merchant banks when negotiations were still necessarily at a provisional stage. Treasury officials were guilty of sophistry when they poured cold water on the prospects of an adequate return on the project,

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[75] Dallas Bernard (Morgan Grenfell), Note, 17 Sept. 1969, Baring Partners files, No.207258, Baring Archives at ING Bank NV.

[76] See Treasury reactions in 1972, Treasury file 2PE 91/199/01 Pt.P.

[77] Bonavia, *Channel Tunnel Story*, 86; Peter Kemp (DOE), interview with author, 2002.

[78] CTSU, Note of meeting on 29 Aug. 1973, MT144/274, TNA.

then complained about the prospect of the private sector earning "scandalously high profits."[79]

The private sector claimed that it required higher returns—first, because it had borne substantial costs arising from the British government's "on-off," "stop-go" attitude toward the project since 1960, and second, because there was every reason to doubt the government's ability to organize a commercial enterprise. Thus, the difficulty of progressing with the project on terms acceptable to both the public and private sectors was a major lesson of the period 1970-1974, one that influenced government attitudes to the revival of the project in the mid-1980s.[80] RTZ-DE's inquest on the 1974-1975 project determined that it should have been a public sector project from the outset, with private sector project management.[81] This is a valid point, but in fact the 1970s tunnel, with its high proportion of government-guaranteed bonds, was quasi-public anyway, and therefore vulnerable to the vicissitudes of public policy. Frame was adamant that his company had been "thwarted" by government interference, and this certainly colored Rio Tinto's attitude toward the revival of interest in the tunnel in the 1980s.[82]

Referring very briefly to the successful project of 1986-1994, we should first note the insistence by Margaret Thatcher's Conservative administrations in Britain that the Channel Tunnel should be a private sector venture. However, as with the previous project, this aspiration came up against the harsh realities of risk and reward, and once again there was an insistence that the two governments should contribute substantially to the investment. In fact, the British and French governments put up large sums.

Political considerations overrode economic considerations at several points in the process, and the final facility was more the product of a hybrid public-private investment than the Thatcher governments cared to admit. In all, the contributions made by the British government amounted to about £3 billion before opening (rail and road infrastructure, concession extensions, compensation, and administration), and another £4 billion spent or committed since opening (Channel Tunnel Rail Link and operating support).

A second observation is that, in spite of their privatization rhetoric, the Thatcher governments were drawn into detailed aspects of project funding at several critical stages. When private sector investment looked set to falter in 1986-1987, the Bank of England, then less independent than under new Labour after 1997, stepped in to resolve funding issues and to install Sir Alastair Morton as joint chairperson of Eurotunnel. When the completion of a banking syndicate for loan capital and a further equity

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[79] Leo Pliatsky (Treasury), note, 4 July 1973, Treasury file 2PE 91/199/01 Pt.AB.
[80] See Terry Gourvish, *Britain and the Channel Tunnel*, forthcoming.
[81] Frame to Tom Shearer (DOE), 22 May 1975, MT144/534, TNA.
[82] Barron, Note on discussion with Frame, 13 Aug. 1980, AN192/617, TNA.

issue appeared to be in jeopardy in 1990, Thatcher herself was asked to intervene by writing to the Japanese Prime Minister to assure him that the British Government matched the French in supporting the Tunnel. The intervention was critical in keeping the Japanese banks on board, and in turn, in safeguarding the raising of equity.[83]

The "Large Infrastructure Project Circle"

Figure 1 serves as a conclusion by illustrating the frustrations and circularity in the development of a public-private project of this type. The long gestation period, asset specificity, and high risk involved in ventures such as the Channel Tunnel of 1957-1975 encouraged public sector investment. However, when governments found it impossible to raise the money from their own resources, they inevitably turned to the private sector for a solution. The reaction of private interests, whether banks or contractors, was to seek to maximize their advantage in risk-reward bargaining, particularly because profit forecasts were uncertain: thus, the demands to guarantee the companies against cancellation risks, to severely limit the extent of equity financing, and to secure government guarantee of the loan capital. The granting of guarantees, whether financial or political (compensation against cancellation), meant that governments shared the project's risks and therefore could not escape from the constraints of public sector funding.[84] It was a testimony to the determination of the parties in the mid-1980s that this circularity was broken, although the decision to insist on private sector funding for the Tunnel, and the project's continuing and deep-seated financial difficulties, drew the two governments into the arena, inviting further questions about the efficacy of public-private ventures.

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[83] Gourvish, *Official History*, chap. 10.

[84] On these issues, see Allen Sykes (Willis Faber), "Reducing Neglected Risks on Giant Projects," Arthur D. Little Symposium on "New Dimensions of Project Management," Boston, April 1981.