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22 September 1981

Proposals for a Channel Link

Thank you for your letter of 16 September with which you sent me some notes on the main proposals for a fixed link across the Channel. It was good of you to go to so much trouble, and I am sure that it will be helpful to have the information.

As you will have seen from the newspapers, the Prime Minister and President Mitterrand announced at their Press Conference on 11 September that joint Anglo-French studies on all the main schemes would be put in hand immediately and that the first meeting between officials of the two countries would take place within a month.

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16th September 1981

Mr. Clive Whitmore
10 Downing Street
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Dear Clive

Proposals for a Channel Link

Some time ago I promised you some information on the issues surrounding the Channel Link. The report which I had in mind to send to you was oriented towards a specific proposal and I thought it better to give you brief notes on each of the main proposals.

I hope you find them of some use.

Yours sincerely

Jack.

PROPOSALS FOR A FIXED LINK ACROSS THE CHANNEL

- (1) Various proposals have been made over the last 150 years or so. The trial bore of 1890, which is unlined, still exists.
- (2) The scheme of 1973 was for a twin bored tunnel plus service tunnel. The two main tunnels were each to be of 7m diameter and would have accommodated both conventional trains and ferry trains, the latter requiring a 7m tunnel. Ferry trains would have motorway capacity and would satisfy the foreseen demand.

The service tunnel was to serve as a pilot tunnel to test the ground and the techniques of boring and lining the tunnel. Subsequently it would have provided ventilation and emergency services.

The tunnels were to be bored by a machine which incorporated means of erecting the concrete segments which would form the tunnel lining. A short length of the service tunnel was successfully bored and lined. It has performed satisfactorily over the intervening years.

It is equally possible to use a cast iron lining, and the French were proposing this for their half of the tunnel. The decision is more political than technical. Concrete is cheaper but a larger volume must be excavated. Cast iron would help BSC but there is the commercial risk of late delivery from a monopoly supplier. At the cross-overs between the main tunnels and at the cross-links between the running tunnels and the service tunnel bolted cast iron segments would in any case be needed.

- (3) A submerged tube tunnel consists of prefabricated lengths of tunnel, constructed in reinforced concrete or in steel, which are lowered into a previously dredged trench in the seabed and then joined together and covered over. Each length would incorporate the running and service tunnels with dividing walls and cross passages.

This system has a number of advantages but would require the development of special equipment for dredging the trench and for handling the units in a seaway.

When the Secretary of State announced that a tunnel would have to be privately financed, proposals then being made for a submerged tube tunnel were dropped.

- (4) Bridges have been designed to carry both road and rail traffic and are technically feasible both from a navigational and from a structural point of view.

The cost would be much greater than that of the twin tunnel but a bridge would be less vulnerable to strikes. The "drive on" facility of a bridge would be very attractive to users, especially when in due course Customs delays have been eliminated.

No doubt collisions with the protective works would occur from time to time (though with much less frequency than collisions now occur between ships) and a crashing (or attacking) aircraft could cause serious damage. Fire, collision between vehicles or derailment would be less serious than in a tunnel.

- (5) BSC are now proposing a combination of bridge and submerged tube tunnel. The concept is to build bridges consisting of relatively short spans in the shallow waters on each side of the Channel, and to build a submerged tube tunnel between artificial islands on each side of the deep water navigation channel. Road traffic would cross the bridges and then enter the tunnel which would be short enough (17Km) for ventilation problems to be overcome, albeit with difficulty. Rail traffic would be in a submerged tube throughout, the road and rail tubes being connected over the length of the navigation channel.

This solution is ingenious but would require the development of special dredging and handling equipment. The cost would be very high and the timescale extended. The risk of collision and fire if vehicles carrying inflammable or toxic material were permitted to pass through the tunnel would need to be carefully considered.

- (6) British Rail are proposing a single 6m running tunnel, plus service tunnel, which is large enough for conventional trains. They state that they are satisfied they can run a satisfactory service of conventional trains in the single tunnel and that ferry trains form no part of their commercial thinking. They have produced a joint report with SNCF putting forward this proposal.

They maintain privately that it is politically necessary for them to promote this limited scheme, partly because of the environmental and Union opposition which they are convinced the ferry train scheme would engender, partly because they believe it to be in their commercial interest to restrict the scheme to conventional trains, and partly because they do not want a throughput agreement based on the cost of a larger diameter tunnel.

At the same time they recognise that it makes sense to provide for the possibility of ferry trains in the future and fully expect that the Government will require the tunnel to be 7m in diameter. They are insistent however that this initiative must come from the Government and not from them.

- (7) A joint company has been formed by Wimpey and Tarmac, the two largest U.K. contractors, together with two merchant banks, to finance and manage the design and construction of the tunnel. They propose that a single bored running tunnel of 7m diameter plus service tunnel should be built initially, so that in due course a second 7m tunnel would enable a ferry train service to operate. This proposal is in line with recommendations of the Select Committee on Transport. They would of course be prepared to build any other scheme which might eventuate, provided it could be financed.

They have been in discussion with British Rail, whose co-operation is needed, and who seem prepared to join forces with a promoter. However, they are still insisting that they will only do this if the promoter commits himself to the 6m tunnel.

This creates a dilemma for the promoter in seeking to become the Government's "chosen instrument". He does not wish to take a stance which can be seen to be irresponsible from a national standpoint, yet he needs to ally himself with B Rail. Furthermore he is aware that the staff of the Channel Tunnel Study group in MOT, who presumably advise the Secretary of State, favour not only the 7m tunnel but tend to discount the alleged political obstacles and believe we should go ahead now with the twin tunnel.

- (8) Costain have proposed shortening the 6m tunnel by steepening the end gradients, which would be overcome by the use of additional locomotives. I do not think this is a very practical proposition and B Rail seem to share this opinion.
- (9) On broad national economic criteria, the 1973 decision to opt for ferry trains plus conventional trains in two tunnels seems just as valid today as it was then. It was arrived at after an extensive engineering and economic study. It would I think be the easiest scheme to finance.

However, there are cogent reasons against going for the full scheme initially, which the Select Committee recognised. In particular they considered that the full scheme would necessitate a public inquiry, and it is believed this would delay passage of the enabling Bill and treaty ratification beyond the life of the present Parliament.

They also took the view that an immediate ferry train scheme would largely eliminate the present ferry traffic, resulting in a monopoly which would leave us vulnerable to stoppages for whatever reason.

- 0) The construction of a fixed link would benefit Britain, France and the EEC. It is thought to be financeable without increasing the PSBR (though some form of guarantee would be required).

Recognising the political realities and the need to gain the co-operation of BR and SNCF it seems to make sense to proceed with a single 7m diameter tunnel plus service tunnel. The Government could provide the relatively small cost of the extra metre diameter, which could be recovered from the ferry train company in due course.

This decision would not rule out the possibility of a road bridge or bridge/tunnel being built as an alternative to the second tunnel. The additional metre would in any case be beneficial, since for a given speed it would reduce the locomotive power requirement due to the smaller aerodynamic drag, with a further benefit in respect of a smaller temperature rise.

JCC

14/9/81

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