INTERNATIONAL COURT OF JUSTICE

PASSAGE THROUGH THE GREAT BELT
(FINLAND v. DENMARK)

# COUNTER-MEMORIAL SUBMITTED BY THE GOVERNMENT OF THE KINGDOM OF DENMARK

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## INTRODUCTION

1. The present Counter-Memorial is submitted in pursuance of the Court's Order dated 29 July 1991, fixing *inter alia* the time limit of 1 June 1992 for the submission by the Kingdom of Denmark of its written pleading in the present case.

2. Following the principle, according to which the Parties should endeavour to address those issues which continue to divide them, the Government of Denmark wishes at the outset to express its concurrence with the Finnish point of view expressed in the Memorial (para. 7, p. 5) that there is no dispute as to the jurisdiction of the Court in the present case.

3. Nor do the Parties appear to be divided with regard to the fact that the Danish straits are international straits governed by a long history, certain specific treaty provisions and customary rules of international law resulting in a right of innocent passage through these straits. In this sense the actual dispute is narrowed down to the question of determining the exact scope of this *right of innocent passage* seen in relation to the *sovereign rights of the Kingdom of Denmark*, the territory of which is separated *inter alia* by the stretch of territorial sea named the Great Belt.

4. Within these parameters the dispute may further be narrowed down to a conflict between a right of *innocent passage* and the sovereign right of Denmark to *build a bridge* across the Great Belt thereby uniting the main parts of the realm of the Kingdom of Denmark. The dispute may also be seen as a conflict concerning the scope of the *principle* of innocent passage and the concrete *application* of that principle in accordance with Danish sovereign rights. Even on this point it is worth noticing that the right of Denmark to build a bridge across the Great Belt is *not* contested by Finland, (para. 8, pp. 5 - 6 of the Memorial). It is the *design* of the bridge which must not deprive the strait of its character as navigable waterway.

5. Finland argues as if the bridge *deprives* the Great Belt of its navigable character, whereas the fact is that the high-level bridge across the Eastern Channel has been carefully designed with such horizontal and vertical clearances that it *leaves the waterway open* to the continued traffic of all existing ships navigating the Great Belt as will be demonstrated in Chapter IV and VIII of Part I.

6. Furthermore Finland submits in its Application *that* there is a right of free passage through the Great Belt which applies to all ships entering and leaving Finnish ports and shipyards; *that* this right extends to drill ships, oil rigs and reasonably foreseeable ships; and *that* the construction of a fixed bridge over the Great Belt as planned by Denmark would be incompatible with such a right of passage.

7. In the Memorial (para. 560) these submissions are repeated, but with an addition implying that the Finnish claim is now extended to include also "other special ships". The Memorial fails to draw the attention to this addition by simply stating that "Finland repeats the submissions it made in its Application". This tendency on the part of Finland of widening the subject matter from drilling platforms - originally mentioned in the Finnish letter of 18 July 1989 addressed to the Danish Maritime Authority (Annex 60) - to reasonably foreseeable ships and now to other special ships has marked the Finnish presentation all along.

8. The Introduction to the Memorial, read together with the final submissions, confirms what Denmark observed in the oral proceedings concerning the Request for the Indication of Provisional Measures, namely, that the Finnish contention is that its right of passage through the Danish territorial sea is a right presenting three extraordinary characteristics, being at the same time an absolute, an unlimited, and an expanding or elastic right.

9. The right of passage as claimed by Finland is *absolute*, because it disregards completely the sovereign right of Denmark over its own territorial sea, which is part of its "submerged

territory", and also ignores Denmark's legitimate right to connect the two geographically divided segments of its territory and its population. Finland forgets that the function of the Court in this dispute is the fundamental one of all tribunals, namely, to ensure, in a concrete case, the compatibility of conflicting rights, none of which may pretend to be absolute, even with some sacrifice by both parties. Yet, in the Introduction to its Memorial (paragraph 17) Finland asserts that "the Court is not called upon to establish an *ad hoc* balance but to apply the law". However, the function of law is not to grant to an obstinate claimant the "pound of flesh" it believes itself to be entitled to, but to seek a proper balance between the conflicting interests and the competing rights of the disputing States.

10. The right of passage claimed by Finland is *unlimited,* because it is not satisfied with a vertical clearance of 65, or 70, or 80 metres, nor even by a clearance of 180 metres, because new designs of offshore craft may create the need for a higher vertical clearance. In its submissions it asks the Court (para. 560) to declare that it has a right of passage through the Danish straits, without proposing or accepting any definite height limit for a reasonable vertical clearance.

11. Finally the claims of Finland amounts to an *expanding or elastic* right because it asks the Court to declare that such an absolute and unlimited right is capable of expanding and increasing in height as a result of future developments in marine design and construction. In the Introduction to the Memorial it refers to the need "to take into account foreseeable trends in ship design and size" (para. 5, p. 5).

12. This look into the future permeates the whole Memorial. Thus, Finland refers in a number of paragraphs to new trends in future ship building and marine construction. For example, it is stated that "a height of 65 metres will be able to accommodate most but not all existing ships" (para. 4, p. 5 of the Memorial). Yet, it contends that Denmark is prevented from erecting the projected

bridge, in order to permit the occasional passage of offshore craft such as drill ships, oil rigs and other special ships "*under construction or design* whose dimensions vastly exceed the height of 65 metres", see paragraph 5, page 5 of the Memorial (Italics added). As will be demonstrated the Fixed Link across the Great Belt will not prevent a single ship from entering or leaving the Baltic Sea.

13. The Danish experts have mentioned the possibility of raising the vertical clearance by 3.8 metres, but this did not satisfy the Finnish experts who observed that "(t)his would not solve the basic problem ... there is no reason to believe that the height of future ships would remain less than 75 metres" (Annex 72 to the Memorial, p. 242).

14. To accept a right of passage with such characteristics - taking into account also that a movable bridge must be excluded *inter alia* due to the increased risk of collision with the bridge - means imposing a perpetual and increasing servitude *non edificandi* upon the Kingdom of Denmark. As the late Professor Max Sørensen has once observed, "... there is also general agreement that it is not possible, and therefore not necessary, to take into account unknown developments of the future. Once the bridge is there, future ship constructions will have to be adapted to it. A certain principle of priorities can be adopted for this purpose. ..." (para. 597).

15. The Counter-Memorial will show the intensive considerations given by successive Danish Governments to the bridge project seen in relation to the passage through the Great Belt. Denmark has indeed paid heed to the prudent advice of Dr. Erik Brüel in his treatise *International Straits*, (London 1947), where he writes in the concluding section:

> "... the history of both Turkey and Denmark shows what risks are run by the strait state when it shows too great a disregard for its "social" functions. It is then impossible to say more than that in administering international straits the coastal state

must bear in mind that it is carrying out a communal function as well as looking after its own interests. ..." (Vol. II. p. 426).

16. In its administration of the straits Denmark is seeking an equitable balance between its sovereign rights and the interests of the international community.

17. Considering the fact that the existing traffic of ships through the Great Belt is left unaffected by the bridge across the Eastern Channel of the Belt, the dispute boils down to a confrontation between the alleged right of passage of Finnish mobile offshore drilling units (MODUs) and Denmark's sovereign right to unite the two main parts of its territory by constructing *inter alia* a high-level bridge. This dispute is narrowed down even further by the fact that almost all Finnish MODUs may without modifications pass through the Danish strait named the Sound as it will be demonstrated in Chapter VI of Part I. The few existing Finnish units (already built and delivered) which may not pass through either the Sound or the Great Belt may nevertheless be able to do so subject to temporary modifications of the rigs. The actual confrontation may then be limited to the hypothetical passage in the *future* of certain oil drilling structures with exceptional dimensions and the bridge. This represents a striking factual contrast of the present case. Moreover, these floating offshore objects do not come within an internationally recognized concept of ships and are, therefore, not entitled, as a matter of legal right to unimpeded passage through the Danish straits.

18. The dispute is characterized by another surprising fact i.e., no direct provision of international law exists which governs the question of the building of bridges across international straits, though international straits for centuries have been the subject of much political and legal controversy. This is especially true with regard to the Danish and the Turkish straits where positive treaty regulations have been adopted with a view to regulating the traffic of ships through these straits, which are otherwise subject to national sovereignty.

19. The history of the Danish straits as outlined in paragraphs 554 - 560 confirms this point of view in the sense that Danish sovereignty over its straits is not to be contested. Even though certain Danish rights in this respect may have been abolished in the course of history, such as the payment of passage dues, the basic sovereignty of Denmark was left untouched. The right of innocent passage through the Danish straits is another restriction imposed upon Danish sovereignty in the interest of the international community at large. Such restrictions on the sovereignty of a State are themselves subject to a restrictive interpretation. No absolute and permanent servitude can be imposed upon a sovereign State through such a restriction.

20. A further characteristic feature of the present case concerns the fact - as already mentioned - that Finland accepts the building of a bridge across the Great Belt as justified under international law as long as the bridge provides for an opening with a width of about 200 metres and no limitation as to the height within that width. However, such a bridge would traditionally be constructed as a low-level bridge, and the result seen in relation to the considerable traffic through the Great Belt would be to hamper the passage in such a manner that the strait would cease to be a navigable waterway - a result that would run counter to the applicable rules of international law governing the passage through the Danish straits. It is exactly these international rules which Denmark has sought to fulfil by constructing the bridge with a height of 65 metres and a main span of 1,624 metres so as to leave open the waterway for the existing traffic of ships - a course of action which at the relevant time met with no objection from any State.

21. In this connection it should be noted that Finland presents the case as if Denmark is about to *plan* a high-level bridge across the Great Belt, whereas the fact is that the high-level bridge as part of the whole integrated project for a fixed traffic link across the Great Belt was made law in 1973. Preparatory design work was initiated in the same year, culminating in a notification to all

foreign missions accredited to Denmark in May 1977 giving details of the construction of the bridge. No objections were raised by Finland.

22. The project was suspended at the end of the 1970s, but resumed in the early 1980s and again notified in 1987. Finland's first diplomatic reaction to the bridge project was conveyed to the Government of Denmark on 19 June 1990 - more than *twelve years* after the bridge project was notified in written diplomatic form to the international community. The operative time for a relevant objection must be when the project is initiated, not when it is about to be completed. It is the submission of the Government of Denmark that Finland did not raise a timely protest with the strait State, thereby placing the Danish society in an impossible position. In this connection it should be borne in mind that the Fixed Link across the Great Belt is *one integrated project* meaning that the development of the construction plans on each separate part is part and parcel of the Project as a whole.

23. Bearing in mind that each case must be decided on its own merits, a reasonable approach for deciding the present dispute would appear to start out from the facts *that* the bridge project across the Great Belt traverses *in toto* Danish territorial waters; *that* these waters are subjected to passage by ships in accordance with long standing treaty provisions and national Danish regulations amounting to a right of innocent passage through the Danish straits for ships of all nations based both on conventional and customary law; *that* this right is administered by Denmark as the strait State and as *negotiorum gestor* of the international community; *that* objections to the Danish administration must be raised directly with the Government of Denmark in a way and within a time frame which leaves the strait State a realistic possibility of changing its administrative practice, if necessary; *that* the high-level bridge across the Great Belt has been designed in such a way as to leave open the passageway for existing ships which is explained by the fact that the yearly movements of about 20,000 ships through the Great Belt will *not* be affected by the bridge, whereas the Finnish

transport of drill ships, oil rigs and other offshore constructions which hitherto have passed through the Danish straits, at an average rate of 1 unit a year since 1974, may have to use the Sound as a passageway and in certain cases temporarily to modify the rigs to enable them to be transported through the Great Belt or the Sound; *that* this sequence of facts together with the element of *proportionality* which permeates central aspects of the present case explains why no state objected to the bridge project when launched in 1973 and notified to all foreign missions in Copenhagen in 1977, thus leaving the Kingdom of Denmark to proceed with the realization of the Project, in good faith.

24. Taking account of the particular circumstances of the present case and its history it is the submission of the Government of Denmark that the rules of international law applicable to the Danish straits do not prevent Denmark from building the bridge across the Eastern Channel of the Great Belt as an integrated part of the Great Belt Project currently under construction.

25. The Government of Denmark reserves its position with regard to all points of facts and law advanced by Finland in its Memorial which have not been addressed in this Counter-Memorial.

## CHAPTER I.

## THE GEOGRAPHY OF DENMARK AND THE DANISH STRAITS

26. Denmark lies south of the Scandinavian Peninsula and north of the European Continent proper, and between the North Sea and the Baltic Sea. Besides *Jylland* (the Jutland Peninsula), Denmark is made up of numerous smaller and bigger islands. Whereas the land frontier (with Germany) is only 67.7 kilometres, the total coastline exceeds 7,300 kilometres. Apart from the many smaller islands, Denmark consists of the Jutland Peninsula and the two major islands, *Fyn* (Funen) and *Sjælland* (Zealand). Almost half of the five million Danes live on Zealand and its main neighbouring islands, *Lolland, Falster*, and *Møn*, these being interconnected by bridges with Zealand. The other half of the population lives on Jutland and Funen which are also connected by bridges. Reference is made to Map I that shows the geography of Denmark with the Danish straits, *Lillebælt* (the Little Belt), *Storebælt* (the Great Belt), and *Sundet* (the Sound), as exits and entrances to the Baltic Sea. These straits form a system of navigational routes between the North Sea and the Baltic Sea. The Map also shows that *Femer Bælt* lies between the Danish island of *Lolland* and the German island of *Fehmarn*[1].

27. The Little Belt is the narrow strait that separates on the one side the Jutland Peninsula and the island of *Als* from on the other side the islands of Funen and *Ærø*. Its length is 70 nautical miles, and its width varies between 0.4 - 16 nautical miles. At its deepest it is 81 metres, and its minimum depth in the navigable channel is 15 metres. Due to its narrow and winding character, the presence of shoals, and its rather strong currents the Little Belt is

[1] The geographical position of *Femer Bælt* is incorrectly described in para. 5, p. 11 of the Memorial as lying between the island of *Fehmarn* and the German North Coast. The breadth of 3 nautical miles of the territorial seas of both Denmark and Germany leaves a route of open sea in the *Femer Bælt*.

difficult to navigate. Since 1935 Jutland and Funen have been linked by a bridge across the Little Belt. In 1970 a second bridge across the Little Belt was opened.

28. The Great Belt is the stretch of water between the islands of *Samsø*, Funen, and *Langeland* on the one side and Zealand and *Lolland* on the other. It has a length of about 90 nautical miles. The width of the Great Belt varies from 5.7 to 15 nautical miles. Between *Knudshoved* on the Funen side and *Halsskov* on the Zealand side, the Great Belt is divided by the island of *Sprogø* into two passages of almost equal width, the Western Channel and the Eastern Channel. The navigable route in the Western Channel between *Knudshoved* and *Sprogø* is about 2 nautical miles wide, in the Eastern Channel between *Sprogø* and *Halsskov* the navigable route is about 1 nautical mile wide.

29. The bottom topography of the Great Belt is dominated by irregular trenches. In the central part of the Great Belt - to the south west and south of *Halsskov* - the depths of the trenches may be up to 60 metres; in the northern part of the Belt up to 60 metres and in the southern part of the Belt up to 40 metres. The water depth in the trenches varies typically between 30 and 40 metres. However, to the north of the island of *Sprogø* there is an area of shallow water. The water depth in this area is about 26 metres.

30. The Sound is the strait between Denmark (the island of Zealand) and Sweden. Its length is approximately 56 nautical miles, its width varies between 2.2 to 27 nautical miles. The capabilities of the Sound as a navigable route to and from the Baltic Sea is dealt with in Chapter VI. This Chapter also describes the project for a fixed link across the Sound between Copenhagen and the Swedish town of *Malmö*, see paragraphs 355 - 364.

31. The currents in the Danish straits are caused by the rivers flowing into the Baltic Sea and the meteorological conditions over Northern Europe. The relatively high river run off to the Baltic Sea results in out-flowing surface currents in the Danish straits.

However, these out-flowing surface currents are masked by the irregular currents which are driven by the variable wind conditions over the Baltic and the North Sea. The speed of the currents in the central part of the Great Belt and the Sound varies normally between ½ and 3 knots.

32. Map II shows that the Little Belt is Danish internal waters, and that a substantial part of the Great Belt is Danish territorial sea. The area of the construction of the Fixed Link across the Great Belt is shown on Map III. This area is in its entirety within the Danish territorial sea. The Sound between Denmark and Sweden is partly Danish, partly Swedish territorial sea, with part of the main navigational route traversing Danish internal waters.

## CHAPTER II.

## THE DANISH PLANS FOR A FIXED LINK ACROSS THE GREAT BELT

### A. The Early Plans

#### 1. INTRODUCTION

33. The Great Belt divides Denmark's population in almost equal halves. For more than half a century there has been an urgent desire to unify the country by establishing a fixed traffic link across the Great Belt. The implementation of such a project would have significant advantages for the Danish society. In proportion to the size of the Danish society considerable investments would be needed for the carrying out of the Project. The Project could be carried out in different ways. The issue of a fixed link across the Great Belt has, therefore, over the years been subject of extensive debate in the Danish Parliament and in the media.

#### 2. THE PROPOSALS MADE IN THE 1930S

34. In the 1930s major bridge projects were successfully carried out in Denmark. In 1935 the first bridge across the Little Belt connecting Jutland and Funen was opened, and in 1937 the 3.2 kilometres long bridge across the *Storstrøm* connecting Zealand and *Falster* was completed.

35. Due to the advances in engineering technology and the increase in private car ownership a fixed connection across the Great Belt no longer seemed an impossibility, and in 1934 a Danish railway engineer published a project for a narrow combined road- and single track rail bridge across the Great Belt.

36. In March 1936 three major Danish engineering firms published a thoroughly elaborated project for a bridge across the

Great Belt as a part of a major motorway network linking all of Denmark together. The bridge combined a two-track rail line and a roadway for motor traffic.

37. The project elicited major public and political interest and led the Government to consider the construction of a bridge across the Great Belt. In a letter of 23 May 1936 the Ministry of Foreign Affairs advised the Ministry of Public Works that the clearance for a bridge across the Great Belt allowing the highest existing ships to pass would conform to international law (Annex 1).

38. The project published by the three major Danish engineering firms prompted the Danish State Railway to make the first official project for a bridge across the Great Belt[2]. In the budget for the Danish State Railways funds were set aside for soil investigations in the Great Belt. However, before the investigations could be initiated, the outbreak of World War Two caused the Project to be suspended.

## B. The Preparatory Work 1948 - 1972

### 1. The Great Belt Bridge Commission

39. Shortly after the end of World War Two renewed interest in the bridge project emerged. For three weeks during the exceptionally cold winter of 1947 only the most powerful Danish icebreaking vessel could cross the Great Belt, and an emergency airlift between Zealand and Funen was established. This caused the Government in 1948 to establish a Commission to consider the effect of a bridge for rail and road traffic across the Great Belt.

[2] Figure 1 shows the design of the high-level bridge across the Eastern Channel made by the Danish State Railways and published in 1936.

40. In 1956 the Commission issued a preliminary report on the technical aspects of establishing a fixed link across the Great Belt[3]. The Report contained the Commission's preliminary findings as to the alignment of the bridge and the design of the bridge.

41. The Commission's final Report was completed in December 1959 and published in 1960[4]. The Commission recommended an alignment from *Halsskov Rev* over the island of *Sprogø* to *Knudshoved* to be examined more thoroughly. The technical design of the bridge was a continuation of the bridge Project made in the late 1930s by the Danish State Railway[5].

42. The Commission had obtained an opinion from the Danish Ministry of Foreign Affairs on the foreign policy considerations which had to be taken into account in connection with the plans to erect a bridge across the Great Belt. In a letter of 12 February 1957 from the Ministry of Foreign Affairs to the Ministry of Public Works it was stated that under international law nothing would prevent the construction of a bridge across the Great Belt provided that the bridge was constructed in such a way that it did not present any hindrance to the passage of even the largest vessels existing at the time. The said letter refers to an opinion rendered on 4 February 1957 by the legal adviser on international law to the Ministry of Foreign Affairs, Professor Max Sørensen (Annex 2).

43. On this basis, the Commission recommended a vertical clearance of around 67 metres to give all existing vessels free passage. The Commission rejected the idea of a low-level bridge with movable parts (bascule, swing or hoist bays). The Commission found that considerations relating to the navigation and the intense traffic over the bridge would exclude such a solution (Annex 3).

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[3] Report 155/1956.

[4] Report 237/1960.

[5] *Figure 1 shows the design of a high-level bridge across the Eastern Channel made by the Great Belt Bridge Commission and published in 1960.*

44. The Commission regarded it as technically possible to construct a bridge across the Great Belt and stated that the burden placed on society by carrying out the Project was not likely to exceed the economic capacity of the country. The Commission did not propose a time for the start of construction of a bridge across the Great Belt, as this *inter alia* had to be adapted to the prevailing economic policy, the employment situation and the possibilities for obtaining financing. Furthermore, the construction had to conform to a long-term programme for the total public investment activities. Within the society's investment activities the major traffic investments had to be placed in a specified order of priorities (Annex 4).

45. In 1961 a Traffic Economic Committee established in 1955 by the Minister for Public Works issued a report on the priorities of the major traffic investments in an aggregated 20 year programme for public traffic investments[6]. The Traffic Economic Committee recommended that a decision on implementing the necessary preliminary investigations concerning the Great Belt Bridge ought to be made early so that the bridge could be completed before 1975.

## 2. THE 1961 ACT

46. Following the final Report by the Great Belt Bridge Commission and the Report by the Traffic Economic Committee, the Minister for Public Works submitted a Bill on 8 November 1961 on Technical Preparatory Works for the Construction of a Combined Road and Railway Bridge across the Great Belt (Annex 5). The proposals made by the Great Belt Bridge Commission were well received in Parliament, and Parliament unanimously passed the Bill. The Bill was enacted as Act No. 379 of 20 December 1961 authorizing the Minister for Public Works to initiate the planning

[6] Report 294/1961.

and soil investigations necessary for the construction of a combined road and rail bridge across the Great Belt (Annex 6). The Act also authorized the administration to make the expropriations necessary to carry out the investigations.

### 3. THE WORKING COMMITTEE

47. In accordance with a proposal made by the Great Belt Bridge Commission the Minister for Public Works had in 1960 established a Working Committee *inter alia* with the aim to follow traffical, technical and economic developments of importance for the Fixed Link. In 1962 the Working Committee's tasks were extended to make preliminary technical investigations in connection with the Great Belt Bridge. In 1962 - 63 the Working Committee was responsible for a preliminary soil investigation programme, and in 1963 - 64 for a new traffic analysis.

48. In 1965 the Minister for Public Works announced an international competition for the design of a bridge or tunnel across the Great Belt. An international committee consisting of seven judges of which one was Finnish was established to examine the entries submitted. 144 entries were received from 18 countries including Finland[7].

49. In 1968 the Working Committee submitted its report on a fixed link across the Great Belt[8]. In the Report six alternative bridge, tunnel and combined bridge-tunnel solutions are reviewed.

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[7] In para. 123 of the Memorial, it is stated that "(m)any suggestions contained a combined bridge - tunnel alternative". This can give a wrong impression of the importance of the bridge - tunnel alternatives. In the published excerpt of the Report given by the Committee of Judges it is declared: "The number of submitted tunnel proposals was rather limited. Some of these proposals presuppose methods of implementation which hardly are practically feasible, and a few of the proposals do not satisfy the conditions for the competition. The number of proposals to be considered has therefore been very small".

[8] Report 508/1968.

In the Report it is stated that there seems to be little doubt that the railway connection should be double tracked, and that much seems to speak in favour of establishing or at least preparing a six-lane motorway connection[9].

50. Information on the air draught of vessels which might pass the Great Belt was collected in order to establish the clearance for a bridge across the Eastern Channel. Based on the obtained information the Working Committee stated that there are vessels with such an air draught that a clearance of approximately 68 metres would be necessary[10].

51. In 1960 there had been made a private proposal for a fixed link across the Great Belt consisting of a low-level bridge across the Eastern Channel and a tunnel under the Western Channel. The Western Channel was to be made navigable for the largest ships by a deepening of the area to a depth of 15 metres. This proposal gave rise to a new inquiry to the Ministry of Foreign Affairs. In an opinion of 29 January 1962 Professor Max Sørensen gave an account of the rules of international law on the right of passage in international straits which had been dealt with at the Conference in Geneva 1958 (Annex 7). The opinion was enclosed in the Report submitted in 1968 by the Working Committee. As to the private proposal, Max Sørensen stated that nothing can be said with certainty about the compatibility of the private proposal with Denmark's obligations under international law, but that the question

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[9] In para. 124 of the Memorial, it is stated that "(r)elying heavily on economic considerations, the Working Group suggested the construction of a bridge with a combined two-track railway plus a six-lane motorway, all in one floor." The use of the term "relying heavily on economic considerations" may give a wrong impression of the comprehensive and well balanced work carried out by the Working Committee. It should also be noted that the Working Committee does not point to one single solution as maintained in the Memorial. The Working Committee only points out that a combined road and rail bridge still is to be regarded as the most economic solution.

[10] Figure 1 shows the design for a high-level suspension bridge across the Eastern Channel made by the Working Committee and published in 1968.

is associated with no inconsiderable doubts. With due regard to the importance of the interest at stake, Professor Max Sørensen was not in a position to advise the implementation of a project which raises such doubts, irrespective of the technical or economic advantages offered by the project.

## 4. The Technical Committee

52. In 1970 the Minister for Public Works appointed a Technical Committee. The Technical Committee was requested to make a feasibility study of the possible types of fixed links across the Great Belt including an examination of a so called car-train solution where the vehicular traffic is transferred on to special shuttle trains. The Technical Committee was later requested to evaluate the possibility of constructing a fixed link via the island of *Samsø*. In the Report submitted by the Committee in 1972 it is stated that the most economic solution would be a fixed link across the Great Belt constructed as a two-track railway tunnel under the Eastern Channel and a low-level rail bridge across the Western Channel for the ordinary railway and the car-train traffic[11].

53. In connection with the work of the Technical Committee, Professor Max Sørensen has rendered an opinion of 8 March 1971 on whether the building of a low-level bridge across the Western Channel in connection with either a tunnel or a high-level bridge with sufficient clearance across the Eastern Channel could be done in accordance with international law (Annex 8). In this opinion Professor Max Sørensen referred to a *Pro Memoria* of 28 August 1968 on questions pertaining to international law in connection with the construction of a fixed link across the Sound. The *Pro Memoria* was edited by Dr. Hans Blix, legal adviser to the Swedish Ministry of Foreign Affairs, and consented to by Professor Max Sørensen. In this *Pro Memoria* it was stated that the passage

[11] Figure 1 shows the design for a high-level bridge made by the Technical Committee and published in 1972.

should not be precluded or impeded for even the largest presently existing vessels which are able to pass through the Sound irrespective of whether the vessel in question sails in ballast or with cargo. On the other hand, only ships could be taken into account, not other floating constructions, such as drilling platforms, which might pass through the Sound by way of towing.

## C. The Initial Project

### 1. The 1973 Act on the Construction of a Bridge across the Great Belt

54. Based on the preparatory work carried out by the Commission[12], the Working Committee[13], and the 1972 Report by the Technical Committee the Minister for Public Works submitted on 16 January 1973 a Bill on the Construction of a Bridge across the Great Belt (Annex 9). It was proposed in Section 2 of the Bill that the Project should consist of a high-level bridge across the Eastern Channel and a low-level bridge across the Western Channel with a six-lane motorway with emergency lanes and two railway tracks. The design of the high-level bridge should allow for the necessary navigational clearance.

55. In Section 5 of the Bill it was proposed that a special, governmental administrative entity, *Statsbroen Store Bælt*, be established by the Minister for Public Works who should be in charge of the Project.

56. The reasons for the choice of a combined road and railway bridge amongst the options provided in the previous reports are given in the comments to the Bill. The Government considered a pure rail tunnel solution technically vulnerable compared to a

[12] Report 237/1960.

[13] Report 508/1968.

combined rail and road bridge. It was also felt that the motorists would find the car-train solution inferior to a solution enabling the cars to drive across the Great Belt. The car-train solution would then result in less traffic across the Great Belt with an ensuing fall in revenue.

57. The comments to the Bill also addressed the issue of international law. It was underlined that international law necessitated that the bridge across the Eastern Channel be given a clearance sufficient for the passage of the largest existing ships. On the basis of the available information the Ministry of Foreign Affairs and its adviser on international law considered that the Western Channel of the Great Belt must be characterised as a secondary navigational channel, and that Denmark would not be neglecting its obligations under international law in preventing passage through this navigational channel by building a low-level bridge. It is further explained in the Comments to the Bill that since the legal evaluation is based on a Danish view of actual conditions, the Government intends to give foreign countries involved a chance to put forward any objections they may have, once a decision to build the link has been taken.

58. The Bill was well received in the Danish Parliament and was passed with 117 votes against 28, 16 abstentions, and enacted as Act No. 414 of 13 June 1973 on the Construction of a Bridge across the Great Belt (Annex 10).

### 2. *STATSBROEN STORE BÆLT*

59. In November 1973 the Minister for Public Works appointed the members of the board of *Statsbroen Store Bælt*.

60. The steep increases in energy prices at the end of 1973 and in the beginning of 1974 caused the Government to have *Statsbroen Store Bælt* investigate whether the increase in the prices of energy had changed the preconditions for the 1973 Act. It was to be

investigated whether a rail tunnel only solution was to be preferred, thereby abolishing the motorway connection. The two alternative solutions, a combined rail and road bridge as provided for in the 1973 Act or a rail tunnel only solution, were to be compared with a continuation of the ferry service. The preparatory work to be carried out under the 1973 Act was suspended until the results of these investigations were available. Consequently, the organisation of *Statsbroen Store Bælt* with a permanent staff was also suspended.

61. In August 1975 the Board of *Statsbroen Store Bælt* published the results of the supplementary investigations. The Board concluded that a fixed link across the Great Belt would still be very profitable for the society, and that the car-train solution with a two-track rail tunnel and a low-level bridge was still the most profitable solution.

62. In the account of traffic policy given by the Minister for Public Works to the Danish Parliament on 16 October 1975 the Minister stated that the most important traffic policy issues were the design of the Fixed Link across the Great Belt and the final decision to start the works.

63. In December 1975 two small parties in the Danish Parliament submitted a Bill to amend the 1973 Act in order to have a tunnel instead of a bridge across the Eastern Channel. A third political party proposed a resolution on a suspension of the Great Belt Project. In May 1976 the Bill as well as the proposed resolution was defeated by a substantial majority of votes. The Bill was defeated by 126 votes against 30, 6 abstentions; the resolution to suspend the Project was defeated by 101 votes against, 60 for and 5 abstentions.

64. In June 1976 the position of executive director for *Statsbroen Store Bælt* was advertised, and the first executive director was appointed on 1 September 1976.In January 1977 *Statsbroen Store Bælt* had a permanent staff of six persons.

65. In May 1977 a number of international newspapers and other publications carried advertisements from *Statsbroen Store Bælt* inviting contractors of international standing to prequalify for bidding for the high-level bridge across the Eastern Channel. The invitation contained technical specifications on the bridge including the clearance to be provided (Annex 11). Applications for prequalification were to be submitted not later than by 1 August 1977.

### 3. The Circular Note of 12 May 1977

66. By Circular Note of 12 May 1977 the Ministry of Foreign Affairs advised all Heads of Foreign Diplomatic Missions accredited to Denmark of the Great Belt Project (Annex 12).

67. The Note advised on the 1973 Act on the Construction of a Bridge across the Great Belt and stated that construction plans were now being prepared. The Note is not, as claimed in paragraph 128 of the Memorial, a generally phrased statement to the effect that the construction across the Eastern Channel in conformity with international law will allow international shipping between the Kattegat and the Baltic to proceed as in the past. The Note contained detailed information on the alignment and the utilization of the bridge. In the Note it was stated that according to available data the high-level bridge across the Eastern Channel would not in any way restrict passage through the Great Belt by existing ships which have navigated these waters in the past. An explanation for the horizontal clearance of the high-level bridge is given, and it is expressly stated that the free vertical clearance for passage under the high-level bridge will be 62 metres above mean sea level.

68. The purpose of the Note was, as explained in the comments to the 1973 Act, to give foreign States the opportunity to object to the Project. The wording of the Note leaves no doubt. Any State receiving the Note which was of the opinion that a bridge across the Eastern Channel with a clearance of 62 metres would not

be in accordance with international law because the bridge would not allow for passage of existing ships through the Danish straits had a strong inducement to object. This seemed to be prudent especially for countries having a coastline within the Baltic. And a country whose shipyards at the time of the receipt of the Note had built seven semi-submersibles with air draughts exceeding 62 metres and had entered into contracts obligating to deliver an additional number of similar semi-submersibles, and who was of the opinion that the planned bridge would violate its rights, had to object not to suffer any loss of rights. No internal political or economic circumstances in Denmark at the time when the Note was sent could justify an omission to object.

69. The Note was sent to all States having diplomatic representation in Denmark at the time including the then six States around the Baltic Sea, Sweden, Finland, the USSR, Poland, the German Democratic Republic and the German Federal Republic. Only two countries reacted in substance to the Note. Less than seven months after the receipt of the Danish Circular Note Poland suggested in a Note of 6 December 1977 that future trends within the shipbuilding should be taken into consideration (Annex 13). Three month later the USSR stated in a Note of 29 March 1978 *inter alia* that the free height below the bridge girder in the Eastern Channel should allow for the passage of ships with an air draught of a minimum 65 metres, and the free horizontal clearance between the bridge piers should be at least 350 metres (Annex 14). From Finland there was silence until the summer of 1989, more than 12 years after the Note was issued.

70. Denmark answered the USSR in a *Note Verbale* of 28 June 1978 (Annex 15). In its answer Denmark points out that all particulars available to Denmark show that the clearance under the bridge will not restrict passage through the Great Belt for ships having navigated these waters in the past. The answer goes on to state that there is no material available to the Danish Authorities which would justify a vertical clearance of 65 metres and asks the Embassy of the USSR to submit information to support the need for

such a clearance as soon as possible. The Danish Ministry of Foreign Affairs did not receive any answer to this request. The Note from Poland was answered by Denmark's *Note Verbale* of 3 July 1978 (Annex 16).

## 4. The Progress of the Initial Project

71. In the period from October 1976 until August 1978 there was a large planning and research activity in *Statsbroen Store Bælt* and considerable progress was made in the work related to the design of the Great Belt Bridge. In this period the total number of persons employed by *Statsbroen Store Bælt* and its consultants was around 195.

72. In 1977 the alignment, the longitudinal profile and the cross-section of the Great Belt Bridge was determined. A decision on the length of embankments was made. Measurements and tests concerning hydrography, maritime environment, seismology, traffic of ships, meteorology, soil conditions etc. were carried out. Fourteen contracting groups were prequalified for bidding for the high-level bridge across the Eastern Channel[14].

73. In 1978 measurement and test work continued. Meetings were held with the prequalified contractors, and the tender material was prepared in order to be issued in October 1978. The bids were to be received in mid-1979.

74. Also in 1978 invitations to submit tenders for limited preparatory works comprising an embankment from *Halsskov* reef, a temporary harbour and a work site area on Zealand were issued. Offers for this limited work were submitted, and a contract was negotiated with the lowest bidder. Only one contract was negotiated, and in the event the works under the contract had been

[14] Figure 1 shows the design for the high-level suspension bridge across the Eastern Channel made by *Statsbroen Store Bælt* and published in 1978.

initiated and carried out, it would have accounted for less than two percent of the budget for the high-level bridge and less than one percent of the budget for the total Great Belt Project[15].

75. Early August 1978 Danish newspapers informed that *Statsbroen Store Bælt* had initiated land acquisitions in order to start work on the Bridge Project, and that election of contractors could be expected to take place around 20 August 1978.

## 5. Debates in the Danish Parliament on the Great Belt Project 1977 - 1978

76. In an attempt to justify Finland's decision not to respond to Denmark's Circular Note of 12 May 1977 the Government of Finland has put forward two assertions (para. 129 of the Memorial). First, that the Note contained a statement to the effect that international shipping in conformity with international law would be allowed to proceed as in the past. This assertion has been dealt with in paragraphs 67 - 68.

77. The second assertion made by Finland is, that at the time of the dispatch of the Note the political atmosphere in Denmark was very uncertain. Therefore, "(a)s for Finland no reaction was considered necessary". The Government of Finland has been ill advised in making this statement in its Memorial. Finland has not proven that the reason mentioned here was present and decisive for the Finnish Government at the time. In the unlikely event such proof should be presented, it is obvious that the Finnish Government in such case has acted under a misconception for which they themselves must bear responsibility.

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[15] In para. 132 of the Memorial, refers to "contracts that had been negotiated on construction works were left unsigned". In using this language Finland could create the impression that a number of contracts covering a substantial part of the Project had been negotiated and left unsigned. This is not so. The only negotiated contract which was not signed due to the postponement of the Project was the contract mentioned in para. 74 of this Counter-Memorial.

78. In October 1977 two parties from each side of the political spectrum took initiatives concerning the Great Belt Project.

79. A party from the Right (*Fremskridtspartiet*) submitted a Bill proposing that the Great Belt Project be suspended. In the comments to the Bill it is stated that the Fixed Link across the Great Belt should be built as soon as it is economically feasible. From the Left another party (*Socialistisk Folkeparti*) proposed a resolution requesting the Government to submit a Bill postponing the establishment of a bridge across the Great Belt until after 1990. The reasons for this resolution were also of an economic nature. None of the proposals called for an abolition of the Project. Due to the two parties' limited number of seats in the Parliament it was evident from the very beginning that the likelihood of success for these proposals was nil. The proposals were rejected.

80. Finland tries to convey the impression that as early as June 1978 it was almost certain that the Great Belt Project would be suspended, and that despite this, tender procedures were undertaken by *Statsbroen Store Bælt* (para. 131 of the Memorial). The facts do not support Finland's point.

81. Already on 16 March 1978 the Danish Parliament had rejected a proposal to stop the funding of the Great Belt Project with 109 votes against 61.

82. On 1 June 1978 a Motion was introduced in the Danish Parliament by the Liberal Party (*Venstre*). This Motion contained the factual statement that the point in time when it definitively was too late to change the decision on the Great Belt Bridge would not be until the end of August. During the debate on the Motion the Minister for Public Works pointed out that the Motion only contained the facts which the Government had set forth earlier. The Minister for Public Works made it clear that *Statsbroen Store Bælt* would continue its work as planned and added that the Great Belt Project had been discussed and confirmed several times in the Parliament. The Government supported the Motion which was

passed with 114 votes against 14; 24 abstentions. The Motion did not as maintained by Finland contain a decision by the Parliament to reconsider the bridge decision. Even after the Motion was passed a suspension of the Great Belt Project was not to be expected.

83. For Finland to use the Parliamentary Debates in the period after the transmittal of the 1977 Circular Note as an excuse not to react to the Note is absurd. Foreign Governments were obliged to take the formal communications from the Government of Denmark at face value. They were not entitled to disregard them as unrealistic on the basis of their own assessment of internal Danish politics.

## D. The Postponement

### 1. The Decision to Postpone the Project

84. In connection with the formation of a new government an unexpected and atypical coalition between the Social Democratic Party and the Liberal Party, it was decided at the end of August 1978 to postpone the Great Belt Project as a part of a general austerity programme. In his opening address to the Danish Parliament on 3 October 1978 the Prime Minister announced that due to financial considerations the Government had decided to postpone the Great Belt Project. The Prime Minister stated that the Government would give the Danish Parliament a more detailed account of the issue subsequently (Annex 17).

85. This account was given by the Minister for Public Works on 17 October 1978 (Annex 18). The Minister stated that the decision to postpone the Project was made against the background of the very severe economic situation of the country. The Minister stressed that the Great Belt Project was merely postponed and stated that the Government expected that the necessary preconditions for resuming the Project would not be present until 4 - 5 years had passed. The 1973 Act remained in force, and it was decided to use

the postponement period to carry out additional investigations concerning the Project.

86. In order to have the important and far-reaching preparatory work carried out by *Statsbroen Store Bælt* and its consultants available when the Great Belt Project was to be resumed, it was decided that *Statsbroen Store Bælt* and its consultants should continue to finalize the project work concerning the bridge across the Eastern Channel and prepare a comprehensive report on the activities undertaken by the agency in 1977 - 1979[16]. The material concerning the Project prepared by *Statsbroen Store Bælt* was filed and placed in separate archives with a view to being utilized when the Project was resumed.

## 2. Reactions from other States

87. It was thus clear to everyone that the Great Belt Project was only postponed for a limited period, and that the Project would be carried out in the foreseeable future. Thus, the USSR showed more considerate and careful behaviour than the one Finland has tried to defend in paragraphs 127 - 128 of the Memorial. In a Note of 18 January 1979, referring to the Danish Parliament's decision to postpone the erection of the bridge for a 4 - 5 year period and to use the intervening period to investigate issues relating to a fixed link across the Great Belt, the USSR requested to be kept informed about the more detailed plans for the implementation of the Project in order to have a more detailed knowledge of all related issues (Annex 19). From Finland there was only a continued silence.

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[16] *Statsbroen Store Bælt* in 1979 published the Report: *En redegørelse for de af Statsbroen Store Bælt i medfør af lov nr. 414 af 13. juni 1973 om anlæg af broen over Store Bælt udførte forberedende arbejder 1977 - 79* (Statement concerning preparatory works undertaken from 1977 to 1979 by *Statsbroen Store Bælt* in pursuance of Act No. 414 of 13 June 1973 on Construction of a Bridge across the Great Belt).

## 3. Debates in the Danish Parliament on the Great Belt Project 1978 - 1985 and New Investigations

88. After the decision to postpone the Great Belt Bridge Project for a 4 - 5 year period, attempts were made in the Danish Parliament to have the Government obliged to continue the Project without delay. Attempts were also made to have the Project further postponed. None of these attempts led to any change in the decision taken by the Government in 1978. The 1973 Act remained in force and so did the Government's commitment to resume the Project in 1983.

89. *In his opening address to Parliament on 5 October 1982* the Prime Minister stated that the Government would give Parliament an account of the future traffic connections between the Eastern and Western part of Denmark. The account would be given on the basis of the results of the research program implemented subsequent to the decision in 1978 to postpone the Great Belt Bridge and in the light of the total economic situation of the country and of the employment situation in the country.

90. On 15 February 1983 the Minister for Public Works gave to Parliament an account of the future traffic connections between the Eastern and Western part of Denmark (Annex 20). The Minister stated *inter alia* that the decision made in 1978 to postpone the Project was made against the background of the general economic situation of the country. The economic situation of the country had not improved in the intervening period. Nevertheless, the Government found that the decision to establish a bridge across the Great Belt should be upheld. The Government found that the developments in tunnel technology could allow a new technical evaluation of the various possibilities for the carrying out of a combined connection for road and rail across the Eastern Channel. It was also to be investigated whether a fixed link could be constructed in stages. It was the Government's intention to give Parliament an account of the Project when these investigations had been carried out, probably in the spring of 1985.

91. On 3 March 1983 the account given by the Minister for Public Works was debated in Parliament. The debate showed a parliamentary majority for supporting a fixed link across the Great Belt, and the Minister received a clear mandate to initiate a technical updating of the 1978 Project[17].

92. After receiving this mandate the Minister for Public Works had in the following two-year period major investigations on technical and economic issues relating to the Fixed Link across the Great Belt carried out.

93. In April 1983 the Minister for Public Works established a Technical Group to update the 1978 Project and to reevaluate alternative proposals for the Project. The Report of the Technical Group was published at the end of 1983. As to the bridge project, the Report relied on main assumptions identical to those applied in the 1978 Project. The vertical clearance of the bridge across the Eastern Channel was identical to the earlier project and also the horizontal clearances were the same, namely either 780 metres for a cable-stayed bridge or 1,416 metres for a suspension bridge[18].

94. In 1985 two reports on a fixed link across the Great Belt were published. The Minister for Public Works had established a working group consisting of three prominent and independent economists. The task of the working group was *inter alia* to investigate the economic consequences of a fixed link. The Report

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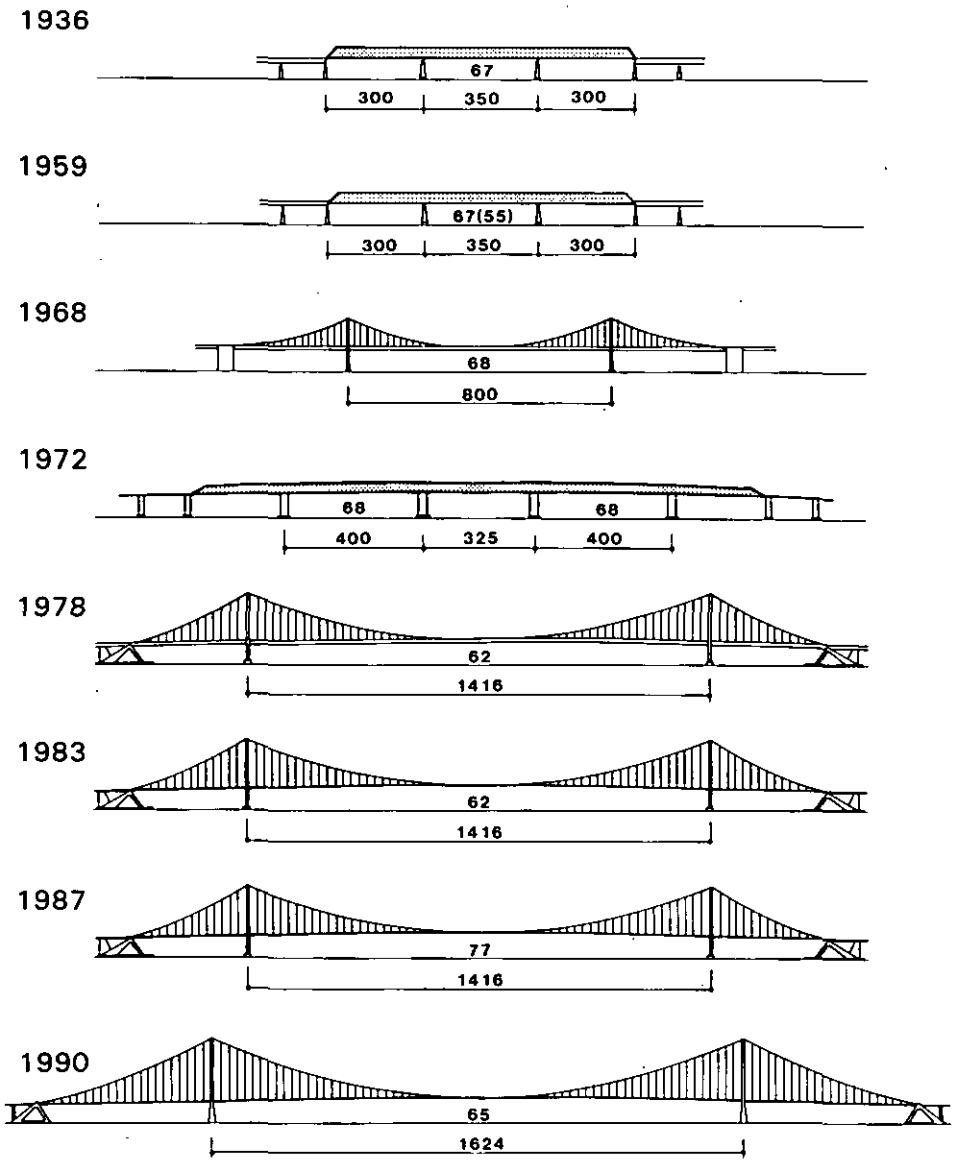
[17] A proposal tabled by the Radical Liberal Party (*Det Radikale Venstre*) to annul the 1973 Act was dismissed. Few months later, on 10 May 1983 the Danish Parliament passed a Motion tabled by the Radical Liberal Party calling for an amalgamation of the ferry routes for road and rail traffic across the Great Belt. The Motion was opposed by the Government who found that investments in the ferry services would be made obsolete by the establishment of a fixed link and could only lead to a delay in the construction of a fixed link across the Great Belt. The majority of Parliament decided against the Government, and a Bill on the Expansion of the Ferry Services across the Great Belt was enacted as Act No. 296 of 6 June 1984.

[18] Figure 1 shows the design for a high-level suspension bridge across the Eastern Channel made by the Technical Group and published in 1983.

published by the working group concluded that the so called car-train solution as well as the bridge solution containing a motorway would be economically competitive compared to a continuation of the ferry service. Another working group established in 1983 by the Minister for Public Works with the task to investigate the traffic between the Eastern and Western part of Denmark published also in 1985 a report on the economic consequences of various technical options for a fixed link across the Great Belt. The Report concluded that as in all other investigations undertaken a fixed link across the Great Belt would be a highly profitable investment for the Danish society.

95. Following the technical and economic investigations the Minister Public Works on 17 April 1985 gave the Parliament the promised account of the Fixed Link across the Great Belt (Annex 21). The account concluded that a fixed link across the Great Belt would contribute to a significant improvement of the most important traffic connections, that a fixed link across the Great Belt would be a very profitable investment to the benefit of the Danish society, and that the Government held it of importance to have the establishment of a fixed link started as promptly as possible. The account given by the Minister for Public Works was generally well received by Parliament.

**Figure 1:** PUBLISHED DRAWINGS OF PROPOSALS FOR BRIDGES ACROSS THE EASTERN CHANNEL




1936 The Danish State Railways
1959 The Great Belt Bridge Commission
1968 The Working Committee
1972 The Technical Committee
1978 *Statsbroen Store Bælt*
1983 The Technical Group
1987 *A/S Storebæltsforbindelsen*
1990 *A/S Storebæltsforbindelsen*

## E. The Present Project

### 1. THE 1986 POLITICAL AGREEMENT

96. Talks between a liberal/conservative Government established in 1982 and the Social Democratic Party, the largest party in Denmark, led to a Political Agreement of 12 June 1986 on the Construction of a Fixed Traffic Link across the Great Belt (Annex 22). The Agreement provided for a two-phased establishment of a fixed traffic link across the Great Belt. The first phase was to be a rail link, followed by a 4-lane motorway connection as the second phase. Both rail and road connections were to cross the Western Channel on a low-level bridge. The rail connection across the Eastern Channel was to be through a tunnel. The motorway connection across the Eastern Channel belonging to the second phase was planned with a high-level bridge as the primary option. The Agreement also states that the experiences from the tender procedure concerning the rail tunnel could be taken into account by the parties when considering whether to invite tenders for a high-level bridge as well as an immersed tunnel for the road link across the Eastern Channel see Section 1 of the Agreement.

97. *The rail connection was to be built as the first stage of* the Project. The second stage of the Project, the motorway connection, was to be started at least one year prior to the start of operating the rail connection.

### 2. THE 1987 ACT

98. In order to have the 1986 Political Agreement passed into law the Minister for Public Works on 21 January 1987 submitted a Bill on the Construction of a Fixed Link across the Great Belt (Annex 23). The Bill was passed by Parliament and enacted as Act No. 380 of 10 June 1987 on the Construction of a Fixed Link across the Great Belt (Annex 24). The Act repealed the 1973 Act on the Construction of a Bridge across the Great Belt.

99. The wording of the Act and the comments to the Act clearly reflect that a high-level bridge across the Eastern Channel continued to be the primary solution. Section 4, Subsection 2 of the Act provides that the motorway link may cross the Eastern Channel on a high-level bridge or in an immersed tunnel. A project was to be prepared for the inclusion of the immersed tunnel in the invitation to submit tenders, if it is considered appropriate in terms of construction and economy to invite tenders for both alternatives. And in the comments to this Section it is stated that the Section is drafted to reflect the view that the high-level bridge still is the preferred alternative.

100. A State-owned company, *A/S Storebæltsforbindelsen*, had been incorporated already in January 1987. The purpose of this entity was to undertake the design and, as employer, the construction of the Fixed Link. The reason for choosing a joint stock company as the format for the organization of the Project instead of a separate administrative entity as was done with the initial project was to obtain the clearest possible separation between the economy of the Project and the budget of the State.

101. By Circular Note of 30 June 1987 the Danish Ministry of Foreign Affairs advised all Head of Foreign Diplomatic Missions accredited to Denmark of the Project (Annex 25). This Note did not give rise to any reactions from foreign States.

## 3. The Conceptual Design Work

102. In July 1987 *A/S Storebæltsforbindelsen* commenced preparing a conceptual design for the Fixed Link to establish a basis for the subsequent tenders. While the Project was to be considered an integrated whole, a specified lead time of two to four years for the completion of the rail connection prior to the opening of the road connection initially focused attention on the rail component of the Project.

103. At the end of 1987 conceptual designs had been drawn up for all three major sub-components of the Fixed Link, the East Tunnel, the West Bridge and the East Bridge. The three sub-components were to combine into a double-track railway and a 4-lane motorway reaching 18 kilometres from Knudshoved on Funen to *Halsskov* on Zealand. An artificial island just to the north of *Sprogø* would provide the interface between the Eastern and the Western halves of the Project.

104. The East Tunnel provides the rail connection between *Sprogø* and *Halsskov* at Zealand, a distance of 8 kilometres. The conceptual design called for either a bored tunnel of a total length of 7.9 kilometres or an immersed tunnel.

105. The West Bridge spans the 6.6 kilometres between *Knudshoved* at Funen and *Sprogø*, carrying both road and rail traffic. The 1987 conceptual design provided for three alternative superstructures: a double deck composite steel/concrete girder, as well as concrete or steel girders in one level only. Bridge clearance was initially set at 14 metres, but was later changed to 18 metres in order not to force smaller craft to use the Eastern Channel.

106. The Eastern Road connection carries the road traffic from *Sprogø* to *Halsskov*. The conceptual design for the high-level bridge had two variants. A cable-stayed bridge with a main span of 780 metres with side spans of 300 metres or a suspension bridge with a main span of 1,416 metres and side spans of 400 metres i.e., the same main span lengths as were included in the 1978 Project by *Statsbroen Store Bælt*. Both alternatives for the main span were connected to the shore by approach spans 164 metres in length. The total length of the East bridge was to be 5.5 kilometres, supplemented by ramps at each end. The bridge clearance was initially set at 77 metres. The design for the cable-stayed bridge as well as for the suspension bridge was based on the specifications for the 1978

Project[19]. The secondary, immersed tunnel alternative had also two variations, a concrete or a steel tunnel.

107. Notice to tender by restricted procedure for the rail tunnel under the Eastern Channel was given on 28 July 1987. In November 1987 five engineering consortia were prequalified to bid for the work. Invitation for tenders were issued on 26 February 1988, and offers for the rail tunnel were submitted on 30 June 1988.

108. Notice to tender by restricted procedure for the Western Bridge was given on 9 October 1987. In March 1988 five engineering consortia were prequalified to bid for the work. Invitation for tenders were issued on 7 March 1988 and tenders were submitted on 30 November 1988.

## 4. The Final Overall Design

109. The 1986 Political Agreement provided that the experiences from the rail tunnel tender should be taken into account when deciding whether the motorway connection across the Eastern Channel should be tendered not only as an high-level bridge but also as an immersed tunnel.

110. The decision on whether to include a tunnel alternative in the invitation for tenders for the motorway connection across the Eastern Channel was to be taken by the Minister for Transport[20] after consultations with an informal parliamentary group of representatives from five political parties.

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[19] Figure 1 shows the design for the high-level suspension bridge across the Eastern Channel made by *A/S Storebæltsforbindelsen* and published in 1987.

[20] In 1987 the Ministry of Public Works was renamed the Ministry of Transport.

111. On 9 September 1988 *A/S Storebæltsforbindelsen* made a recommendation to the Minister for Transport concerning the final overall design of the Great Belt Project. *A/S Storebæltsforbindelsen* recommended that the road connection across the Eastern Channel should be carried out as a high-level bridge. The lowest cost for a high-level bridge would be DKK 5,350 million (USD 834 million) and the rail tunnel tender had indicated that the cost of an immersed tunnel would be DKK 1,300 million (USD 203 million) higher[21]. In addition operating and maintenance costs were expected to be more than 50 per cent. higher for the tunnel. The construction of an immersed tunnel would have an significant adverse impact on the marine environment.

112. On 14 October 1988 the political parties to the 1986 Political Agreement approved the recommendation made by *A/S Storebæltsforbindelsen*. On 4 November 1988 the Minister for Transport approved *A/S Storebæltsforbindelsen's* recommendation. On 9 November 1988 the Minister for Transport submitted to Parliament a written account on design of the Project as approved by him (Annex 26).

113. The Great Belt Project and its final design was subject to major national interest, and led at the time to wide coverage in Danish media. Also international news agencies and correspondents considered the bridge project newsworthy and the Project gave rise to both articles and comments in the Finnish media. In connection with an official visit to Finland by the Danish Prime Minister on 9 September 1988 the Swedish-language daily "*Hufvudstadsbladet*" carried the leader "A Bridge-Builder from Denmark" with reference to the plans for a bridge across the Great Belt (Annex 27). On 23 September 1988 "*Hufvudstadsbladet*" carried the article "The Great Belt gets its Bridge" describing the project as a rail tunnel and car bridge from Zealand to *Sprogø* and a combined road and

[21] *In this Counter-Memorial figures in Danish Kroner have been converted into* US Dollars on the basis of the rate of exchange on 1 April 1992 when 100 US Dollars (USD) equalled Danish Kroner (DKK) 641.45.

motorway bridge from *Sprogø* to Funen (Annex 28). Equally on 23 September 1988 the Finnish-language "*Helsingin Sanomat*" carried the article "Bridge and Tunnel for the Great Belt" with mention of an 8 kilometres long bridge and a tunnel from Zealand to *Sprogø* and an equally long combined road and rail bridge from *Sprogø* to Funen (Annex 29)[22].

## 5. THE CONSTRUCTION

### *The Eastern Rail Tunnel*

114. Pursuant to the political decision of 14 October 1988 and the decision of 4 November 1988 by the Minister for Transport *A/S Storebæltsforbindelsen* on 28 November 1988 signed a contract with an international consortium, the MT Group, for the construction of a bored rail tunnel under the Eastern Channel with a contract sum of a total cost of DKK 3,074 million (USD 479 million).

115. As of 31 May 1991 a total of 861 metres out of a planned 2,433 metres of the East Tunnel had been bored. The delay was caused by a number of technical problems with the boring equipment. A further delay has been caused by a serious flooding incident on the *Sprogø* work site on 14 October 1991. As of 1 May 1992 a total of 1,742 metres of tunnel had been bored[23]. The completion of the tunnel boring is currently scheduled for the end of 1993, to be followed by rail installations.

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[22] The insinuations contained in para. 554 of the Memorial concerning the conduct of the Danish Government in this respect are clearly out of place. That there was nothing to hide is furthermore reflected in the enormous press coverage given to the Great Belt Project.

[23] Figure 2 shows part of the Eastern Rail Tunnel.

**Figure 2:** THE EASTERN RAIL TUNNEL

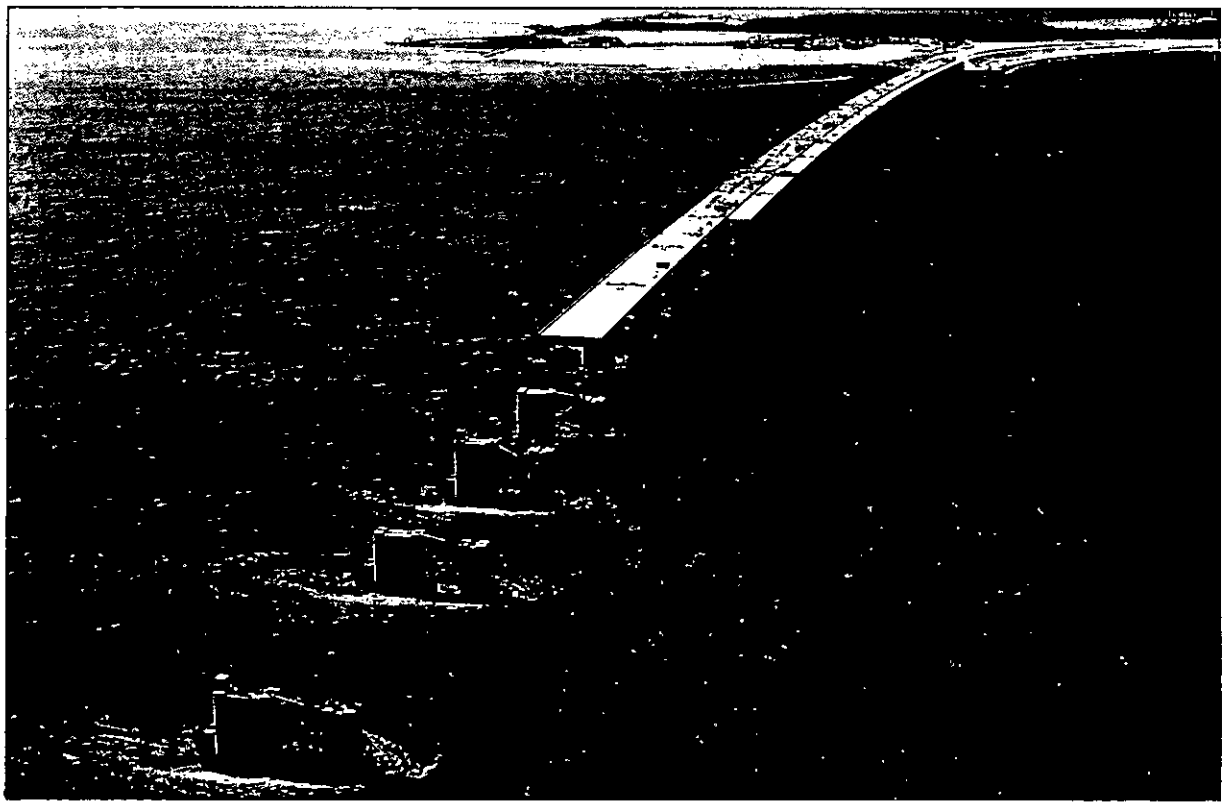

**Figure 3**: THE WEST BRIDGE

*The West Bridge*

116. Tenders for the West Bridge were submitted on 30 November 1988. In addition to bids adhering to the conceptual design given in the invitation to tender four alternative bridges and a number of variations on the original design were submitted. On 26 June 1988 *A/S Storebæltsforbindelsen* signed a contract with another international consortium, the European Storebaelt Group, for the construction of the West Bridge at a contract sum of DKK 3,157 million (USD 492 million).

117. As of 31 May 1991 four caissons had been lowered into the Western Channel on the Funen side. As of 1 May 1992 a total of 24 caissons, 21 road girders and 19 rail girders have been put in place, the bridge deck extends 2,177 metres across the Western Channel[24]. The completion of the West Bridge structure is currently scheduled for the end of 1993, to be followed by road and rail installations.

*Land Works and Dredgings*

118. The implementation of the Project involves the construction of major ramps along the island of *Sprogø*. Notice for tender by restricted procedure for these works was given on 28 July 1987, invitation for tenders issued on 28 April 1988, and tenders for the works were submitted on 24 January 1989. A contract for works amounting to DKK 316 million (USD 49 million) was signed on 26 June 1989. On 31 May 1991 the works were 87 per cent. completed[25].

119. Also substantial land works on Funen and Zealand have to be carried out in connection with the Project. These works are carried out by a number of contractors. The aggregate contract sum

[24] Figure 3 shows the West Bridge.

[25] Figure 4 shows ramps along *Sprogø*.

for all land works is approximately DKK 650 million (USD 101 million). Initial tenders were held in April and May 1988 for both Funen and Zealand access and road works. As of 31 May 1991 DKK 320 million (USD 50 million) have been paid to the contractors[26].

120. Section 5 of the 1987 Act provides that for the sake of the marine environment the work in connection with the Great Belt Project shall be performed in such a way that the water flow through the Great Belt shall remain unchanged after the completion of the work. The reason for this provision is that a restriction of the flow could influence the salinity and oxygen content of the Baltic. Dredgings were carried out in 1990 to compensate for flow restrictions caused by ramps and bridge pillars. A total of 6.3 million cubic metres was dredged from the shoals surrounding *Sprogø*. Most of the material was reused in the *Sprogø* ramps and in four artificial islands constructed to streamline the East Bridge anchor blocks.

*The East Bridge*

121. Following the decision to invite tenders for a high-level bridge across the Eastern Channel, design analysis for the optimal bridge design was carried out during 1989. Notice for tender by restricted procedure for the East Bridge was given on 15 July 1989.

122. Section 4, Subsection 2 of the 1987 Act provides that the motorway may cross the Eastern Channel on a high-level bridge

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[26] The landworks on Funen included the dismantling of the *Knudshoved* motorway bridge referred to in para. 134 of the Memorial. The bridge was built as part of the 1983 programme to amalgamate car and rail ferry services across the Great Belt and was also designed to accommodate the approach road to a fixed link across the Great Belt as it was planned at the time. A decision made in 1989 to have all toll booths for the fixed link positioned on Zealand made it necessary to relocate the *Knudshoved* motorway bridge and consequently the original motorway bridge was dismantled in 1991 and substituted by a new bridge. A number of other installations relating to the ferry service, payment booths, queuing lanes etc, will also be demolished when the motorway link across the Great Belt opens.

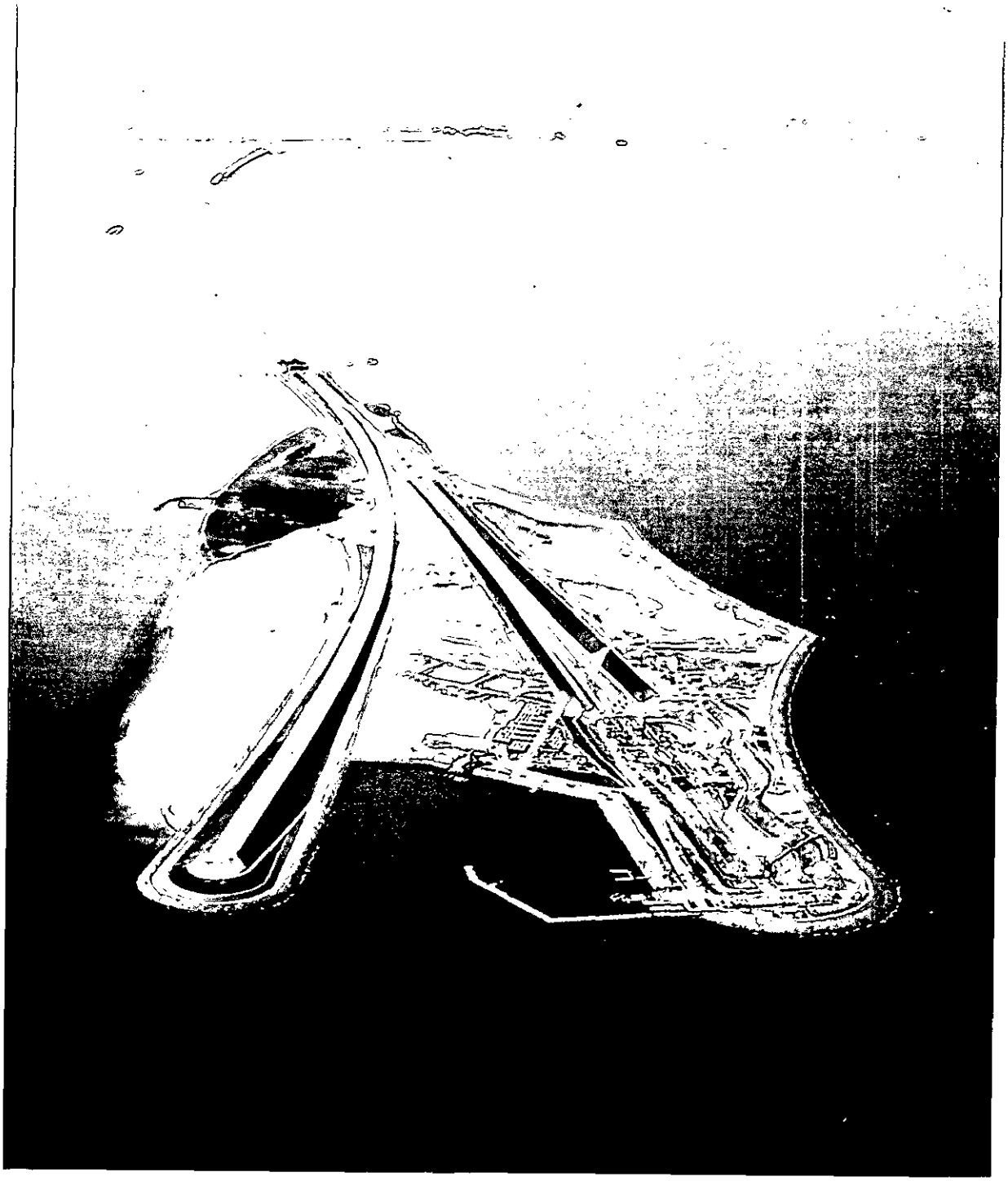

**Figure 4:** RAMPS ALONG *SPROGØ*

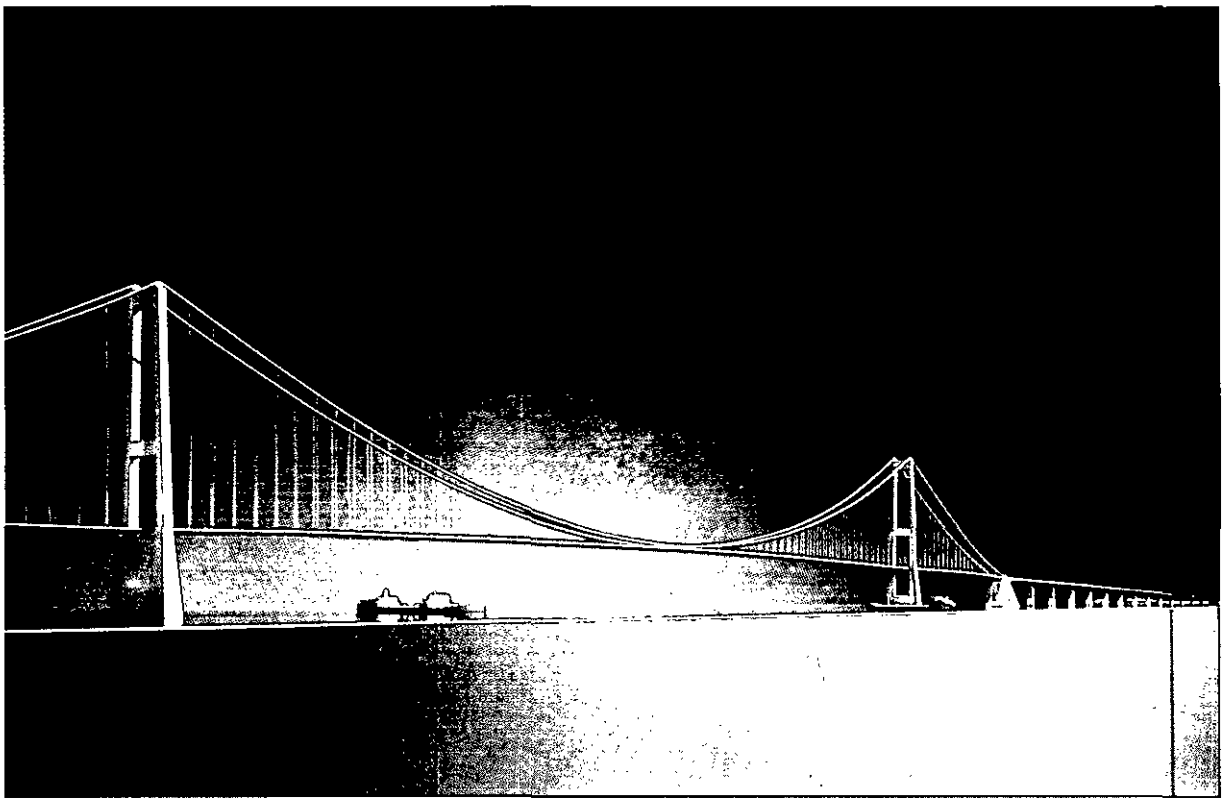

**Figure 5**: MODEL OF THE EAST BRIDGE

with the required navigational clearance. In the comments to the Act it is mentioned that by the provision stating that the bridge shall have the required navigational clearance it is signified by the legislature that Denmark will adhere to its international obligations to maintain the free passage for ships. It is further mentioned that the high-level bridge probably would have a 76 - 77 metres clearance.

123. The expected clearance of the high-level bridge across the Eastern Channel stated in the comments to the 1987 Act was based on information obtained in 1986 by the Ministry of Industry.

124. In November 1988 *A/S Storebæltsforbindelsen* commissioned a study from *Det Norske Veritas* to investigate the air-draughts on normal oceangoing vessels, drill ships, semi-submersible drilling units, jack-ups, semi-submersibles, crane vessels, sailing ships, ice-breakers and fishing factory ships passing through the Great Belt. On 10 March 1989 *Det Norske Veritas* submitted an updated Revised Study on Air-Draught of Merchant Ships (Annex 30). On the basis of these investigations and after consultations with Danish authorities *A/S Storebæltsforbindelsen* submitted a recommendation to the Minister for Transport for a clearance of the East Bridge of 65 metres. On 16 June 1989 the Minister for Transport approved the recommendation.

125. On 24 October 1989 the Danish Ministry of Foreign Affairs issued a Circular Note containing supplementary information on the status of the Great Belt Project subsequent to its Circular Note of 30 June 1987. In particular the high-level bridge across the Eastern Channel was addressed and information given about the final design of the bridge including a vertical clearance of 65 metres (Annex 31).

126. In May 1990 seven engineering consortia were prequalified to bid for the East Bridge. Invitation for tenders for the

East Bridge was issued on 31 May 1990[27]. Tenders were submitted on 18 December 1990. The offers ranged from DKK 5,400 million - DKK 10,000 million (USD 842 million - USD 1,559 million). On 17 June 1991 the Minister for Transport authorised *A/S Storebæltsforbindelsen* to enter into final contract negotiations with the financially most advantageous bids for the bridge substructure and for the superstructure.

127. On 22 October 1991 contracts were signed with an international consortium, Great Belt-East Bridge Contractors, for the substructure and with another international consortium, *CMF Sud*, for the superstructure. The total contract price for the East Bridge was DKK 5,400 million (USD 842 million)[28].

## F. Conclusion

128. The completion of the Great Belt Project will fulfil the long-standing need for a fixed link across the Great Belt. The barrier between the two parts of Denmark caused by the Great Belt will be overcome.

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[27] In the final design of the high-level bridge across the Eastern Channel the main span was increased to 1,624 metres to further improve navigational safety. Figure 1 shows the final design of the East Bridge and Figure 5 shows a model of the East Bridge.

[28] In para. 158 of the Memorial, it is stated, that "(e)ven as the contracts were signed...a further modification was made.." The wording seems to suggest that *A/S Storebæltsforbindelsen* at the time as well could have made an additional change by making an opening in the bridge. The change referred to by Finland was due to the fact that the alternative *CMF Sud* project differed from the tender project in that advances in steel alloy technique had made it technologically feasible to increase the length of the approach spans by 25 metres to 193 metres. Like the substitution of a part of the *Sprogø* embankment by bridge spans adding five extra piers to the West Bridge this change was considered advantageous by *A/S Storebæltsforbindelsen*, as it would improve water flow through the Great Belt compared to the tender design and decrease the risk of ship collision.

129. The technical and economic aspects of a fixed link across the Great Belt have been the object of thorough analysis since the 1930s. After World War Two three substantial governmental reports on a fixed link across the Great Belt have been published. In 1960 by the Great Belt Bridge Commission, in 1968 by the Working Committee and in 1972 by the Technical Committee.

130. The 1960 Report by the Great Belt Bridge Commission concluded that it was technically possible to construct a bridge across the Great Belt. When such a project should be carried out was dependent on the social and economic conditions in Denmark. The Commission's recommendation that further preparatory work be carried out was followed by the Government and the Parliament. The 1961 Act on technical preparatory works to carry out a road and rail bridge across the Great Belt was passed unanimously by Parliament.

131. The 1968 Report by the Working Committee contained detailed plans for different solutions of the Fixed Link. These plans were further elaborated in the 1972 Report by the Technical Committee.

132. The 1973 Act on the Construction of a Bridge across the Great Belt was passed with a large majority in Parliament. The Act provided for a high-level bridge across the Eastern Channel.

133. From the Reports and the legislation it was evident from the beginning of the 1970s that it was no longer a question whether a bridge across the Great Belt would be built; the question was only when the project would be carried out. It was most likely that a fixed link across the Great Belt would be established within the coming decades. The 1960 Report had excluded a solution containing a bridge with an opening. From all plans and drawings existing at the time and available to the public it was manifest that the Fixed Link would comprise a high-level, fixed bridge across the Eastern Channel.

134. The Reports and the legislation evidence that securing the fulfilment of Denmark's obligations under international law in connection with the Great Belt Bridge Project has been an important part of the preparatory work. The position of the Government of Denmark has been unambiguous and clear. The bridge across the Eastern Channel should have a vertical clearance which would allow all existing ships to pass under the bridge. The Government's position was explained in the comments to the 1973 Act and in the legal opinions rendered in 1957, 1962 and 1971 by the late professor Max Sørensen, international legal adviser to the Danish Ministry of Foreign Affairs, and published in the 1960, 1968 and 1972 Reports. In the 1971 opinion by professor Max Sørensen it was made clear "that floating units such as offshore drilling rigs which might pass...under towage" were not to be taken into consideration in deciding on the vertical clearance of a bridge across an international strait.

135. The Circular Note of 12 May 1977 informed other States of the construction of a bridge with a free vertical clearance of 62 metres across the Eastern Channel. The Note demonstrated that Denmark was of the opinion that a bridge with such vertical clearance would conform with international law and consequently, that floating units such as drilling rigs with air draughts exceeding 62 metres did not have a right of passage through the Great Belt after the completion of the bridge across the Eastern Channel. Finnish shipyards had in May 1977 built seven semi-submersibles with air draughts exceeding 62 metres and had entered into contracts obliging to deliver an additional number of similar semi-submersibles. Finland did not react to the 1977 Note, thereby giving Denmark reason to believe that Finland shared Denmarks views as to offshore units' restricted entitlement to passage through the Great Belt.

136. The suspension of the Great Belt Project in August 1978 was part of a new coalition Government's austerity program. The new Government expected the Project to be resumed after a period of 4 - 5 years. It was evident to everyone having an interest

in the Project that it was only a question of time before it would be resumed. This is demonstrated by the Note of 18 January 1979 from the USSR to Denmark requesting further information on the Project (Annex 19).

137. In 1983 the work on the Great Belt Project was resumed with a view to updating the technological and economic basis for the 1978 Project. In 1986 a political agreement was reached on the Fixed Link across the Great Belt, and the agreement was transformed into the 1987 Act. Even though an immersed road tunnel is mentioned as a possibility, it was clear that a high-level bridge across the Eastern Channel was considered the primary option, and on 9 September 1988 *A/S Storebæltsforbindelsen* recommended to the Minister for Transport that the road connection across the Eastern Channel be carried out as a high-level bridge. Also in September 1988 the Finnish newspapers carried articles and editorials on the Great Belt Project mentioning the high-level bridge across the Eastern Channel.

138. The Great Belt Project is an integrated whole. The unity of the Project has been manifest from the very beginning and has been evidenced by the 1973 Act, the 1987 Act and the 1987 Note. In June 1990 when the first Finnish Note concerning the Great Belt Bridge was sent to the Danish Ministry of Foreign Affairs the Project was at an advanced stage. Work on the East Tunnel and the West Bridge had started long before. Design works for the East Bridge were carried out, and tender procedure for the East Bridge had been initiated. Substantial land works and dredgings had been completed.

139. The construction costs of the Great Belt Project was in 1991 forecasted to be DKK 19,030 million (USD 2.967 million) in 1988 prices excluding financial costs. In May 1991 when Finland initiated legal proceedings 56 per cent. of the total construction budget for the Great Belt had been contracted for, and DKK 5,600 million (USD 873 million) corresponding to 28 per cent. of the total

construction budget for the Great Belt Project had been paid to the contractors.

140. The total amount used in May 1991 on the part of the Project relating to the East Bridge was DKK 740 million (USD 115 million). The amount covers design works, soil investigations and land works for the East Bridge. The cost of removing land works already carried out in May 1991 for the East Bridge is estimated at between DKK 100 million - DKK 200 million (USD 16 million - USD 31 million).

141. After more than 40 years of planning and close to 4 years of construction the completion of the Great Belt Project is within sight. For Denmark the completion of the Fixed Link across the Great Belt will be of major importance. A barrier dividing the country will be overcome. Internationally the Great Belt Project is recognized as a significant improvement of the traffic links between Central Europe and the Nordic countries. The socio-economic importance of the Great Belt Project is explained in the following Chapter III. A detailed description of the effect of the Great Belt Project on traffic through the Danish straits is given in Chapters IV - VIII.

## CHAPTER III.

## THE SOCIO-ECONOMIC IMPORTANCE OF THE GREAT BELT PROJECT

### A. *National Considerations*

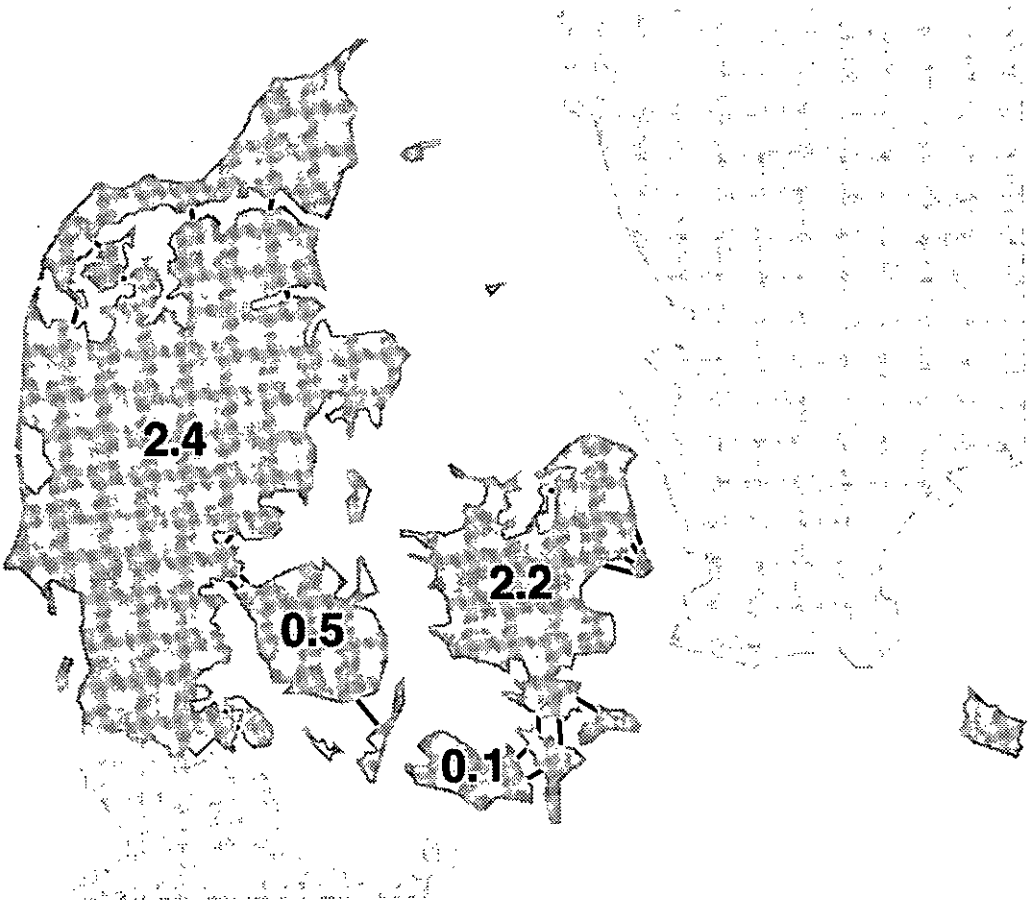
142. A brief look at the Danish geography explains the urgent desire held through many decades for a fixed link across the Great Belt and the broad support expressed in Parliament for a fixed link. Denmark belongs to the very small group of states with population and land area split between a number of major islands divided by relatively narrow straits.

143. During the 20th century a number of Danish islands have been linked by bridges. These important improvements of the Danish infrastructure have been a necessary precondition for the establishment of a modern society able to maintain a reasonable standard of living for the whole population despite lack of onshore mineral resources.

144. The Great Belt is a barrier between the Eastern and the Western parts of Denmark. Western Denmark covers 78 per cent. and Eastern Denmark 22 per cent. of the aggregate Danish land area, while the population is split with 55 per cent. west of the Great Belt and 45 per cent. east of the Great Belt.

145. Figure 6 shows a Map with the population (numbers in millions) living in Jutland and on Funen west of the Great Belt, and on Zealand and the islands south of Zealand east of the Great Belt. The Map also shows the main bridges in Denmark linking together the various parts of the Kingdom.

**Figure 6**: MAP OF DENMARK WITH ITS POPULATION (IN MILLIONS) AND ITS MAIN BRIDGES

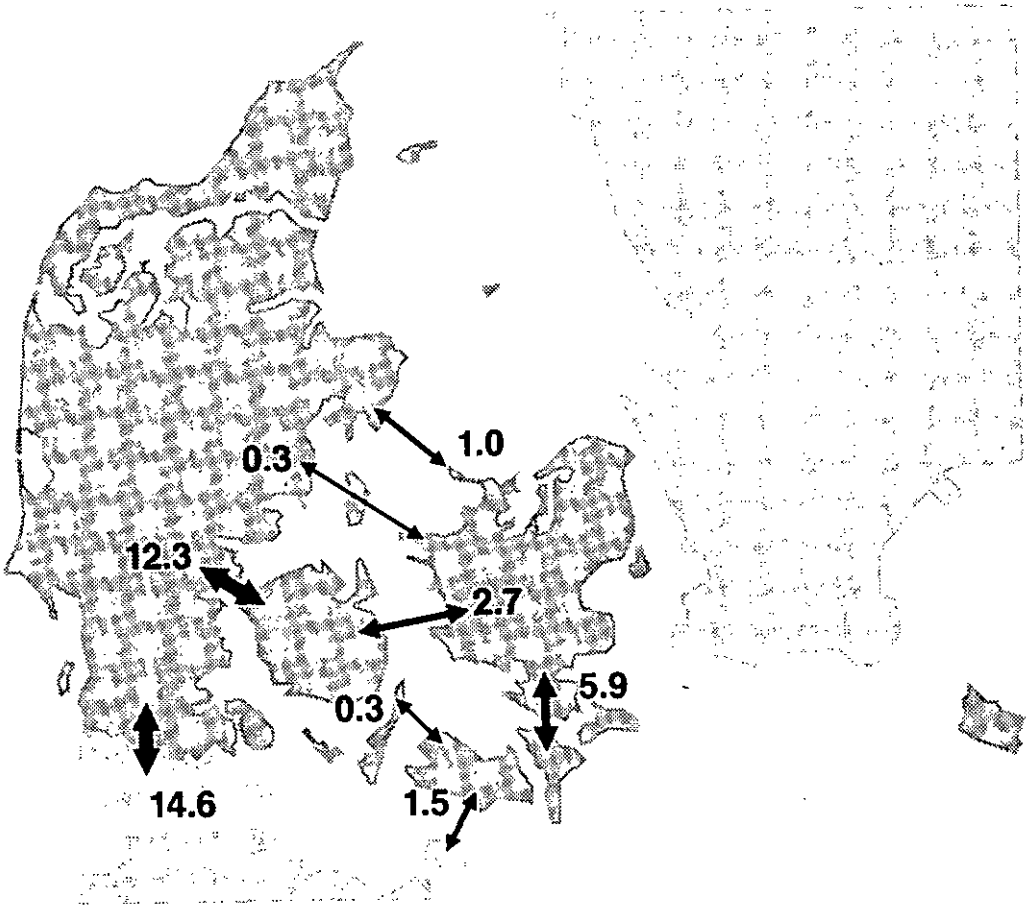


146. Copenhagen, the capital of Denmark, is situated on Zealand. The major part of the central administration, cultural institutions of major importance for the national heritage and a substantial part of the Danish business community are placed in or around Copenhagen. Transportation of passengers and goods between the two parts of the country and from the part of the country east of the Great Belt to the European continent has to take place by ship or air until the Fixed Link across the Great Belt has been established.

147. The Great Belt constitutes a time barrier to transport, ferries being markedly slower and less flexible than land transport. With the most modern ferry equipment passage across the Great Belt lasts an average of 90 minutes for car and 75 minutes for train traffic, including average queuing and loading time. Added to this is the inconvenience of depending on another means of transport and being locked into fixed ferry time schedules unconnected to the steady and continuous rhythm of land traffic. In high season the Great Belt is a major traffic bottleneck with waiting times of up to 3 - 4 hours not uncommon, necessitating reservations weeks in advance.

148. The Great Belt is a restraint on the development of Danish society, the Belt curtailing traffic and trading between Eastern and Western Denmark. The negative effect on traffic of the Great Belt is illustrated by the traffic figures between the major parts of Denmark and between Denmark and Germany. Figure 7 shows the number of cars annually passing the Little Belt, the Great Belt, the *Storstrøm*, the Kattegat (Jutland - Zealand), the *Fehmarn* Belt (*Lolland/Falster* - Germany), and the Danish - German border. The figures are based on traffic countings carried out by *Vejdirektoratet* (The Danish Road Directorate) in 1988. Numbers are quoted in millions.

**Figure 7**: MAP OF DENMARK WITH NUMBER OF CARS (IN MILLIONS) ANNUALLY PASSING THE MAJOR BRIDGES, THE KATTEGAT, THE *FEHMARN* BELT, AND THE DANISH-GERMAN BORDER



149. The relationship between traffic across the Little Belt and the Great Belt is remarkable. Traffic across the Little Belt is 4.5 times greater than traffic across the Great Belt. This fact is even more remarkable, taking into consideration the population figures listed in Figure 6 and that the political and administrative centre of Denmark is placed on Zealand.

150. The local traffic between Zealand and *Lolland/Falster* is 4.4 million vehicles annually, more than 1.5 times the average traffic across the Great Belt of 2.7 million vehicles annually. The population of Funen is five times the size of the population of *Lolland/Falster*. With the Fixed Link across the Great Belt established population figures indicate a traffic volume across the Great Belt five times bigger than the volume from Zealand to *Lolland/Falster*.

151. The Great Belt is a barrier to trade between Eastern and Western Denmark. Trade links across the Great Belt are comparatively weak, as evidenced by the mainly long-distance traffic across the Great Belt. Regional short-distance traffic and commuting across the Great Belt is minimal. Studies made in 1987 on the regional goods flow calculated on the basis of transported tonne kilometres by lorries of over 6 tonnes confirm the view of the Great Belt as a significant trade barrier.

*TABLE I Transport of Regional Goods (tonne kilometres) in 1987 by lorries of more than 6 tonnes gross weight.*

| From Funen to (per cent.): | | From West Zealand to (per cent.): | |
|---|---|---|---|
| County of: | | County of: | |
| *Vejle* (w) | 25 | *Roskilde* (e) | 14 |
| *Aarhus* (w) | 19 | *Storstrøm* (e) | 24 |
| West Zealand (e) | 1 | Funen (w) | 2 |
| *Storstrøm* (e) | 1 | *Aarhus* (w) | 1 |
| Total: | | Total: | |
| West Denmark | 89 | East Denmark | 89 |
| East Denmark | 11 | West Denmark | 11 |

(w) = west, (e) = east

152. The table shows that only 2 per cent. of transports from the County of Funen go to the neighbouring counties of Western Zealand and *Storstrøm* on the other side of the Great Belt. In comparison transports from Funen across the Little Belt bridges to the neighbouring counties of *Aarhus* and *Vejle* amount to 44 per cent. of the Funen total. This trend is repeated East of the Great Belt. Only 3 per cent. of transports from the county of Western Zealand go to the neighbouring counties of Funen and *Aarhus*, while 38 per cent. go to *Roskilde* and *Storstrøms* counties.

153. The Great Belt divides markets restricting competition and hindering the establishment of economies of scale in production, transportation and warehousing. These restrictions have a negative impact on industrial development and economic growth.

154. The completion of the Great Belt connection significantly reduces transport time across the Great Belt. The passage time will fall from 90 to 15 minutes for cars and from 75 to 7 minutes for trains.

155. The reduction of transport times will have a substantial impact on Danish society. A business trip from the Eastern to the Western part of Denmark and back now normally requires a 2 day-trip or overtime work unless air transport is used. When the Fixed Link is established such a trip can take place within a normal working day. Similar advantages will apply to the transportation of goods and services. The yearly time savings for business traffic have been calculated as being equivalent to 3,000 man-years.

156. The Fixed Link provides an added safety that goods and traffic may pass the Belt continuously and without delay. This will enable trade and industry to achieve more efficient production and stock planning and goods distribution.

157. The Fixed Link will lead to a more effective utilization of transport materiel and resources, with ensuing savings in materiel and labour costs. These advantages accrue equally to domestic and foreign transport companies.

158. Within industry the concept of "just-in-time" production has become a major competition parameter. The "just-in-time" principle entails keeping stocks of raw material and semi-manufactured materials at a minimum, deliveries taking place only when necessitated by the production process. This decreases warehousing costs as well as capital bound up in stocks. The establishment of the permanent connection will considerably improve the possibilities for Danish industry of implementing the "just-in-time" production principle effectively.

159. The marked improvement of Danish transport infrastructure provided by the Fixed Link will be of major importance to businesses trading in perishable goods, depending on reliable transport at fixed times. This applies to *inter alia* transportation of flowers, vegetables, meat, fish and dairy products.

160. Recent business development trends point towards increasing specialization and dependence on subcontractors. The

improved transport links provided by the permanent connection will increase the possibilities of specialization and will give businesses hitherto restricted in their choice of sub-contractors new options across the Belt.

161. Numerous Danish businesses have been forced by the Great Belt barrier to operate warehouses both east and west of the Great Belt to ensure acceptable delivery times and reliability. The permanent connection will enable companies to amalgamate warehouses with accruing savings.

162. Equally, the permanent connection will simplify the distribution structure, making possible swift and reliable delivery to all customers in Denmark from one distribution point, with ensuing rationalization gains.

163. Transport time across the Great Belt and the risks of delays or irregularities in traffic have hitherto led service industries to establish branches on both sides of the Great Belt. The opening of the permanent connection will thus improve the possibilities of rendering service anywhere in Denmark within an acceptable time span from a single service point. Therefore, a concentration of points from where services are rendered is expected.

164. The advantages listed here will be present even though toll charges are to be paid for the use of the permanent connection. The time barrier is the essential bar to normal business relations, and this hindrance will be removed by the Fixed Link.

165. The discontinuation of the ferry traffic across the Great Belt will lead to energy savings, as ferry traffic is less energy effective than cars and trains moving under their own power. Transportation of cars by ferry consumes approximately 5 times more energy than the cars will use to cross on the bridge under their own power. Transportation of persons by ferry consume approximately 8 times more energy then by train. Yearly energy

savings are estimated to be equivalent to the average yearly energy consumption of 45,000 cars.

166. The establishment of the Fixed Link will lead to considerable savings on the operation of existing ferry services between Zealand and Funen and between Zealand and Jutland. Savings will be made on both operating and investment costs. Yearly savings on investment, operating and maintenance cost of ferries are estimated at DKK 1,555 million (USD 242 million), while yearly expenditures on investment, operating and maintenance for the Fixed Link are estimated at DKK 1,049 million (USD 164 million). Net yearly savings on investment, operation and maintenance can thus be estimated at DKK 506 million (USD 79 million).

167. In addition to the savings mentioned in paragraph 166 the Fixed Link will imply savings on business transportation, leisure trips and stocks. Yearly savings on business transportation costs are estimated at DKK 1,380 million (USD 215 million), yearly savings on leisure trips are estimated at DKK 269 million (USD 42 million) and yearly savings on stocks are estimated at DKK 178 million (USD 28 million), totalling DKK 1,827 million (USD 285 million).

168. The total yearly net economic benefits of the Fixed Link across the Great Belt can thus be estimated at DKK 2,333 million (USD 364 million). These calculations of the economic effect of the Project indicate a social rate of return of 11.8 per cent. per annum.

## B. International Considerations

169. A significant part of the land traffic between the central parts of Europe and Scandinavia passes through Denmark. Consequently, the quality of the infrastructure in Denmark is of crucial importance to neighbouring countries. It is, therefore, not surprising that other countries have supported and encouraged the undertaking by Denmark of the Great Belt Project.

170. Subsequent to the enactment of the 1973 Act on the Construction of a Bridge across the Great Belt the Committee on Regional Policy and Transport established by the European Parliament issued a Report on permanent links across certain sea straits (Annex 32)[29].

171. The Report contains a Motion for a Resolution on Permanent links across certain sea straits. The Motion notes that certain sea straits within the Community constitute an impediment not only to the development of an inter-connected Community transport network, but also to the economic and social development of certain regions. While acknowledging the presence of existing air and sea links, the Motion goes on to recommend the establishment of permanent links. The Motion states that the European Parliament "(c)onsiders that the creation of such links would materially reduce transport cost and time between.... the Danish Islands (and) other Community countries... (and)... (r)ecognizes..that the social effects of new and easier links across sea straits are likely to be considerable, particularly on the out-lying areas of the Community...".

172. The Explanatory Statement to the Motion states that "(t)he bridge over the Great Belt will completely change the most important link between east and west in Denmark and will bring about a significant improvement in the links between Central Europe and Sweden via Jutland, Funen and Zealand ...".

173. The Motion was passed by the European Parliament on 12 December 1974 and communicated to the Council and the European Commission.

174. International recognition of the socio-economic importance of the Great Belt Project not only in a Danish context but in a wider European perspective is evidenced by Council Regulation

[29] Report of 5 November 1974, Dokument 319/74.

(EEC) No. 3359/90 of 20 November 1990 for an action programme in the field of transport infrastructure with a view to the completion of an integrated transport market in 1992 (Annex 33).

175. Finally, on 21 June 1991 a Report on relations between the European Community and the members of EFTA in the transport sector was submitted to the European Parliament (Annex 34)[30]. This happened only shortly before Finland in its pleadings before the International Court of Justice in the hearings on the Request for the Indication of Provisional Measures in the present case, most surprisingly argued that *Rauma-Repola Offshore Oy* had experienced a drop in orders for offshore units "partially attributable" to the Great Belt Project.[31] The Report contains a Motion for a Resolution on relations between the European Community and the members of EFTA in the transport sector. The preamble to the Resolution states the importance of creating an integrated pan-European transport network and emphasizes the extensive efforts of the Scandinavian countries to complete the ScanLink project, including the Fixed Link across the Great Belt. In the Motion the Parliament calls on the Commission and the Council to recognize the importance to the Community of a number of major projects, including the ScanLink project containing the Great Belt bridge. The Governments of the EC and EFTA States participating in these projects are urged to take the decision to proceed and to complete the projects with the utmost dispatch. The explanatory statement emphasizes that Scandinavian cooperation on combined road/rail transport merits particular attention as a possible model for similar schemes elsewhere.

176. The Motion was passed by the European Parliament on 10 July 1991 and communicated to the Council and the

[30] The EFTA countries are Austria, Finland, Iceland, Norway, Sweden, and Switzerland.

[31] Statement by counsel of Finland, Sir Ian Sinclair, 1 July 1991.

Commission as well as to the Governments and Parliaments of all EFTA member States, including Finland.

177. It seems reasonable to expect that Finland as a member of EFTA would at the time take an interest in cooperation within the transport sector between the EEC and EFTA, particularly in view of the European Parliamentary proceedings then in motion.

178. It is deplorable that Finland simultaneously by the use of ill founded allegations, should attempt to hold Denmark responsible for the lack of orders to a Finnish shipyard and to cause the Court to stop the Great Belt Project in its present form, a project that, apart from being of vital interest to Danish society, is also internationally recognized as a project of great importance for the relations between the other members of the European Community and the EFTA States.

## CHAPTER IV.

## THE PASSAGE OF SHIPS THROUGH THE GREAT BELT AFTER CONSTRUCTION OF THE EAST BRIDGE

### A. *The Clearance of the East Bridge*

179. It has at all times been the stated objective of the Government of Denmark that the planned fixed link, particularly the dimensions of the vertical and horizontal clearance of the high-level bridge, should be in conformity with Denmark's obligations under international law to maintain passage through the Great Belt for all known ships likely to use the Great Belt. This was made clear in the Danish Public Works Acts from 1973 and 1987, as well as in Denmark's Notes to the diplomatic community in 1977 and 1987, see Chapter II, Part I of this Counter-Memorial.

180. The decision as to the exact height of the East Bridge was therefore preceded by years of careful analyses addressed to the issue of establishing the appropriate vertical and horizontal clearance of the high-level bridge which was to span the main navigational route in the Eastern Channel of the Great Belt.

181. As described in paragraphs 66 - 70 the Government of Denmark in 1977 notified all Missions accredited to Denmark that the high-level bridge across the Eastern Channel would have an operative clearance of 62 metres, and that Denmark considered this height to be in conformity with international law. In a Note sent in 1978 the Soviet Union requested that the clearance be increased to allow ships with a mast height of up to 65 metres to pass under the bridge.

182. In connection with the preparation of the 1987 Act on the Construction of a Fixed Link across the Great Belt the Danish Ministry of Industry in 1986 commissioned *Det Norske Veritas*, a Norwegian based international classification bureau for ships and offshore units, to examine the air draughts of the largest merchant

vessels and offshore units capable of passing through the Great Belt. The Report dated 5 February 1986 concluded that no cargo ship, tanker, sailing ship, passenger vessel, or naval vessel had an air draught in excess of 57 metres. The Report noted that the Soviet Union owned a number of drill ships with air draughts of 75 metres. Finally, it was mentioned that crane vessels and drilling rigs had air draughts ranging between 62 and 150 metres.

183. The vertical clearance of the high-level bridge was not laid down in the 1987 Act on the Construction of a Fixed Link across the Great Belt. However, in the official comments to the Bill, issued by the Ministry of Public Works, it was stated that the high-level bridge would probably need to have a clearance of 76 - 77 metres. This bridge height was anticipated to safeguard the continued passage through the Danish straits for drill ships, which had a recorded air draught of 75 metres.

184. Following the passing of the 1987 Act, *A/S Storebæltsforbindelsen* was charged with the responsibility of planning and supervising the construction of the Fixed Link. The authority to make a decision on the operative clearance of the East Bridge, however, rested with the Minister for Transport. Prior to submitting a recommendation to the Minister for Transport on what the appropriate clearance of the high-level bridge should be, *A/S Storebæltsforbindelsen* in 1989 commissioned *Det Norske Veritas* to execute a revised study on the air draught of the largest ships and offshore units in the world.

185. The Report from *Det Norske Veritas* concluded that all existing cargo vessels, tankers, passenger ships, ferries, sailing ships, ice breakers, and fishing factory ships in the world would be able to pass under an East Bridge with a clearance of 65 metres (Annex 30).

186. The *Veritas* Report demonstrated that out of all the above mentioned categories of ships only one vessel had an air draught in excess of 65 metres, namely the tanker or Ultra Large

Crude Carrier *Burma Endeavour* with an air draught of 68.5 metres in ballast draught[32]. However, if ballasted to the more relevant Route T draught of 15 metres *Burma Endeavour* (now *Stena Queen*) and its sister ship (*Stena King*) could sail under the Bridge with air draughts below 60 metres. Finland's contention that a bridge of 65 metres' clearance excludes the passage of certain ultra-large oil tankers is therefore not correct (para. 13, p. 7 of the Memorial). *Burma Endeavour* has never plied the Danish straits, and it is extremely unlikely that it will ever enter the Baltic, as the vessel will have a draught in excess of 15 metres already when loaded to one third of its loading capacity.

187. Finland points out that the Report from *Det Norske Veritas* identified "one type of large tanker with an air draught of 68 metres" and Finland goes on to state that "(i)t is hardly an insignificant category, however" (para. 221 of the Memorial). The *Veritas* Report did not identify a type of tanker; as recounted above it identified one tanker with a ballast air draught of 68 metres, which - notably - would not prevent the vessel from passing under the bridge. Thus, the application of the term "category" to two sister tankers does not seem appropriate.

188. Also in paragraph 221 of the Memorial Finland states that the number of cargo and passenger ships for which the bridge might cause difficulties is very small. That number is not only very small, it is simply nil. Neither *Det Norske Veritas* nor Finland has identified a single cargo or passenger ship with an air draught that would prevent it from passing under the East Bridge or passing through the Sound.

189. It should at this point be stressed that the *Veritas* Report also noted that the highest recorded air draught for an ordinary merchant vessel using the Great Belt in the period 1983 - 1988 was 52.5 metres, and that approximately 99 per cent. of all vessels

[32] *Burma Endeavour* has a sister ship *Burma Enterprise* (now *Stena King*) with an air draught at ballast draught of 67 metres.

passing through the Great Belt in this period had air draughts below 40 metres.

190. The Report from *Det Norske Veritas* also demonstrated that a number of drill ships, semi-submersibles and jack-ups had air draughts in excess of 65 metres. The Report concluded that most drill ships had draughts that would allow them to pass through the Sound in fair weather, if necessary with tug assistance. Most jack-ups also had draughts that would allow them to be towed through the Sound. The Report finally demonstrated that a few crane vessels had air draughts of more than 65 metres, but that most did not.

191. On the basis of the results of the Report from *Det Norske Veritas* the *A/S Storebæltsforbindelsen* on 22 May 1989 recommended to the Minister for Transport that the vertical clearance of the East Bridge be established at 65 metres.

192. Before approving the precise clearance of the East Bridge the Minister for Transport was advised that the Danish Maritime Authority could endorse the proposed clearance of 65 metres. In its letter to the Minister for Transport of 23 May 1989 the Danish Maritime Authority referred to the findings of the *Veritas* Report, and in particular to the fact that drill ships would be able to pass through the Sound.

193. On 16 June 1989 the Minister for Transport approved a recommendation from *A/S Storebæltsforbindelsen* that the vertical clearance of the bridge be fixed at 65 metres. While a bridge with a free clearance of 65 metres would allow all existing ships to pass through the Great Belt it was clear that a number of mobile offshore drilling units would be up to 80 metres higher than the planned bridge. The drill ships could be directed to the Sound for passage through the Danish straits. Regarding the jack-up and the semi-submersible drilling rigs, the Government of Denmark was of the opinion then - as it is today - that, irrespective of their possibilities for utilizing the Sound for passage, these units did not

enjoy a right of passage under international law that could prevent Denmark from building a bridge across the Great Belt.

194. In its Note of 24 October 1989 the Danish Ministry of Foreign Affairs informed all Missions accredited to Denmark that the vertical clearance of the East Bridge would be 65 metres, and that the bridge would, in conformity with international law, maintain the free passage as in the past for all existing ships navigating the Great Belt.

## B. The Effect of the East Bridge on the Passage of Existing Vessels

195. Following Finland's Application to the Court and the Court's Order on Finland's Request for provisional measures of 29 July 1991, the Government of Denmark decided to ask Lloyd's Register of Shipping in London to verify whether the findings of the Report from *Det Norske Veritas* were still valid, and submit a detailed analysis of the air draught and draught of the largest merchant vessels, special ships, drill ships, drilling platforms, and crane vessels.

196. In its Memorial paragraph 220 Finland states that "(g)eneralizations regarding ship heights worldwide can thus only be made with some hesitation" referring to the fact that the heights of vessels are rarely listed in e.g., Lloyd's Register. The Government of Denmark finds that the comprehensive study submitted by Lloyd's Register on the air draughts of the largest vessels should meet this reservation on the part of Finland.

197. Thus, in its Report of 5 May 1992, Lloyd's Register has confirmed the conclusion of the *Veritas* Report that all cargo vessels, tankers, passenger ships, ferries, naval vessels, ice breakers, and fishing factory ships in existence could pass under an East Bridge with a clearance of 65 metres (Annex 35). This conclusion

also applies to all vessels on order at the time of the filing of Lloyd's Register's Report.

198. Lloyd's Register has also found that, with the exception of three sister ships, no sailing ships have air draughts in excess of 65 metres. The first of these three sail assisted cruise ships were built in 1990 - subsequent, that is, to the submission of the Report by *Det Norske Veritas* and subsequent to the notice for tender of the East Bridge. According to information available *Club Med III* has not yet been delivered. *Club Med I* and *II* operate in the Mediterranean and the Caribbean. All three ships have an air draught of 68 metres and a draught of only 5.0 metres, which would allow them to transit through the Sound if they were to be utilized for cruises in the Baltic. The *Club Med* sail-assisted cruise ships are due to their exceptional air draught likely to be somewhat restricted in their sphere of operation in a few years' time as the final design of the future Messina Strait suspension bridge, which is expected to be submitted to the Italian Parliament, provides for a vertical clearance of 64 metres, see paragraphs 457 - 462.

199. Finland has devoted some attention to the issue of large passenger vessels and the possibility that they may in the future have air draughts in excess of 65 metres. What may be expected from future ship design is addressed in paragraphs 204 - 227 in this Counter-Memorial. At this point it should be noted that, according to Lloyd's Report, no passenger ships in existence or on order have air draughts in excess of 57 metres.

200. In the opinion of the Government of Denmark the findings of Lloyd's Register render Finland's observations in paragraphs 210 - 227 of the Memorial on the effects of the Fixed Link on passage by passenger ships, cargo ships, and Very Large Crude Carriers irrelevant as far as existing vessels and vessels currently on order are concerned. The East Bridge will in no way hamper the passage of these vessels through the Great Belt. The Reports prepared by *Det Norske Veritas* and Lloyd's Register irrefutably documents that the Fixed Link across the Great Belt will

not prevent any existing cruise ship, cargo ship, or tanker from passing through the Danish straits.

201. In paragraphs 294 - 298 of the Memorial and in Annex 57 Finland has addressed the impact of the future East Bridge on the transportation of large *cranes* from Finland, namely from the Finnish company *Kone Oy*, through the Danish straits. Transportation of cranes must be distinguished from the passage of *crane vessels*. The former is a land crane transported as cargo on a barge or a heavy-lift ship to be delivered and operated at an onshore destination. A crane vessel may be a ship, a barge or a semi-submersible with a permanently installed crane to be employed at sea primarily for assisting during the transportation, installation and operation of fixed offshore structures. Crane vessels proper and their possibilities for passage through the Danish straits in the future will be addressed separately in Chapter VIII.

202. The cranes transported by *Kone Oy* are land cranes. These cranes are thus merely cargo on the barge or the heavy-lift vessel, albeit quite tall cargo. A legal argument that a 100 metres tall land crane towed on a barge should in itself, as a piece of cargo, enjoy a right of passage under international law can hardly be sustained. Irrespective of such legal considerations the fact remains that *Kone Oy's* transport of cranes through the Danish straits will not be prevented by the future East Bridge. Since the cranes although tall are not very heavy, the draught of the vessel transporting the crane(s), be it a barge or a heavy-lift vessel, will be limited and the transport will invariably be able to pass through the Sound. This has not been disputed by Finland, and a fair number of *Kone Oy's* crane transports have indeed utilized the Sound. For purposes of illustration it may be noted that the heavy-lift ship with four cranes shown on page 100 of the Memorial has a registered maximum allowable draught at full load of 6.8 metres. The Report from Lloyd's Register demonstrates that transportation barges, which may carry cranes, oil rigs and other heavy and tall cargo, can go through the Sound with loads of up to 90,000 tonnes before the draught of the barge exceeds the safe draught in the Drogden



contracted for. The legal merits of this argument will be addressed in Chapter III, Part II of this Counter-Memorial. Suffice it here to say that the Government of Denmark disputes that such an obligation exists.

207. Underlying Finland's legal argument that the Fixed Link across the Great Belt must also respect the right of passage of reasonably foreseeable vessels is of course an assertion of fact. It is an assertion of fact that the East Bridge with its vertical clearance of 65 metres will prevent the future passage of reasonably foreseeable ships through the Great Belt, see e.g., Finland's Memorial paragraphs 160, 218, 226, and 232 - 241. Notwithstanding the invalidity of Finland's legal argument, this section will examine the merits of the Finnish contention purely as a point of fact; are reasonably foreseeable vessels likely to have air draughts in excess of 65 metres?

208. At the request of the Government of Denmark, British Maritime Technology (BMT)[33] has addressed this topic in a report dated 6 May 1992 (Annex 36). On the basis of the findings of British Maritime Technology Ltd. the anticipated trends in future design, particularly with regard to air draught, of various categories of vessels are addressed in the following paragraphs.

209. Nowhere does Finland define what is meant by "reasonably foreseeable". The Government of Denmark assumes that the mere physical possibility that a ship with dimensions exceeding those known today may be built is not sufficient to establish reasonable foreseeability, and that a higher degree of probability is required. Obviously, the time span to be considered cannot be the 100 - 150 years suggested by Finland referring to the estimated life-time of the East Bridge. If a prediction on the future design of ships is to prove meaningful, it must be limited to an

[33] British Maritime Technology is a large group of companies one of which, BMT Cortec Ltd., a firm of consulting engineers and naval architects, has prepared the Report.

Channel in the Sound. An average jack-up rig weighs approximately 15,000 tonnes, and a land crane as shown on page 100 of the Memorial less than 1,000 tonnes. Transportation barges will thus be able to take any type of tall cargo with heights in excess of the clearance of the East Bridge to and from the Baltic through the Sound.

203. Lloyd's findings on the draughts and air draughts of mobile offshore drilling units and crane vessels will be addressed in Chapter VI and Chapter VIII.

## C. The Effects of the East Bridge on the Passage of Future Vessels

204. In its submission Finland has asked the Court to adjudge and declare that there is a right of free passage through the Great Belt extending not only to existing vessels and offshore units but also to "reasonably foreseeable ships".

205. Finland observes that the bridge is expected to have a life span of 100 - 150 years, and that Denmark should therefore take foreseeable trends in ship design into account. Finland then ventures to state that "there are many kinds of ships under construction or design whose dimensions vastly exceed the height of 65 metres" (para. 5, p. 5 of the Memorial). Finland's assertion is clearly erroneous. As has been demonstrated, no ships with air draughts above 65 metres were under construction when the East Bridge was tendered, and since then only three sailing ships with air draughts above 65 metres that may comfortably sail through the Sound have been built.

206. According to Finland's argument on "reasonably foreseeable ships", Denmark must in its design of the Fixed Link across the Great Belt, particularly regarding the vertical clearance of the East Bridge, safeguard the passage not only of existing vessels but also of vessels not yet designed, much less constructed or even



assessment of whether existing design ideas, judged by today's design parameters, are viable and realistic, and whether these design ideas are more likely than not to reach fruition within the immediate years to come.

210. Based on the opinions stated by British Maritime Technology Denmark submits that it is not likely that passenger vessels, cargo ships, tankers, and naval vessels or any other ship to be built in the foreseeable future will have air draughts in excess of 65 metres. It may at any rate be safely assumed that no future vessel, which may meaningfully be characterized as "reasonably foreseeable", will have an air draught above 65 metres. The prospects for each category of vessel in question are summarized as follows.

### *Passenger Vessels*

211. In paragraph 213 of the Memorial it is stated that "(m)odern passenger vessels are increasing their height as the need to take on board ever larger number of passengers grows", and in paragraph 215 Finland asserts that there has been "a clear trend during the past decades to increase air draughts". In paragraph 232 it is mentioned that the Finnish *Kværner Masa*-Yards is actively considering a cruise ship with an air draught of 70 metres.

212. Despite Finland's claim that the air draught of cruise ships has steadily increased, the fact remains that the largest cruise ships ever built, Normandie, Queen Mary and Queen Elizabeth (air draughts between 60 and 62 metres) were delivered in 1935, 1936, and 1938 respectively. None of these ships are in active use today. Since World War II only a few cruise ships have been built with air draughts above 50 metres and only a very few sailing ships have had air draughts above 60 metres, see e.g., Annex 42 to the Memorial. Annex 37 to this Counter-Memorial is a diagram showing the air draughts of the largest passenger vessels in the twentieth century. (Sailing ships have low draughts, which permit passage through the Sound, and are therefore not included in this

diagram.) Thus, contrary to Finland's allegation, the air draughts of very large cruisers have decreased rather than increased over the past 50 - 60 years.

213. Finland seems to consider it likely, or at least possible that passenger ships with air draughts in excess of 65 metres will be constructed in the foreseeable future, see e.g., paragraph 232 of the Memorial. However, the Report from BMT suggests that for a variety of reasons it seems unlikely that future cruisers and other passenger ships will have air draughts above 65 metres.

214. Firstly, the dimensions of the Panama Canal have hitherto strongly influenced the main dimensions of large passenger ships as well as cargo ships. This means that the air draught of these ships cannot exceed the 60 metres free clearance maximum of the Thatcher Ferry Bridge. The clearances of the bridges at the entrances to the ports of New York (66 metres), San Francisco (67 metres), and Istanbul (64 metres) are other obvious design parameters. The substantial building costs of a modern cruiser and the importance of ensuring a geographically unrestricted sphere of operation are likely to deter investors from building cruisers that cannot call in the above-mentioned ports or make a swift and inexpensive transfer between the Pacific and the Atlantic oceans through the Panama Canal. It is important to note that even the few, so far unexecuted, designs for extremely large cruise ships that have been drawn up and seriously considered for implementation in recent years had air draughts below 65 metres precisely for the reasons mentioned above.

215. Secondly, the height and the breadth of a vessel are inter-dependent factors. In simple terms, a great height or air draught of a vessel presupposes a large breadth. A very wide ship will invariably have a tendency to roll with stronger accelerations, which is a highly undesirable feature in a cruise ship. In addition, a ship with an extreme air draught e.g., in excess of 65 metres, will have many cabins and passenger areas high above the centre of gravity at an altitude where the horizontal movements of the vessel

reach their peak causing discomfort to the passengers. Since there is thus a limit to how wide a cruise ship may be, there is a corresponding limit to how tall the ship may be.

216. Thirdly, in marked contrast to what Finland asserts in paragraph 237, BMT concludes that economies of scale have not been demonstrated by the few designs for very large cruise ships that have been drawn up. On the contrary, when the vessel reaches a certain size the construction price per passenger apparently increases rather than decreases. Since the construction costs are considerable to begin with and the reduced flexibility of operating one huge rather than two smaller cruise ships is very significant, economic considerations will generally militate against rather than favour the construction of mammoth cruisers.

217. The development of the *World City* (formerly *Phoenix*) project illustrates important limitations regarding the design of mammoth cruisers and may provide the best possible basis for predictions regarding the dimensions of future cruisers. *World City* was designed to be the world's largest cruise and hotel ship in the early 1980s (illustration in Annex 36). For the past decade the project has remained the most realistic of the mammoth cruiser designs, and intense efforts have been exerted to transform the concept from mere design to actual construction; so far to no avail.

218. Several explanations may be given for the apparent demise of the *World City* and similar projects: the immensity of the required investment, the logistics of operating a ship with around 5 - 6,000 passengers, the sea behaviour of a structure of this size, the absence of any economy of scale, and the scarcity of available docking and port facilities.

219. *World City* and *Ultimate Dream*, another design for a huge cruise vessel, are practically the only projects which have been developed beyond the mere initial design stage (illustration in Annex 36). For purposes of this case it is pertinent to note that - despite their unprecedented size - both these projects have air

draughts below 65 metres. A statement from World City Corporation in New York attests the fact that the clearance of the Verrazano Narrows Bridge in New York served as a primary design consideration and in fact dictated the air draught of *World City* (Annex 38). The *Ultimate Dream* was designed by *Knud E. Hansen A/S*, a Copenhagen firm of consulting naval architects and marine engineers. A statement from *Knud E. Hansen A/S* (Annex 39) confirms that the ability to pass under the Golden Gate Bridge and the Bosphorus Bridges (which have vertical clearances similar to and below that of the East Bridge) served as a primary design parameter for the *Ultimate Dream*. Both designs have masts that may be lowered to attain the required air draught. Presumably, constructing a very large cruise ship that cannot dock at e.g., the port of New York is an economic risk no cruise ship operator would care to take.

220. Neither *World City* nor *Ultimate Dream* or other designs for cruise ships of this unprecedented size have been carried to completion. To suggest that cruise ships with even larger dimensions than these, in particular with higher air draught than these, are likely to be built, let alone that such units may be characterized as "reasonably foreseeable ships" is unfounded.

221. Based on the estimates set out in the Report from BMT, Denmark is of the opinion that the probability that the passenger ships to be constructed in the coming years will have air draughts in excess of 65 metres is negligible or non-existent. Consequently, even assuming that Denmark was obliged to make the East Bridge conform to the expected trends in future ship design, which is disputed, "reasonably foreseeable" passenger vessels are not expected to have an air draught exceeding the clearance of the future East Bridge. Thus, Finland's contention that the design of the Great Belt link violates the right of passage of future passenger vessels lacks factual basis.

222. Even the very largest of tankers with a dead weight tonnage in excess of 500,000 do not have air draughts above 65 metres. In any case, these ultra-large crude carriers usually have loaded draughts of around 25 metres preventing passage through the Danish straits to the Baltic in fully loaded condition. Baltic ports are therefore served by tankers approximately one third of the size of these ultra-large carriers. There is no reason why crude carriers, particularly not of the relevant Baltic size, should be constructed with air draughts above 65 metres. The rationale for such tall crude carriers simply cannot be demonstrated. In fact economic considerations speak in favour of utilizing smaller and mid-size tankers as they are more flexible and thus more economical than ultra large crude carriers.

223. Even the largest tankers to be constructed in the future are expected to have air draughts below that of the clearance of the East Bridge. According to size-influencing safety regulations for tankers recently adopted by the International Maritime Organization new tankers are to have double hull which will restrict the load capacity of the tanker[34]. The largest, future tankers are expected not to exceed a dead weight tonnage of 350,000 DWT. It may therefore be fairly safely assumed that future tankers will not have air draughts above the largest tankers in existence today, which weigh more than 550,000 DWT.

224. Cargo ships have recently been built with air draughts significantly above those of the previous generations. A few of these celluar container vessels even have air draughts exceeding 50 metres. Most existing container cranes in ports are not high enough to service these large vessels, and the vessels are thus restricted to calling only upon ports that have invested in the necessary new cranes. The ensuing loss of flexibility may be expected to counsel

[34] IMO, Marine Environment Protection Committee, Annex 6 to Report 32/20, 24 March 1992.

against the building of many container ships of this class, let alone even taller cargo ships. The highest possible air draught for future container ships will also be restricted by the strength of the containers which are stacked on top of each other on the ship. In the Report from BMT the maximum attainable air draught of a future container vessel is calculated to be 62 - 65 metres. The loading capacity of such a vessel, however, would in the opinion of BMT be of such a magnitude to render it economically unfeasible for use in the Baltic.

225. Finland has noted that sail-assisted propulsion may be an attractive alternative for e.g., bulk carriers, see paragraph 218 of the Memorial. Experiments have been carried out with wind-assisted tankers and cargo ships, and a number were built in 1970s following the oil crisis. Despite the rigging, none on these vessels had air draughts in excess of 65 metres. The vessels have apparently not proved economical judging from the fact that sail propulsion has not been introduced on any major scale, the sizable test period notwithstanding.

*Naval Vessels*

226. Although some older naval vessels and a single modern air craft carrier have air draughts above 50 metres, there has in recent decades been a tendency to build smaller, more versatile units with much lower air draughts. These small craft are considered more viable due to the relative modesty of the building costs and the absence of the need for a fleet of support ships. Further, having several smaller vessels instead of one large vessel increase the operational flexibility and reduce the vulnerability of the fleet as a whole. Nothing suggests that future naval vessels will have air draughts exceeding or even approaching the free vertical clearance of the East Bridge.

*Conclusion*

227. Finland has contended that the design of the East Bridge across the Great Belt violates the right of passage of reasonably foreseeable ships. Denmark disputes that international law imposes a legal obligation of this nature upon Denmark. This legal argument notwithstanding Finland must be required to show that reasonably foreseeable ships will have air draughts of more than 65 metres. Finland has failed to do so. On the contrary, as has been demonstrated above, estimates made on the basis of existing design parameters reveal that the ships that will be constructed in the foreseeable future are very unlikely to have air draughts exceeding 65 metres, see Annex 36.

## CHAPTER V.

## THE PASSAGE OF DRILL SHIPS, DRILLING PLATFORMS, AND CRANE VESSELS THROUGH THE DANISH STRAITS AFTER THE CONSTRUCTION OF THE EAST BRIDGE

### A. Introduction

228. Finland has failed to demonstrate that the construction of the East Bridge with its vertical clearance of 65 metres will prevent any existing ship, be it a passenger vessel, cargo ship, ultra-large tanker, naval vessel or other ship, from passing through the Danish straits.

229. This is hardly surprising as the object of Finland's concern since its first contact with the Danish authorities on this matter in July 1989 has been based on the impact of the Great Belt Project upon the passage of Finnish offshore structures through the Danish waters. Safeguarding the passage of offshore units through the Great Belt was indeed the sole objective of Finland's Request to the Court for the Indication of Provisional Measures.

230. Although Finland has argued that the mere possibility that future ships may have air draughts exceeding that of the Great Belt bridge cannot be disregarded, it must be emphasized that, *viewed solely on the facts, the future East Bridge will be of no* consequence whatsoever to the passage of existing ships through the Danish straits. Only mobile offshore drilling units and crane vessels have air draughts above 65 metres, and in order to establish what problems, if any, the East Bridge will pose to Finland the focus of the presentation of the relevant facts of the case will concentrate on the future possibilities for the passage of offshore craft through the Danish straits.

231. Finland has argued that if the East Bridge were to be built in its planned form "the offshore industry in Finland would be finished", see paragraph 18, page 8 of the Memorial.

232. In the period 1972 to the present the Finnish offshore industry, notably *Rauma-Repola Offshore Oy*, has delivered a total of 22 drill ships, semi-submersibles and jack-up drilling platforms, whereas the now defunct Finnish shipbuilding company *Wärtsilä* (continued as *Kværner Masa* Yards) has built crane vessels.

233. According to Finland, the competitiveness of this offshore building industry is threatened as the immediate effect of the East Bridge will be to close off passage through the Great Belt for mobile offshore drilling rigs, see page 83, Section D of the Memorial. Finland further claims that transit through another part of the Danish straits, the Sound, is not a technically relevant option, contending that transport of offshore craft through the Sound is physically impossible, see paragraphs 198 and 203 of the Memorial. Finally, it is asserted that having temporarily to dismantle either the top of the drilling tower to pass under the East Bridge or remove the thrusters to reduce draught and allow passage through the Sound would severely damage *Rauma-Repola Offshore's* competitiveness on the international market and simply not be feasible from an economic and logistical point of view (paras. 285 - 293).

234. Denmark disputes Finland's premises and, consequently, also Finland's conclusions. The first premise disputed by Denmark is a rather fundamental one; Denmark does not concur in Finland's view that the right of passage through the Great Belt for ships of all nations can be extended to drill ships, semi-submersibles, jack-ups, and crane vessels. This legal issue is addressed thoroughly in Part II of this Counter-Memorial.

235. In this part of the Counter-Memorial only the validity of Finland's factual contentions regarding the physical possibilities for future passage through the Danish straits for offshore units will be examined.

236. Using *Rauma-Repola's* total production till now as a basis for an evaluation of the future possibilities for transporting offshore units from Finland through the Danish straits, it will be demonstrated that all drill ships, all jack-ups, and most semi-submersibles produced by *Rauma-Repola* could have been transported through the Sound instead of through the Great Belt *without requiring any technical modifications to the units prior or* subsequent to passage.

237. A few of *Rauma-Repola's* semi-submersible platforms, because of their draught, could not have passed through the Sound where the guaranteed water depth is 7.7 metres. However, these units could have passed the Sound had their propulsion thrusters, which increase the draught of the unit, been fitted after passage through the Sound so as to allow passage. Another possibility would be to take off the top of the drilling tower of the unit prior to passage under the East Bridge, for final assembly north of the bridge. Denmark will show that these modifying operations are perfectly feasible, have been executed as a routine matter elsewhere in the world, and are much less time-consuming and costly than argued by Finland.

238. *In summary, drill ships, jack-up rigs, semi-submersible* rigs, and crane vessels may, after construction of the East Bridge, be transported through the Danish straits in one of the following ways:

(a) Transit through the Sound without technical alterations to the unit (drill ships, jack-ups, semi-submersibles, and crane vessels).

(b) Transit through the Sound subsequent to a reduction of the draught of the unit by relatively simple technical modifications such as the temporary dismantling of propulsion thrusters (semi-submersibles).

(c) Transit through the Great Belt with the top of the drilling tower dismantled for final assembly subsequent to passage of the East Bridge (semi-submersibles).

(d) Transit through the Great Belt without technical modifications after having ballasted the unit to the deepest draught possible in order to reduce air draught and allow passage under the East Bridge (semi-submersible drilling rigs and semi-submersible crane vessels).

239. In paragraphs 243 - 259 the relevant types of offshore units, their number, and typical dimensions will be briefly described.

240. A later part of this Counter-Memorial, Chapter VI, "The Sound is a Feasible Route for the Passage of Offshore Units through the Danish straits", will consider in detail the conditions for navigation in the Sound and address the past and future passages of offshore craft through the Sound (item (a) above).

241. The possibility of modifying offshore rigs by removing thrusters or dismantling the top of the drilling tower to facilitate passage through the Danish straits (items (b) and (c) above) will be analyzed in Chapter VII.

242. Finally, Chapter VIII will demonstrate that all crane vessels in the world, save four, may - without any technical modifications to the units - either transit the Great Belt, in some cases ballasted to the deepest draught possible to reduce air draught and make passage under the East Bridge possible (item (d) above), or go through the Sound.

## B. Mobile Offshore Drilling Units

243. Mobile offshore drilling units, often referred to as MODUs, are structures designed to move or be moved in a floating condition from one offshore site to another. On site they drill either in floating condition or with the legs of the unit standing on the seabed. MODUs are usually divided into three distinct designs; drill ships, semi-submersible units, and jack-up units. Common to all three designs is the apparatus for drilling placed on the unit, notably the drill tower, or derrick, which handles the drill pipes and performs the actual drilling. Basically, the same types of derricks are installed on drill ships, semi-submersibles and jack-ups, and these drill towers come in standard dimensions, usually with a derrick height of 49 - 55 metres. Most MODUs have a total air draught of more than 65 metres, as the height of the derrick substructure and the height from the water line to the main deck where the derrick is placed must be added to the derrick height to determine the actual air draught of the unit.

244. All three types of MODUs have been produced at *Rauma-Repola Offshore Oy*. In addition *Rauma-Repola* has produced two Multi-purpose Support Vessels (often referred to as MSV's). These Multi-purpose Support Vessels are in principle semi-submersibles designed to undertake various tasks in connection with hydrocarbon exploration and production. Such units do not, however, have a derrick and will almost invariably have an air draught, at least in ballasted condition, below the 65 metres free clearance of the East Bridge.

245. The discussion on the passage of offshore craft through the Danish straits may be restricted to MODUs. Production platforms are often designed to be permanent fixtures on the sea bottom. The substructure being the largest part of the platform which extends from above the sea surface to the sea bed is transported from the fabrication yard to the offshore installation site in one piece. No such substructures have been produced in the Baltic. Other production platforms are made of concrete and are

towed floating in one piece to their location. These platforms have draughts of up to 200 metres and are thus already precluded from making any kind of transit through Danish waters.

*Drill Ships*

246. The drill ship is a surface type drilling unit. A drill ship has a regular ship hull and is in fact often a converted cargo carrier. Drill ships float when drilling and may operate both in deep and shallow water. Although anchored or kept in place by dynamic positioning devices (thrusters), a drill ship in operation will have an inferior stability compared to a regular platform. The advantage of drill ships is that they navigate as regular ships and may thus make long voyages more quickly and inexpensively than semi-submersible and jack-up platforms. Further, they have extensive storing capability, and are thus often used in areas with limited supply facilities.

247. The draughts of drill ships vary considerably depending on the amount of drill pipes, drilling equipment and general load carried. The operational or maximum draught of more than 80 per cent. of all drill ships lie between 6 and 8 metres (Annex 35). The minimum transit draught of a drill ship is always significantly less than the operational draught, often up to 2 metres less, and the minimum transit draughts of most drill ships thus vary from 5 - 7 metres. Owing to the fact that standard derricks are employed, the air draughts of drill ships are quite uniform, approximately 75 metres at transit draught. The exact air draught of a drill ship is found by adding to the derrick height the height of the drill ship from the water line to the base of the derrick, usually a distance of 15 - 20 metres. The breadth of a drill ship is that of a regular hull and rarely exceeds 25 metres. Denmark agrees with Finland that the dimensions of future drill ships is not expected to undergo any radical change (para. 170 of the Memorial), and any increase in the draught is considered unlikely.

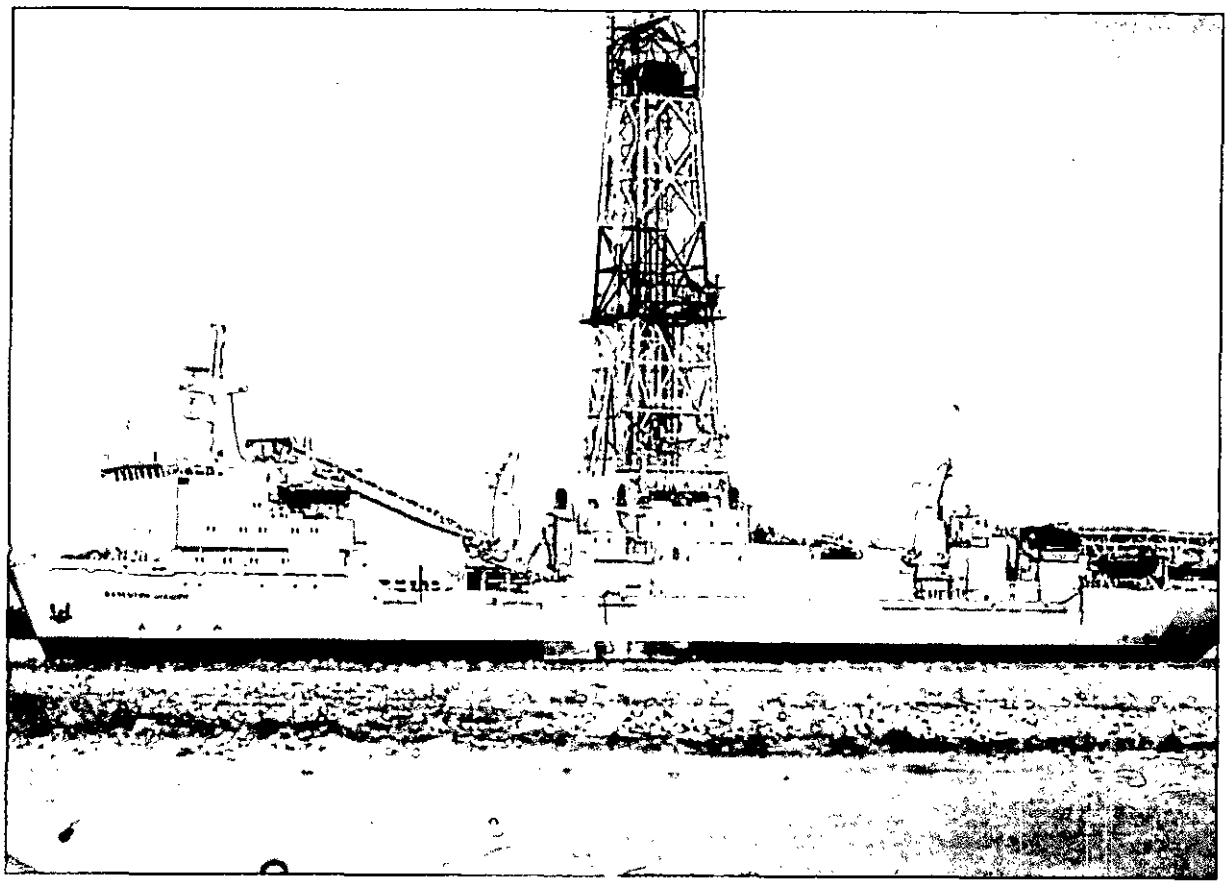


**Figure 8**: *RAUMA-REPOLA* DRILL SHIP, *VALENTIN SHASHIN*, WHICH PASSED THROUGH THE SOUND IN OCTOBER 1985

location transfers, semi-submersibles are generally towed over longer distances. Semi-submersibles are used for drilling in deeper waters i.e., with a typical minimum water depth requirement, depending on design and environment, ranging between 40 - 100 metres.

252. According to Offshore Data Services there are currently 168 semi-submersible drilling platforms in existence. 108 of these rigs are currently drilling, whereas 60 are without contracts[36]. Most semi-submersibles have registered transit draughts of between 6 and 8 metres. However, this registered transit draught is often not the lightest draught attainable, as it is usually listed with a displacement that includes all equipment and materials required for drilling purposes i.e., a variable load which it is neither common nor necessary to carry e.g., on a delivery voyage from a yard.

253. As in any other unit, the air draught of a semi-submersible is a function of the draught, and as the draught of a semi-submersible may vary from around 6 metres in transit condition up to a deepest draught of more than 25 metres, the air draught varies accordingly. In transit condition the air draught of semi-submersibles range from approximately 75 to 100 metres. The breadth of a modern semi-submersible rig varies from approximately 60 to 100 metres. According to Lloyd's Register about two thirds of all semi-submersibles in existence have transit draughts of less than 7.2 metres in fully loaded condition.

254. *Rauma-Repola Offshore Oy* has produced 14 semi-submersible drilling rigs and 2 semi-submersible Multi-purpose Support Vessels. It will be demonstrated that all *Rauma-Repola* built semi-submersibles and most other semi-submersibles in the world may be transported through the Sound. Most *Rauma-Repola* units could be towed through the Sound either without any modification to the rig at all or subject only to an adjustment of the

[36] *Offshore Rig Locator*, Vol. 19, No. 5, May 1, 1992.

variable load carried on the rig. A very few *Rauma-Repola* semi-submersibles would have to undergo a technical modification to be able to be towed through the Sound or under the East Bridge, either in the form of a temporary dismantling of the thrusters of the rig or in the form of a final fitting of the top of the derrick after passage of the East Bridge. The Multi-purpose Support semi-submersibles do not have derricks and thus will not have problems passing under the future East Bridge.

*Jack-Up Platforms*

255. A jack-up is a self-elevating drilling platform. During transport of the rig the hull of the platform floats while almost the full length of the legs of the rig protrude above sea level. Once on site at the drilling location, the legs will be lowered to stand on the seabed, and the hull will be jacked up to rest at a safe distance above sea level. The bottom of the legs are fitted with so-called spud cans to ensure a safe penetration into the seabed. On modern jack-up drilling rigs the end of the legs including the spud cans may be retracted into the hull of the jack-up during transport and thus do not increase the transit draught of the platform. Drilling is performed using a derrick installed on the platform.

256. Depending on design and environmental conditions jack-ups are used for drilling in water depths from a few metres to well over 100 metres. The length of the legs of a self-elevating platform determines the air draught of the unit, and are usually in the range of 100-150 metres, but some units may have air draughts of up to 170 metres. The breadth of the jack-up unit may be close to 100 metres.

257. Large modern jack-ups never have their own propulsion and are normally transported in floating condition towed by tugs (wet tow). The floating transit draughts of the majority of the jack-up platforms are between 5 and 7 metres. Jack-ups may also be transported on barges pulled by tugs (dry tow). This transport mode may give an even smaller transit draught than the wet tow described

above. For very long, often trans-oceanic, moves self-elevating platforms are sometimes carried on heavy-lift ships. The heavy-lift vessel will have a draught that is significantly deeper than the jack-up itself would have when towed. As stated by Finland, the draughts of jack-up rig have not changed much over the years (para. 181 of the Memorial), and in fact modern jack-ups tend to have lesser transit draughts than older ones. This lesser draught may be ascribed to the fact that practically all modern jack-ups have retractable spud cans as well as to the fact that a large draught limits or prevents the use of heavy-lift ships for transporting the jack-up units.

258. With a total number of 399, jack-up platforms make up around two thirds of the combined MODU fleet (which counts a total of 603 units). Out of these jack-ups, 249 units are working while 150 units currently remain idle. For MODUs as a whole there is as of May 1992 a surplus rig capacity of 37 per cent[37].

259. *Rauma-Repola* has produced 2 jack-ups independently and one in cooperation with the *Vyborg* Shipyard in Russia. Another joint *Rauma-Repola/Vyborg* jack-up is still under construction in *Vyborg*. It will be demonstrated that all self-elevating platforms built by *Rauma-Repola* and all other large modern jack-up platforms in the world have draughts that allow them to be towed through the Sound.

### C. The Transport of Mobile Offshore Drilling Units

260. MODUs are characterized by their ability to move, or more often to be moved, from one drilling location to another. MODUs are primarily used for hydrocarbon exploration purposes, but also for production drilling in situations where the brevity of the drilling assignments in one place makes it economically more

[37] *Offshore Rig Locator*, Vol. 19, No. 5, May 1, 1992.

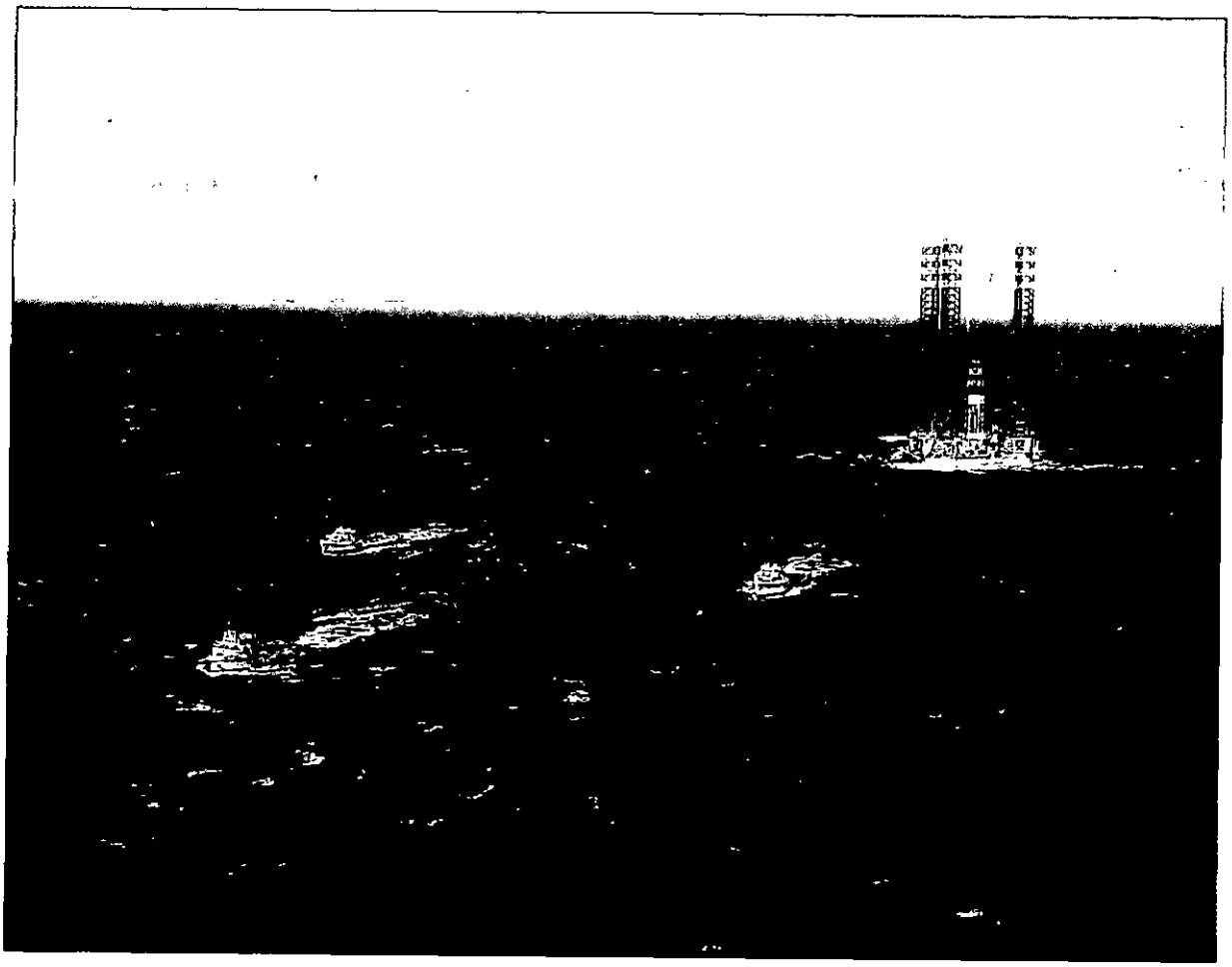


**Figure 10**: JACK-UP RIG IN WET TOW

advantageous to charter a mobile unit instead of using fixed drilling equipment.

261. The most important offshore areas in the world are widely dispersed across the globe. In terms of the number of units currently drilling, the most important offshore areas are, in order, the North Sea, the Gulf of Mexico, South East Asia, West Africa, Venezuela, the Arabian Gulf, the Indian Subcontinent, Brazil, the Red Sea, the former USSR, the Far East, and the Mediterranean[38]. Depending on the market situation, MODUs may make transfers from drill sites in one part of the world to assignments in another part of the world. Further, MODUs are often constructed far from the location where they will be put into operation. Finally, MODUs make frequent local transfers between different drilling sites within the same locality.

262. Basically, MODUs may be transported in three different ways; by independent navigation under their own propulsion, by being towed either on a barge or, more commonly, floating on the water, or by being carried (as cargo) on a specialized heavy-lift ship. The transportation method applied in a specific situation depends upon a number of circumstances, including the type of unit, the distance to be covered, the navigational conditions of the stretch of water to be crossed, economic considerations, and whether time is of the essence.

*Independent Navigation*

263. Drill ships have their own means of propulsion and may sail under their own power on short as well as on trans-oceanic moves. Some semi-submersible platforms also have their own means of propulsion. Depending on the type of thruster installed on the rig, these propeller-driven thrusters may be used for dynamic positioning of the rig during drilling operations and for making

[38] *Offshore Rig Locator*, Vol. 19, No. 5, May 1, 1992.

shorter, unassisted transfers. Semi-submersibles with thrusters do not efficiently cover longer distances under their own propulsion and are therefore almost invariably towed by large tugs.

*Towage*

264. Towage is by far the most common way of transporting jack-up and semi-submersible platforms. Even semi-submersibles with their own means of propulsion are usually towed for longer moves. One or two tugs will normally be used to tow a jack-up, which will either be placed on a barge (dry tow) or more frequently float on the water (wet tow). A barge carrying, a jack-up will have a lesser draught than would the jack-up itself floating on the water. Semi-submersible units will normally be towed by one or two tugs on its own hull (wet tow). Semi-submersible units are not carried on barges, although very occasionally carried on heavy-lift ships.

265. Towage of MODUs is, as with any other offshore operation, subject to the influence of weather conditions. A MODU tow is not commenced unless weather conditions are suitable and the forecast is favourable. Any tow is carefully planned in advance e.g., to ascertain that there are suitable holding areas where the unit may "wait on weather" if conditions should deteriorate during the transport. A jack-up may lower its legs to rest on the sea bed and a semi-submersible may be ballasted down to its "survival draught".

266. Finland has emphasized that towage of a rig is more hazardous than carriage by heavy-lift ship (para. 200 of the Memorial). Denmark agrees that on a long, open-sea transport where severe weather conditions may be encountered heavy-lift transport involves fewer risks than towage of a jack-up rig does. But such considerations of safety do not apply to towing a rig through the Baltic Sea and through the Sound, which is well sheltered and where safe waiting areas are within easy reach in case the weather deteriorates.

267. The rig accidents referred to by Finland in paragraph 200 of the Memorial all occurred in open sea under severe weather conditions not experienced in the Danish straits and are therefore irrelevant for purposes of considering Denmark's proposal for towage of MODUs through the Sound.

*Transport by Heavy-Lift Ship*

268. For very long, e.g., ocean transports, jack-ups are frequently carried on heavy-lift ships. Semi-submersibles are transported this way less frequently. The heavy-lift ship is able to ballast down so that its cargo deck is underwater. The jack-up or semi-submersible unit is then floated over the cargo deck and the heavy-lift vessel is deballasted to lift the jack-up or semi-submersible unit out of the water. The unit is then secured to the deck of the heavy-lift ship before the commencement of the transportation voyage.

269. Carriage by heavy-lift ship is faster and usually safer than towing a jack-up across a deep-water ocean where there will neither be places to seek shelter nor shallow water to allow a survival lowering of the legs to wait out critical weather conditions. The disadvantage of heavy-lift ships is that they are expensive to hire, approximately USD 20,000 per day, and that loading/unloading and securing/unsecuring of the platform on the heavy-lift ship is in itself time-consuming. Invariably, heavy-lift ships will only be employed for longer hauls. In addition, according to Lloyd's Register of Shipping there are only 9 registered heavy-lift ships available worldwide leading to long transfers and thereby high mobilization costs. A rig owner's decision on whether to opt for a heavy-lift ship or for towage of the rig will depend primarily on economic aspects, and the decision will be made subsequent to a concrete analysis of costs. Finland's statement that jack-up rigs are towed only for distances of up to 1,000 nautical miles (para. 188 of the Memorial) is not correct, as there are many examples of jack-ups being towed for much longer distances.

270. A heavy-lift ship carrying a MODU may have a significantly deeper draught than the MODU it carries but this will be dependent on the size and weight of the MODU and the type of heavy-lift ship. The draught of a typical heavy-lift ship carrying a jack-up is typically about 8 to 10 metres. The loading and unloading of a platform requires an even larger draught to enable the heavy-lift ship to submerge its cargo deck sufficiently to allow the MODU to float over it.

271. Heavy-lift ships are not normally used for shorter transfers in sheltered waters due to the time and cost involved in mobilizing a heavy-lift vessel as well as the fact that the safety considerations apply to a much lesser extent, if at all, to towage in sheltered waters.

272. While it is obvious that carriage by heavy-lift ship is faster than towing a MODU, there are disadvantages of using heavy-lift vessels as well. In a number of instances jack-ups carried on heavy-lift ships have sustained damages. Accelerations on the unit due to motions of the heavy-lift ship may be higher than in a wet tow. Damage to the legs, jacking mechanisms and hull structures of jack-ups when carried on heavy-lift ships has occurred.

273. The number of yearly heavy-lift transports of MODUs is not precisely known. However, a check with the various heavy-lift transportation contractors indicates that the total number of transports is about 20 per year. These relatively few transports compares with hundreds of yearly movements under tow of the world's 399 jack-ups.

## CHAPTER VI.

## THE SOUND IS A FEASIBLE ROUTE FOR THE PASSAGE OF OFFSHORE UNITS

### A. Introduction

274. The Baltic Sea is connected to the North Sea by three straits and a man-made canal. Since the present case is very much concerned with the alleged right of passage of exceptionally tall, Baltic-built offshore structures interest has focused on the Great Belt and the Sound.

275. Since Finland's first approach to the Government of Denmark in this matter Denmark has consistently argued that the Sound provides a viable route of passage for the Finnish offshore units transiting from the Baltic to the North Sea (para. 516 of this Counter-Memorial). Finland has declined to consider the Sound as an option for the transport of offshore structures. The Finnish Government primarily advanced an argument of impracticability, or even impossibility, of passage from a factual point of view. This contention will be addressed in the following.

276. In Chapter III of the Memorial Finland has argued that - as a point of fact - the Sound is not a relevant navigational alternative to the Great Belt. Finland refers to three arguments as a basis for this conclusion; the depth of the Sound is insufficient, part of the main navigational route in the Sound passes through Danish internal waters, and finally, that the planned fixed link between Denmark and Sweden may adversely affect navigation in the Sound. Further, in paragraphs 198 - 206 of the Memorial Finland has attempted to demonstrate that, especially for offshore structures transiting from the Baltic to the North Sea, the Sound is not a technically relevant option. For these offshore units, Finland asserts, "using the Sound is physically impossible".

277. The Government of Denmark cannot endorse Finland's description and conclusions regarding the Sound. This Chapter VI will seek to demonstrate in detail that the Sound is not only a very important, and in some respects the primary, navigational route between the Baltic and the North Sea, but also that, despite the fact that the depth of the Sound is only about half that of the Great Belt, it is still a perfectly feasible transit route for drill ships, semi-submersible and jack-up platforms as well as crane vessels. It will be documented that almost all *Rauma-Repola* built MODUs could - without any technical modifications to the rigs - have been transported through the Sound; a finding corroborated by the fact that a number of MODUs built at *Rauma-Repola* have in fact utilized the Sound rather than the Great Belt for passage between Finland and the North Sea.

## B. Geography

278. The Sound (*Sundet*) is delimited from the Baltic Sea proper to the south by a line from *Falsterbo* in Sweden to *Stevns* Light on Zealand and from the *Kattegat* Sea to the north by a line running from *Gilbjerg Hoved* on Zealand to *Kullen* in Sweden (Map IV). The length of the main navigational north-south route through the Sound is approximately 56 nautical miles.

279. Transiting vessels may pass to the west and to the east of the Swedish island of *Ven* in the northern part of the strait. In the southern part of the strait, the navigational route splits into two. One passes between the Island of *Saltholm* and the Swedish coast through what is known as the Flinte Channel (*Flinterännan*). Most international traffic of ships (approximately 87 per cent. of all vessels) passes through the deeper Drogden Channel (*Drogden Rende*) between the west coast of *Saltholm* and the east coast of the island of *Amager*.

280. The route through the Flinte Channel and northwards in the Sound passes through Swedish and Danish territorial seas,

whereas the route west of *Saltholm* passes through internal Danish waters in the Drogden Channel.

281. The water depths in the navigational routes of the Sound vary considerably, and the shallowest points are found around the island of *Saltholm*, where the Swedish Flinte Channel has a depth of 7.2 metres, and the dredged Danish Drogden Channel a guaranteed minimum depth of 7.7 metres. In the following paragraphs, focus will be restricted to the main navigational route through the Drogden Channel.

282. The Drogden Channel is a natural channel in the shallow chalk-bottomed waters off the southwest coast of *Saltholm* (Map IV). The Channel has a length of 5.5 nautical miles and a minimum width of 290 metres. The channel has been dredged a number of times and today has a guaranteed minimum depth of 7.7 metres at mean sea level. The accuracy of the charted depth in the Drogden Channel is verified regularly by echo-sounding surveys.

283. Immediately to the north and to the south of the Drogden Channel the water depth increases to more than 10 metres. The water in the remaining parts of the navigational route through the Sound is relatively deep, falling gradually to 40 metres to the north of *Helsingør* and to 14 metres to the south of *Falsterbo*.

284. As will be demonstrated in Chapter X, the Drogden Channel is part of the international strait constituted by the Sound and thus governed by the Danish strait régime irrespective of the fact that it lies within the Danish straight baselines, see paragraphs 437 - 442.

## C. Hydrography, Weather, Navigational Conditions, and Ship Positioning Systems in the Sound

285. In a section purporting to show why the Sound should be disregarded as a viable route for MODUs transiting the Danish

straits from the Baltic, Finland makes several observations on the hydrographical and weather conditions of that strait which call for clarification and rectification. Although recognizing that the tidal variation is insignificant, Finland emphasizes that the water level in the Drogden is subject to considerable seasonal and wind-induced variations, see paragraph 70 of the Memorial.

286. Since the Drogden Channel is the only shallow water area of the Sound any discussion of variation in water level should be limited to this area, as water level fluctuations in the deep-water areas elsewhere in the Sound are immaterial to the question of passage[39]. Finland contends that the official water depth of the Drogden Channel may be reduced by as much as 2 metres (para. 198). This is not correct. Variations of this magnitude are only - and rarely - found in the deep-water areas of the Sound. The greatest variation ever recorded in the Drogden Channel was 0.79 metres below mean sea level[40]. Such extreme fluctuations are not only rare but very brief, and may be predicted 48 hours in advance.

287. The water level and thus the water depth at the time of passage is obviously a factor that the master of a ship will have to take into account anywhere in the world when shallow waters are to be passed. In the Drogden, a master will have better knowledge of the current water depth than in most other waters. Firstly, approaching vessels may by radio request information on the water level in the Drogden which is measured every thirty minutes. Secondly, the Drogden is a dredged chalk channel where sedimentation does not occur, and it is probably the most closely surveyed area in the Danish waters, which ensures that the charted

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[39] The figures on water level variations quoted by Finland in Note 2 on p. 27 of the Memorial do not apply to the Drogden. The variation of 0.82 metres applies to *Helsingør* 23 nautical miles north of the Drogden, and the figure 0.88 metres refers to *Køge* 18 nautical miles west of the Drogden. The water depths in these two locations are about 25 metres and 8 metres, respectively.

[40] United States Defense Mapping Agency, Pub. No. 190, 3rd ed., page 124, table 9.

official minimum depth of 7.7 metres at mean sea level is entirely reliable. It may then be concluded that the water level variations in the Drogden proper are minimal, predictable, and of negligible consequence to commercial ships and offshore structures traversing the strait.

288. Finland suggests that the occurrence of ice during winter months make navigation through the Sound difficult and states that the problems caused by ice are significantly greater in the Sound than in the Great Belt (para. 72 of the Memorial). In fact ice rarely presents problems to navigation in Danish waters[41]. Within the past 20 year period (1971 - 1991) ice-strengthened vessels have experienced minor problems in only three years. In each of those three years, the number of days when ice posed difficulties to navigation was higher in the Great Belt than in the Sound[42]. In none of these years did ice prevent the passage of ice-strengthened vessels through the Sound.

289. In passing, it might be noted that the winters and the ice conditions in the waters off Finland are much more severe than in Danish waters. At least in February and March the entire coastal waters of Finland are normally covered by consolidated or compact pack ice, and the ice extends beyond the limit of the Finnish territorial waters[43]. It may therefore safely be assumed that if an offshore unit is able to depart from the yard in Finland during an ice winter, it will not experience any difficulty in traversing the usually ice-free Danish straits.

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[41] *Ibid.*

[42] According to the Danish Public Icebreaking Service, in the period 1971-1991 navigation was affected by ice in 1984/85, 1985/86, and 1986/87. In these years, the number of days when minor problems were experienced by ice-strengthened vessels was 38, 30, and 36 in the route through the Great Belt (in *Langelands Bælt*), and 29, 18, and 34 in the Drogden.

[43] United States Defense Mapping Agency, Pub. No. 190, 3rd ed., p. 135 - 36, and ice charts published by the Finnish Institute of Marine Research.

290. In order to promote the safety of navigation through the Danish waters, including the Great Belt and the Sound, the Danish authorities have established the SHIPPOS system. SHIPPOS is a radio reporting scheme according to which large vessels, offshore structures and other large units navigating the Danish waters may receive information on the positions and movements of other large vessels and units under tow in the area, navigational hazards *en route*, and deviations from normal conditions of e.g., current, water level, and wave height. Participation in the SHIPPOS system is voluntary, but the system is used by approximately 90 per cent. of all vessels transiting through the Great Belt with a draught of 13 metres or more[44].

291. Finland notes that the Drogden route has the additional disadvantage of passing by Copenhagen, where heavy traffic increases the risk of collision (para. 73 of the Memorial). As a remark made in the context of a comparison between the navigational routes through the Sound and the Great Belt, the statement lacks merit. The intensity of navigation in terms of the number of transiting vessels in the two routes is almost the same. Finland's reference to the proximity of the Drogden route to Copenhagen's international airport at *Kastrup* is similarly irrelevant (para. 74 of the Memorial). The Danish Maritime Authority has issued a guideline according to which all vessels and structures under tow with air draughts in excess of 35 metres are requested to report their approach two hours prior to passage of the airport, see Notice issued by the Danish Maritime Authority on 10 August 1989 (Annex 40). The advance notice allows the necessary coordination of maritime and air traffic during the time of passage. Such reporting schemes are found in various parts of the world, are well-known to the international shipping community and in no way hampers the passage of any vessel or MODU through this part of the Sound.

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[44] In Annex 32 to the Memorial, page 152, it is erroneously stated that participation in the SHIPPOS system is compulsory.

## D. Underkeel Clearance in the Sound

292. Finland has devoted considerable attention to the issue of underkeel clearance for transport of MODUs (para. 75 and Annexes 4 and 32 to the Memorial). Denmark of course agrees that it is essential to ascertain what column of water a ship or an offshore unit must have under its keel in order to navigate or be towed safely through a given body of water. The determination of the proper underkeel clearance is the basic premise for evaluating whether offshore units including *Rauma-Repola's* past and future productions may be towed through the Sound. No underkeel clearance figure will have universal application, as the value must be established for each body of water and for each type of vessel on the basis of a number of criteria:

- the geographic location of the particular body of water, wind, tide, and other factors affecting the water level
- the nature and topography of the seabed and the reliability of the charted depths
- the type of unit in question, its sea behaviour, the salinity of the water, and other factors affecting the draught of the unit in the waters in question.

293. Determining the column of water under the keel required for safe passage is thus a very concrete task, inseparably tied to the specific navigational route examined. When assessing the underkeel clearance necessary in the Sound, or rather in the Drogden Channel, the validity of drawing parallels to waters elsewhere in the world is entirely dependent on complete or nearly complete comparability between the waters examined. This is clearly reflected in the marked difference between the Sound and the Great Belt with respect to underkeel clearance.

294. No Danish or international body has established a required underkeel clearance for navigation in Route T through the Great Belt or for navigation through the Sound. However, an underkeel clearance for vessels utilizing Route T has indirectly been

recommended - at least for larger vessels, whereas this is not the case for the route through the Sound.

295. To enhance the safety of navigation particularly for larger vessels utilizing Route T and thereby the Great Belt for transiting Danish waters, the International Maritime Organization, following a request from Denmark, adopted Resolution A.620(15) on Navigation through the Entrances to the Baltic Sea (Annex 41). Route T has a charted minimum depth of 17 metres, but Denmark wished that the international maritime community be made aware that in one section of Route T, in the area to the north-east of *Gedser* (Map I), "the charted depths, even under normal conditions, may be decreased by as much as 2 metres owing to unknown and moving obstructions"[45]. The variations relative to the charted depth north-east of Gedser are primarily caused by moving sandbanks.

296. Denmark had originally proposed a minimum underkeel clearance of 2 metres for passage through the Route T, but this proposal was not adopted by the IMO. Formally speaking Resolution A.620(15) does not establish or even recommend an underkeel clearance. It merely states the fact that the charted depth may be decreased, and recommends that ships of 40,000 DWT and above and ships with a draught in excess of 13 metres take certain precautions (Article 1(a) and 1(b) of the Resolution). For all practical purposes, however, the safe draught of ships and other structures passing this part of Route T is limited to 15 metres.

297. It has never been considered necessary to establish a recommended underkeel clearance or warn of risks of decreasing water depths in the Sound. The minimum water depth in the main navigational route through the Sound is 7.7 metres, this being the minimum depth of the dredged Drogden Channel. The applicable IMO Resolution A.579(14) on the Use of Pilotage in the Sound

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[45] IMO Resolution A.620(15) adopted on 19 November 1987, Article 1 (a). Resolution A.620(15) expressly revokes the previous Resolution A.339(IX) referred to in Annex 3 to the Memorial.

neither directly nor indirectly addresses the issue of underkeel clearance (Annex 42). The object of Resolution A.579(14) is to recommend that tankers with a draught of 7 metres or more, loaded chemical tankers and gas carriers, and ships carrying radioactive materials make use of the pilotage services established by the Governments of Denmark and Sweden.

298. The very different character of the most shallow point in Route T, the area north-east of *Gedser* (moving sandbanks), and the most shallow point in the Sound, the Drogden Channel (chalk bottom without sedimentation build up), explain the absence of an internationally sanctioned or an official Danish minimum underkeel clearance for the Sound. It is therefore wrong when Finland applies the two metre underkeel clearance implied in Resolution A.620(15) to the Sound (para. 75 of the Memorial). Even more misguided is Finland's comparative reference to the underkeel clearances established for the English Channel and for ultra-large crude carriers with draughts above 15 metres in the Malacca Strait (para. 75 of the Memorial). These straits really have only the existence of an international passage régime in common with the Sound, which is of course of no consequence in the determination of the appropriate underkeel clearance. In the English Channel e.g., there is considerable tide, tidal surges, risk of waves exceeding 6 metres in storms, and unknown movements of the seabed[46].

299. The absence of an official minimum underkeel clearance in the Sound conforms with internationally recognized practice according to which the national authorities inform shipping circles of the charted depth of the water and then leave it to the master of the vessel to deem which depth of water under the keel is needed for safe passage. The master will of course make that decision based on his knowledge on how his vessel or offshore structure behaves under different weather conditions and on the navigational

[46] *Dover Strait Pilot Book.*

conditions in the fairway or channel which the vessel is about to enter.

300. The establishment of an appropriate underkeel clearance for the transport of MODUs through the Sound is assessed in detail in paragraphs 310 - 333, whereas the clearance for ships is addressed below.

## E. Pilotage Services and Existing Ship Traffic in the Sound

301. Extensive pilotage services are available in Danish waters, both for international transit traffic and for traffic entering or leaving Danish ports. Contrary to what is stated in Annex 32 to the Memorial, pilotage for ships and for MODUs transiting Danish waters is optional, see paragraph 564.

302. The approximate annual number of ships utilizing the services offered by Danish pilots for passage through the Sound is 2,300. The pilots are experienced in handling both ordinary vessels and offshore structures under tow. For a north-bound passage through the Sound a Danish pilot will board the vessel either off the island of Bornholm or in the southern part of the Sound; for a south-bound passage the pilot will embark at Elsinore (Map IV). Before guiding a vessel through the Sound the pilot will measure the vessel's actual draught at the time passage is to be commenced.

303. The Danish pilots consider an underkeel clearance of 0.2 metres sufficient for the passage of ships through the Drogden. The short Drogden Channel is considered to be similar to a harbour entrance due to its sheltered location and the fact that it is a dredged fairway ensuring an absence of sedimentary deposits and full reliability of the charted depth.

304. The reliability of the charted depth in the dredged and surveyed Drogden Channel enables the pilot to know precisely how much water he has under the keel once the draught of the vessel

and the current water level have been measured. This is in marked contrast to the Malacca Strait and the Dover Strait referred to by Finland. As noted in *the Mariner's Handbook* "offshore surveys seldom attain the precision of those in sheltered inshore waters" and "the charted depths in offshore areas should not be regarded with the same confidence as those in inshore waters, or those in the approaches to certain ports where special provision is made to enable underkeel clearance to be reduced to a minimum"[47]. The special provisions referred to by *the Mariner's Handbook* would presumably be maintenance of the existing water depth by regular survey and further dredging if necessary, precisely the measures taken in the Drogden Channel.

305. In the *Baltic Deep-Sea Pilotage* published by the Baltic Pilotage Authorities Commission, a non-governmental organization consisting of the pilotage authorities in the countries adjacent to the Baltic Sea, the maximum draught for passage through the Sound by way of the Drogden Channel under normal weather and wind conditions is listed as 7.50 metres (Annex 43). This implies an underkeel clearance for regular ships of 0.2 metres.

306. An argument that an underkeel clearance for ships transiting through the Drogden of 0.2 metres is inadequate and unsafe cannot be sustained in view of the fact that this is the clearance recommended by the Sound pilots, officially promulgated by the Baltic Pilotage Authorities Commission, and, most importantly, the one utilized by international shipping.

307. According to the registers of the Danish Sound pilots, a total of 657 ships with draughts of 7.0 metres or more were piloted through the Sound in 1991. 116 of these ships had draughts of 7.4 metres and above, and some even had draughts measured by the pilots of 7.6 metres. This clearly demonstrates the masters'

[47] *The Mariners Handbook*, NP 100, 6th ed., 1989, p. 21 and p. 32.

confidence in the accuracy of the charted depth in the Drogden channel and in the assistance provided by the pilots.

308. Finland has contended that several shipping companies have advised ships in excess of 3,000 - 4,000 DWT to use the Great Belt rather than the Sound (para. 73 of the Memorial). The contention is unsubstantiated, and it should not give rise to the erroneous inference that only a few ships above 4,000 DWT utilize the Sound. In fact 34 per cent. of all vessels navigating the Sound exceed 5,000 DWT. In 1990 the total number of passages through the Sound was calculated to be 21,385, and out of these more than 100 were ships above 40,000 DWT[48].

309. The inference that may be drawn from Finland's statement is also contradicted by the navigational practices of Finnish ships transiting the Danish straits. In the period 1987 - 1991, a total of 36 Finnish vessels with draughts of 7.0 metres and above passed through the Sound; the tonnage of these vessels ranged from 4,500 to 31,800 DWT (Annex 44).

## F. Transport of Offshore Units through the Sound

310. The existing ship traffic in the Sound and the appropriate underkeel clearance for ships passing through the Drogden Channel has been addressed above. As documented in Chapter IV and V the only craft which have air draughts in excess of the free clearance of the future East Bridge are certain offshore units and crane vessels. The possibilities for transporting drill ships, semi-submersibles and jack-up platforms through the Sound will therefore be examined in some detail in the following. Crane vessels will be separately addressed in Chapter VIII.

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[48] Report from MSR Consultants: *Analyser af skibstrafikken i Øresund*, January 1991.

311. Finland has categorically discarded the possibility that offshore units could be transported through the Sound, using terminology such as "not a technically relevant option", "completely unavailable", and "physically impossible" (paras. 198, 200, and 203 of the Memorial).

312. Finland's flat rejection of the Sound as a navigational route for offshore units is unwarranted. As a starting point it should be emphasized that the Sound has been utilized for towing *Rauma-Repola* built semi-submersibles from the Baltic to the North Sea a number of times. Further, according to observations made by the Royal Danish Navy, at least one of the three identical drill ships built at *Rauma-Repola* has sailed through the Sound under its own power.

313. Denmark recognizes that the towage of an offshore unit through the part of the Sound known as the Drogden Channel, requires careful planning, preparation of extensive towing plans, use of local tugs and local pilots, as well as an absence of unfavourable climatic conditions. But the same would be true of passage via the less protected waters in the Great Belt, and, in fact, these considerations apply to any MODU transport irrespective of route, as offshore tows in general are only performed when weather conditions and other relevant factors are suitable.

314. Denmark also acknowledges that the guaranteed minimum depth of the Sound is merely half that of Route T through the Great Belt making the question of determining and securing the presence of the appropriate underkeel clearance acutely important. The lesser depth in the Sound may under unfavourable conditions necessitate temporarily stopping the MODU in the Sound before entering the short Drogden Channel, if the water level for one reason or another has fallen below mean sea level. But "waiting on weather" is a very common cause of interruption of offshore transports, especially once the transport leaves Danish waters and proceeds into open sea. And it should be borne in mind that with respect to towage of MODUs the only area with critical water depth

in the whole of the Sound is the Drogden Channel with its total length of 5.5 nautical miles.

315. It is therefore conceded that towing a MODU through the Sound may, due to the lesser water depth in a number of ways be more inconvenient than taking it through the Great Belt. But then again, inconvenience should not be equated with impossibility.

316. Denmark believes that subsequent to the completion of the East Bridge offshore structures should utilize the Sound as their principal route of passage through the Danish straits. Irrespective of whether Finland prevails on its claim that MODUs have a right of passage through the Danish straits, Denmark is entitled to make such a regulation under the rules of international law pertaining to the separation of traffic and establishment of traffic lanes for ships of special characteristics and, *a fortiori*, to MODUs. It would be open to Denmark, under customary international law and by analogy with the right conferred in Article 22 of the 1982 Convention on the Law of the Sea to issue regulations requiring that MODUs capable of transiting the Danish straits via the Drogden Channel should in the future do so. In order to justify such a regulation the Government of Denmark is not obliged to demonstrate that the Sound is in every respect as suitable for offshore transport as the Belt. It is submitted that Denmark merely has the burden of demonstrating, and substantiating, that the Sound is an adequate and feasible route for the transport of existing MODUs through the Baltic approaches, and that its regulation is justified by considerations of safety.

317. In order to avail itself of an expert opinion on the possibilities for towing MODUs through the Sound the Government of Denmark has commissioned London Offshore Consultants Ltd. to submit a report on that subject with particular emphasis on whether

the units built by *Rauma-Repola* could have been towed through the Sound (Annex 45)[49].

*Requisite Underkeel Clearance for MODU Passage of the Sound*

318. A basic premise for determining whether a MODU may be safely towed through the Sound is the establishment of the proper underkeel clearance. For this purpose it must be carefully analysed whether the underkeel clearance figure should include allowances for:

- variations in the sea level,
- variations in the draught of the MODU,
- variations in the level of the seabed.

319. It will be shown that variations of this sort are under normal circumstances minimal in the Sound, and that it is therefore not necessary to adjust the underkeel clearance to make allowances for these factors.

320. Factors influencing the sea level include wind, tide, air pressure, and fresh water drainage into the sea. The Sound is particularly well sheltered against wind-generated waves, the tide is negligible, and the variations in water level caused by air pressure changes are generally insignificant. Like fresh water drainage into the Baltic Sea, air pressure changes will usually lead only to a rise in the water level.

321. Although variations of the water level both above and below mean sea level will occur, such variations remain predictable and will thus not pose problems for passage through the Sound as

[49] London Offshore Consultants Ltd. is a qualified Marine Insurance Surveyor, one of a very few firms world wide nominated by underwriters on insurance policies to approve marine operations which include the towage of MODUs. Underwriters do not become involved in the technicalities of towages, such as underkeel clearance, but rely on the experience of those such as London Offshore Consultants Ltd. to approve such operations.

towage of a MODU whether in the Sound, the Great Belt, or elsewhere in the world will not be undertaken if unfavourable climatic conditions are present or approaching.

322. The factors that may influence the draught of a MODU or a ship include accuracy of draught measurement, wave-induced vertical motion of the MODU, squat, and change in draught due to towline pull.

323. The precision of a draught reading depends on the smoothness of the surface of the sea. The draught of the unit may be accurately measured in sheltered waters. Such waters are available immediately prior to entering the Drogden Channel.

324. The basic premise of London Offshore Consultants' Report is that a towage through the Sound will only be executed in suitable environmental conditions. London Offshore Consultants conclude that such favourable weather conditions may be obtained in the Sound at any time of the year, and combined with the sheltered location of the dredged Drogden Channel this means that the vertical movements of the MODU will be negligible.

325. Squat is an increase in draught experienced when a vessel moves close to the sea bottom inducing a reduction in pressure. Since squat is insignificant to the point of absence at slow speeds, it may be disregarded for tows through the Drogden where the estimated speed will be only 2 knots. The towlines will be mounted to ensure that the pull of the tug will not affect the draught of the unit, at least not at the modest speed of towage.

326. Finally, the nature of the Drogden Channel does not make it necessary to include a dredging tolerance or a tolerance allowing for sedimentary deposits. The sea bed of the channel is stable chalk, and the currents prevent sandbank and other sedimentation build-up in the navigational route. Thus, the full reliability of the charted minimum depth of 7.7 metres in the dredged channel is ensured.

327. Against this background London Offshore Consultants conclude that a MODU may be safely towed through the Sound with a draught of up to 7.2 metres i.e., with an underkeel clearance of 0.5 metres. Since drill ships sail under their own power with normal navigating capability, the underkeel clearance of 0.5 metres recommended as safe and feasible by London Offshore Consultants only applies to towage of jack-up and semi-submersible drilling rigs.

328. It is important to note that only the Report submitted by London Offshore Consultants has squarely addressed the issue of *the appropriate underkeel clearance for a controlled MODU towage* through the Sound. The statements provided in Finland's Memorial on the question of underkeel clearance are either general in their character or relate to other - geographically incomparable - waters.

329. It is of particular interest to note that the Report submitted by Noble Denton Marine Services Ltd., Annex 32 to the Memorial, does not recommend a specific underkeel clearance for tows in the Drogden. Relying on such general statements as "(o)wners of MODUs like to see at least two metres of water below the keel or the lowest part of the unit"[50], no attempt is made to test this two-metre clearance against the particular conditions in the Drogden. A number of the factors mentioned in Annex 32 as determinative for a two-metre underkeel clearance are precisely those factors the influence of which has been demonstrated above to be negligible or non-existing for tows through the Drogden Channel. The application, in Annex 32 and in the Memorial in general, of a two-metre underkeel clearance for tows through the Sound is therefore not warranted, and, it is contended, cannot form the basis for a determination of whether the mobile offshore drilling units built by *Rauma-Repola* may be transported through the Sound.

[50] Annex 32 to the Memorial, p. 146.

330. Finland has referred to the recommendation on underkeel clearance issued by the Permanent International Association of Navigation Congress (PIANC) (para. 75 of and Appendix 1 to Annex 4 to the Memorial). Finland contends that when applied to the Sound the PIANC recommendation leads to a required underkeel clearance of 0.9 metres. First, it should be noted that the recommendation notably applies to large ships, not MODUs. Secondly, the figure quoted by Finland is by nature general and does not take the particular merits of the individual case into account. Thirdly, the part of the recommendation relied on by Finland states that in channels "exposed to strong and long swell, gross underkeel clearance to be about 10 to 15 per cent. of the draught"[51]. The reference is not well chosen. Due to its location adjacent to the coasts of *Amager* and *Saltholm* and the sheltered nature of the Sound in general, the Drogden waters sustain not strong but only insignificant swell; swell being defined "as the wave motion caused by a meteorological disturbance, which persists after the disturbance has died down or moved away"[52]. Inexplicably, Finland has failed to include in its excerpt from the PIANC recommendation the provision in the document applicable to channels "less exposed to swell" (section 2.2.2.8.4.), which would of course be a much more relevant basis of comparison to the sheltered Drogden Channel. In such channels, the PIANC document recommends an underkeel clearance of 10 per cent. of the vessel's draught (Annex 46). As applied to the towage of an average jack-up with a transit draught of 5.50 metres, the PIANC recommendation would counsel a minimum underkeel clearance of 0.55 metres for passages through the Sound.

331. Finland has quoted *Det Norske Veritas* for recommending an underkeel clearance during towage of an offshore

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[51] Appendix 1 to Annex 4 to the Memorial, section 2.2.2.8.3.

[52] *The Mariner's Handbook*, NP 100, 6th ed., 1989, p. 62.

unit of minimum 5 metres (para. 75, section 6 of the Memorial[53]). Finland's application of this recommended underkeel figure to the towage of a MODU is inappropriate. The cited part of the Veritas document explicitly applies to "objects such as gravity base structures, jacket substructures, offshore towers, etc.". These units are not MODUs but fixed production platforms. A gravity base structure is a concrete production platform with a floating draught of up to 200 metres, which will be towed to its drilling site to be permanently installed there. Obviously, the underkeel clearance recommended for a fixed production platform of this type cannot be applied to the towage of a MODU with a towing draught of e.g., 6 metres. The inappropriateness of Finland's reliance on the recommendation regarding these fixed offshore structures is made clear by a statement submitted by *Det Norske Veritas* to the Government of Denmark (Annex 47).

332. London Offshore Consultants' recommendation of a minimum underkeel clearance for the passage of MODUs through the Sound of 0.5 metres is in accordance with the practice established by the Sound pilots. The pilots recommend an underkeel clearance of 0.5 metres for a controlled towage of a semi-submersible or a jack-up platform through the Drogden. The pilots consider the underkeel clearance of 0.2 metres established for regular ships applicable also to drill ships navigating through the Drogden. Drill ships are neither larger nor more restricted in their ability to manoeuvre than regular ships which pass through the Drogden with draughts up to 7.5 metres.

333. In further support of its contention of the viability of the Sound as a transit route for MODUs, the Government of Denmark has asked *Det Norske Veritas* to recommend the appropirate underkeel clearance for a controlled towage of a MODU through the Drogden Channel. Like London Offshore Consultants, *Det*

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[53] Veritas Marine Operations, *Standard for Insurance Warranty Surveys in Marine Operations*, June 1985, Section 5.8.2.1 (Apppendix 2 to Annex 4 to the Memorial).

*Norske Veritas* is one of a very few Marine Insurance Surveyors world wide that review plans for MODU tows on behalf of major underwriters. In their statement, *Det Norske Veritas* endorses the conclusion of London Offshore Consultants that an underkeel clearance of 0.5 metres for towing a MODU through the Drogden in good weather is fully adequate (Annex 48).

## G. Transport of *Rauma-Repola's* MODUs through the Sound

334. It has now been established that semi-submersibles and jack-up platforms may be towed through the Drogden with an underkeel clearance of 0.5 metres, and that drill ships may sail through the Drogden with 0.2 metres of water underkeel, in both cases subject of course to normal environmental conditions. Thus at mean sea level platforms with draughts of up to 7.2 metres and drill ships with draughts of up to 7.5 metres may transit the Sound.

335. The draught figures established above will allow most existing MODUs in the world to transit through the Sound in a controlled operation. At the request of Denmark, London Offshore Consultants Ltd. has executed a case study on whether each of the MODUs hitherto built at *Rauma-Repola* may be towed through the Sound.

336. The conclusion of the study is that, with the exception of four semi-submersibles fitted with thrusters protruding beneath the hull of the MODU, all 22 MODUs listed in Table II as built by *Rauma-Repola* could be transported through the Sound without any technical modifications to the units. One of these four semi-submersibles does not have a drilling tower and could be towed under the East Bridge, whereas the remaining three units could be towed through the Sound after a temporary dismantling of their thrusters.

337. The findings of the *Rauma-Repola* study are summarized in the following. It is important to note that, as

previously mentioned, London Offshore Consultants Ltd. is a qualified Marine Insurance Surveyor, one of a very few firms worldwide approved by the insurers of marine operations to review plans for the towage of MODUs for purposes of taking out insurance policies covering such transports. Thus, when London Offshore Consultants conclude that, subject to the conditions of passage set out above, a *Rauma-Repola* semi-submersible or jack-up rig may safely be towed through the Sound provided there is at least a water column of 0.5 metres underkeel, it may *eo ipso* be assumed that such a tow would be insurable with major underwriters.

338. The draught of a MODU is a variable figure. The draught of a MODU when being towed is known as the transit draught. A jack-up rig will have two transit draughts, one for location moves and one for ocean towage. The transit draught of any MODU relates to a specific weight or displacement. If the weight or displacement of the unit is altered, so is the draught.

339. The weight of a MODU may be divided into two components: the light weight (a fixed weight consisting of the weight of the hull and the fixed equipment) and a variable load (a variable weight consisting of moveable weights carried on or within the hull). A significant part of the variable load is made up by drill pipes, drilling equipment, bulk storage, drilling mud, fuel, and water. These items are not normally supplied by the MODU builder, and are usually not delivered to the rig until it is in its drilling area. This part of the variable load would therefore not be included for a delivery transport from the yard to the drilling destination.

340. The transit draught for a unit quoted by MODU yards and the various offshore registers will, however, normally include the quantity of variable load needed for drilling purposes. Consequently, the actual draught of a MODU on its delivery voyage from the production yard will invariably be - or may easily be

reduced to - a draught which is considerably less than the listed transit draught of that particular MODU.

341. London Offshore Consultants Ltd. has examined the transit draught of all units produced by *Rauma-Repola* as listed by available offshore registers. For those designs whose transit draught was critical with respect to passing through the Drogden Channel, London Offshore Consultants have contacted the current operator of the rig and ascertained the precise quantity of variable load carried on the unit at its listed transit draught.

342. The availability of these data have made it possible to make an accurate evaluation of the possibility for passage through the Sound for each of the units produced at *Rauma-Repola*. The conclusions of the study demonstrate that out of the 22 MODUs built at *Rauma-Repola* 14 may be towed or sail through the Sound without any modifications to their design, carrying their maximum variable load, 4 semi-submersibles may be towed through the Drogden Channel without any modifications to their design if less than maximum variable load is carried, and three semi-submersibles may be towed through with their thrusters dismantled if less than maximum variable load is included. The last unit is not a drilling rig but a Multi-purpose Support Vessel; it cannot pass the Drogden but may go under the East Bridge as it has no drilling tower.

343. Finland has informed the Court that all semi-submersibles built by *Rauma-Repola* were towed through the Danish straits[54], including the four units equipped with thrusters. Two jack-ups were carried on heavy-lift ships, whereas one jack-up was towed in floating condition through the Danish straits. None of the semi-submersible or jack-up units produced by the Finnish yard were thus self-propelled during passage of the Danish straits. The drill ships, of course, sailed under their own power.

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[54] Picture 1 shown by the Agent of Finland, Ambassador Grönberg, to the Court on 4 July 1991.

344. In its rejection of the Sound as a viable route for the transport of offshore craft (paras. 198 - 206 of the Memorial) Finland fails to recognize the fact that a number of the offshore craft built by *Rauma-Repola* did in fact utilize the Sound for transiting the Danish waters. Danish authorities have three *Rauma-Repola* semi-submersible drilling rigs and at least one of the *Rauma-Repola* drill ships on record as passing through the Sound (RR 3, RR 4, RR 6, and RR 15).

345. Finland also declines to consider the possibility of towing jack-up platforms produced in Finland through the Sound, despite the fact that the floating transit draught of all *Rauma-Repola* jack-up rigs is comfortably less than the acceptable draught of 7.2 metres. Finland instead persistently advocates the carriage of jack-ups by heavy-lift vessels citing considerations of safety as well as insurance costs (paras. 200 - 201 of the Memorial). The fact remains that towage is by far the most common mode of transporting jack-ups, particularly in sheltered waters such as the Danish straits.

346. Finland's contention of the impracticability of towage through the Danish straits is further contradicted by the practices employed for transporting offshore units and equipment from *Rauma-Repola* to the North Sea. High value offshore equipment has in fact in a number of instances been towed or a barge rather than transported on heavy-lift ships through the Baltic approaches. In early 1991 *Rauma-Repola Offshore* delivered as a sub-contractor part of the structure for the Norwegian built *Snorre* production platform. Modules have also been carried on a barge and towed from Finland to Norway, demonstrating again that towage is a safe means of transport provided it is properly planned and executed. In addition, it should not be overlooked that one of the jack-ups co-produced by *Rauma-Repola* and the *Vyborg* Shipyard was towed through the Great Belt in August 1991 (illustration on page 60 of the Memorial). This unit had an actual towing draught of 6.5 metres which, like the other jack-ups built by *Rauma-Repola*, would have allowed it to pass through the Sound, see paragraph 348.

347. Finland has listed the MODUs produced at *Rauma-Repola* in Table 16 on page 86 - 87 of the Memorial. A number of the specification figures advanced by Finland merit comment and correction. Regarding the two jack-ups built by *Rauma-Repola*, Finland goes to the extent of listing the transit draughts of the two Gusto units (RR 22 and RR 23) as 10.3 metres and 8.5 metres, respectively. These figures are not, however, the transit draughts of the jack-up platforms, but the draught of the heavy-lift vessel with the jack-up loaded on deck. According to the operator of one of these rigs the floating draught of these two platforms is 6.35 metres (Annex 45), thus comfortably allowing them to be towed through the Sound. This draught corresponds with the transit draughts of the two jack-ups as listed in the offshore registers[55]. Table 16 fails to include an explanatory note indicating that the quoted draught of the jack-up was as carried on a heavy-lift ship. Table 16 also lists the draughts of a number of jack-up rigs which *Rauma-Repola* has tendered but not built. It may be assumed that these draught figures do not refer to the towing draught of these units but again to the draught of the heavy-lift ship carrying the jack-up. The draughts quoted by Finland for some of these tendered rigs are approximately twice the towing draught of the largest modern jack-up rigs in the world.

348. Table 16 of the Memorial also lists the two Minsudprom jack-ups built by *Rauma-Repola* in cooperation with the *Vyborg* Shipyard, Russia. According to information available to the Government of Denmark, only one of these, *Murmanskaya*, has been delivered from the yard in *Vyborg*, whereas the other platform is still under construction. Finland has submitted that the transit draught of both jack-up rigs was "over 8.0 metres" stating "(d)raught information as received from the yard" (p. 86 of the Memorial). This piece of information contrasts with the fact that when the jack-up *Murmanskaya* was towed through the Great Belt in August 1991 the pilots measured and recorded it to have an

[55] *Guide to Mobile Drilling Units*, Oilfield Publications Limited, 1989.

actual draught of 6.5 metres. This draught would of course have allowed *Murmanskaya* to be transported through the Sound. It may therefore be concluded that despite the figures listed in Finland's Table 16 all jack-ups built by *Rauma-Repola* have towing draughts of 6.5 metres or less.

349. Further, the draught figures quoted by Finland in Table 16 for the six Aker H-3 semi-submersible rigs built by *Rauma-Repola* are puzzling. Finland states that the draught of these six units is 7.0 metres. The offshore registers consistently quote these rigs as having transit draughts between 6.1 and 6.7 metres. These latter figures accord with the draught readings executed by the Sound pilots when three of these *Rauma* rigs transited the Sound in the 1970s. Finland lists no source for the stated draught figures.

350. Also in Table 16, Finland has quoted the Multi-purpose Support Vessel (MSV) as having a water draught of 11.5 metres. This conflicts with the registered transit draught of the unit, which is 7.9 metres. It may be that this rig, *Stadive*, has subsequently been fitted with thrusters, but it should be noted that at least when the unit transited the Danish straits in December 1982, the operator reported to the Danish authorities that the semi-submersible had a draught of 8.5 metres. As mentioned in paragraph 342 this craft may pass under the East Bridge as it has no drilling tower.

351. As a final point it should be pointed out that there is a discrepancy between the information given by Finland in Table 16 and in paragraph 262 of the Memorial as to the number of offshore rigs built by *Rauma-Repola*. In paragraph 262 the number of offshore rigs delivered by *Rauma-Repola* since 1972 is quoted as 23, whereas Table 16 only lists 21 deliveries. In *Rauma-Repola's* sales folder (Annex 51 to the Memorial) pictures are shown of 7 Aker H-3 and 4 Friede & Goldman semi-submersibles against only

6 Aker H-3's and 3 Friede & Goldman rigs in Table 16. No explanation is given for this discrepancy.[56]

352. Table II lists all MODUs produced at *Rauma-Repola*. The list includes the transit draught of each unit, given either on the basis of information available in various offshore registers, as stated by the operator of the rig, or as measured by Danish pilots during passage.

[56] In this Counter-Memorial Denmark has *inter alia* on the basis of *Rauma Repola's* sales folder (Annex 51 to the Memorial) assumed that *Rauma Repola's* production totals 22 rigs. Denmark considers that only three jack-up rigs have been completed, as the fourth jack-up counted by Finland, a Finnish/Russian co-production, has not yet been delivered from the shipyard in *Vyborg* according to information available to Denmark.

*TABLE II Mobile Offshore Drilling Units Built at Rauma-Repola*

| *YARD NUMBER* | *NAME OF RIG* | *YEAR OF DELIVERY* | *DESIGN* | *TRANSIT DRAUGHT* |
|---|---|---|---|---|
| *DRILL SHIPS* | | | | |
| RR 15 | VALENTIN SHASHIN | 1981 | GUSTO | 7.3[1] |
| RR 16 | VIKTOR MURAVLENKO | 1982 | GUSTO | 7.3 |
| RR 17 | MICHAIL MIRCHINK | 1982 | GUSTO | 7.3 |
| *JACK-UPS* | | | | |
| RR 22 | KOLSKAYA | 1985 | GUSTO | 6.4[2] |
| RR 23 | SAKHALINSKAYA | 1985 | GUSTO | 6.4[2] |
| - | MURMANSKAYA | 1991 | - | 6.5[3] |
| *SEMI-SUB-MERSIBLES* | | | | |
| RR 1 | PENTAGONE 84 | 1974 | PENTAGONE | 7.3[4] |
| RR 2 | SONAT DF 96 | 1975 | PENTAGONE | 7.3[4] |
| RR 3 | DUNDEE EXPLORER | 1975 | AKER H-3 | 6.5[3] |
| RR 4 | KINGSNORTH EXPLORER | 1976 | AKER H-3 | 6.0[3] |
| RR 5 | OCEAN BENLOYAL | 1976 | AKER H-3 | 6.1 |
| RR 6 | PETROBRAS VII | 1977 | AKER H-3 | 6.4[6] |
| RR 7 | SONAT DF 97 | 1977 | PENTAGONE | 7.3[4] |
| RR 8 | MEXICO III | 1978 | AKER H-3 | 6.5 |
| RR 9 | TREASURE FINDER | 1977 | AKER H-3 | 6.4 |
| RR 10 | BORGNY DOLPHIN | 1977 | AKER H-3 | 6.7 |
| RR 12 | WEST DELTA | 1980 | OCEAN RANGER | 7.3 |
| RR 14 | CASPMORNEFT | 1978 | FRIEDE & GOLDMANN | 5.8 |
| RR 18 | STADIVE | 1982 | - | 8.0[5] |
| RR 19 | GLOMAR ARCTIC I | 1983 | FRIEDE & GOLDMANN | 7.5 |
| RR 20 | MAERSK HIGHLANDER | 1984 | FRIEDE & GOLDMANN | 7.5 |
| RR 21 | GLOMAR ARCTIC III | 1984 | FRIEDE & GOLDMANN | 7.5 |

Note 1. All draught figures taken from Lloyd's Register books unless where otherwise indicated.
Note 2. Draught taken from the *Guide to Mobile Drilling Units*, Oilfield Publications Ltd., 1989.
Note 3. Draught as measured by Danish pilot prior to passage.
Note 4. Hull draught excluding thrusters.
Note 5. This Multi-purpose Support Vessel has no derrick, and could pass under the East Bridge.
Note 6. Draught taken from Annex 45.

353. London Offshore Consultants Ltd. has concluded that 19 out of the 22 drilling rigs built by *Rauma-Repola* could pass through the Sound (or the Great Belt after construction of the East Bridge) without any modification to the design of the units. A few of these units cannot go through the Sound with full variable load. As stated above most of this variable load is usually not delivered, and is in any event not required until the rig is in its area of drilling (paras. 339).

354. Only three semi-submersibles would, due to their draught-increasing thrusters, have to undergo a temporary modification in order to pass the Danish straits. One possibility would be to dismantle the thrusters, or - considering that the thrusters are not needed for propulsion during transit as all *Rauma* semi-submersibles have been towed through Danish waters - not to fit the thrusters until after passage of the Sound. Another possibility would be to dismantle the top part of the derrick to allow passage under the East Bridge and refit the derrick part afterwards. The methods of modification and the costs involved will be addressed in the following Chapter.

## H. The Fixed Link across the Sound

355. In a treaty signed on 23 March 1991 the Governments of Denmark and Sweden agreed on the construction of a fixed link between the two countries. The treaty has subsequently been ratified by the two parliaments, in Denmark through the passing of Act No. 590 on the Public Works for a Fixed Link across the Sound dated 19 August 1991.

356. The link will span a strait where a series of car ferries, train ferries, passenger hydrofoils, and cargo ships ply between the coasts of Denmark and Sweden. In 1991 there were approximately 162,000 ferry departures across the Sound carrying around 21 million passengers including a fair number of daily commuters, 2.7 million cars and trucks, and 6 million tonnes of goods.

357. The fixed link will be combining a four-lane motorway and a two-track railway connection. The link, which will have a length of around 18 kilometres, will originate from *Kastrup* Airport, near Copenhagen, and make contact with the Swedish mainland by *Limhamn*, near *Malmö*.

358. The link will cross three navigational routes; the Drogden, the Flinte, and the Trindel channels. The most important of these routes is clearly the Drogden which accounts for 87 per cent. of all navigation through the Sound[57]. With its minimum water depth of 7.7 metres the Drogden also handles the largest and the heaviest ships.

359. The fixed link will cross the Drogden Channel by tunnel as the proximity to the runways of the international airport at *Kastrup* for reasons of safety necessarily excludes the notion of a high-level bridge starting near the airport. The 1.8 kilometres long immersed tunnel will surface at a small artificial islet to the south-west of the island of *Saltholm*. The immersed tunnel will traverse the Drogden at a depth sufficient to maintain the possibility of later dredging the Drogden to a minimum depth of 10.0 metres. The siting of the tunnel will obviously be of no consequence to existing navigation through the Drogden.

360. From the artificial islet off *Saltholm* the motorway and the railway will mount a low-level bridge with an elevation of 7 metres. The bridge will then turn into a high-level bridge with an elevation of approximately 50 metres in order to cross the Flinte Channel. The horizontal clearanc of the transit lanes through the Flinte Channel will be at least 300 metres.

361. A consortium formed by the Danish and the Swedish States through two state-owned, public, limited companies has been charged with planning, owning, and operating the fixed link across

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[57] Report from MSR Consultants: *Analyser af skibstrafikken i Øresund*, January 1991.

the Sound. The budgeted construction costs for the fixed link are approximately DKK 17,000 million (USD 2,650 million), which will be financed exclusively through toll fees to be levied on the cars and the national railway companies utilizing the link.

362. Following an international tender procedure it is expected that construction works will commence in 1993, and the road and rail connections are expected to open in 1999.

363. In support of its argument that the Sound is not a relevant alternative for the Great Belt as an international passage for large ships, and, impliedly, for offshore units, Finland has stated that it is unclear whether the conditions of the Sound can be maintained if the proposed fixed link between Denmark and Sweden is built (para. 94 of the Memorial).

364. Finland's conclusion is puzzling. In its section on the proposed fixed link across the Sound (paras. 85-93), the accuracy of which Denmark can fully endorse, there is no basis for Finland's contention. On the contrary, it is clearly stated that the immersed tunnel will leave existing navigational traffic through the Drogden unaffected and even allow for a future dredging of the Drogden down to a depth of 10.0 metres. It is understood, though, that any future dredging of the Drogden Channel would have to be in conformity with established environmental standards.

## CHAPTER VII.

## MODIFICATION OF SEMI-SUBMERSIBLE AND JACK-UP DRILLING UNITS

### A. Introduction

365. The traffic of mobile offshore drilling rigs through the Danish straits can basically be divided into two categories; northbound delivery voyages from MODU building yards located in the Baltic, and transits made by rigs with exploration assignments on drilling sites in the Baltic. The former is by far the more numerous.

366. While it has been shown that 19 out of the 22 MODUs produced at *Rauma-Repola* could have gone either through the Sound or the Great Belt after completion of the East Bridge without any technical modification of the design of the rig, three semi-submersibles fitted with thrusters would have had to be modified to pass through one of the Danish straits. The type of modification applicable to these three semi-submersibles, and possibly other offshore units which might not be able to transit through the Danish straits without technical alterations, depends on which strait is to be employed for passage, the Sound with its limited water depth and its absence of height constraints, or the Great Belt which allows a deeper draught and a maximum air draught of the unit of 65 metres.

367. Contrary to what may be inferred from Finland's description of the offshore activity in the Baltic (paras. 299 - 323 of the Memorial) offshore exploration for hydrocarbons in the Baltic has been very modest. Judging from the information that has been released on the results of the various exploratory drills in the Baltic Sea, there is no basis for expecting that the Baltic will become a major or even an important area for offshore hydrocarbon production.

368. At any rate, the East Bridge will not close off the Baltic to incoming MODUs. As demonstrated above, most drill ships, jack-ups, and semi-submersibles in the world may without technical modifications go through the Sound. The few rigs that due to their deep draught would not be able to pass through the Sound are harsh environment rigs which would not be necessary to use in the Baltic. The weather conditions in the Baltic are much less severe than e.g., the open sea environment of the North Sea offshore industry. Consequently, the Baltic offshore activities do not require the very large, deep-draught harsh-environment platforms often utilized in the North Sea. According to the findings of Lloyd's Register all drill ships, about two thirds of all semi-submersibles and all modern jack-ups may be transported through the Sound without any technical modifications (Annex 35). It may therefore be safely assumed that the Baltic offshore exploratory activities will in the future be adequately serviced by the MODUs that are capable of passing through the Sound. No technical rationale or need for bringing in MODUs with deeper draughts can be demonstrated.

369. Most competitive rigs on the market will thus be able to transit the Danish straits, the future East Bridge notwithstanding. However, the possibility that an operator would want to bring into the Baltic one of the very few MODUs that due to excessive draught cannot pass the Drogden Channel e.g., a large deep-draught harsh-environment semi-submersible, a semi-submersible with thrusters, or an old jack-up with non-retractable spud cans protruding beneath the hull and increasing the draught, cannot, of course, be altogether ruled out. In this case it would be necessary to modify the rig temporarily to allow it to pass the Danish straits in one of the three manners outlined below in sections B, C, and D. The Government of Denmark submits, however, that irrespective of whether MODUs enjoy a right of passage through the Danish straits, Denmark is not obliged under international law to design the Great Belt Link to accommodate such a theoretical future development.

370. Of more interest are *Rauma-Repola's* possibilities for towing possible future orders for offshore rigs from the Baltic to the North Sea. Using the existing productions from the Finnish yard as basis for an evaluations of the possibilities, the problems facing the Finnish yard do not seem insurmountable. Only three out of twenty-two rigs would need temporarily to be modified to reenter the Baltic Sea. It is by no means certain that future rigs will have deeper draughts than existing ones. In fact the largest and most modern jack-up rigs in the world all have towing draughts well below 7 metres. The trend of jack-ups in recent years has been towards a reduction rather than an increase of the draughts of the rigs, partly due to the retractability of spud cans on modern units, partly due to the fact that deep draught may eliminate the possibility of using heavy-lift transport. The draughts of the drill ships are not expected to change. Semi-submers-ible units tend to be built larger than before. For very many of the semi-submersible rigs, however, this increase in size has not led to an increase in the draught of the rig.

371. Still, should it become necessary to modify a future *Rauma-Repola* unit with critical draught and air draught in order to facilitate passage through the Danish straits, three different methods are available, depending on the type of unit and the strait to be employed for passage. The three methods that have been examined in the following sections are; the removal of the thrusters of a semi-submersible to reduce draught and enable passage through the Sound (section B), the removal and subsequent assembly of the top part of a derrick on a semi-submersible to reduce air draught and permit passage under the East Bridge (section C), and subsequent installation of the top sections of the legs of a jack-up to reduce the air draught and allow passage under the East Bridge (section D).

372. Denmark has commissioned London Offshore Consultants to identify what would be the most feasible technical procedure for each modification method, and in particular, to estimate the time to be spent and the costs to be incurred in connection with these modifying measures. In order to make the

estimates realistic, London Offshore Consultants have solicited estimates from contractors and offshore yards in Sweden and Norway experienced in the type of work in question. The estimate from the yards indicate the expected duration of the job as well as the inherent expenses and are appendixed to Annex 45. Thus, optimum reliability of the time and cost estimates included in Annex 45 is ensured.

373. In their cost estimates London Offshore Consultants have assumed that the semi-submersible rig is completed and commissioned in Finland, then modified (thrusters dismantled or top of derrick taken off), whereas the jack-up hull and a section of the legs will be fitted in Finland with the top sections of the legs left unassembled. The semi-submersible or the jack-up is then towed through the Danish straits to a yard in Sweden, Norway, or the United Kingdom for final assembly. Whether it is necessary to complete assembly of the semi-submersible at *Rauma-Repola* only to modify it again, or whether it would not be faster and more inexpensive not to complete assembly until after passage through the Baltic approaches is arguable. The more conservative method adopted by London Offshore in their calculations ensures, however, that the cost estimates are based on a worst-case scenario.

374. The cost estimates in Annex 45 are comprehensive and include the costs of the modification measures themselves (supported by estimates from contractors), maintenance of rig crew, port fees, mobilization, demobilization and hire of tug/crane/barge where applicable, demobilization of crew, insurance, project management, and allowance for contingencies. Where the quotations from the yards and contractors vary, the highest figures rather than the lowest quotations obtained have been used by London Offshore Consultants in the preparation of the estimates. The estimates include neither the time nor the expense of towing the unit from *Rauma-Repola* through the Danish straits as this transportation cost would have had to be incurred irrespective of modification.

375. Finland has presented cost estimates pertaining to each of the relevant methods of modification in Annexes 37, 39, and 55 to the Memorial. When comparing Finland's estimates with those made by London Offshore Consultants on the basis of actual quotations it seems evident that no attempt has been made on the part of Finland to identify designs or procedures that minimise the costs and time for the work. To name just one example, in its estimate Finland has apparently considered it necessary to remove not just the top part but the entire derrick to allow passage under the East Bridge, thereby, unnecessarily, increasing the time and costs of the modification vastly.

## B. Removal of Thrusters

376. Thrusters are sometimes fitted on a semi-submersible. Thrusters may serve one or both of two purposes, namely to give the unit propulsion for independent navigation and to provide the unit with dynamic positioning ability during drilling operations. The thrusters are installed under the platform, protruding up to 3 or 4 metres beneath the underside of the hull itself. The draught of the unit would thus be reduced very considerably if the thrusters were temporarily removed.

377. Thrusters are by their very nature dismountable. Sometimes older semi-submersibles are furnished with thrusters years after their completion. In many instances the thrusters, even on new semi-submersibles, are not fitted at the place where the rig itself is constructed. This is due to the limited water depth of many MODU yards, which cannot accommodate the draught of a semi-submersible with thrusters. Instead, the platform is completed at the yard, and then towed to a deep-water site where the propulsion system is mounted. Subsequent mounting of thrusters is thus a routine part of rig construction at many yards.

378. Finland has conceded that it is technically feasible to tow a semi-submersible without thrusters through the Sound for

subsequent mounting (para. 292 of the Memorial). Indeed, Finland has informed the Court that also the semi-submersibles fitted with thrusters were towed on their delivery voyages from the Baltic through the Danish straits[58]. The only arguments advanced by Finland against these modifying measures are the costs and the loss of time involved in dismantling and reinstalling the thrusters. It is important to note that when looking only at hull draught of the unit (without thrusters) London Offshore Consultants have concluded that all semi-submersible drilling rigs hitherto built by *Rauma-Repola*, whether they be of the Aker, the Pentagon, the Ocean Ranger, or the Friede & Goldman type, may be towed through the Sound without altering the design of the unit. It is not until thrusters are mounted that draught becomes a problem for passage through the Drogden Channel.

379. Invariably, the removal and refitting of thrusters will take time and involve costs. Thrusters are not constructed by the yard but delivered to the yard by a specialized manufacturer. One of these manufacturers, KaMeWa, estimates that thrusters of KaMeWa design may be dismantled in half a day per thruster (Appendix C to Annex 45). At the request of London Offshore Consultants *Götaverkan* in Gothenburg, Sweden, has quoted time and costs for dismantling the thrusters of a semi-submersible drilling rig and fitting them on the rig again. In this quotation, it has been assumed that the number of thrusters to be dismantled was four. On the basis of this quotation, the total costs of this modifying operation have been estimated by London Offshore Consultants to USD 757,500. This figure does not include an allowance for the interest on the extension of the time of delivery.

380. Finland's calculation of the extra costs for delivery of semi-submersibles due to removal of thrusters cannot be accepted (Annex 55 to the Memorial). Finland has contended that this modification job will cost *Rauma-Repola* USD 1,398,730 (FIM

[58] Picture 1 shown by Finland's Agent Mr Grönberg to the Court on 4 July 1991.

10,833,333), excluding again the time-interest factor. As demonstrated by the quotation referred to above, the dismantling of the thrusters and the refitting is much less time-consuming and particularly less costly than indicated in the Finnish calculations.

381. Further, Finland's calculation of the time interest factor is inflated. The following remarks on Finland's method for calculating the interest on the extension of the delivery time are general in nature and thus also apply to Finland's calculations for modification of the derrick of a semi-submersible (Annex 37 to the Memorial) and for modification of the legs of a jack-up (Annex 39 to the Memorial).

382. In the three cost calculations made by Finland, the interest on the extended delivery time account for between 42 and 62 per cent. of the total costs of modifying the rig to permit passage (Annexes 55, 37, and 39 to the Memorial). Calculation of the time interest depends on four factors; time spent, total purchase sum for rig, outstanding payments on the rig at the time of delivery, and the interest rate employed.

383. In the first place, less time than assumed by Finland is needed for the actual modification works, and, as noted above, the transportation time from Finland through the Danish straits cannot reasonably be said to constitute a delay and should therefore not be included. Secondly, Finland states the price of a semi-submersible at USD 200 million. The average cost of the semi-submersible drilling rigs currently under construction in the world is not USD 200 million but USD 90 million[59]. Thirdly, Finland's calculation presupposes that a MODU is paid cash on delivery with no down payment or instalments paid prior to delivery. This would be a highly unusual payment plan. A much more common procedure on the offshore market would be that a total of 80 per cent. of the purchase sum is paid in instalments prior to completion of the rig,

[59] Offshore Data Services: *Chronology of Offshore Mobile Drilling Rigs 1949-present*, January 28, 1992, Table 6.

and a final 20 per cent. instalment would be paid at delivery. Finally, the interest figure of 13 per cent. employed by Finland is disputed by Denmark. Finland offers no explanation for the choice of an interest rate of 13 per cent. While reserving its position with respect to the correct rate of interest to be employed, Denmark has, in order to facilitate comparison, chosen to make use of the figure of 13 per cent. in the following calculations.

384. According to a calculation of the interest on the extended delivery time in relation to the removal of thrusters based on, it is submitted, more realistic premises would then amount to; 13 per cent. on USD 16 million (20 per cent. of USD 90 million) for 18 days (including an allowance for unforeseen contingencies), or USD 104,000 as opposed to Finland's USD 2.7 million (FIM 10.8 million).

### C. Removal of the Top Part of the Drilling Derrick

385. In the unlikely event that the draught of a semi-submersible drilling rig cannot be reduced to the maximum permissible draught in the Drogden, and the rig is to be towed under the East Bridge, part of the drilling tower or derrick of the unit would have to be left unassembled until after passage through the Great Belt. According to the conclusions in Annex 45, none of the units produced at *Rauma-Repola* would have had to undergo this modification as they may all be towed through the Sound (three of them only after dismantling of thrusters, however). Modification of the derrick is therefore an operation to be performed only on a possible future unit with an unusually deep draught.

386. In such a case, a primary objective would be to take off as little as possible of the derrick to minimise the time and cost needed to execute the final assembly away from the yard. To reduce the air draught of the semi-submersible as much as possible during passage, the rig would be ballasted down to the maximum permissible draught during passage of the bridge. Semi-submersibles

often have operating draughts in excess of 25 metres, and it is perfectly feasible to tow the semi-submersible for a short distance ballasted to or almost to its operating draught. The water in the navigational route through the Great Belt is relatively deep. Map V shows that in an area stretching from at least 10 nautical miles south to at least 10 nautical miles north of the siting of the East Bridge the water depth in the navigational route is constantly in excess of 25 metres. This water depth will permit ballasting the semi-submersible to a draught of at least 23 metres during passage of the bridge thus minimising the part of the derrick to be taken off.

387. How much of the derrick could be completed at the yard, and how much would have to be fitted subsequent to passage will be determined by the air draught of the unit when ballasted to a draught of e.g., 23 metres. The derrick height must be reduced sufficiently to give the semi-submersible an air draught of no more than 65 m when floating with a draught of 23 metres. At this draught the semi-submersible drilling rigs built by *Rauma-Repola* would have air draughts ranging between 74 and 97 metres. Thus, for the lowest semi-submersible rig only the top 9 metres of the derrick would have to be taken off and fitted afterwards to enable the unit to pass under the bridge. For the tallest *Rauma-Repola* semi-submersible rig the derrick would have to be reduced by 22 metres. As the height of a derrick is approximately 50 metres, it is clear that, in any case, less than half of the derrick will have to be taken off and refitted after passage of the Great Belt. This conclusion also holds true for the semi-submersibles that *Rauma-Repola Offshore*, according to Table 16 on page 86 - 87 of the Memorial, has tendered although not built in the period 1984 - 1991 as far as can be seen from the air draught figures listed by Finland in Table 16.

388. The cost and time required for the dismantling and refitting of the top of the derrick would be significantly less than calculated by Finland in Annex 37. London Offshore Consultants have made a cost estimate based on the premise that the rig and derrick will be completed and commissioned in Finland.

Subsequently, the top part of the derrick will be lifted off in one piece and put upright on the rig for transport through the Great Belt. Instead of using the older, and more simple type of derrick installed on the semi-submersibles hitherto built in Finland, the cost estimates have been based on the taller and more complicated derricks with top mounted motion compensators now used on most modern semi-submersible rigs. The rig would then be towed to e.g Gothenburg in Sweden or Stavanger in Norway where crane capacity is available for lifting the top of the derrick onto the rig in one section.

389. For purposes of the cost estimate, quotations have been solicited from experienced yards and operators of crane vessels etc in Sweden and Norway (appendixed to Annex 45). On the basis of time estimates and budgetary prices submitted by these contractors, London Offshore Consultants have compiled a comprehensive cost calculation according to which taking off the top part of the derrick, securing it on the rig, and lifting it back and installing it finally on the rig will take a total of 24 days and run to a total expense of approximately USD 2,380,000 (including a sizable allowance for contingencies both in terms of time needed and costs, but excluding possible consequential costs from the extension of the delivery time).

390. The Finnish calculation of extra costs flowing from subsequent assembly of a derrick in Annex 37 is exaggerated in a number of respects. From the amount of time allotted to the disassembly and reassembly of the derrick (four months), it is clear that Finland presupposes that the whole derrick is to be dismantled. This is an infinitely more complicated and time-consuming task than the one proposed by Denmark[60]. What is more, the method

[60] Finland has submitted a statement from the reputed rig designers Friede & Goldman Ltd. on the estimated duration of disassembly and reassembly of a fully outfitted drilling derrick on a MODU (Annex 41 to the Memorial). Similar to Finland's own time and cost calculations, Friede & Goldman's estimate of a total work time of 5 - 7 weeks is based on the assumption that the whole derrick will have to be dismantled and reinstalled.

presupposed by Finland is completely unnecessary as it is only necessary to take off as much of the derrick to give the rig it an air draught of 65 metres during passage under the East Bridge. The method proposed in Annex 45 is simply to lift off the top part of the derrick with the aid of a floating crane, leaving at least the lower half of the derrick with its hydraulic, electrical, and mechanical systems intact. Leaving these systems unaffected also means that *Rauma-Repola* may run its test drills on this equipment in Finland. The tests to be conducted on the rig subsequent to final assembly of the derrick will be very limited and will involve only the small amount of equipment directly affected by the dismantling and reinstallation of the derrick. Presumably, it is such extensive - and superfluous - test runs that have led Finland to estimate that the refitting of the derrick will take ten weeks rather than the two weeks estimated by the yards.

391. Finland's estimate of the extension of the delivery period to four months as opposed to the total of 24 days estimated, by London Offshore Consultants on basis of the estimates from the yards also leads to excessive budget figures for crew salary and expenses, maintenance of rig operation during reassembly of derrick, insurance, and other time-related components of the cost estimate. All in all, Finland has estimated the total costs of the modification job to USD 6,057,236 (FIM 23,017,500) against London Offshore Consultants' quotation-based estimate of USD 2,380,000 (both figures exclude interest on the extension of time of delivery).

392. Denmark again disputes Finland's calculation of the interest on the extension of the time of delivery as unreasonable. Denmark's arguments against Finland's method of calculation are of course parallel to the ones advanced in paragraphs 381 - 383 on removal of the thrusters of a semi-submersible. The calculations should thus be based on a rig price of USD 90 million with a final payment of 20 per cent. of the total purchase sum outstanding at the time of delivery, and most importantly of an extension of the delivery time of only 24 days as opposed to Finland's suggestion of

four months. The interest factor would then amount to: 13 per cent. of USD 16 million for 24 days = USD 138,666. The total costs of the modification may then be estimated to USD 2,518,666 which compares with Finland's calculation of the total costs to USD 14,724,000.

### D. Reduction of the Leg Length of a Jack-Up Rig

393. All jack-ups produced at *Rauma-Repola*, and most other jack-ups in the world, particularly all modern units, have draughts that would allow them to be towed through the Sound without any type of modification or even adjustment of the variable load carried on the rig (Annex 35 and Annex 45) The moulded draught of a jack-up (the distance from the water line to the underside of the jack-up hull) is usually less than 6 metres. On some older jack-ups the extremities of the legs, the spud cans, protrude below the hull increasing the draught of the platform. All new jack-ups, however, are built with retractable spud cans that do not add to the draught. It is therefore extremely unlikely that future jack-ups will experience draught problems if towed through the Sound, and modifications will therefore not be necessary.

394. Should it become necessary for one reason or another to tow a jack-up under the East Bridge it will be necessary to leave part of the legs of the jack-up unassembled until after passage of the bridge. The air draughts of jack-ups in transit condition vary between 130-170 metres. It will thus be necessary to fit at least half and often more than half of the leg sections of the rig north of the bridge.

395. Jack-up legs are normally welded together in sections, and neither the procedure of taking off the legs and refitting them later nor the procedure of completing the construction of the jack-up hull in one place and installing the legs in another is an unprecedented undertaking.

396. Section of the legs of particularly very tall jack-ups are sometimes removed for long inter-continental transports. In the case of towage of jack-ups this is done to increase the stability of the unit, reduce the risks of capsizing and for strength reasons. The leg sections are then carried either on the deck of the unit or on accompanying barges. When a jack-up with very long legs is transported, the legs are subject to strong inertia forces which may in some cases cause damage to the joints in the steel construction.

397. A fair number of MODU yards, some of them among the largest and most successful in the world, are located on rivers behind fixed bridges or other permanent height constraints with critical clearances. These yards will complete construction of the hull and the legs, and then tow these separately past the height constraints for final assembly at another location. The situations faced by these yards is addressed in some detail in paragraphs 403 - 410. Suffice it here to say that one of these yards, Marathon Le Tourneau, in fact the biggest producer of jack-ups in the world, has to tow the unassembled unit down the Mississippi River for more than 350 nautical miles past more than 20 overhead constraints to have the legs of the rig installed at another yard. This distance is not very different from that between Finland and the Sound, and it is worth noting that the maximum free clearance to which this yard has had to conform is more than 20 metres lower than the clearance of the East Bridge.

398. Finally, a number of oil exploration and exploitation sites are located behind fixed bridges necessitating the temporary removal of most of the leg length of incoming and outgoing jack-ups. The most important of these offshore hydrocarbon fields behind fixed height constraints would probably be Lake Maracaibo in Venezuela. As of May 1992 a total of 38 mobile offshore drilling rigs are at work in Lake Maracaibo[61]. Jack-ups entering or leaving

[61] *Offshore Rig Locator*, Vol. 19, No. 5, May 1, 1992.

the area will have to pass the Maracaibo Bridge with its free vertical clearance of 45 metres.

399. Thus, although the reduction of the leg length of a jack-up is not expected to become necessary to pass through the Danish straits where the Sound will be a perfectly viable route for a wet tow transport, this procedure is well-known in the offshore world. London Offshore Consultants have proposed that the jack-up hull be completed and part of the legs installed at *Rauma-Repola* up to an air draught of no more than 65 metres in wet tow. The remaining part of the legs are built in Finland and towed on a barge to a sheltered deep-water site e.g., in Norway where the remainder of the leg sections will be installed. This may require an adjustment of the method of building jack-up legs at *Rauma-Repola*, but the method that *Rauma-Repola* may be required to adopt is a conventional and acceptable method of building jack-up legs.

400. On the basis of a quotation from the HMV yard in Norway and the Ugland crane vessel operator also in Norway a comprehensive time and cost estimate has been compiled in Annex 45. As there will not be any dismantling of the unit at *Rauma-Repola's* yard in Finland, the only delay in delivery will be the time needed to fit the legs after passage of the bridge. This period has been estimated by the yard to 20 working days, although London Offshore Consultants have, allowing for various contingencies, allotted 49 days to complete the assembly. Based on the various quotations the total price for the subsequent installation of the leg sections has been assessed at USD 3,741,200. This contrasts with Finland's calculation of the same job for a duration of three months and at an estimated cost of USD 6,146,236.

401. Denmark again differs from Finland on the calculation of the time-interest factor. Finland again assumes the price of the rig to be USD 200 million. The average price of the jack-up rigs under construction as of 28 January 1992 was USD 79.6 million, and Denmark submits that in order to make a reliable calculation it

would be more reasonable to employ this figure[62]. For purposes of illustration it may be noted that the construction costs of a Coral Design jack-up currently under construction in *Vyborg*, presumably the *Rauma-Repola/Vyborg* co-production, are USD 67 million[63].

402. Thus, the interest on the extension of the delivery time in case of modification of a jack-up calculated according to the principles outlined in paragraphs 381 - 383 totals: 13 per cent. on USD 15.92 million (20 per cent. on USD 79.6 million) for 49 days, or USD 277,836. The total cost of the modification of a jack-up carried out according to the procedure proposed by Denmark will be USD 4,019,036 vis-à-vis Finland's calculation of a total of USD 10,696,237.

## E. MODU Building Yards Located behind Fixed Bridges or other Permanent Height Constraints

403. A significant number of MODU building yards in the world are situated on rivers or in river deltas with permanent height constraints in the form of fixed bridges or aerial cables between the yard and the sea. In all instances the maximum free clearances of the height restrictions encountered by the yard are around 50 metres or lower.

404. It has consequently been an integral part of the production routine of these yards to complete assembly of their rigs at a site other than the construction facility. The distances between the production site and the site where the final assembly and the commissioning procedure are executed vary from 20 to 350 nautical miles. In some cases the completion of the legs of a jack-up or the

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[62] Offshore Data Services, *Chronology of Offshore Mobile Drilling Rigs 1949-present*, January 28, 1992, Table 6.

[63] *Offshore Rig Locator*, Vol. 19, No 5, May 1, 1992.

derrick is carried out at a yard that does not belong to the builder of the MODU (e.g., Annex 54 to the Memorial).

405. These upriver MODU yards, and there are at least 9 such yards located behind height constraints, produce jack-ups, semi-submersibles, drill ships, submersibles and drilling barges. It is certainly not correct when Finland asserts that "cases of known disassembly concern only lightweight structures, do not involve harsh environment, heavy jack-ups or semisubmersibles" (para. 208 of the Memorial). In fact, the three largest producers of MODUs in the world in the past 20 years, Marathon Le Tourneau (Vicksburg, Mississippi) Bethlehem Steel Corp. (Beaumont, Texas) and Levingston Shipbuilding Co. (Orange, Texas) are all located with permanent height constrictions between their place of production and the sea. These three yards have principally built jack-ups but also semi-submersibles and drill ships for use all over the world, including in harsh environments, and they alone account for 143 out the 603 semi-submersibles, jack-ups, and drill ships currently in existence. All of these 143 MODUs were built in one place and then towed to another for final fitting of the top sections of the legs or the top of the derrick.

406. The usual procedure adopted by these yards is to complete construction of the jack-up with the maximum leg length and derrick height permitted by the height constraints and complete construction of the drill ships and the semi-submersibles with as much of the derrick as allowed by the bridges etc. The remainder of the leg sections and the top of the derrick are then assembled once the units have been towed past the height restrictions to reach the open sea (Annex 54 to the Memorial). It is precisely this well-tested method that Denmark would expect *Rauma-Repola* to employ, should it - in the future - prove necessary to modify the height of *Rauma-Repola's* rigs. The only difference is that it will not be necessary to take as much off the leg sections of a *Rauma-Repola* jack-up due to the fact that the clearance of the East Bridge is much higher than the height constraints encountered by the three above-

mentioned American yards on the Mississippi, the Sabine, and the Neches Rivers and by Scottish MODU yards on the Clyde River.

407. These MODU yards behind bridges or aerial crossings etc naturally take the relevant height constraints into consideration in the design of the rig to facilitate completing the rig in stages (Annex 54 to the Memorial). It has not been demonstrated why *Rauma-Repola* could not do the same, if need be.

408. Finland argues that to complete erection of the derrick or the legs subsequent to passage of the East Bridge "would be totally unfeasible" and that "the builder would automatically be disqualified from the competition due to extra costs and extended delivery time" (paras. 287 - 88 of the Memorial). Finland's argument is untenable. Marathon Le Tourneau, Bethlehem Steel Corp., and Levingston Shipbuilding Co. have grown to be among the biggest producers of jack-ups in the world despite the fact that all MODUs produced at these yards had to be towed for distances of up to 350 nautical miles under a number of bridges and aerial crossings with free clearances of less than 50 metres.

409. Similarly untenable is Finland's argument that if a requirement for subsequent fitting of the legs of a jack-up "were for some reason imposed on (*Rauma-Repola*) alone the company could be disqualified from the competition" (para. 291 of the Memorial). But *Rauma-Repola* would not be the only yard. As demonstrated, at least 9 other MODU yards are faced with height constraints in their production process, but unlike *Rauma-Repola* these yards may not avail themselves of an alternative passageway free of height constraints (for MODUs with draughts not exceeding 7.2 metres) nor of a passageway with a free clearance of 65 metres.

410. Out of the 603 semi-submersibles, jack-ups, and drill ships currently in existence, more than one fourth or 180 of the units have been built at yards which have had to tow their rigs past fixed height constraints with clearances significantly below that of the future East Bridge to reach the sea, see Annex 49.

## CHAPTER VIII.

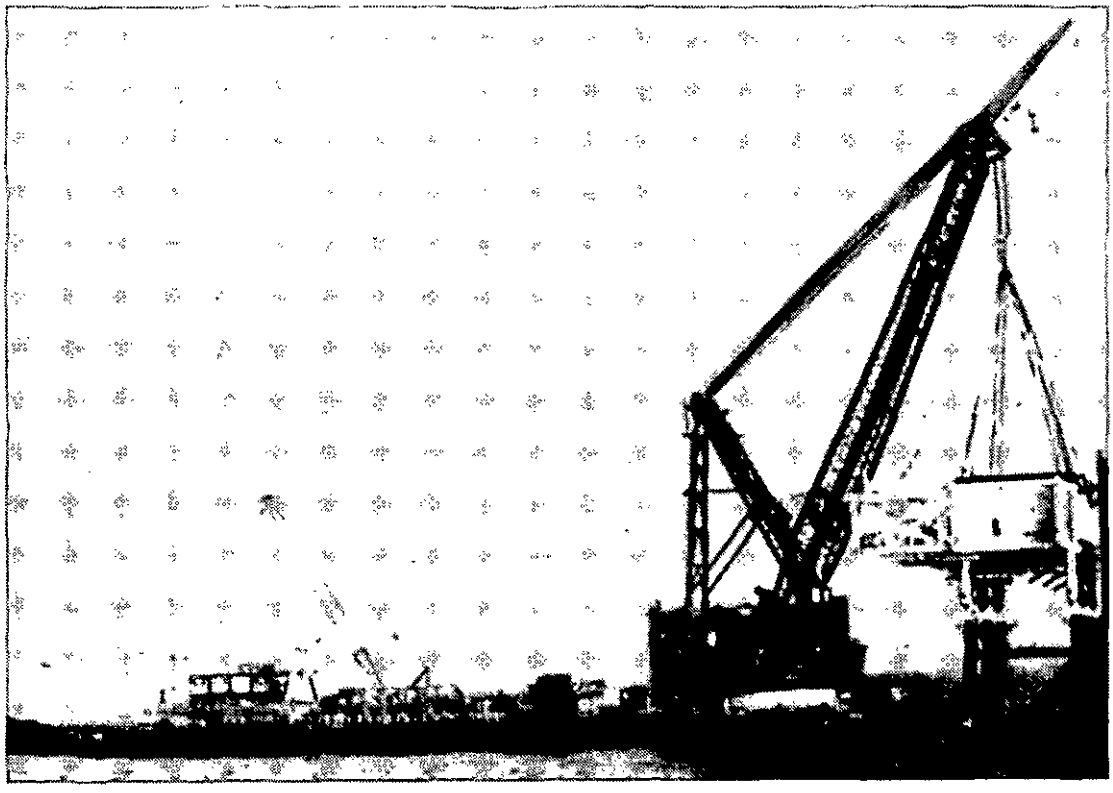
## THE PASSAGE OF CRANE VESSELS THROUGH THE GREAT BELT AND THE SOUND

411. A crane vessel is a floating unit with one or more permanently installed cranes capable of carrying out lifting assignments at sea. It does not have drilling capability, and, although primarily used in the offshore business, crane vessels cannot, strictly speaking, be characterized as offshore vessels. Large crane vessels are employed during the transport, installation, operation, and repair of offshore units.

412. Crane vessels include a wide range of very different units, from regular ships to offshore-type semi-submersibles. In this Counter-Memorial the term crane vessel is employed as a common denominator for four distinct types of units;

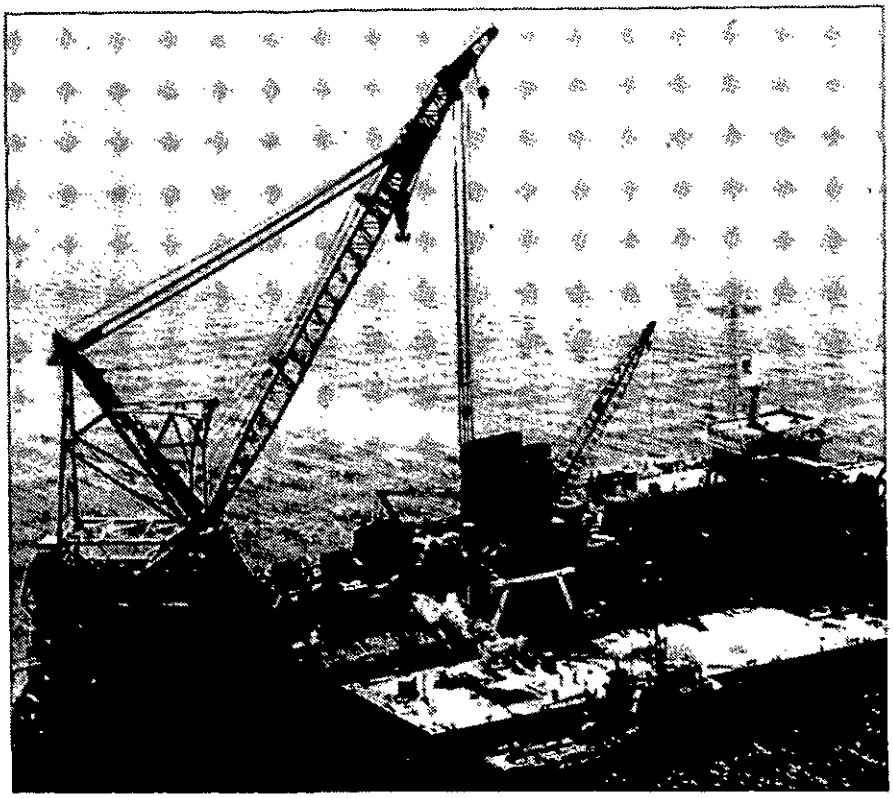
a) Crane barges
b) Mono-hulls (regular ships) fitted with cranes
c) Catamaran vessels (twin-hulls) fitted with cranes
d) Semi-submersible crane vessels.

**Figure 11:** MONO-HULL CRANE VESSEL, *THOR*, CAPABLE OF PASSING UNDER THE EAST BRIDGE



413. Lloyd's Register has reviewed the specifications of the 295 registered crane vessels in existence, in particular with regard to air draught, draught and lifting capacity (Annex 35). The great majority of the crane vessels are smaller barges or crane ships with limited lifting capacity. When it comes to lifts in excess of 1,000 tonnes, only the 15 largest cranes in the world can be employed. Such lifts can be carried out by the largest mono-hulls and catamaran vessels, whereas the heaviest lifts may only be executed by semi-submersible crane vessels. During transport most crane barges are towed by tugs, mono-hulls and catamaran vessels sail under their own propulsion, while semi-submersible crane vessels are usually furnished with some means of propulsion and may in some instances be fully self-propelled.

**Figure 12:** CATAMARAN CRANE VESSEL, *ETPM 1601*, CAPABLE OF PASSING UNDER THE EAST BRIDGE

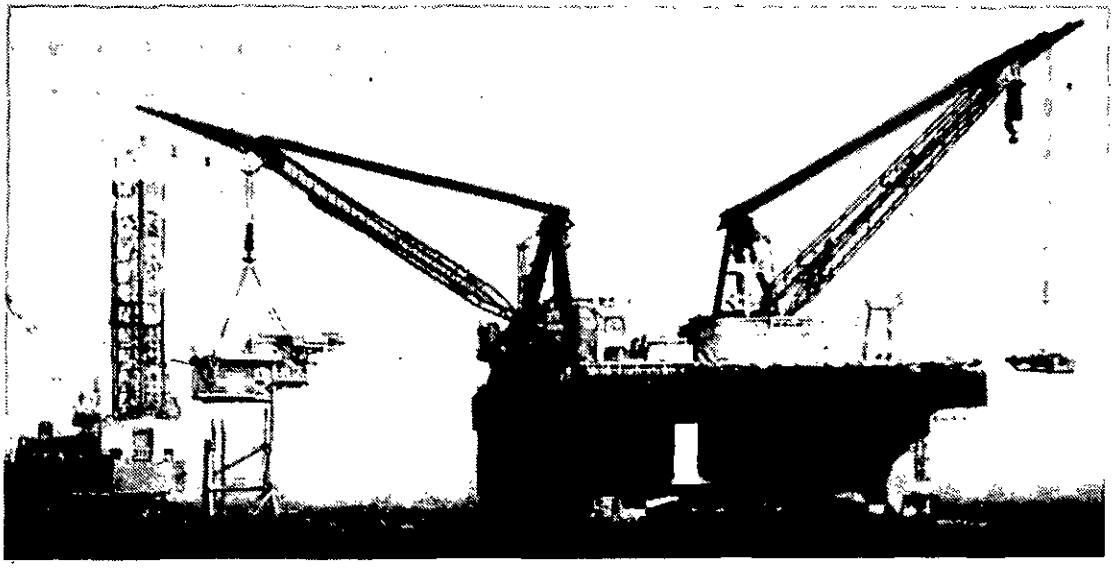


414. The air draughts of the large crane vessels are quite high, but out of the 295 crane vessels in existence today, all but four vessels can pass either through the Sound or under the future East Bridge without any technical modification to the vessels' design.

415. As with any other vessel the air draught of a crane vessel depends on its draught. All crane vessels are capable of being ballasted to a draught significantly deeper than their transit draughts in order to obtain sufficient stability during the execution of their lifting assignments. The variation in draught, and thereby in air draught, is particularly significant for semi-submersibles; to name just one example, *Hermod*, one of the largest semi-submers-

ible crane vessels in the world, has a transit draught of 11.5 metres and a maximum operating draught of 28.2 metres.

**Figure 13**: SEMI-SUBMERSIBLE CRANE VESSEL, *HERMOD*, CAPABLE OF PASSING UNDER THE EAST BRIDGE



416. When determining whether the existing crane vessels may be able to pass under the future East Bridge, the air draught of the vessel at transit draught is not decisive as the water depth in the Great Belt permits the vessel to be ballasted to a much deeper draught. As mentioned in paragraph 386, Map V demonstrates that the water depth in the Great Belt, in an area from at least 10 nautical miles south of the East Bridge to at least 10 nautical miles north of the bridge, is constantly more than 25 metres. While allowing for a sizable underkeel clearance this will enable the large semi-submersibles to ballast down to a draught of at least 23 metres during passage of the East Bridge. The largest mono-hull crane vessels may ballast down to their maximum operational draughts,

which range between 8 and 10 metres. Ballasting down to the deepest possible draught is of course normal operational procedure for a crane vessel when it carries out its lifting assignments.

417. In Annex 35 Lloyd's Register has listed the air draughts of the world's largest semi-submersible crane vessels at a draught of 23 metres and the world's largest catamaran and mono-hull crane vessels at their operational draughts. These figures show that out of the 295 crane vessels on the market only three semi-submersibles and one mono-hull crane vessel will not be able to pass under the future East Bridge with its vertical clearance of 65 metres or through the Sound with its minimum water depth of 7.7 metres.

418. The Finnish yard *Wärtsilä*, now *Kværner Masa*-Yards Ltd., has built one of the largest crane ships in the world, *Stanislav Yudin*, see illustration page 85 of the Memorial. With its air draught of 62.6 metres, Stanislav Yudin may sail under the East Bridge even at transit draught, and the craft has a draught that has allowed it to pass through the Sound in the past. One of the largest semi-submersible crane vessels, *McDermott DB 101*, has a transit draught of only 7.5 metres and could, if it ever had to enter the Baltic, be towed through the Sound.

419. It is important to note that according to information available to Denmark, the very few crane vessels that will not be able to go under the East Bridge (unless temporarily modified) were neither built nor have they ever operated in the Baltic. Nor can any need for their presence in the Baltic be demonstrated. The Baltic will be adequately serviced by the 291 crane vessels that can pass either under the East Bridge or through the Sound. The largest of these crane vessels, the semi-submersible *Balder* ensure the availability in the Baltic of a single-vessel lifting capacity of up to 8,100 tonnes. To identify the need for a lifting capacity of this magnitude in the Baltic is, however, very difficult.

420. Finland's contention that the East Bridge will exclude large crane vessels from the Baltic is thus plainly wrong. Similarly

untenable is Finland's argument that the exclusion of the large crane vessels might prevent the carrying out of a salvage operation of e.g., a nuclear powered submarine weighing more than 4,000 tonnes (para. 230 of the Memorial). Firstly, crane vessels with lifting capabilities of more than double the figure mentioned by Finland may navigate the Great Belt also after construction of the Fixed Link. Secondly, heavy lifting assignments may be carried out by several smaller crane vessels working jointly rather than one large unit. This is in fact often done due to the high mobilization costs of the very large crane vessels and the higher degree of local availability of smaller crane vessels.

421. Thus, the East Bridge will not prevent even very large crane vessels from being taken into the Baltic should the need for assistance from these very large units arise in the future. Even more relevant, however, is the fact that the Fixed Link will leave the existing traffic of crane vessels through the Danish straits completely unaffected. None of the crane vessels which have been built or which have previously had lifting assignments in the Baltic will be prevented from making passages through the Danish straits in the years to come.

## CHAPTER IX.

# THE EFFECT OF THE GREAT BELT PROJECT ON THE BUILDING OF OFFSHORE UNITS IN FINLAND AND ON OFFSHORE OIL AND GAS ACTIVITIES IN THE BALTIC SEA

### A. Effects on the Building of Offshore Units

422. In the Memorial (paras. 264 - 269) Finland gives an account of the investment made at the *Rauma-Repola Offshore* shipyard and at the Tahkoluoto harbour of the City of Pori. Finland claims that in the period 1983 - 1985 investments totalling USD 46.1 million have been made to enable *Rauma-Repola Offshore Oy* to compete on the offshore market.

423. Finland has argued that the lack of orders at the Finnish shipbuilding industry for offshore units is attributable to the Great Belt Project[64]. It is deplorable that the Government of Finland will introduce allegations of this nature in proceedings before the International Court of Justice.

424. According to Table 17 of the Memorial (p. 88) in the six years following the completion of the investments claimed to have been undertaken in 1983 - 1985 to enable *Rauma-Repola Offshore Oy* to compete on the offshore market, one MODU was delivered from *Rauma-Repola Offshore Oy*[65]. Within the same

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[64] Request for the Indication of Provisional Measures, para. 12, and statement by counsel of Finland, Sir Ian Sinclair, 1 July 1991.

[65] The MODU stated by Finland to have been delivered by *Rauma-Repola Offshore Oy* in 1991 was actually delivered by the *Vyborg* Shipyard, Russia, but built in cooperation with *Rauma-Repola Offshore Oy*. It was the jack-up *Murmanskaya*, which was towed through the Great Belt on its delivery voyage in August 1991 with an actual draught of 6.5 metres. This draught would also have allowed it to go through the Sound see para. 327.

time period shipyards outside Finland delivered 34 MODUs, see Table 17 on page 88 of the Memorial.

425. According to the information given in Table 16, *Rauma-Repola Offshore Oy* has in the period from 1984 - 1991 unsuccessfully tendered 6 semi-submersibles including one floating production vessel and in the period from 1988 to 1991 unsuccessfully tendered 10 jack-ups. Finland has failed to demonstrate that the lack of success of *Rauma-Repola Offshore Oy* has in any way been caused by the Great Belt Project. In so far orders for the rigs tendered by *Rauma-Repola Offshore Oy* have been placed at other yards, the reason has to be found in *Rauma-Repola Offshore Oy's* lack of ability to compete, not in the Great Belt Project[66].

426. The depressed situation of the Finnish offshore shipbuilding industry is of course also affected by the general economics of the oil market. Since the mid 1980s, the rig building industry have been in a state of recession. In the second half of the 1980s the offshore yards only delivered 43 MODUs, whereas the period 1980 - 84 saw 319 new deliveries.

[66] The 1991 Annual Report from *Repola* Corporation, the parent company of *Rauma Repola Offshore Oy*, plainly states that "(d)emand for the products of *Rauma-Repola Offshore Oy* failed to pick up during the year, and major workforce reductions were necessary."

427. The outlook for the offshore contract drilling industry remains bleak[67]. Major oil companies have announced substantial cuts in their exploratory expenditures for 1992[68].

428. The market for mobile offshore rigs have showed a steadily falling trend over the past years with no indications of a change in the near future. The number of units is decreasing as older rigs are removed from the market without being replaced. Still, supply far exceeds demand. Supply and demand from January 1988 - May 1992 for jack-ups and semi-submersibles are shown on Tables III - IV.

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[67] An editorial comment in *Offshore Rig Newsletter* describes the market situation in the following way: "Let's face it, the offshore contract drilling industry is in a mess. ... In better times (and this is part of the current problem), new rig orders were so commonplace as to become almost non-events. Today, an order for any rig, regardless of size or design, is noteworthy (*Offshore Rig Newsletter*, Vol. 18, No. 11, November 1991 (Offshore Data Services, Houston, Texas)).

[68] See *Offshore Rig Newsletter*, Vol. 18, No. 11, November 1991 (Offshore Data Services, Houston, Texas).

*TABLE III*

OFFSHORE RIG LOCATOR

MAY 1992 PAGE 5

## JACKUP UTILIZATION

COMPETITIVE UNITS

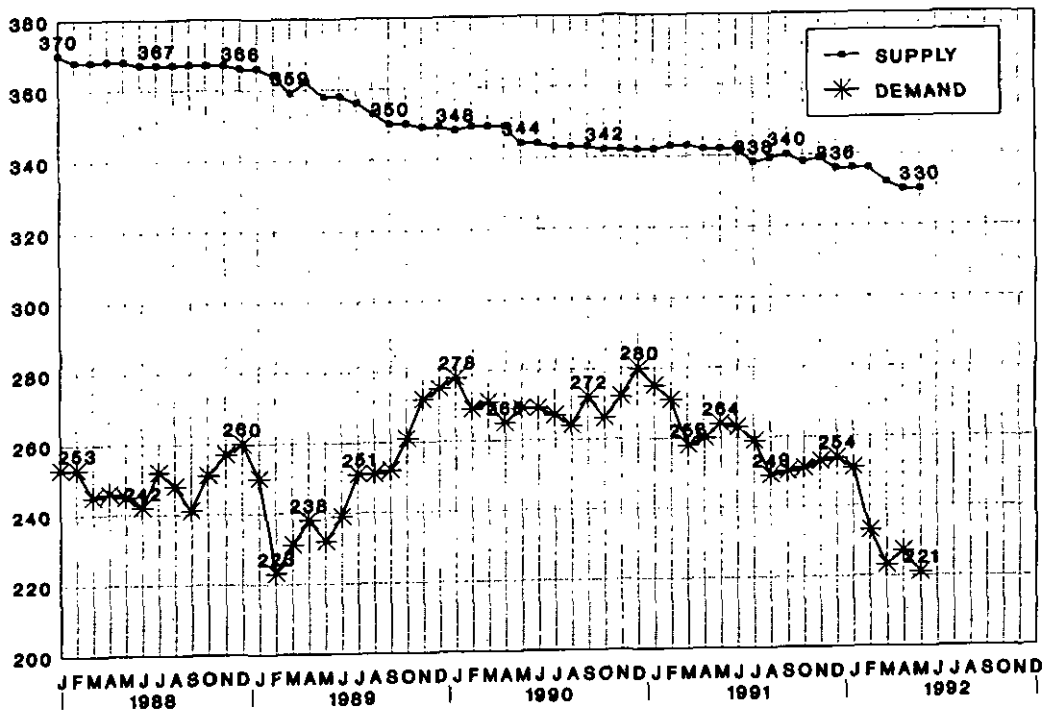
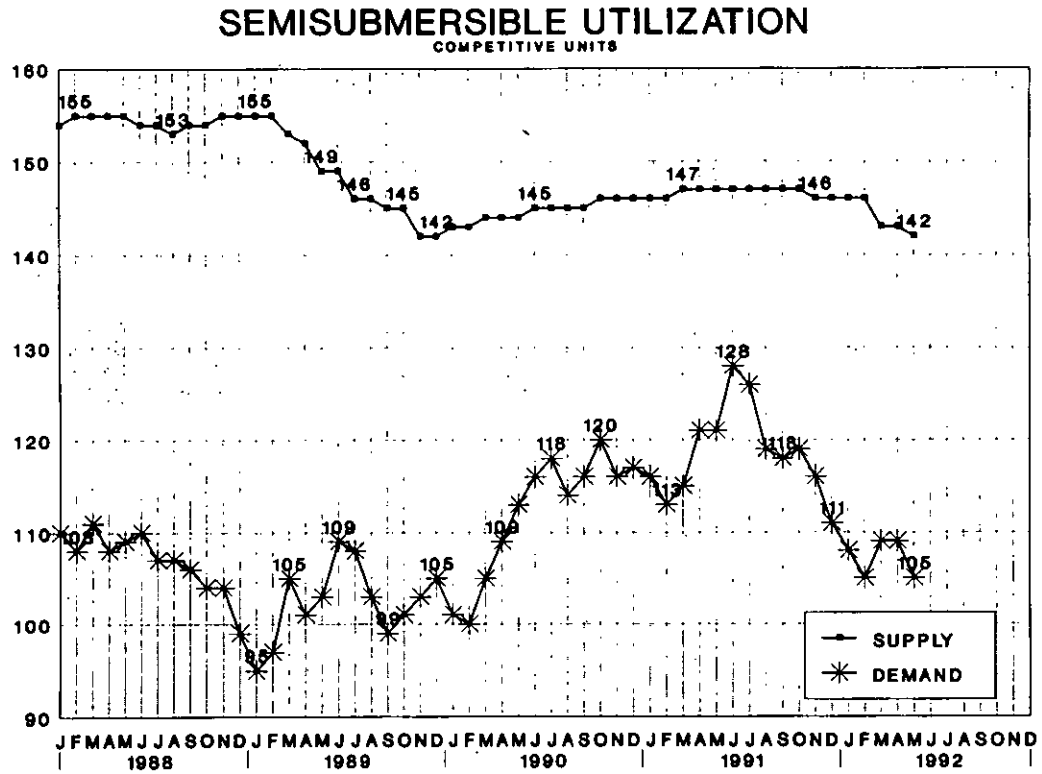


*TABLE IV*





429. The reduced demand for mobile offshore drilling units has depressed the rates. Day rates for hiring the largest type of jack-ups employed in the North Sea have dropped from USD 52 - 65,000 in the beginning of 1991 to USD 28 - 39,000 in the beginning of 1992. Day rates for the largest semi-submersibles employed in the North Sea dropped from USD 40 - 60,000 to USD 32 - 43,500. Similar decreases have hit other types of jack-ups and semisubmersibles employed in the North Sea. Day rates for offshore rigs working in the Gulf of Mexico, Southeast Asia and West Africa have seen equivalent decreases[69].

430. The surplus capacity of rigs on the offshore market has caused a sharp decline in orders for new offshore rigs.

431. Against this background, it is difficult to see the validity in the Finnish point of view that the Great Belt Project have had an adverse impact on Finnish shipyards' orders for MODUs. As for the future, reference is made to Chapter VI - VII of Part I, where it is explained to what extent the Great Belt Project has any impact on the transport of MODUs through the Danish straits.

### B. The Effects on Offshore Oil and Gas Activities

432. Finland claims that the Great Belt Project adversely will affect the conditions for offshore oil exploration in the Baltic Sea. Based on the assumption that the Great Belt Project in its present form will separate the Baltic Sea from other offshore exploration areas, a picture is painted of the oil industry being subjected to the exploitation of "a monopolistic contractor" dominating the Baltic Sea (para. 323 of the Memorial)[70].

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[69] *Offshore Rig Locator* Vol. 19 No. 1 January 2, 1992, Offshore Data Services, Houston, Texas.

[70] According to Finland the Baltic Sea contains a substantial oil and gas potential. Publicly available seismic data do not, however, support the Finnish presentation of the Baltic Sea as an area with a high oil and gas potential.

433. The Finnish assumption is wrong. All existing drill ships, almost all, at least modern, jack-ups and most semi-submersibles can pass through the Sound without any technical modifications, see Annex 35. These many hundred rigs are of course operated by a multitude of rig owners, and the economic competition for exploration work in the Baltic Sea will be similar to the competition in other parts of the world. The Finnish notion of "a monopolistic contractor" in the Baltic Sea has no place in reality.

434. Finland has recently tried to rally support within the oil industry for its attempt to stop the Great Belt Project in its present form. The Government of Denmark has learnt that the Government of Finland has approached a major oil company with offshore interests in the Baltic area asking the company to support Finland in its allegations that the Great Belt Project would be an obstacle to future oil and gas exploration and exploitation in the Baltic. Despite persistent endeavours from the Finnish Government the oil company declined.

## CHAPTER X.

## THE GREAT BELT PROJECT AND OTHER BRIDGES AND TUNNELS IN THE WORLD

### A. The Similarity between the Great Belt Bridge and other Bridges across International Straits

435. Finland claims that the Great Belt Bridge is unique as it is alleged to be the "only obstruction" across a territorial sea constituting part of an international strait (paras. 324 - 326 of the Memorial).

436. First, it should be recalled that the Great Belt Bridge is not an obstruction to international navigation. All existing ships using the Great Belt will continue to be able to go through the Great Belt in the future, see paragraphs 195 - 203. The two sailing ships that have been identified as being unable to pass under the East Bridge have never plied the Great Belt. As all sailing ships in the world, these two vessels have draughts that allow them to pass through the Sound. As for MODUs, all rigs built by Finnish shipyards, save three, can pass the Danish straits without any modifications, and the remaining units can pass subject to relatively moderate modifications. Do these facts warrant the use of the words "an obstacle - a definite obstruction"[71]? The fact remains that international shipping is not going to be hampered by the Great Belt Bridge.

437. Finland's description of the Great Belt Bridge as being unique because of "crucial differences" between the planned Great Belt Bridge and all other existing bridges in the world begs a question of law. Finland argues as if a relevant distinction can be drawn between international straits through internal waters and international straits through territorial waters. The distinction

[71] Para. 330 of the Memorial.

alleged by Finland is clearly not a valid one, especially not when applied to the passage régime in the Danish straits.

438. Principally, the right of passage through the Danish straits is governed by the 1857 Treaty for the Redemption of the Sound Dues. Without going into the details of the Treaty, which will be addressed in paragraphs 661 - 682, suffice it here to mention that under the Treaty, Denmark has taken upon itself the obligation to let merchant ships pass unhampered through the Danish straits. This right of passage obviously exists irrespective of the legal status of the waters in the strait. The right of passage cannot be rendered obsolete through Denmark's unilateral actions e.g., by a pronouncement that a particular part of one of the Danish straits shall no longer be territorial sea but rather internal waters, notwithstanding the justification of such a step under international law. Thus, there is no difference in law between the right of passage through the Great Belt where the navigational route traverses only territorial sea (and high seas), the main navigational route through the Sound which also passes through internal Danish waters near Copenhagen, and the Little Belt which in its entirety is internal waters.

439. But the same result would follow if the right of passage through the Danish straits were governed exclusively by general international law. Article 16, paragraph 4 of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone provides that there shall be no suspension of the innocent passage of foreign ships through straits which are used for international navigation between one part of the high seas and another part of the high seas or the territorial sea of a foreign State. The right of innocent passage through international straits laid down in this provision does not distinguish between an international strait constituted by internal waters and an international strait constituted by territorial waters.

440. The fallacious nature of the Finnish distinction is further illustrated by the rules governing the coastal State's right to draw

straight baselines thereby converting territorial seas to internal waters. Coastal States have the freedom, within recognised limits set by international law, to draw straight baselines. Whether or not a coastal State has exercised its discretion to draw straight baselines with the effect of enclosing as internal waters areas which had previously been considered part of the territorial sea or the high seas cannot be decisive for the extent, let alone the existence, of the right of innocent passage through an international strait. The same principle applies in the event the establishment of a straight baseline has the effect of enclosing as internal waters areas which previously had been considered part of the territorial sea or the high seas. In such cases the right of innocent passage will continue to apply to those waters, see paragraph 2 of Article 5 of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone.

441. Ordinance No. 437 of 21 December 1966 on the Delimitation of the Territorial Sea delimits the Little Belt and the Copenhagen Road area with the Drogden Channel as internal waters (Annex 50). In accordance with international law Article 3 of the Ordinance provides that this delimitation of areas as internal waters shall not entail any restriction in the existing right of passage for foreign ships through the parts of the internal waters of the Little Belt and the Sound which are normally used for such passage.

442. It is submitted that the distinction between internal waters and territorial sea has no bearing on the right of passage through an international strait. Therefore, the fact that the East

Bridge will cross an international strait constituted partly by territorial sea does not make the Great Belt Project unique[72].

### B. Various Types of International Waterways

443. An *international strait* is one such type of waterway. Certain geographical, jurisdictional and functional criteria must be fulfilled in order for a waterway legally to constitute an international strait. Thus, in legal terms a waterway can be classified as an international strait when the following elements are present. The waterway in question must be a natural waterway between land masses connecting one part of the high seas or an exclusive economic zone and another part of the high seas or an exclusive economic zone or the territorial sea of a foreign State. Secondly, the waterway must be under the navigational jurisdiction of the coastal State or States concerned, i.e., it must be covered by the territorial sea(s) or internal waters of the State or States concerned. Thirdly, the waterway must be used for international navigation.

444. A *canal* is another type of waterway. An inter oceanic canal is an artificial internal waterway connecting one part of the high seas or an exclusive economic zone with another part of the high seas or an exclusive economic zone. Due to the artificial nature of a canal, in principle canals are to be distinguished in international law from natural waterways such as straits. In the

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[72] In support of the view that the Sound is not a feasible route Finland argues that Drogden is Danish internal waters (paras. 82 - 84 of the Memorial). As demonstrated above this is not a valid argument. Although the Drogden Channel today lies within Danish internal waters, the right of innocent passage continues to apply because the Drogden Channel is part of an international strait, which in its entirety is subject to a régime of innocent passage under the rules of the 1857 Treaty of Copenhagen as well as the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone. The right of passage through the main navigational route through the Sound, and thereby through the Drogden, is indeed derived from international law not merely from "local custom" as wrongly alleged by Finland in the Memorial (para. 84).

absence of express treaty provisions, it cannot be assumed that international law imposes restrictions upon a State in virtue of its own creative act in providing a new navigational connection.

445. However, the State in question can by treaty or by unilateral declaration accept the establishment of an international régime for an artificial internal waterway such as a canal. Consequently, when such a régime gives free access and unimpeded navigation to ships of all nations, the legal status of a canal can be compared with the legal status of an international strait, and bridges over such canals then become of interest to the present case.

446. Bridges across *entrances to major ports served by international shipping* and bridges across *waterways used for international navigation* will also be dealt with, as international shipping is concerned more with trade and transport than with the legal régime governing the different waterways. What counts from the point of view of merchant vessels are the actual conditions around the world for navigation including entering and leaving ports.

## C. Bridges across International Straits

### 1. The Bridges across the Little Belt

447. The first bridge ever erected across an international strait was the Little Belt Bridge in 1935 with a vertical clearance of 33 metres (Figure 14). The Government of Denmark considered this bridge to be in accordance with international law, and no protests were conveyed to Denmark as a result of the construction of the bridge.

448. In 1970 another bridge with a height of 42 metres was erected across the Little Belt.

## 2. The Bridges across the Bosphorus Strait

449. The Strait of the Dardanelles joins the Mediterranean Sea to the Sea of Marmara, and the Strait of the Bosphorus joins the latter to the Black Sea. The straits are connecting two parts of the high seas, and they are both frequented by international shipping.

450. The Bosphorus Strait somewhat resembles a river in being narrow with abrupt and angular windings and a strong current. The length of the Bosphorus Strait is approximately 17 nautical miles. At the narrowest point the strait is 0.5 nautical miles wide, and it has a minimum depth of 36 metres in the navigation channel. The Bosphorus Strait is indisputably an international strait. A status unaffected by the fact that the strait is internal waters enclosed by straight baselines (paras. 437 - 442).

451. The passage régime in the Turkish straits (the Bosphorus and the Dardanelles) has been regulated by several conventions, the most recent one being the Montreux Convention of 1936. This Convention provides for complete freedom of transit and navigation for merchant vessels of all nations in time of peace and war, subject only to taxes, charges, and sanitary measures authorised by the Convention, and to the right of Turkey to refuse passage to merchant vessels of States at war with Turkey. As for warships, in time of peace a limitation is placed only on the number and tonnage of vessels of non-Black-Sea Powers. Vessels of Black-Sea Powers are not subject to limitations placed on the tonnage if the vessel concerned pass through the straits singly, escorted by not more than two destroyers. In time of war, if Turkey is not a belligerent, warships enjoy complete freedom of transit and navigation through the straits only subject to the above-mentioned limitations. If Turkey is a belligerent, the passage of warships shall be left entirely to the discretion of the Government of Turkey.

452. Considering that the Montreux Convention provides for complete freedom of passage for merchant vessels of all nations in

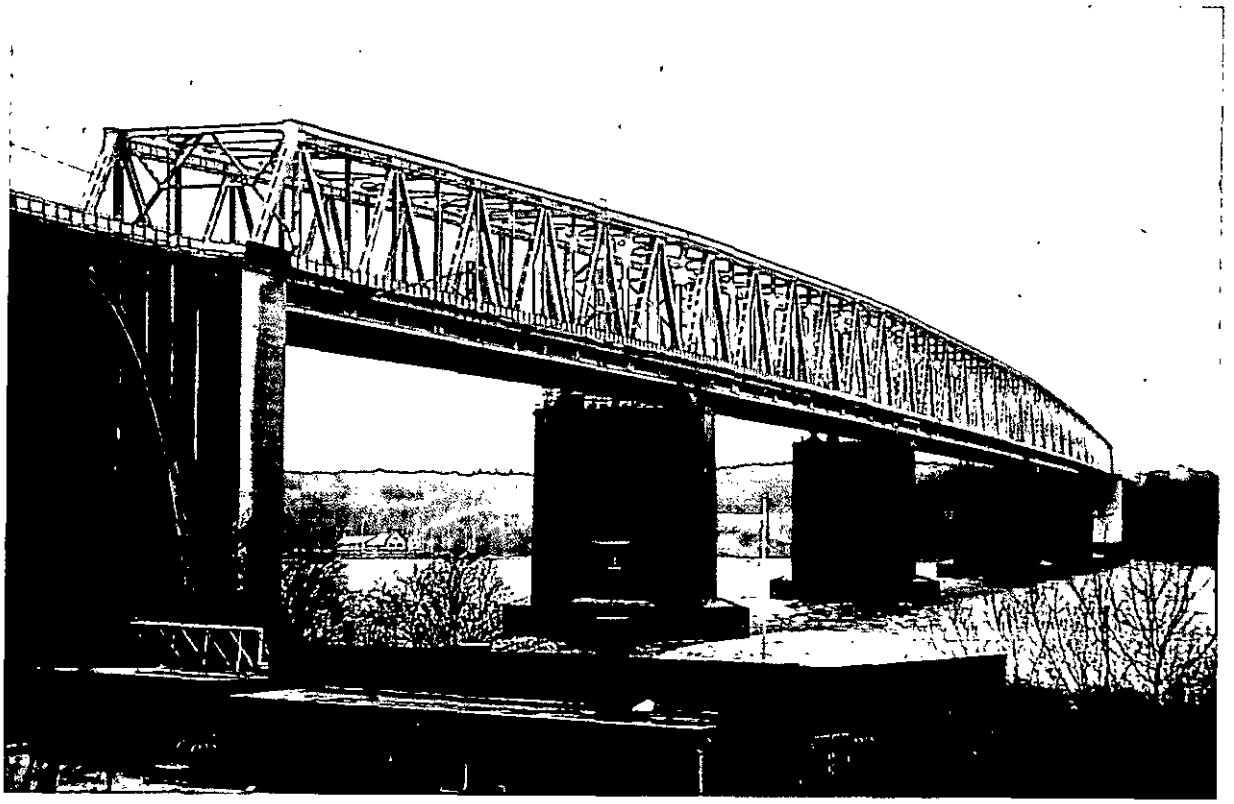

**Figure 14**: THE FIRST LITTLE BELT BRIDGE

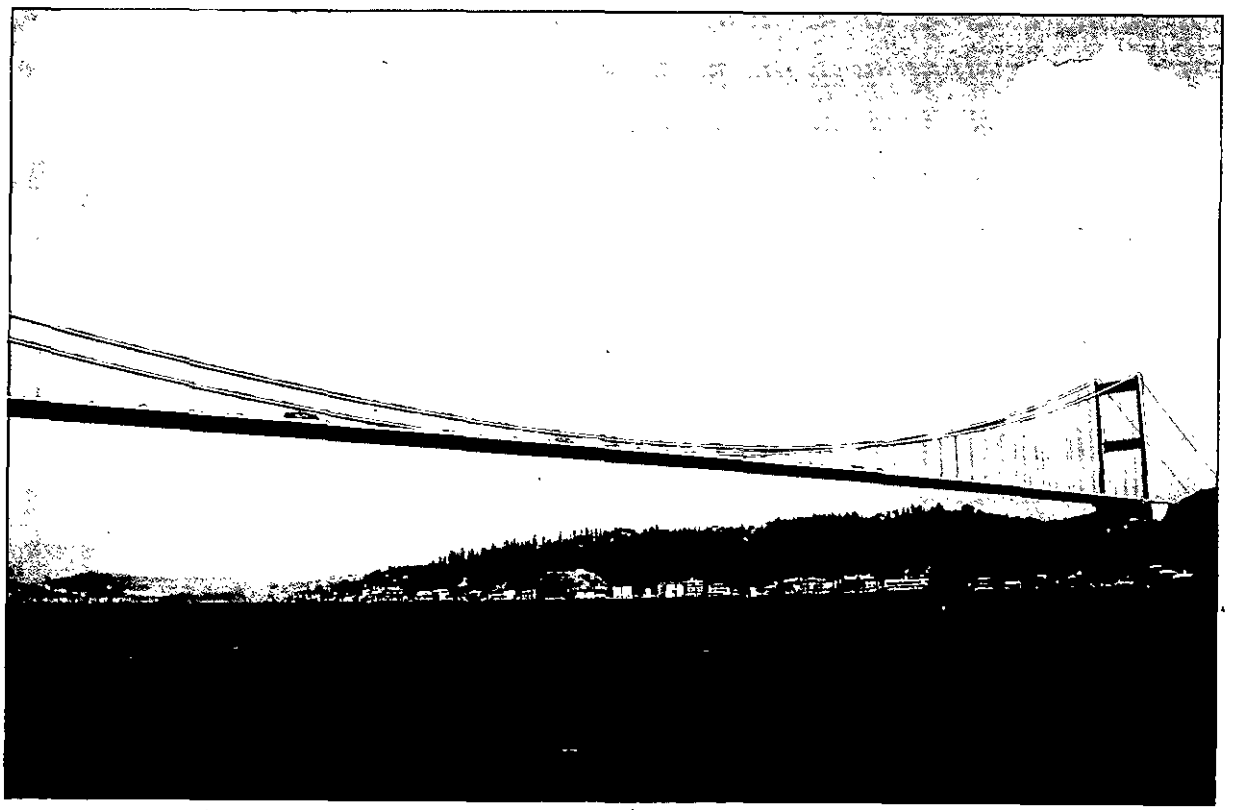

**Figure 15**: THE FATIH SULTAN MEHMET BRIDGE

time of peace, it is noteworthy that bridges have been erected over the Bosphorus Strait.

453. In 1973 the first bridge - the Bosphorus Bridge - was erected across the Bosphorus Strait. The bridge has been constructed as a suspension bridge with a vertical clearance of 64 metres. The bridge has a total length of 1,470 metres containing a main span of 1,074 metres. The bridge carries a six-lane highway and two sidewalks.

454. In 1988 another bridge - also with a vertical clearance of 64 metres - was constructed across the Bosphorus Strait 5.5 kilometres north of the previous bridge. The second Bosphorus bridge, named the Fatih Sultan Mehmet Bridge, has a main span of 1,090 metres and carries an eight-lane motorway and two sidewalks (Figure 15).

455. The Bosphorus bridges have to be passed by all ships to and from the Black Sea, which is today surrounded by seven States: Bulgaria, Rumania, Moldavia, Ukraine, Russia, Georgia, and Turkey.

456. The Rumanian Ministry of Industry has in a recent letter to the Danish Embassy in Bucharest explained that the Rumanian Shipyard *Galati* since 1976 has delivered drilling platforms of the jack-up type for offshore drilling use in the Black Sea. The letter further explained that there would be no difficulty for such a type of platform to pass under the Bosphorus bridges as the legs of the platforms are made of parts that can be welded after passage under the bridges (Annex 51).

### 3. The Proposed Bridge across the Strait of Messina

457. The Strait of Messina separates the Italian island of Sicily on the west from the Italian mainland on the east, and joins the high seas of the Tyrrhenian Sea, northward, to those of the

Ionian Sea, southward. The length of the strait and its approaches is approximately 27 nautical miles, and it has a minimum depth of 71 metres in the navigation channel. The strait, which lies within the territorial sea of Italy, is at the narrowest point approximately 1.6 nautical miles wide.

458. Connecting two parts of the high seas and being used for international navigation, the Strait of Messina is an international strait.

459. In 1988 the Government of Italy informed the Sub-Committee on Safety of Navigation of the International Maritime Organization (IMO) on a project for the construction of a single or double span bridge across the Strait of Messina (Annex 52).

460. In a report to the Maritime Safety Committee the Sub-Committee noted that the minimum clearances foreseen for either of the proposed bridges "... would be not less than 64 metres in the central span of 1,400 metres for the single span and 500 metres for the double span proposed." The Sub-Committee was of the opinion that "... these minimum clearances should be more than adequate for ships likely to use the Strait of Messina, so far as can be foreseen" (Annex 53). In May 1989, the Maritime Safety Committee in a report endorsed the Sub-Committee's opinion on the navigational aspects of proposals to construct a bridge across the Strait of Messina (Annex 54).

461. Information from the *Stretto di Messina S.p.A.* - the state-owned company which has been granted a concession of undertaking preliminary investigations, planning, construction and operation of a fixed link across the strait - shows that the alternative project for a submerged bridge across the Strait of Messina has been abandoned for technical reasons. The final bridge design, *Progetto di Massima Definitivo*, which is expected to be submitted to the Italian Parliament for approval, provides for a single span suspension bridge with a vertical clearance of 64 metres, a total length of 3,660 metres, and a main span of 3,300 metres (Figure 16).

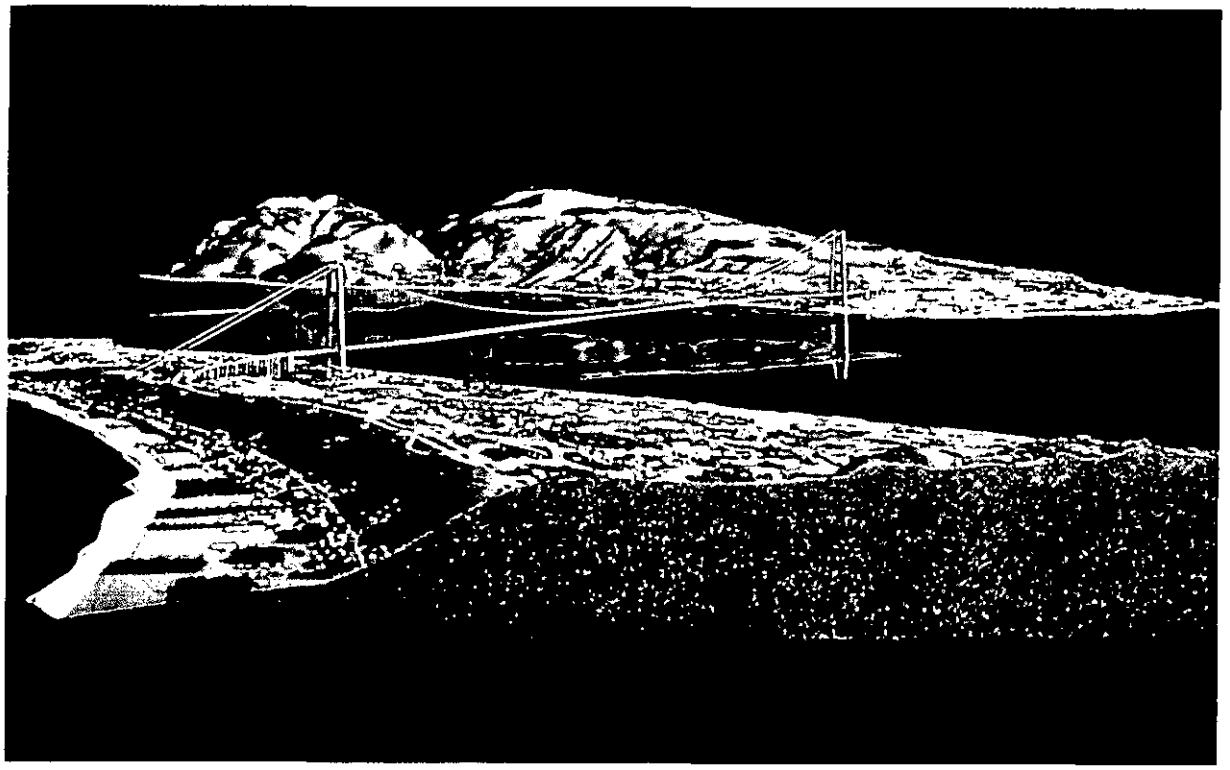

**Figure 16**: MODEL OF THE MESSINA BRIDGE

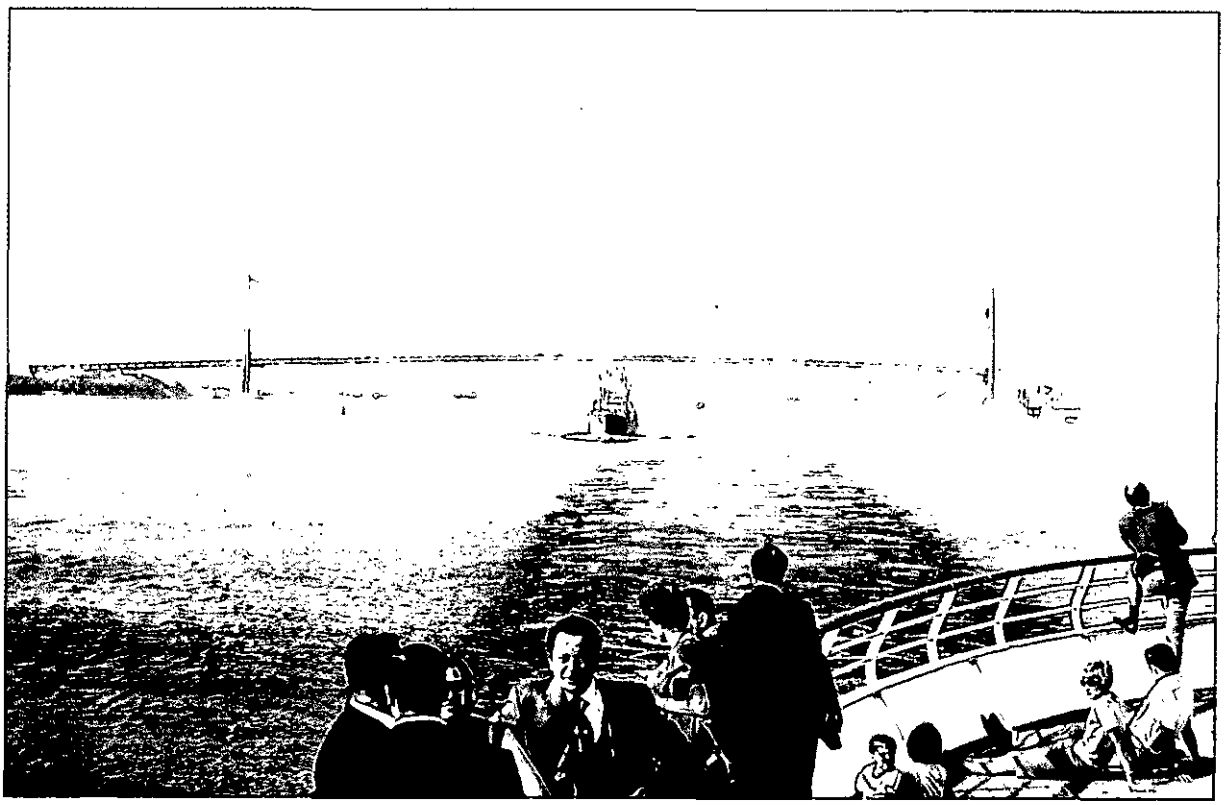

**Figure 17**: THE VERRAZANO NARROWS BRIDGE

462. It is thus not correct when Finland asserts that the alternative of an underwater bridge at a depth of 30 metres is being actively considered (para. 426 of the Memorial).

## D. Bridges across Canals open to International Ship Traffic

### 1. The Bridges across the Kiel Canal

463. The German Kiel Canal is approximately 53 nautical miles long and connects the Baltic Sea with the North Sea. It was constructed during the period 1887 - 1895 and has a width of 162 metres and a depth of 11 metres.

464. The fact that a total of 13 bridges - all with a vertical clearance of 42 metres - have been erected over the Kiel Canal has not prevented this navigational route from being the most important connection in terms of number of ships between the North Sea and the Baltic Sea[73]. The Kiel Canal bridges have been constructed between 1894 and 1989.

465. During the period 1919 - 1936, the Kiel Canal was governed by the Peace Treaty of Versailles. Article 380 of the Treaty is of special interest:

> "*Art. 380*: The Kiel Canal and its approaches shall be maintained free and open to the vessels of commerce and of war of all nations at peace with Germany on terms of entire equality."

466. In 1923 the status of the Kiel Canal came before the Permanent Court of International Justice in the *Wimbledon* case. The Court by a majority, in giving judgement against Germany,

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[73] In 1988 a total number of 34,300 vessels passed through the Kiel Canal. The same year 17,900 vessels passed through the Great Belt.

held that the Canal had been internationalized by the Treaty of Versailles as the Court in its judgement said:

> "... that the terms of Article 380 are categorical and give rise to no doubt. It follows that the canal has ceased to be an internal and national navigable waterway, the use of which by the vessels of states other than the riparian state is left entirely to the discretion of that state, and that it has become an international waterway intended to provide under treaty guarantee easier access to the Baltic for the benefit of all nations of the world. Under its new régime, the Kiel Canal must be open, on a footing of equality, to all vessels, without making any distinction between war vessels and vessels of commerce, but on one express condition, namely, that these vessels must belong to nations at peace with Germany.", see *P.C.I.J. 1923 Series A, No.1*, p.22.

## 2. The Bridges across the Panama Canal

467. The Panama Canal, which opened to traffic in 1914, is approximately 44 nautical miles long, has a width that varies between 70 - 300 metres, and a minimum depth of 12.4 metres. The Panama Canal ranks as one of the most important artificial waterways in the world.

468. In 1942 and 1962 two bridges were erected across the Panama Canal.

469. During the period 1901 - 1977, the passage régime in the Panama Canal was governed by the Hay-Pauncefote Treaty between the United States and Great Britain, signed 18 November 1901, and the Hay-Varilla Treaty between the United States and the Republic of Panama, signed 18 november 1903. Both Treaties provide for a canal that, when constructed, shall be neutral in perpetuity, and free and open to vessels of commerce and of war of all nations, on terms of entire equality.

470. The status of the Panama Canal was discussed in the *Wimbledon* case in which the Permanent Court of International Justice referred to the Suez and Panama Canals as precedents which were:

> "merely illustrations of the general opinion according to which when an artificial waterway connecting two open seas has been permanently dedicated to the use of the whole world, such waterway is assimilated to natural straits in the sense that even the passage of a belligerent man-of-war does not compromise the neutrality of the sovereign State under whose jurisdiction the waters in question lie.", see *P.C.I.J. 1923 Series A, No.1*, p. 28.

471. In spite of the fact that the Panama Canal according to the Treaties mentioned above is free and open to passage of vessels of all nations, bridges have been erected across the Canal.

472. In 1942 the first bridge - the Miraflores Bridge - was erected across the Panama Canal. The bridge was constructed as a swing bridge.

473. In 1962 another bridge - the Thatcher Ferry Bridge - was erected as a fixed arch bridge across the Panama Canal. No protests from other States were conveyed to the Government of Panama as a result of the construction of a bridge with a vertical clearance of 60 metres, a total length of 1,650 metres, and a main span of 344 metres.

474. It must be assumed that the Government of Panama - when deciding to build a fixed bridge across the Panama Canal - held the view that the bridge did not violate its treaty obligation to ensure free and open passage of vessels of all nations. No legal controversy surrounded the Government's decision to build a fixed bridge with a vertical clearance of 60 metres, presumably because the bridge was not considered to be an impediment to free passage through the Canal.

## E. Bridges across Entrances to Major Ports Served by International Shipping and across Waterways Used for International Navigation

### 1. Bridges across Entrances to Major Ports Served by International Shipping

475. As illustrated below, bridges across entrances to important ports in the world are not an uncommon feature.

| Bridges: | | Vertical clearances: |
|---|---|---|
| Verrazano Narrows Bridge, New York | | 66 metres |
| Golden Gate Bridge, San Francisco | | 67 metres |
| San Francisco-Oakland Bay Bridge, San Francisco | | 65 metres |
| Lions Gate Bridge, Vancouver | | 60 metres |
| Tagus River Bridge, Lisbon | (due to local topography) | 70 metres |
| Maracaibo Bridge, Venezuela | | 45 meters |
| Guanabara Bridge, Rio de Janeiro | | 63 metres |
| Sidney Harbour Bridge, Sidney | | 52 metres |
| Älvsborg Bridge, Gothenburg | | 45 metres |
| Yokohama Bay Bridge, Yokohama | | 55 metres |

476. International shipping calls extensively on these major ports notwithstanding the height restrictions set by the above-mentioned bridges.

477. As stated in paragraph 211 - 221, the vertical clearances of some of these bridges will, due to the importance of the ports in question, operate as primary design parameters with respect to the air draught of future ships.

478. The bridges listed above and the Japanese bridges mentioned below further serve to illustrate that international shipping has, apparently quite successfully judging from the

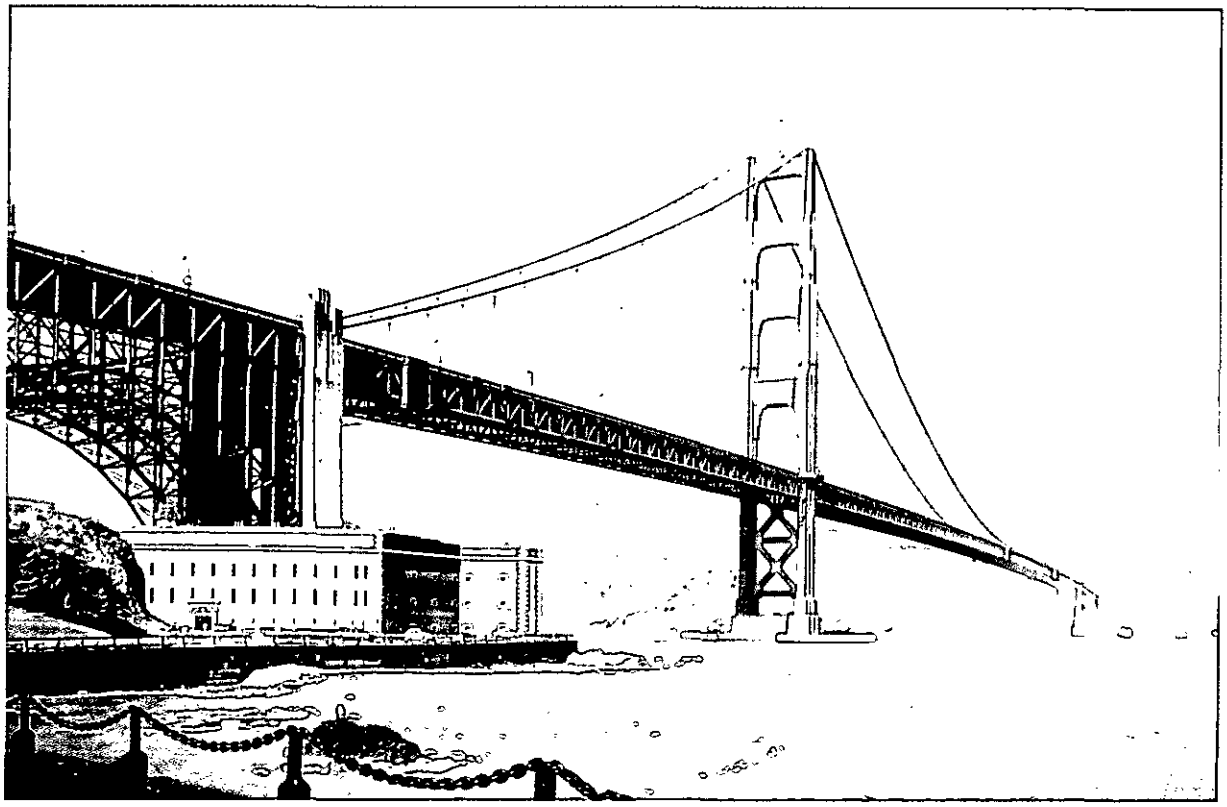

**Figure 18:** THE GOLDEN GATE BRIDGE

**Figure 19:** THE MARACAIBO BRIDGE

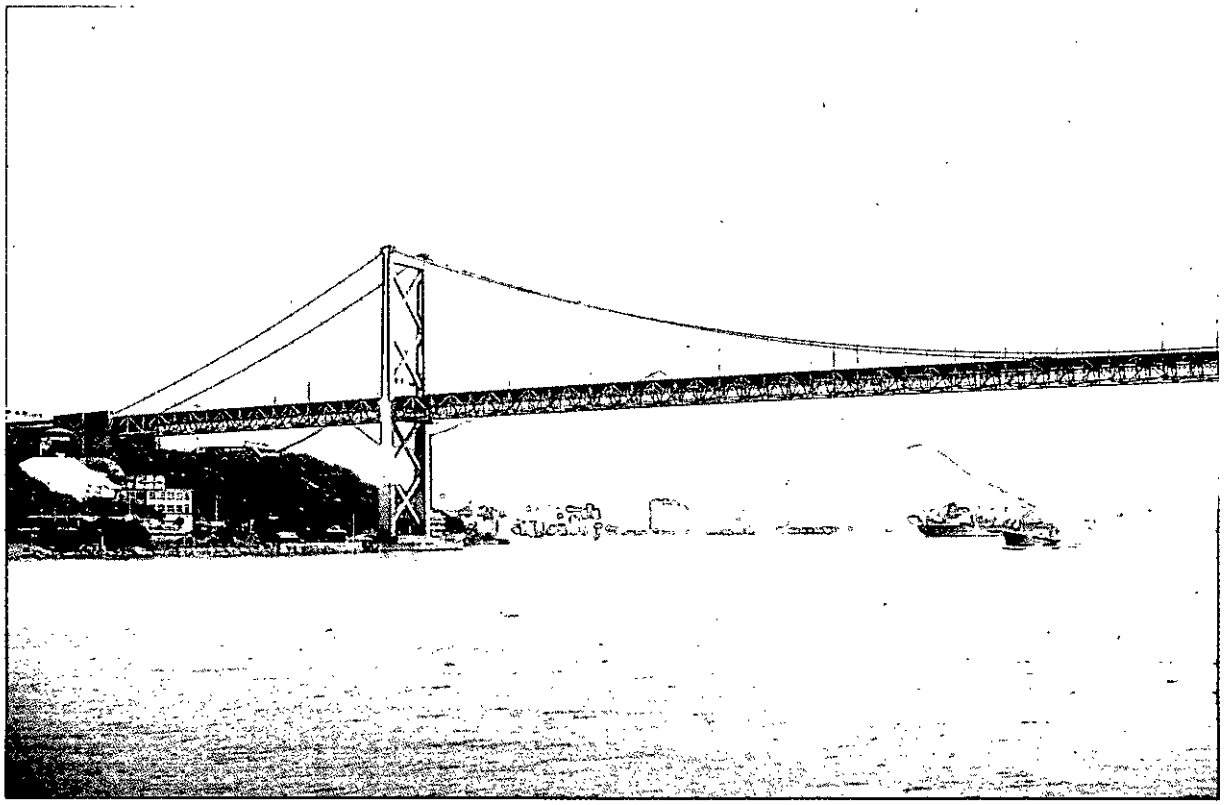

**Figure 20**: THE KANMON BRIDGE

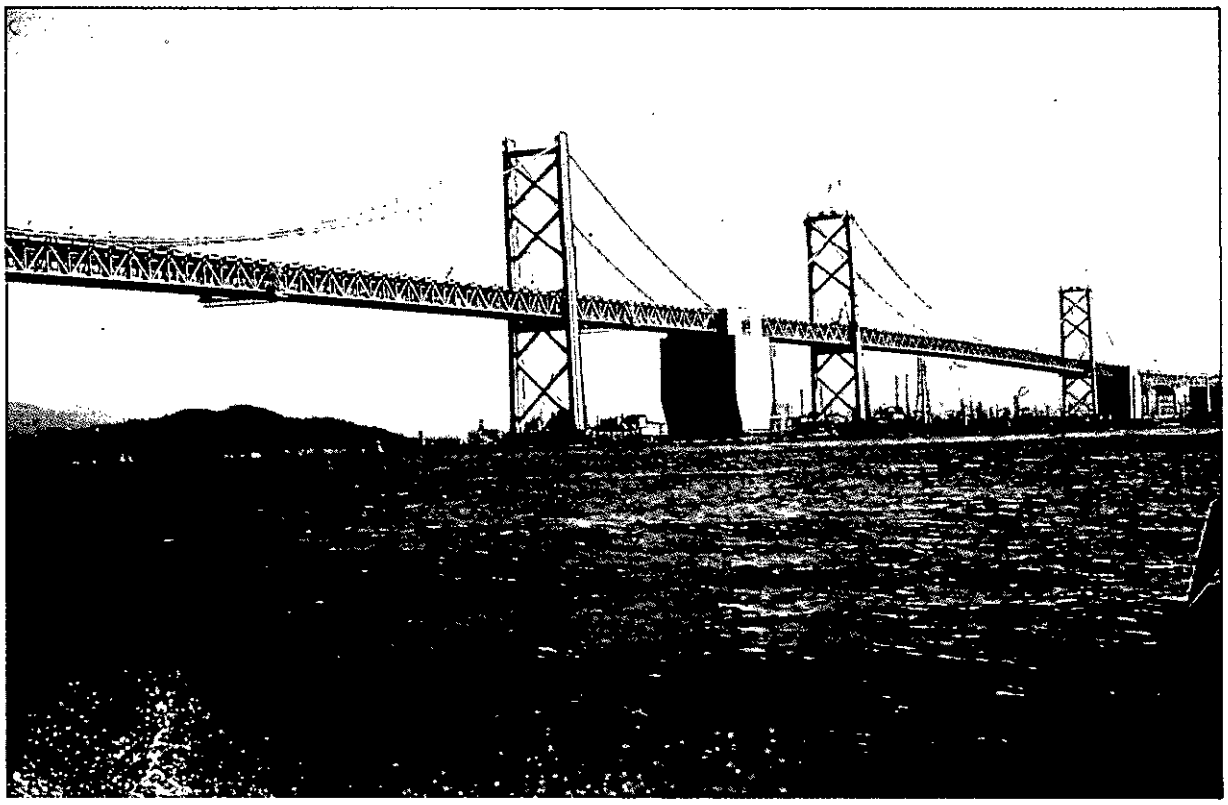

**Figure 21**: THE BISAN SETO BRIDGE

importance of the ports concerned, been able to trade on ports with bridges whose clearances are similar to, or even significantly below, the clearance of the East Bridge.

## 2. Bridges across Waterways Used for International Navigation

479. The Kanmon Strait - one of the waterways connecting the Japan Sea with the Pacific Ocean - is the strait between the main island of Japan, Honshu, and the island Kyushu. At the narrowest point the strait is only a few hundred metres wide, and it has a minimum depth of 13 metres in the navigation channel. The Kanmon Strait is intensively frequented by international shipping calling on major Japanese ports in the Seto Naikai (Seto Inland Sea)[74].

480. In 1958 a highway tunnel was constructed under the Kanmon Strait. As a result of increasing traffic, studies were begun in 1962 on the possibility of erecting a bridge across the strait. Formal approval for the construction of a bridge was given by the Minister of Construction in April 1968. In 1973 the bridge was completed as a suspension bridge with a vertical clearance of 61 metres. The bridge has a total length of 1,068 metres containing six lanes and a main span of 712 metres (Figure 20).

481. The Seto Naikai is the inland sea between the Japanese islands Honshu and Shikoku. The Seto Naikai is intensively used for international navigation, especially to and from the ports of Osaka, Kobe, and Hiroshima. A total of 18 bridges are to connect Honshu and Shikoku across the Seto Naikai. One of these, the Bisan Seto Bridge, is shown on Figure 21.

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[74] As to the history of the Kanmon Strait see Erik Brüel, *International Straits*, p. 104 - 105 (London, 1947).

482. Twelve of these bridges have already been completed. The remaining six, currently under construction, will be completed in 1998 - 1999. One of these, the Akashi Kaikyo Bridge, will be the longest suspension bridge in the world when completed.

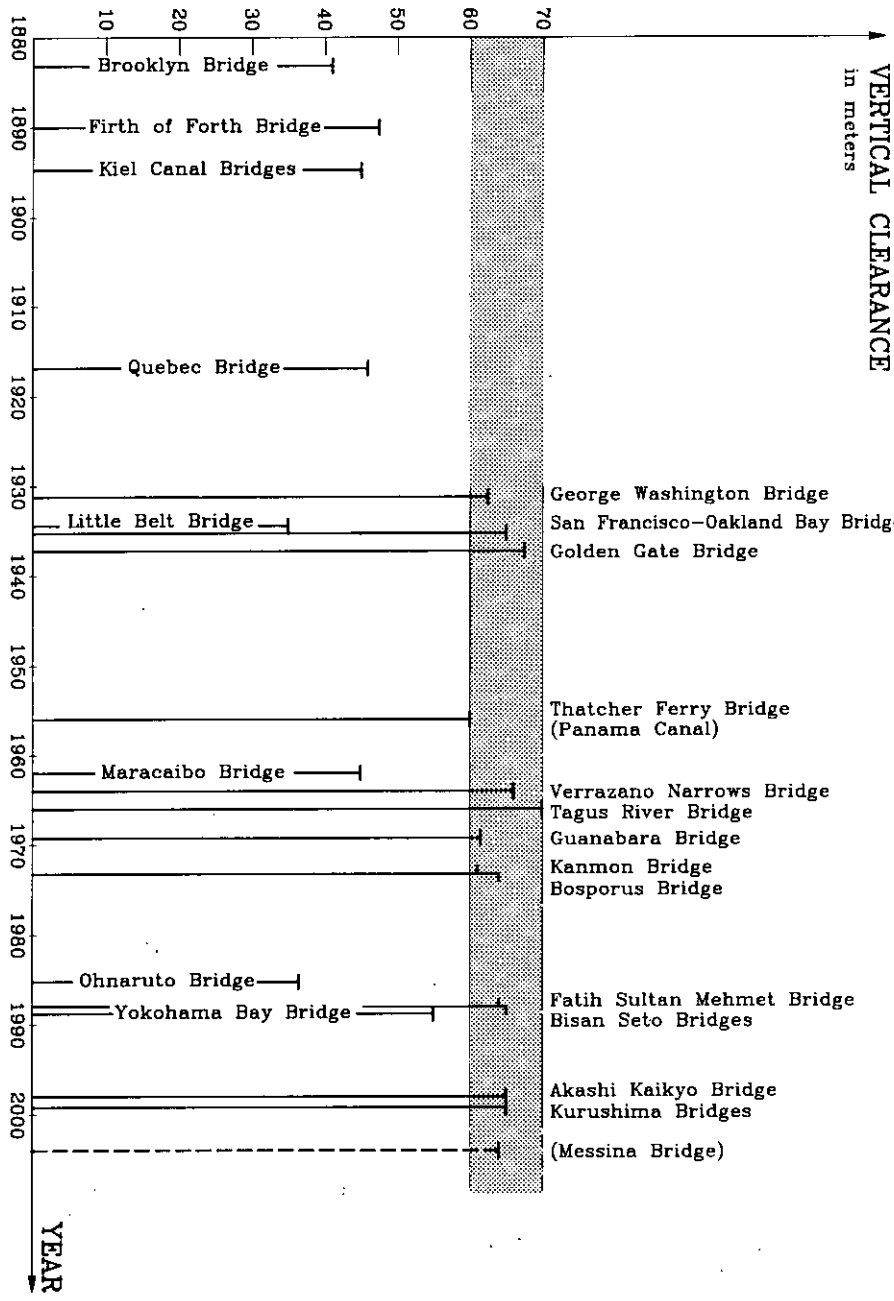
483. In the main navigational routes the bridges have been or will be constructed with vertical clearances of 65 metres and main spans of more than 800 metres.

484. It is interesting to note that the number of ships passing under the Seto Naikai bridges each year is about ten times larger than the number of ships passing through the Great Belt. The height restrictions in the Seto Naikai have thus not hampered international navigation.

### F. The Tendency in Bridge Construction

485. From the examples mentioned above it appears that the vertical clearances of bridges across major waterways used by international shipping vary between 42 and 70 metres, and that the clearances concentrate around 60 - 65 metres. This also applies to future bridges that are designed or currently under construction. A graphical illustration of this is given below. The examples illustrate that the vertical clearance of the East Bridge is in accordance not only with the height of other bridges across waterways with a legal status similar to that of the Great Belt but also with other bridges that are of comparable importance to international navigation.

**Figure 22:** VERTICAL CLEARANCES OF BRIDGES ACROSS MAJOR WATERWAYS USED BY INTERNATIONAL SHIPPING



486. As demonstrated in Figure 22, no tendency in bridge construction towards increasing the vertical clearance of bridges across waterways important for international navigation can be ascertained. This corresponds with the fact that there has not been any increase in the air draughts of the largest vessels in recent years. In fact, the tallest passenger vessels ever built were delivered in the 1930s, and subsequent generations of very large cruise ships have been somewhat lower (para. 212 and Annex 37).

487. The tendency in bridge construction to be observed is the trend towards increasing the horizontal clearance of the free span open to ship traffic in order to promote navigational safety.

## G. Tunnels under International Straits and Waterways

488. Finland has put much emphasis on the tunnels under the Straits of Dover and Tsugaru and the planned tunnel under the river Westerschelde. As will be shown in the following sections, these three tunnels are not relevant to the present case.

### 1. The Tunnel under the Strait of Dover

489. The Strait of Dover, situated between the south-east coast of England and the northern coast of France, connects the high seas of the English Channel to those of the North Sea. In the narrowest parts of its length, the strait is less than 24 nautical miles wide and covered by the 12-mile territorial seas of the United Kingdom and France.

490. In 1963 the British Minister of Transport presented a report concerning Proposals for a Fixed Channel Link to Parliament. The report proposed the construction of either a bridge or a tunnel across the Strait of Dover. As to a bridge solution the report noted that a bridge with a vertical clearance of 70 metres would "... allow the passage of the largest ships in normal weather", see paragraph

1.3 of the report (Annex 55). The report, however, also noted that whilst a bridge across the strait would have certain advantages, it would require "... the concurrence of the States principally concerned with navigation in the Channel", see paragraph 1.9. of the report.

491. It is worth noting that in 1963 the territorial seas of France and the United Kingdom did not exceed three nautical miles from the baselines. Thus, at that time the Strait of Dover contained a high seas channel over which France and the United Kingdom could not exercise sovereignty. Consequently, the 1963 Report from the British Minister of Transport stated that the concurrence of other States was necessary for the construction of a bridge that would cross waters outside the territorial seas of the two littoral States.

492. The statement by the British Minister of Transport thus cannot be quoted as has been attempted in paragraph 345 of the Memorial in support of the existence of a requirement for negotiations among the States concerned if a bridge across an international strait is to be constructed.

493. Economic reasons ultimately dictated a tunnel solution. It appears from the conclusions of the 1963 Report that *inter alia* economic considerations caused the bridge solution to be rejected, see paragraph 1.34 of the report. The report concluded in paragraph 5.12 that "... the results of the economic assessment indicate that the construction of a tunnel under the Channel can now be regarded as reasonable from an economic point of view. We cannot reach the same conclusion about the bridge".

494. At the end of 1971, France had extended the breadth of its territorial sea from three to twelve nautical miles, subject to a median line in the strait, and when the United Kingdom did the same in 1987, the Strait of Dover, for part of its length, was wholly covered by territorial seas.

495. Throughout the Third United Nations Conference on the Law of the Sea, France and the United Kingdom supported the right of transit passage in straits used for international navigation, in the context of acceptance of the 12-mile limit for the territorial sea. The Anglo-French Declaration of 2 November 1988, mentioned in paragraph 342 of the Memorial, is in conformity with the position of the two countries regarding new broad straits created by extension of the territorial seas of the littoral States to twelve nautical miles, as the Declaration established a régime of navigation which takes account of the transit passage régime contained in Part III of the 1982 United Nations Convention on the Law of the Sea.

496. The legal régime applicable to the Strait of Dover is thus not similar to that of the Great Belt, which has always been covered by the territorial sea of Denmark. In the Great Belt, as explained in paragraphs 726 - 742, the right of innocent passage will remain unchanged even after the entering into force of the 1982 Convention on the Law of the Sea according to Article 35 (c) of the Convention.

497. In April 1985 an Invitation to Promoters for the development, financing, construction and operation of a Channel Fixed Link, produced by the British and the French Governments, was sent out. According to the Invitation, promoters could put forward any proposal for a fixed link in so far as certain requirements listed in the Invitation were fulfilled. It was thus evident that various options for a fixed link were still under consideration at that time (Annex 56). Concerning the bridge alternative, it is interesting to note the statement in the Invitation to the effect that a minimum air draught of 70 metres might avoid the need to resort to a procedure of prior approval of the IMO. Notwithstanding the fact that MODUs have been transiting the Strait of Dover frequently over the past years, the two Governments thus held the view that a vertical clearance of 70 metres would not be a violation of international law.

498. In January 1986 the Prime Minister of the United Kingdom and the President of France announced the decision of the two Governments to construct a tunnel under the Strait of Dover. On 20 January 1986 the British Secretary of State for Transport stated in Parliament that the bridge proposal put forward by the Eurobridge Studies Group was eliminated largely on technical grounds (Annex 57).

499. A treaty on the Channel Tunnel between Great Britain and France was signed in February 1986 and ratified by both Governments in July 1987. Construction work on the tunnel was started in 1987, and the work is estimated to be completed in 1993.

## 2. The Tunnel under the Strait of Tsugaru

500. The Tsugaru Strait, located between Honshu, the main island of Japan, and Hokkaido, the northern island, is at the narrowest point about 11 nautical miles wide. The Japanese Act No. 30 of 2 May 1977 on the extension of the territorial sea of Japan from three to twelve nautical miles expressly exempts the Tsugaru Strait, leaving a channel of open sea in the middle of the strait. Consequently, all ships and aircraft enjoy freedom of navigation and overflight through the Tsugaru Strait outside the jurisdiction of Japan related to navigation. Therefore the Tsugaru Strait does not legally constitute a strait.

501. At the end of the 1950s, when the decision was taken to establish a fixed link between Honshu and Hokkaido, it was on the basis of the existing technology considered impossible to construct a bridge across a strait more than 10 nautical miles wide and with a depth of 140 metres. Instead, Japan decided to construct a bored tunnel under the Tsugaru Strait. The Seikan Tunnel works were commenced in 1964 and completed in 1985.

502. As a bridge solution could not be chosen, the legal implications of constructing a bridge which would cross waters

outside the territorial sea did not arise. Japan's decision to construct a tunnel under the Tsugaru Strait, therefore, is of no relevance to the present case as a tunnel was the only option.

### 3. Plans for Construction of a Tunnel under the River Westerschelde

503. The river Schelde rises in northern France and is navigable from the French town of Cambrai. The river runs through Belgium and the Netherlands where it flows into the North Sea. Passing through several States between its source and its mouth, and being navigable from the North Sea, the Schelde, including its lower reach, the Westerschelde, must be classified as an international river.

504. In 1815 the Vienna Congress proclaimed the principle of free navigation on the international rivers of Europe by merchant-men of all nations. The Congress itself gave theoretical recognition to that principle in providing for free navigation on *inter alia* the river Schelde.

505. The Peace Treaty of 19 April 1839 between Belgium and the Netherlands provides for complete freedom of navigation on the river Schelde[75] and embodies the provisions of the Final Act of the Conference of Vienna concerning free passage on navigable rivers.

506. Finland claims in its Memorial, paragraph 353, that the situation of Belgium in respect of the river Westerschelde has an obvious similarity to Finland's situation in relation to the Danish straits. However, there is no such similarity between these two situations. The régime governing the river Westerschelde provides

[75] See Article IX paragraph 3: "(e)t afin que les dits navires ne puissent être assujettis à aucune visite, ni à aucun retard ou entrave quelconque dans les rades Hollandaises ..."

for complete freedom of navigation, whereas that of the Danish straits only provides for innocent passage, see paragraphs 726 - 742.

507. Moreover, Belgium is a riparian State vis-à-vis the Schelde, and thus has a status quite different from that of Finland.

508. In order to connect two parts of the Province of Zeeland, which is entirely under Netherlands sovereignty, it is planned to construct a fixed link across the Westerschelde. A decision to construct such a fixed link across the river is to be made exclusively by the Netherlands authorities, taking into account their treaty obligations.

509. As can be seen from an answer given by the Netherlands Minister for Transport in the Parliament of the Netherlands in December 1991, a decision to opt for a tunnel solution under the main channel of Westerschelde combined with a bridge or a tunnel across a secondary channel was made in order to keep good neighbourly relations with Belgium (Annex 58). It might be inferred from the answer that the Netherlands authorities apparently do not consider themselves to be under any legal obligation to obtain the Belgian authorities' approval of the project. The answer further shows that the Netherlands authorities are conducting technical consultations with their Belgian counterparts to remove any possible Belgian concern.

## CHAPTER XI.

## HISTORY OF THE DISPUTE

### A. The Silence of Finland

510. By Circular Note of 12 May 1977 the Danish Ministry of Foreign Affairs advised all Heads of Foreign Diplomatic Missions accredited to Denmark of the Great Belt Project which included a high-level bridge across the Eastern Channel with a free vertical clearance of 62 metres above sea level. Several Missions acknowledged receipt of the Note, whereas only the USSR and Poland reacted in substance to the notification. Finland did not react to the Note, see paragraphs 66 - 70.

511. By Circular Note of 30 June 1987 the Danish Ministry of Foreign Affairs advised all Heads of Foreign Diplomatic Missions accredited to Denmark of the Project (Annex 25). The Diplomatic Missions were informed that the motorway crossing the Eastern Channel would be either a high-level bridge or a tunnel. This Note did not give rise to any reactions from foreign States.

512. On 9 September 1988 *A/S Storebæltsforbindelsen* recommended to the Minister for Transport that the road connection across the Eastern Channel should be carried out as a high-level bridge, and that consequently a tunnel solution should not be put out for tender. This recommendation was widely reported in the Danish press at the time. Also foreign news media, including Finnish newspapers, reported on the latest developments in the Great Belt Project. On 4 November 1988 the Minister for Transport approved the recommendation. No formal communication was made at the time since the vertical clearance of the East Bridge was not yet decided, see paragraphs 111 - 113.

513. Denmark had no reason to believe that the Great Belt Project would be detrimental to the interests of Finland, let alone

that Finland regarded the Great Belt Project as a violation of Finland's rights.

514. On 17 March 1989 the Ambassador of Denmark in Helsinki paid his farewell visit to the President of Finland. On that occasion the President expressed his delight to find that there were no disagreements or problems between Finland and Denmark (Annex 59).

## B. Consultations between the Parties prior to the Court's Order of 29 July 1991

515. It was not until July 1989 that Finland reacted to the Great Belt Project i.e., more than 12 years after the first and basic diplomatic communication concerning the Project was circulated. On 18 July 1989 the Commercial Department of the Embassy of Finland in Copenhagen sent a letter to the Danish Maritime Authority. The Danish Authorities were informed that representatives of the Finnish industry who had followed the planning of a fixed bridge over the Great Belt had asked the Embassy of Finland how large transports by sea through the Danish straits could be carried out in the future in case the bridge would have the dimensions planned. In the letter it was further stated that, according to available information Finland's large transports, e.g., drilling platforms with a free height of 150 metres, would be obstructed by the new bridge. If this was the case, Finland requested information on possible alternative routes (Annex 60).

516. The Finnish inquiry was answered by the Danish Ministry of Foreign Affairs in a letter of 29 August 1989 confirming that passage under the bridge would not be possible for structures measuring 150 metres in height. The Danish Ministry of Foreign Affairs pointed out that such structures would be able to pass through the Sound provided their draught did not exceed 8 metres. Moreover, it was suggested that the rigs be transported

partly dismantled, thus permitting passage under the Great Belt Bridge (Annex 61).

517. In the following months, several meetings were held between representatives from Denmark and Finland in the context of traditional, bilateral contacts between the two countries on a variety of subject-matters. Prior to each of these meetings an agenda was made. Finland did not propose to include the Great Belt Project in any agenda in advance of those meetings.

518. In a letter of 25 August 1989 from the Finnish State Secretary Åke Wihtol to the Danish Permanent Under-Secretary of State Otto Møller a draft agenda was proposed for talks to be held on 20 September 1989 (Annex 62). In the letter Mr. Wihtol concluded that he did not have any questions concerning bilateral matters, thereby confirming the remarks by President Koivisto to the Danish Ambassador quoted in paragraph 514. At the meeting between State Secretary Åke Wihtol and Permanent Under-Secretary of State Otto Møller on 20 September 1989 general political and economic issues were discussed. At the end of the meeting Mr. Wihtol told Mr. Møller that the Finnish Embassy in Copenhagen had not yet received an answer to a letter sent to the Danish Maritime Authority concerning the transport of drilling platforms. Apparently, Mr. Wihtol had not at the time been informed of the Danish Ministry of Foreign Affairs' reply to the said letter sent already on 29 August 1989 to the Embassy of Finland in Copenhagen.

519. On 24 October 1989 the Danish Ministry of Foreign Affairs issued another Circular Note advising *inter alia* on the exact height of the high-level bridge across the Eastern Channel which was set at a vertical clearance of 65 metres (Annex 31).

520. The Finnish Minister for Foreign Affairs, Mr. Pertti Paasio, did not raise any question concerning the Great Belt Project when on 13 November 1989 he had an hour-long conversation in

Copenhagen with the Danish Minister for Foreign Affairs, Mr. Uffe Ellemann-Jensen.

521. During the regular bilateral consultations on trade issues between civil servants from the Foreign Ministries of both countries held in Copenhagen on 5 February 1990 the Finnish representatives raised the issue of the passage of drilling platforms through the Great Belt. The issue had not in advance been placed on the agenda for the consultations, and the Finnish representatives suggested that Finnish experts on international law should explain their views to the Danish Ministry of Foreign Affairs.

522. This meeting took place in Copenhagen on 15 May 1990. Finland stated as a matter of fact that a bridge clearance of 65 metres would render impossible the passage of Finnish MODUs through the Danish straits. In the opinion of Denmark the Fixed Link was in conformity with international law, allowing ships of all nations which had used the Great Belt in the past to pass under the bridge with its clearance of 65 metres. Finland doubted the Danish interpretation of the concept of innocent passage. The Finnish delegation stated at the end of the meeting that the consultations should not be regarded as an official *démarche*.

523. In a Note of 19 June 1990 the Embassy of Finland, referring to the Danish Circular Note of 24 October 1989, expressed Finland's reservations to the Great Belt Project, making for the first time an official diplomatic request for bilateral talks before a final decision was made on the bridge project in order to secure free passage through the Great Belt for e.g., oil drilling rigs requiring a clearance of up to 200 metres and a minimum draught of 12 metres (Annex 63).

524. The Danish Ministry of Foreign Affairs replied in a *Note Verbale* of 11 July 1990 to the Embassy of Finland in Copenhagen. The Danish Ministry of Foreign Affairs referred to the Circular Note of 24 October 1989 in which it was stated that the Fixed Link across the Great Belt in all respect fulfils international

law by permitting free passage for all existing ships which have used the strait for passage. Consequently, the Danish Ministry of Foreign Affairs was of the opinion that the points raised by the Finnish authorities did not offer ground for any negotiations concerning the Great Belt Project. The Danish authorities would, however, not reject a Finnish request for consultations between the respective authorities on any practical, technical possibilities of solving, in any other way, the problem mentioned by Finland (Annex 64).

525. On 26 July 1990 the Chargé d'Affaires of Finland called at the Ministry of Foreign Affairs in Copenhagen, acting upon instructions from his Government, to inform the Danish authorities that in the Finnish view the right of passage also included drill rigs. Denmark maintained the view expressed in the *Note Verbale* of 11 July 1990.

526. On 30 August 1990 the first technical meeting was held in Copenhagen at the office of *A/S Storebæltsforbindelsen*. Mr. Seppo Silvonen, Marketing Director of *Rauma-Repola Offshore Oy*, participated in the meeting. Mr. Silvonen explained that *Rauma-Repola Offshore Oy* approximately once a year produced a drilling rig or a similar construction with an air draught of up to 160 metres. Mr. Silvonen claimed that these constructions were transported on ships with a draught of 15 metres. At the meeting Mr. Silvonen stressed that the costs incurred by making the necessary and feasible modifications of the *Rauma-Repola Offshore* products to enable them to pass through the Danish straits after completion of the Great Belt Project had to be borne by others than *Rauma-Repola Offshore Oy*.

527. In a *Note Verbale* of 7 September 1990 Finland suggested that discussions between experts on international law be simultaneously with the technical negotiations (Annex 65).

528. Denmark responded to the Finnish suggestion in a *Note Verbale* of 2 October 1990 advising that a technical meeting at *A/S*

*Storebæltsforbindelsen* had been arranged (Annex 66). The Danish Ministry of Foreign Affairs explained in the Note that it did not find it appropriate that purely legal aspects were included in technical consultations but would be "happy to receive members of the Finnish delegation during its stay in Copenhagen"[76].

529. The meetings suggested in the Danish *Note Verbale* of 2 October 1990 took place on 17 October 1990. Legal issues were discussed at a meeting held in the Danish Ministry of Foreign Affairs. Each side maintained their different understanding of the right of passage through the Danish straits. The Danish side also expressed its astonishment that Finland had not reacted to the previous notifications of 1977 and 1987. The possibility of finding a technical solution was discussed at a meeting held at *A/S Storebæltsforbindelsen.*

530. In a *Note Verbale* of 5 November 1990 to the Danish Ministry of Foreign Affairs Finland suggested a discussion on inserting a movable span in the West Bridge (Annex 67).

531. While retaining its position that the Fixed Link in its entirety conformed to the requirements of international law, Denmark undertook at the request of the Finnish side to investigate without prejudice the possibility of inserting a passage opening in the West Bridge, either as a dismountable span or a movable bridge. However, the conclusion was that for technical reasons it would not be feasible to modify the West Bridge as requested by the Finnish side.

532. In a letter of 9 November 1990 to the Danish Minister for Industry the Finnish Minister for Foreign Trade expressed his wish to discuss the Great Belt issue at the meeting of the Nordic Ministers for Foreign Trade in Helsinki on 20 November 1990

[76] The description given by Finland in the Memorial (para. 366) of the content of the Danish *Note Verbale* of 2 October 1990 might give a slightly distorted impression of the Danish reply.

(Annex 68). The Danish Minister for Industry explained at the meeting that the issue did not fall within her competence.

533. On 23 January 1991 Danish and Finnish representatives met in Copenhagen for further talks on possible, technically feasible solutions. Finland suggested e.g., a draw bridge or a tunnel. Denmark did not consider these proposals to be realistic and pointed out that the practical solution to the problem would be to use the passageway through the Sound or to complete the assembly of the oil drilling rigs after the bridge had been passed. The Finnish delegation rejected this solution as it would allegedly deprive the Finnish shipyard *Rauma-Repola Offshore Oy* of its competitiveness. The Finnish delegation never substantiated this claim nor did it put forward any suggestions as to how a technical solution to its problem could be found in modifications of the oil drilling rigs. At this meeting, the issue of drill ships was for the first time introduced by Finland.

534. The inaccuracy of the factual basis of the Finnish claims is clearly demonstrated in the *Note Verbale* of 19 June 1990 stating that "oil drilling rigs require a navigational clearance of up to 200 metres, and the depth of water must be at least 12 metres" (Annex 63). The rigs apparently had added 50 metres to their height since 1989. In fact, no rig exists in the world combining an air draught of 150 metres with a draught of 12 or 15 metres, and a rig measuring 200 metres still remains to be seen.

535. On 11 February 1991 the Danish Prime Minister received a letter dated 6 February 1991 from his Finnish colleague requesting further negotiations to protect Finnish interests (Annex 69).

536. The Danish points of view were summed up in a letter of 20 February 1991 from the Danish Prime Minister to his Finnish counterpart (Annex 70).

537. After the Finnish Application and Request for the Indication of Provisional Measures had been filed with the International Court of Justice in May 1991, the issue was further discussed between the Prime Ministers of Denmark and Finland during the visit of the new Finnish Prime Minister to Copenhagen on 25 June 1991. It was, however, not possible to settle the matter, although the Danish Prime Minister in a spirit of compromise suggested several options to be studied, *inter alia* the possibility of a further dredging of the Sound. Finland, however, did not respond to these suggestions, and the oral proceedings on the Request for the Indication of Provisional Measures opened on 1 July 1991.

## C. Negotiations between Finland and Denmark subsequent to the Court's Order of 29 July 1991

538. Considering the statement made by the International Court of Justice in its Order of 29 July 1991, paragraph 30, welcoming "any negotiation between the Parties with a view to achieving a direct and friendly settlement", the Prime Ministers of Denmark and Finland agreed to a meeting between Mr. Ulrik Federspiel, Permanent Under-Secretary of State for Foreign Affairs of Denmark, and Mr. Martti Ahtisaari, State Secretary of the Finnish Ministry of Foreign Affairs, for the purpose of furthering talks between the Parties.

539. As a first result of these contacts a Danish-Finnish Technical Working Group was established and its mandate adopted at a meeting on *Sprogø* in the Great Belt on 22 August 1991. At that meeting, the Finnish delegation had the opportunity to get a first-hand impression of the actual project in progress. At a following meeting in Copenhagen, the Finnish delegation had the opportunity to study the navigational conditions of the Drogden Channel during an excursion by boat.

540. Denmark did not oppose the discussion of any proposals, as can be seen from the mandate for the Technical

Working Group, (Annex 72 to the Memorial). The mandate was balanced in favour of the Finnish ideas as to how the conflict could be solved. The Finnish view remained the same as before the Application was submitted to the Court. Finland was only willing to discuss what Denmark could do to solve the conflict by modifying the Great Belt Project - not what Finland could do by modifying their rigs.

541. Denmark did in good faith investigate how to enable the Finnish oil rigs to pass through the straits after the completion of the bridge as planned. Finland, uncompromisingly, demanded either an opening in the bridge, dredging of the Drogden Channel to 15 metres or 10 metres combined with financial compensation, or an undefined compensation for "lost opportunities". Such claims did not further the prospects of an amicable settlement.

542. The Finnish proposals to insert an opening in the East Bridge had been rejected by the Danish side for a number of reasons, in particular because of the high risks of collision involved in such a procedure (Annex 72, pages 238 - 239 to the Memorial). These reasons are further explained in Annex 71 to this Counter-Memorial.

543. Denmark mentioned the possibility of increasing the height of the bridge by 3.8 metres. Furthermore, dredging the Drogden Channel was considered a serious option by Denmark, and consequently it was proposed to investigate that option, including the environmental impact assessment. Finally, Denmark was prepared to offer its help in transporting the Finnish oil rigs through the Drogden. In mentioning these proposals it was pointed out by the Danish side that in accordance with the principle of equal burden sharing the costs involved would have to be shared on a fifty-fifty basis.

544. During the negotiations through the months of August and September 1991 the Danish side made it clear that it was striving to reach a realistic and reasonable settlement before the

contracts for the East Bridge were to be signed in mid-October 1991. Thus the Report of the Technical Working Group was submitted on 8 October 1991 for further consideration by the two Parties. However, no immediate progress was in sight and on 22 October 1991 the contracts for the high-level East Bridge were signed. Finland's description of this fact in the Memorial (para. 156) might leave the impression that Denmark was not negotiating in good faith, an allegation also found in Ambassador Grönberg's letter of 5 February 1992 to the Registrar of the Court. However, it was the mutual understanding during the talks that it was for Denmark alone to make the decision on the signing of the contracts for the East Bridge, which would not prejudice the outcome of the negotiations or violate the letter or spirit of the Court's Order of 29 July 1991.

545. When the Permanent Under-Secretary of State for Foreign Affairs of Denmark and the State Secretary of the Finnish Ministry of Foreign Affairs met again on 26 November 1991, the only basis for a settlement seemed to relate to the question of finding ways of accommodating the Finnish MODU yard with a lump sum. Suggestions to this effect, which should be seen as a gesture on the part of Denmark, were made only *ad referendum.*

546. During renewed contact in Helsinki on 27 - 28 February 1992 between the Danish Minister for Foreign Affairs and the President of Finland and Members of his Government it was agreed to pursue actively the efforts towards reaching a negotiated settlement. These efforts are still in progress. The latest contact between the two Foreign Ministers took place in connection with the Spring Session of the Conference of Nordic Ministers for Foreign Affairs in Helsinki on 4 - 5 May 1992.

547. Unfortunately, the Finnish position during the whole course of negotiations has been shifting from the oil rigs originally subject to discussion to a wider choice of vessels, as reflected in the concept of "reasonably foreseeable ships" which was included in the Application and further expanded by the concept of "other special

ships" in the Memorial[77]. Considering the importance of the offshore industry claimed by Finland during the bilateral talks, this shift was rather surprising, emphasizing an even more remote risk for Finnish industry. As has been demonstrated in Chapter IV, Part I, the Great Belt Bridge creates no difficulties for the passage through the Danish straits of any existing or reasonably foreseeable ships.

548. It is also regrettable to note that Finland throughout the negotiations has insisted that any negotiated result must be based on the assumption that Finland has an absolute right of passage through the Great Belt. Denmark would consequently be obliged to bear all costs and burdens to accommodate Finland either by changing the Great Belt Project or through the payment of compensation based upon a concept of alleged "lost opportunities" during the next 100 - 150 years corresponding to the projected period of the existence of the bridge. This inflexible position on the part of Finland has not been conducive to the reaching of a negotiated settlement.

[77] The Memorial fails to draw attention to this addition by simply stating that "Finland repeats the submissions it made in its Application." (para. 560 of the Memorial).

# PART II

# THE LAW

# CHAPTER I.

## DANISH SOVEREIGNTY

549. An essential characteristic of the present case relates to the fact that the part of the Great Belt where the Fixed Link, including the high-level bridge across the Eastern Channel, is being constructed is in its entirety *Danish territorial sea*, see paragraph 32 and Maps II - III. As the sovereignty of a State extends to its territorial sea - confirmed in Article 1 of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone as well as in Article 2 of the 1982 United Nations Convention on the Law of the Sea - it follows that any legal evaluation concerning a State's activities in its territorial sea must take as its starting point the sovereign rights enjoyed by States over their territory. Special rights for certain foreign States or the international community at large may restrict the territorial sovereignty otherwise enjoyed, but such restrictions are not to be presumed and need a clear legal foundation. In the words of the Court,

> "... (i)nternational law governs relations between independent States. The rules of law binding upon States therefore emanate from their own free will as expressed in *conventions* or by *usages generally accepted as expressing* principles of law and established in order to regulate the relations between these co-existing independent communities or with a view to the achievement of common aims. Restrictions upon the independence of States cannot therefore be presumed..." (the *Lotus* case, *P.C.I.J. 1927 Series A, No. 10*, p. 18).

550. As far as the Great Belt is concerned it is the right of passage of foreign ships - as regulated *inter alia* in the Copenhagen Treaty of 1857 and the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone - which may place certain restrictions on the sovereign right of Denmark to build a bridge of vital interest to the development of the Danish society.

551. In its Memorial Finland concedes this point by stating that

> "... territorial sovereignty over the land whose coasts border the strait and over the waters of the strait includes the right to build a fixed link between the coasts separated by the strait ..." (para. 420).

552. The Memorial (para. 8, p. 5 - 6) further admits that "Finland is not disputing Denmark's right to build a bridge over the Great Belt.". In sum both Parties agree that Denmark as the sovereign strait State has a right to build the bridge across the Great Belt. The question is then whether the design of the East Bridge violates a special right, enjoyed by Finland, of passage for some particular ships or certain kinds of craft - a violation which has not been alleged by any other State; not surprisingly as the high-level East Bridge across the Great Belt *leaves open* the possibility of passage by all existing ships using that waterway.

553. Whereas the sovereign right of Denmark over the Great Belt is well established, the Respondent Government has not been able to identify a special right belonging to Finland which would prohibit Denmark from building the East Bridge as planned.

554. As to Danish sovereignty over the Great Belt, some landmarks in the history of the Danish straits should be recalled[78].

555. For a period of about 700 years stretching from the very creation of the Kingdom of Denmark around the year 950 and until the cession of the provinces east of the Sound to Sweden in the year 1658, both shores of all three straits formed an integral and uncontested part of Danish territory.

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[78] In general reference is made to Erik Brüel, *International Straits*, (London 1947) Vol. I, pp. 103 - 104 and Vol II, pp. 18 - 28.

556. The fact that the straits formed part of the Kingdom of Denmark and as such were subject to the exclusive sovereignty of the King of Denmark naturally meant, at that time, that they could only be used for fishing, passage or for any other purpose with the permission of the King of Denmark, which permission might naturally be given subject to certain conditions.

557. From about the year 1430 one of these conditions was the imposition of a certain due on every merchant vessel passing through the Sound, the so-called Sound dues, which were later extended to the Belts.

558. The recognition, both express and tacit, which the dues acquired within a relatively short period of time and through which they gained a solid basis in law must be viewed in the light of the fact that the Straits, according to the view prevailing at that time, were acknowledged to have the same status as other parts of the territory.

559. With the increase in international commerce and shipping, the dues gave rise to many protests culminating in their abolition by the Treaty of Copenhagen of 14 March 1857, combined with a compensation to be paid to the Kingdom of Denmark by the participating States.

560. By a Peace Treaty in 1864 the Danish King had to cede *inter alia* the southern part of the western shore of the Little Belt to Prussia and Austria-Hungary. After World War I Denmark regained this territory.

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561. The 1857 Copenhagen Treaty contains in its Article 1 the central stipulations concerning the abolition of the Sound and Belt dues. In connection with the abolition of the dues it is in the same Article laid down that in the future no ship shall under any pretext whatsoever be subjected to any detention or hindrance on its

way through the Sound or the Belts. In accordance with this obligation it has since the conclusion of the 1857 Treaty been the Danish practice to secure a right of innocent passage through the Danish straits for ships of all nations.

562. Today the actual practice may be summarized as follows, leaving aside the questions relating to passage in times of armed conflict. The 1857 Treaty in its Article 2 stipulates that the existing lights and buoys in the Kattegat, the Sound and the Belts, even outside the Danish territorial sea, shall be maintained and kept in order, and that Denmark, as in the past, shall study the possibility of improving the number and function of these lights and buoys in the general interest of navigation. The Article furthermore lays down that Denmark shall keep and maintain a pilot service in the same waters, use of which shall be at the discretion of the masters of the ships in passage. On the same conditions Denmark shall also permit private persons or companies, both Danish or foreign, to station towage vessels in the Sound and the Belts for ships in passage which would like to use a towage service.

563. The Government of Denmark has always taken great care in honouring these obligations in the 1857 Treaty. The obligation concerning lights and buoys is today fulfilled by the establishment of a buoyage system developed by the International Association of Light House Authorities and recommended by the International Maritime Organization. Any inquiry from navigators suggesting establishment of new aids to navigation or alteration of the existing marking system is made subject to thorough evaluation and consideration by the Danish Administration of Navigation and Hydrography.

564. The Administration of Navigation and Hydrography is also responsible for the pilotage service which has been available in Danish waters since 1857. For ships in transit the use of pilots is voluntary as laid down in the 1857 Treaty.

565. As regards the towing obligation in the Treaty, private shipping companies have always been allowed to station towage vessels in Danish waters including the Sound and the Belts. Today, Danish owned towing capacity is available and ready to assist on short notice. Foreign towage vessels, *inter alia* German, Dutch, and Swedish, do also operate from time to time in Danish waters.

566. In addition to the obligations in the 1857 Treaty, the Government of Denmark has taken many measures to enhance the safety of navigation through Danish waters, including the straits.

567. A coastal rescue service has been in existence since 1852, and in ice conditions Danish icebreakers will render free assistance to shipping both inside and outside the territorial sea.

568. In the 1970s the increase both in the volume and size of the ships navigating the Danish waters in transit to and from the Baltic Sea led the Government of Denmark to seek international recognition of the need for a special transit route for ships over a certain size. The object was to ensure the safety of navigation of large ships passing through Danish waters and to reduce the risk of oil, gas or other chemical pollution from the grounding or collision of tankers.

569. Thus the International Maritime Organization in its Resolution A. 339 (IX) of 12 November 1975 recommended that such a routeing system should be established. The Government of Denmark subsequently established this route, Route T, which with a charted minimum depth of 17 metres in the area northeast of *Gedser*, the southernmost point on East Denmark, covers the waters from there to *Skagen*, the northernmost point on the Jutland Peninsula, through the Eastern Channel of the Great Belt. Route T includes several traffic separation schemes in particularly dangerous areas. A detailed description of Route T by Mr. Anker Nissen, Head of Inspectorate, Danish Administration of Navigation and Hydrography, is reproduced in Annex 1 to the Memorial.

570. In addition to Route T, which is duly publicized on official charts, a radio reporting service (SHIPPOS) for ships in transit in Danish waters has been established. The purpose of this radio reporting service among other things is to facilitate navigation by informing shipping about the movement of large ships, about navigational hazards and deviations from normal current, water level and wave height.

571. In order further to improve navigation conditions in Route T, especially in the area east of the island of *Samsø* where the reef *Hatter Barn* is situated, and where many groundings have taken place, the Danish maritime authorities put out several more buoys and published new and better charts. This did not, however, prove to be enough to enhance safety, and the Government of Denmark then decided to dredge a 3 nautical miles long straight channel through the *Hatter Barn* area and to introduce a traffic separation scheme in connection herewith. These measures were completed on 1 April 1984, and they have resulted in better and safer navigation.

572. When it specifically comes to *merchant ships*, they have since the 1857 Treaty enjoyed a right of innocent passage through the Danish straits. Merchant ships that have exercised innocent passage will continue to be able to enjoy this right after the construction of the Fixed Link across the Great Belt, as the clearance of 65 metres will allow all of these ships to pass under the high-level bridge over the Eastern Channel of the Great Belt, in even greater safety than before, because of the reduction of ferry traffic.

573. *Oil rigs and other floating units* have since the mid-1970s occasionally passed through the Danish straits. Various Danish Governments have not considered these craft as having exercised a right of innocent passage when they in the past have been towed or transported through the Danish straits. This follows from the 1977 Circular Note, see paragraph 135.

574. As the 1857 Treaty does not regulate the passage of *foreign warships* through the Danish straits a set of customary rules has developed over time[79]. These rules have found their latest expression in Ordinance No. 73 of 27 February 1976 (Annex 72). According to that Ordinance foreign warships are free to exercise the right of innocent passage in the Sound and in the Great Belt without any requirements as to prior permission or notification. Only if four or more warships of the same nationality simultaneously seek passage is notification required, at least three days in advance, failing which the passage is deemed to lose its innocent character.

575. Passage of the Little Belt and the Drogden Channel in the Copenhagen Road area by foreign warships can take place when prior notification is given. The geographical character of the Little Belt, with its narrowness and the winding of this waterway through Danish heartland, has for security reasons called for this stricter measure of prior notification for any foreign warship. Security considerations also apply to the Drogden Channel with its proximity to the capital of Denmark and its position in the internal waters of the Copenhagen Road area. The fact that both the Little Belt and the Drogden Channel are delimited as internal waters can not in itself, however, change the status of these waterways as components of the Danish straits, in so far as they are used for international navigation, see paragraph 441.

576. For *foreign submarines*, it is prescribed in the Ordinance in accordance with Article 14, paragraph 6 of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone that they shall navigate on the surface when in passage in the Danish territorial sea and internal waters, including the straits.

577. Finally, as far as *foreign military aircraft* are concerned, they do not enjoy a right of innocent overflight according to

[79] See Erik Brüel, *International Straits*, Vol. II, p. 54, section 8.

customary international law, and consequently the Ordinance makes prior permission mandatory for such flights over Danish territory, including the straits.

578. Denmark, thus, believes that throughout the centuries it has been able as a strait State to protect and promote the interests of the international community in using the Danish straits as a passage from the North Sea to the Baltic Sea and vice versa.

579. In drawing this conclusion it must be kept in mind that the geographical function of a strait is not only concerned with the particular waters it joins but is equally concerned with the two territories it separates. From the point of view of Denmark the straits have throughout the more than thousand years of Denmark's history been regarded as Danish national territory - which they surely are - and of vital interest to the well-being and indeed the survival of the Danes. Dr. Brüel makes this point at the very beginning of his treatise on international straits where he writes:

> ".... (t)he function of separation, however, is often merely a separation in space, because straits, by being the waters, where the two territories separated by them, are closest to each other, frequently become the natural place of crossing. In this way the function of the strait, even if it separates the territories in space, becomes that of connecting them by traffic ... This function of the strait as a connecting link between the two territories separated by them, is the origin of the "twin-cities", characteristic of so many straits, and corresponding to the ferryplaces on both sides of the strait. (Istanbul-Skutari, Messina-Reggio, Brindisi-Durazzo, Dover-Calais, Korsør-Nyborg, Elsinore-Hälsingborg etc.).
>
> .....
>
> Even under the most perfectly developed ferry-system the straits are, however, a hindrance to the traffic. This is strongly felt to-day when speed is so important. ... a permanent bridge across an international strait was

completed for the first time in history, when the bridge across Little-Belt was inaugurated on May 14 1935. Plans for bridges or tunnel-connections have, however, also been proposed regarding other straits, as f.i. Great-Belt, the Sound, the Bering-Strait, the Strait of Calais, Belle-Isle Strait, the Strait of Gibraltar, Palk-Strait. We are, no doubt, only at the beginning of a fruitful development." (pp. 20 - 23, Vol. I).

580. This last part of the statement touches exactly upon the core of the present development in the Baltic as far as traffic is concerned. Bridges are being built across the Great Belt. A fixed link consisting of a tunnel, a low-level bridge, and a high-level bridge across the Sound between Copenhagen and *Malmö* have been agreed to by Denmark and Sweden. Finally, a fixed link is being considered across the *Femer Bælt* between Denmark and Germany thus completing effective traffic links between the European Continent and the Nordic countries.

581. This development has been supported by the European Parliament. In the Report, referred to in paragraphs 170 - 171, on permanent links across certain sea straits which was delivered by the European Parliament's Committee on Regional Policy and Transport it is stated that the Great Belt Bridge would lead to a very significant improvement in the most important link between east and west in Denmark and would bring about a significant improvement in the links between Central Europe and Sweden (Annex 32). In the Report dated 21 June 1991 referred to in paragraph 175 (Annex 34), the Parliament:

"... Calls on the Commission and Council to recognize the importance to the Community of a number of major transport infrastructure projects in which EFTA countries are involved and to seek better coordination of those plans ...; confirms the general European importance of the following projects for key links between the Community and EFTA, and for them to be given the same favourable terms, where

## CHAPTER II.

## LEGAL CONSIDERATIONS PRIOR TO THE PRESENT DISPUTE

587. The legal questions arising in connection with the construction of a fixed link across the Great Belt as a consequence of the special geographic characteristics of the Belt as an undisputable part of the Danish territorial sea, while at the same time connecting two parts of the high seas, were carefully considered by the successive Danish Governments from the very beginning of the planning of a fixed link, taking into account the development in international law.

588. As early as 1936 when the possibilities for constructing bridges across the Great Belt and the Sound were discussed, the Danish Ministry of Foreign Affairs in a letter dated 23 May 1936 to the Danish Ministry of Public Works, stated as its view that nothing precludes the construction of bridges across the Great Belt and the Sound provided the design of the bridge(s) does not impede passage to and from the Baltic Sea by even the largest ships existing at the time, see Annex 1.

589. In his treatise on international straits Dr. Erik Brüel also accepts that bridges may be built across the Danish straits as long as the strait does not cease to be a navigable waterway. This criterion may be fulfilled even though not all existing ships are able to pass under the bridge. Dr. Brüel states: "Bridges and embankments must be so constructed that practically all ships can pass under, respectively through, them without such difficulties in manoeuvring that the strait ceases to be a navigable waterway." (p. 43, Vol. II).

590. Ten years later the legal adviser to the Danish Ministry of Foreign Affairs, Professor Max Sørensen, rendered an opinion, dated 4 February 1957, on the aspects of international law related to the fixed traffic link across the Great Belt. The opinion was later

published as part of the Report of the Government Commission to study the possibilities for constructing a bridge across the Great Belt (para. 42) and is reproduced in Annex 2.

591. Professor Max Sørensen takes as his starting point the fact that the area where the construction of a bridge is being considered is, in its entirety, the territorial sea of Denmark. Consequently, the Danish State is entitled to establish such installations and structures as are not incompatible with any special rights enjoyed by foreign States, *in casu* the right of innocent passage of foreign ships. In evaluating this problem, Professor Max Sørensen reaches the following conclusions:

> "... I therefore advance the argument that - in relation to the evaluation of the question in the context of international law - the position adopted by the Danish Ministry of Foreign Affairs in its letter of 23 May 1936 should in principle be maintained, according to which nothing precludes the construction of a bridge across the Great Belt, always provided that the bridge structure is made conditional upon such a design as will not in any manner hamper the passage of the biggest vessels existing at the present time. This interpretation should be understood to mean that
>
> (1) the passage clearance has to comply with this requirement,
>
> (2) the bridge piers must be positioned in a way which does not hamper passage, and
>
> (3) the requirements set out under (1) and (2) above must be complied with, at least in respect of the sea lane(s) which is/are normally used for international navigation between the North Sea and the Baltic Sea, but not necessarily in respect of secondary sea lanes."

592. Following the conclusion of the First Conference on the Law of the Sea in 1958 and the adoption of the Convention of 29 April 1958 on the Territorial Sea and the Contiguous Zone, Professor Max Sørensen rendered an additional opinion, dated 29 January 1962, evaluating the impact of the rules on the right of passage contained in the Convention on the conclusions reached in the above quoted opinion of 4 February 1957. The opinion is published in the Report of the Working Committee, 1968 (para. 49) and reproduced in Annex 7. A thorough analysis of the relevant articles as adopted at UNCLOS I, to which Professor Max Sørensen was accredited as Head of the Danish Delegation, leads him to conclude:

> "... Against the background of the present provisions of the Convention, there is no doubt that they will involve no revision of the statement of 12 February 1957 by the Ministry of Foreign Affairs[80] ...
>
> Therefore, in the light of the wording of Article 16(4) of the Convention adopted at the Geneva Conference of 1958, it cannot be deemed necessary to deviate from point (3) of the statement of 12 February 1957 by the Ministry of Foreign Affairs. It must still be possible to maintain that the requirements for the freedom of navigation do not necessarily have to be complied with as far as secondary sea lanes are concerned. ...."

593. In the same opinion Professor Max Sørensen evaluates a proposal to construct a lower bridge across the Eastern Channel, which will thus obstruct the passage of major ships, and a tunnel under the Western Channel, which will at the same time be navigable by even the biggest vessels as the sea lane will be

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[80] Letter of 12 Feb. 1957 from the Ministry of Foreign Affairs to the Ministry of Public Works incorporating the legal opinion by Professor Max Sørensen of 4 Feb. 1957, see para. 42.

dredged to attain a depth of 15 metres on stretches where its natural depth is lower. He concludes:

> "... that nothing can be said with certainty about the compatibility of the above-mentioned project with Denmark's obligations under international law, but that the question is associated with not inconsiderable doubts. With due regard to the importance of the interests at stake, I feel that I am not in a position to advise the implementation of a project which raises such doubts, irrespective of the technical and economic advantages offered by the project. ...."

594. On 22 October 1962 Professor Max Sørensen delivered the following opinion on *inter alia* the impact of the Convention of 29 April 1958 on the Continental Shelf on the construction of a bridge across the Great Belt. The opinion is published in the Report of the Working Committee (1968) and reproduced in Annex 73. The conclusion reached is clear:

> ".... As far as the territorial sea is concerned, the construction of a bridge across a passage-way of water cannot be deemed to be contrary to the coastal State's obligations under international law on the ground of the Convention on the Continental Shelf or on other grounds, provided that the breadth and height of the spans are such that the passage of any foreign ship is not hampered."

595. Finally, Professor Max Sørensen wrote an opinion to the Ministry of Foreign Affairs in March 1971 about the Project for a Fixed Link across the Great Belt which was adopted as law two years later by Act No. 414 of 13 June 1973 i.e., a low-level bridge across the Western Channel and a high-level bridge across the Eastern Channel corresponding to the actual project under construction. The opinion is reproduced in Annex 8. The conclusion reached is as follows:

"... The information accumulated so far thus points unambiguously to the conclusion that the Western Channel is not used for passage of international ships through the Great Belt. Bearing in mind the importance of the question, however, I would find it desirable to undertake an attempt to support the available information still further, notably with regard to the passage of foreign warships. Provided continued investigations fail to produce any factors which distort the information already available, I consider myself in a position to conclude that the Western Channel must be regarded as a secondary sea lane which is not normally used for international navigation and that Denmark's obligations under international law will therefore not be disregarded if passage through this lane is precluded by a low-level bridge. ..."

596. Of particular interest is the reference made in this legal opinion to the considerations given to a fixed link between Denmark and Sweden in which context floating objects such as drilling platforms were commented upon in the following way:

"... As far as various possible bridge constructions were concerned, it was stipulated that the clearance and the positioning of the bridge piers were not allowed to preclude or impede the passage of even the biggest vessels of our time which are capable of passing through the Sound - irrespective of whether the vessel in question sailed in ballast or with cargo. On the other hand, only ships could be taken into account, not other floating constructions, such as drilling platforms, which might pass through the Sound by way of towing. ..."

597. In 1973 Professor Max Sørensen left the Ministry of Foreign Affairs having been appointed judge to the Court of the European Communities in Luxembourg. While serving as a judge in Luxembourg, Professor Max Sørensen wrote an article entitled *Brückenbau und Durchfahrten in Meerengen* published in

*Festschrift für Eberhard Menzel*, Duncker und Humbolt, Berlin 1975, pp 551-563. The conclusions embodied in the above quoted legal opinions were included in that article which, however, contains some further thoughts as to future developments, including the aspect of drilling platforms. The pertinent sections of the article read as follows:

> ".... On the other hand, there is also general agreement that it is not possible, and therefore not necessary, to take into account unknown developments of the future. Once the bridge is there, future ship constructions will have to be adapted to it. A certain principle of priorities can be adopted for this purpose[81].
>
> Modern technology has posed a delicate problem in the past few years. Drilling platforms for the extraction of oil and gas from the continental shelf are towed with their extremely high constructions, but floating, from one field to the other. In the event of plans to tow such a gigantic structure through the straits, is it possible then to assert a right of passage, unobstructed by bridges?
>
> The considerations and preparatory work seem to indicate a reply in the negative. It is true that an explicit interpretation is non-existent, but all legal analyses take into account ordinary navigation only. Customary international law could hardly be deemed to deal with this new problem. At any rate, there is no rule of international law which imposes an obligation to draw parallels between such constructions and ships. It might be a different situation if a conventional ship,

[81] This statement is construed by Finland as representing a transformation from a factual necessity into a legal principle of priority contradicting the statement by the Court in its Order of 29 July 1991 (para. 419 of the Memorial). This construction is without foundation. The statement of Professor Max Sørensen presupposes of course that the building of the bridge at the time of its construction does not violate international law i.e., respects the existing navigation of ships in the strait.

capable of moving under her own power, is provided with a derrick. Even under these circumstances, however, it remains doubtful whether it is a case of such navigational interests as are embraced by the right of innocent passage under customary international law. ...."

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598. As it appears from this analysis of the legal considerations given since 1936 to the construction of a fixed link across the Great Belt, the Government of Denmark considered itself to be on solid ground when passing the 1973 Act providing *inter alia* for a high-level bridge across the Eastern Channel of the Great Belt. The essential factors seen from the point of view of international law were *that* the bridge would cross an area lying within Denmark's territorial sea, *that* the horizontal and vertical clearances of the bridge would allow for continued navigation of the Belt as in the past, *that* floating objects under tow do not have to be taken into account in constructing the bridge.

599. It is to be noted that in planning a *high-level* bridge, mention has never been made, neither in the Governmental Reports (1960 and 1968) nor in the Acts passed (1973 and 1987) of any possibility of inserting an opening in the bridge. The Reports and the Acts have been published and thus made accessible to any Government concerned. All drawings of plans for a high-level bridge across the Eastern Channel show a bridge without an opening part (Figure 1). Thus, there is no basis for assuming that a bridge-opening was contemplated. If that had been the case, the limitation in height would have ceased to have any importance. Indeed, the whole purpose of a *high-level* bridge is to avoid the need for an opening.

600. It is further to be noted that floating objects such as jack-ups and semi-submersibles have, when occasionally passing the Danish straits, always been under tow or transported on heavy-lift ships and are expected to continue to be so. Such structures cannot,

therefore, claim to be navigating the Danish straits as ships enjoying the right of innocent passage.

601. As shown in this Chapter it has continuously been the opinion of successive Danish Governments that the Fixed Link across the Great Belt as planned and currently under construction respects the interests of the international community, which furthermore has been kept fully informed about Denmark's plans.

602. The extensive Danish deliberations given to the Great Belt Project seen from the point of view of international law have for obvious reasons centred around the right of passage of existing ships. Finland claims that this right extends *inter alia* to oil rigs, special ships, and reasonably foreseeable ships. In the view of the Government of Denmark this claim is not warranted as will be explained in the following Chapter.

## CHAPTER III.

## SHIPS IN INTERNATIONAL LAW

### A. MODUs Compared to Ships

603. Offshore drilling is an industrial activity which has developed relatively recently as an extension of exploration for and exploitation of hydrocarbons on land. The machinery used for offshore drilling is basically the same as that used on land except that it is installed on platforms, and in a few cases on ships, as described in Part I, Chapter V, B.

604. The origin of the present dispute between Finland and Denmark stems from a differing interpretation of the term "ship" in the relevant rules of international law governing the right of passage through the Danish straits. Finland maintains that all mobile offshore drilling units (MODUs) have the right of unimpeded passage while Denmark has consistently taken the position that this right is limited to ships in the traditional understanding of this term.

605. As pointed out in the Memorial (para. 444) there is no generally accepted definition of the term "ship" for either international law or municipal law purposes. In the words of one of the authorities on international law "..... (t)he term "ship" is used with different meanings in different contexts depending on the purpose and may be inclusive or exclusive of objects from one context to another...".[82]

606. In the conventional understanding the term, "ship" is characterized by certain features, among them a hollow structure, a capacity to navigate independently, and an appearance that corresponds to the usual idea of what a ship should look like. Other features of importance are that its purpose should be to transport

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[82] D.P. O'Connell, *The International Law of the Sea*, Vol. II, 1984, pp. 747-748.

persons or goods and that it should move with frequency. MODUs do not correspond to these criteria with the possible exception of drill ships although their purpose is not the same as that of conventional ships. This understanding indeed appears to be shared by Finland in so far as the Finnish submission makes a distinction between an existing right of passage through the Great Belt applicable "to all ships" and the same right to be *extended* to MODUs, other special ships and reasonably foreseeable ships (para. 560 (a) and (b) of the Memorial).

607. The understanding of the concept "ship" is treated by a leading Scandinavian expert on maritime law, Professor Sjur Brækhus in an article in the Norwegian periodical MARIUS No. 3, Oslo, September 1975, (Annex 74). In this article Professor Brækhus debates *inter alia* the question of whether drilling platforms can be considered ships. He points out that movable platforms without their own machinery for propulsion (jack-ups) cannot be regarded as ships. The case of movable platforms with their own machinery for propulsion (semi-submersibles) may raise some doubt, but Professor Brækhus reaches the conclusion that semi-submersibles cannot be considered ships. He points to the fact that their movements are of very minor importance compared to the time they spend at their main function which is carried out while firmly anchored. Moreover, many of the rules which apply to ships are not applicable to semi-submersibles.

608. In contrast to platforms Professor Brækhus concludes this part of his article by pointing out that drill ships should be considered ships in a legal context.

609. The uncertainty as to the legal treatment of MODUs is the background for the work which has been initiated by the Comité Maritime International (CMI), a non-governmental organization whose object is to contribute to the unification of maritime and commercial law. As appears from Annex 34 to the Memorial, CMI adopted a Draft Convention on Offshore Mobile Craft at its conference in Rio de Janeiro in 1977. The object of this Draft

Convention is to ensure that a number of international conventions enumerated in Articles 2 - 7 which apply to ships should also be applicable to offshore craft "to which they would not otherwise apply".

610. Article 8, second paragraph, in the Draft Convention expressly reserves the right of a State when enacting legislation to exclude craft which are not vessels from the application of such new legislation. As appears from Appendix 1 to Annex 34, page 168, of the Memorial, many States find it unacceptable to undertake restrictions in their future legislation by compelling them to treat ships and offshore craft identically. A proposal to this effect was rejected by the CMI.

611. The basic difference between drilling platforms and ships has also given rise to Article 9 of the Draft Convention, which deals with limits of liability for platforms. The problem is that, because of their shape, platforms are difficult to measure for tonnage under the rules used for ships, which basically measure the cubic feet of closed compartments. Applied to platforms this method results in too low a tonnage compared to the value of drilling units. In consequence, a fixed tonnage on platforms for limitation purposes has been proposed in Article 9, it being understood that such tonnage shall be substantially higher than that which would result from the ordinary measurement.

612. The differing view on how to treat MODUs is summed up by the sub-committee chairman of the CMI, Mr. Frode Ringdal, in his introductory report to the Legal Committee of IMCO (IMO) (Annex 36, appendix 1 to the Memorial, page 167), in the following words:

> "In many countries some or all of these craft are held to be ships and are treated legally as such. But as they frequently lack the ship shape and other ship characteristics - some times being self-propelled, at other times not - many states

hold them not to be ships. In such case there are normally no rules governing their maritime activity."

613. The necessity to distinguish between ships on one hand and offshore units on the other is confirmed by the practice of the Committee of Lloyd's Register of Shipping. Lloyd's Register maintains separate registers for ships and for offshore units (Annex 75).

614. This distinction has also been accepted by the International Maritime Organization (IMO) in its resolution A.550(13) of 17 November 1983 concerning Apportionment of Expenses Among Member States (Annex 76). According to this resolution expenses are divided among members and associate members on a dual basis: each member shall contribute a basic assessment in accordance with the percentage of its normal contribution to the United Nations; an additional assessment is determined by its gross register tonnage as shown in the latest edition of Lloyd's Register of Shipping. As stated above this Register does not include offshore units.

615. Considerable effort is made in the Memorial (paras. 445 - 477) to show that the definition of "ship" in a number of international conventions includes MODUs. The lack of a generally applicable definition has led to the practice that many conventions dealing with maritime matters define the scope of the kind of craft which are covered by the convention in question. These definitions vary from case to case, sometimes including certain kind of craft or installations, at other times excluding them or not specifying them. Moreover, such conventions invariably state that their provisions should be understood "for the purposes of this Convention" or "for the purposes of these Rules" thus limiting the extent of the definition to its application within the range of each convention. Consequently no conclusions or analogies can or should be drawn from these definitions as to the scope of the term "ship" used in other conventions.

616. To take but a few examples of the conventions cited in the Memorial, reference is made to paragraph 445 concerning The Convention for the Unification of Certain Rules relating to Bills of Lading for the Carriage of Goods by Sea, 1924, which stipulates:

> "ship" means any vessel used for the carriage of goods by sea".

617. Obviously MODUs would not be covered by this definition as they are not intended for the carriage of goods by sea but for drilling for hydrocarbons in the seabed.

618. In paragraph 459 of the Memorial the definition of "ship" in the 1986 UN Convention on the Conditions for Registration of Ships is quoted. Article 2 states that:

> "ship" means any self-propelled seagoing vessel used in international seaborne trade for the transport of goods, passengers or both with the exception of vessels of less than 500 gross registered tons".

619. This definition, which contains some of the essential elements of the normal description of "ship", does not include MODUs which are not used for the transport of goods or passengers.

620. In paragraph 460 of the Memorial it is mentioned that "perhaps the treaty definition most relevant to the present case is that given in the Regulations attached to the 1972 convention on the International Regulations for Preventing Collisions at Sea". Rule 3 of these Regulations state that:

> "For the purposes of these Rules except where the context otherwise requires (a) the word "vessel" includes every description of water craft, including non-displacement craft and seaplanes, used or capable of being used as a means of transportation on water".

621. As mentioned in paragraph 615 above this definition is typical for specialized conventions in limiting its definition to "the purposes of these rules" and no general conclusions can be drawn from it. The *ad hoc* character of the definition is further highlighted by the fact that the definition includes seaplanes which surely do not fall within the normal understanding of the term "vessel" or "ship".

622. Several conventions concerning oil pollution include in their definition of the term "ship" fixed platforms which cannot under any circumstances be regarded as ships. This kind of expedient definition is found *inter alia* in the 1972 Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, Article 19, and the 1973 International Convention for the Prevention of Pollution from Ships, Article 2 (paras. 456 and 457 of the Memorial). Both conventions expressly state that their definitions should be understood as being for the purpose of the particular Convention.

623. The same kind of *ad hoc* solution is found in the "Agreement between the Government of the Kingdom of Denmark and the Government of the German Democratic Republic concerning Salvage Operations in the Internal Waters and Territorial Seas of the Kingdom of Denmark and the German Democratic Republic" referred to in paragraph 464 of the Memorial. Article 1 of the Agreement states:

> "For the purposes of this Agreement: 1. "Ship" means a vessel of any type which is used at sea, including hydrofoil boats, air cushion vehicles, submarines, floating vessels and fixed and floating platforms".

624. Once again this definition is only meant to be valid "for the purposes of this Agreement" which is to ensure that salvage operations can be carried out in relation to a wide range of craft and installations including fixed platforms.

625. The question of the definition of ships in national legislation is treated in the Memorial from paragraph 479 to paragraph 503. In the same way as in the foregoing paragraphs concerning treaty practice, an attempt is made to draw conclusions from national legislation. This attempt is bound to fail because national legislation, like treaty practice, varies from case to case and is determined by the purpose to be obtained by the individual type of legislation. A case in point, paragraph 486 of the Memorial, states that some pieces of national legislation refer to a "vessel capable to navigate" while others cover vessels "used in navigation". The memorandum goes on to point out quite rightly that this distinction is not maintained with any consistency in municipal law. The same could be said for decisions by municipal courts which may find it expedient to regard a wide range of craft, including MODUs, as ships for the purpose of one piece of legislation and not for another.

626. Paragraph 491 of the Memorial mentions that it is occasionally required that a vessel must be engaged in transport of goods and persons. It goes on to state that such legislation should not be taken to indicate that there is a general criterion requiring vessels to be used for transport of goods or persons in order to qualify as ships. As a matter of fact this is exactly one of the main criteria used to define a ship, see paragraphs 618 - 619 above. To be on the safe side, the Memorial states that MODUs would in any event fulfil this criterion because they are designed to transport drill rigs, accommodation units or other offshore equipment from place to place.

627. This characterization of MODUs bears no relation to the activity described by the words "transport of goods and persons". This criterion describes the normal activity of a ship plying its trade from harbour to harbour, not of platforms being conveyed to a site in the sea where they will remain stationary for any length of time for the purpose of drilling in the seabed.

628. In paragraph 492 of the Memorial the arbitrary nature of national legislation is once more apparent. Some countries consider means of propulsion as a necessary criterion for the definition of "ship" while the legislation of other countries does not.

629. The special characteristics of MODUs appear from Annex 36 to the Memorial from which the following instances are selected:

630. The Australian Maritime Safety Authority notes in a reply of 15 October 1991 that advance notification for passage of MODUs in Australian waters is required in certain circumstances, and that conditions may be imposed on a tow or a tow may be prohibited altogether for safety reasons.

631. From a reply of 18 October 1991 by the Ministry of Defence of Argentina it appears that MODUs are not included in the concept mentioned in the law of navigation and thus do not possess the juridical nature of vessels, nor can the law applied to vessels be applied in respect of them. A law granting MODUs a treatment *sui generis* is now being considered by the Congress.

632. Chile reports in a reply of 15 October 1991 from the Director General of the Sea Territory and the Merchant Navy that arrivals of MODUs in the Magellan Strait have to be notified at least 24 hours before the anticipated time of arrival. The use of pilotage is compulsory in the eastern sector of the strait.

633. In a reply of 30 October 1991 the Port of Singapore Authority states that MODUs with restricted ability to manoeuvre will have to comply with the International Collisions Regulation.

634. Malaysia reports height restrictions for MODUs in Penang Harbour in a letter of 15 October 1991 from the Secretary General of Transport.

## B. Drilling Platforms

635. As pointed out in the foregoing, the natural understanding of the term "ship" excludes drilling platforms. Neither their construction nor their use is comparable to the normal shape and purpose of ships.

636. It is the Danish contention that only ships and not drilling platforms enjoy the right of unimpeded passage through the Danish straits. This position was made clear already in the Danish Circular Note of 12 May 1977 (Annex 12) which announced the construction of a bridge across the Great Belt with an elevation of 62 metres. In this Note it was stated that "(a)ccording to all available data the high-level bridge across the Eastern Channel will not in any way restrict passage through the Great Belt by existing ships which have navigated these waters in the past". The use of the word "ships" in this Note was quite deliberate.

637. Finland, which did not react to this Note, had no grounds to infer that there would be an opening in the bridge to allow for the passage of drilling platforms with a height exceeding 62 metres. This would have been an unprecedented feature in a high-level bridge, and plans of the bridge published at the time clearly showed that it was not so. As already indicated, the whole purpose of a high-level bridge is to avoid the need for an opening.

638. The Finnish platforms which had passed through the Danish straits until 1977 had all been towed, and none had navigated independently under their own power, and in Denmark's view, none of them qualified as "ships".

639. This continues to be the case for all drilling platforms, including semi-submersibles, because of their restricted ability to manoeuvre. The normal procedure for tows passing through the Danish straits is to use tugs with two pilots (Annex 32 to the Memorial). No Finnish built drill ships had passed through the Danish straits at the time of the notification of the planned bridge.

640. The Note of 12 May 1977 did not imply that Denmark objects to the passage of drilling platforms through its straits. But Denmark cannot accept that there is an unlimited right of passage for all craft irrespective of height that would prevent the construction of a bridge across the Great Belt as long as the passage of normal shipping is not interfered with.

641. Jack-ups and semi-submersibles which cannot themselves claim unimpeded passage through the Danish straits do not obtain this right by carriage on heavy-lift transport ships. Commercial ships normally have a right of passage with their cargo, but common sense dictates that there are limits to the dimension of the cargo as far as the relevant rules of unimpeded passage are concerned. The right of innocent passage is directed towards the navigating units i.e., the ships, not their cargo. The construction of a bridge would not be possible if one had to take into account any oversized cargo which ships might conceivably be able to carry. Platforms with towers or legs extending 150 metres or more exceed the limits of what may reasonably qualify as cargo attached to ships.

642. Heavy-lift ships are only used for transportation over very long distances, for instance across the Atlantic or Pacific Oceans. Operational costs for heavy-lift ships are up to 10 times higher than for ordinary towing which has normally been used for transport of MODUs through the Great Belt. Only two examples of the use of heavy-lift ships are known for the transport of jack-ups through the Great Belt. In both cases the jack-ups could have been towed by tug boats through the Sound before being placed on heavy-lift ships.

643. All crane ships can pass the East Bridge with the exception of one vessel which has never used the Danish straits, (Report from Lloyd's Register of Shipping, Annex 35). As it appears from this Report, three semi-submersible crane vessels are too high to pass the East Bridge and have too deep a draught to pass through the Sound. However, they cannot be regarded as ships and therefore cannot claim unimpeded passage.

### C. Ships with Special Characteristics

644. Drill ships must be considered as ships with special characteristics due to their particular purpose and equipment with a drilling tower.

645. In exercising the option granted in Article 1, Section 1 of the 1857 Treaty, which refers to passage through the Sound *or* the Belts, Denmark must be entitled to require that drill ships shall exercise their right of passage through the Sound and not through the Great Belt. The right of the coastal State to direct ships with special characteristics to use such sea lanes and traffic separation schemes as it may designate is recognized in Article 22 of the Law of the Sea Convention of 1982. This Article is considered a codification of customary law and used by coastal States to ensure regulations dictated by common sense and navigational necessity.

646. All drill ships are able to pass through the Sound via the Drogden Channel. Seventy-five per cent. of the drill ships can pass fully loaded, while the remaining can pass partly loaded which is quite normal for a drill ship in transit (Report from Lloyd's Register of Shipping, Annex 35). The three drill ships which were built by *Rauma-Repola Offshore Oy* in 1981/82 all had a transit draught of 7.3 metres and may thus pass through the Sound.

## D. Applicable Conventions

647. In the preceding sections, A and B, the Finnish attempt to equate MODUs with ships has been countered on its own premises, which are primarily centred around international conventions and national legislation that has nothing to do with the passage of ships through a State's territorial sea, including international straits. Surprisingly enough, Finland does not enter into a discussion on the applicable and relevant conventions dealing with the right of innocent passage.

648. As pointed out in greater detail in the following Chapter, the rules of international law applicable to the right of innocent passage through the Danish straits are the Treaty of 1857 for the Redemption of the Sound Dues and the 1958 Convention on the Territorial Sea and the Contiguous Zone.

649. The 1857 Treaty for the Redemption of the Sound Dues is only applicable to *merchant ships* and cannot be interpreted to encompass MODUs, which are not merchant ships and did not exist at the time of the adoption of the Treaty.

650. The 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone, Article 16, paragraph 4, states that there shall be no suspension of the innocent passage of foreign *ships* through straits used for international navigation between one part of the high seas and another part of the high seas or the territorial sea of a foreign State. There is nothing in the Convention or its *travaux préparatoires* to indicate that the term "ship" should cover anything else than ships proper. The term cannot therefore be extended to cover special constructions such as MODUs.

651. This opinion has on several occasions been expressed by Professor Max Sørensen in connection with the long standing plans to build bridges across the Danish straits, see the preceding Chapter II. As Head of the Danish Delegation to the First United Nations Conference on the Law of the Sea in 1958 Professor

Sørensen had a close knowledge of the preparations for and the proceedings in that Conference. It was his opinion that there is nothing to indicate that the relevant provisions in the Convention on the Territorial Sea and Contiguous Zone of 1958 intended to change the rule of customary law which allows for passage of conventional ships only.

652. The Swedish Government has taken the same position as Denmark in relation to its right to construct a bridge in Swedish territorial waters in the Sound. This was confirmed recently in a statement by the Swedish delegate, Mr. Löfmarck, at the meeting held in the IMO on 10 June 1991 (Annex 29 to the Memorial, p. 128). The Swedish delegate stated on this occasion that the building of a bridge in the Swedish part of the Sound of a height of some 50 metres would not allow for passage of platforms but that it was considered that the bridge would not be an impediment to navigation either today or in the future. As mentioned in paragraph 359 the fixed link across the Sound on the Danish side will consist of an immersed tunnel under the Drogden Channel leaving the existing conditions of navigation unaffected.

653. As demonstrated in Chapter IV.A.3, Part III of the 1982 Convention on the Law of the Sea concerning Straits Used for International Navigation does not apply to the Danish straits in virtue of Article 35 of the Convention. It is noticeable, however, that in describing the right of transit passage in Part III, Section 2, the Convention uses the term "ships" unchanged from Article 16, paragraph 4 of the 1958 Geneva Convention. Although offshore constructions had come into general use at the time of the negotiations in the Third United Nations Conference on the Law of the Sea, no attempt was made to specify the kind of craft encompassed by Part III, Section 2.

654. This is in contrast to Article 1 of the 1982 Convention entitled "use of terms and scope" paragraph (5) (a) which states that "dumping" means:

"(i) any deliberate disposal of wastes or other matter from vessels, aircraft, platforms or other man-made structures at Sea;".

This paragraph shows that the Convention makes a clear distinction between "vessels" (which are synonymous with "ships") and platforms and other man-made structures. There is no foundation for interpreting the term "ship" in Part III, Section 2, on transit passage as encompassing drilling platforms. Article 1 of the Convention points to the opposite conclusion.

### E. Future Ships

655. The Finnish contention that the right of passage through the Great Belt extends to reasonably foreseeable ships presupposes that there is an unlimited and elastic right of passage through the Danish straits. No rule of international law obliges Denmark to do more than to provide for the unhampered passage of ships as in the past. Once the bridge is in place, future ship constructions will take account of the height of the bridge.

656. It should also be considered that in assessing whether a given strait is an international strait or not, an important element of time is involved. This means that the strait in question must be used for international navigation at the time of the assessment. This requirement can only be fulfilled by ships *in existence* when the assessment is made. It follows that in planning for the Fixed Link across the Great Belt, Denmark only has to take into account ships that actually use or have used the Great Belt up to the time when the Fixed Link was decided upon.

657. In point of fact all the ships which have used the Danish straits up till now will be able to do so in the future. Based on existing designs for future ships, even reasonably foreseeable ships will be able to pass under the East Bridge.

## CHAPTER IV.

## CURRENT LEGAL CONSIDERATIONS

### A. Treaty Law and Customary International Law

658. In its Memorial, paragraph 376, Finland contends *that* its alleged right of passage is based on rules which are "both conventional and customary in nature", *that* none of these rules is such as to exclude, or to exclude wholly, the applicability of the others, and *that* each of them - even taken separately - is sufficient to uphold the Finnish claim. The conventional rules are, according to paragraph 378, the 1857 Copenhagen Treaty on the Redemption of the Sound Dues, the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone and to some extent the 1982 United Nations Convention on the Law of the Sea.

659. Denmark does not deny that the rules governing the right of passage through the Danish straits are "both conventional and customary in nature".

660. Denmark submits, however, that no absolute, unlimited and elastic right of passage through the Danish straits in general or through the Great Belt in particular as claimed by Finland can be deduced from any of the rules upon which the Finnish claim is based or from any other rule of international law.

#### 1. The 1857 Treaties for the Redemption of the Sound Dues

661. Basically, as reflected in Article 35 (c) of the 1982 Convention on the Law of the Sea, the Danish straits are governed by treaties of long standing. These are the multilateral Treaty for the Redemption of the Sound Dues between Denmark and *Austria, Belgium, France, Great Britain, Hanover, The Hansa Towns, Mecklenburg-Schwerin, the Netherlands, Oldenburg, Prussia, Russia*

and *Sweden/Norway*, signed at Copenhagen on 14 March 1857, and the bilateral treaties for the same purpose between Denmark and the *United States*, signed at Washington D.C., 11 April 1857, *Sardinia*, signed at Berlin, 25 November 1857, *Sicily*, signed at Copenhagen, 2 January 1858, *Toscana*, signed at Paris, 22 April 1858, *Venezuela*, signed at Caracas, 18 July 1858, *Portugal*, signed at Lisbon, 12 November 1858, *Turkey*, signed at Constantinople, 15 March 1859, *Spain*, signed at Madrid, 25 February 1860, respectively[83].

*General Analysis of the 1857 Treaties*

662. The Treaty of 14 March 1857 for the Redemption of the Sound Dues states in the Preamble that its object and purpose is "to facilitate and to increase the commercial and maritime relations at present existing between the contracting States or through them ... by the complete and permanent removal of all dues levied on foreign ships and their cargoes on their passage through the Sound and the Belts, ...".

663. Article 1 of the Treaty contains the stipulations concerning the abolition of the Sound and Belt dues. By Section 1, the King of Denmark undertakes not to levy any customs or tonnage dues, light or lighthouse dues, moorage dues or any other ship or cargo dues whatsoever on ships passing through the Belts or the Sound on their way from the North Sea to the Baltic or vice versa, whether they only sail through Danish waters or whether the conditions of the sea or commercial operations render it necessary for them to drop anchor or enter port. Section 1 goes on to stipulate that no ship in the future shall under any pretext whatsoever be subjected to any detention or hindrance in its passage of the Sound or the Belts, and *in the same sentence* it is provided that the King of Denmark expressly reserves himself the right by special agreements, not implying visit or detention, to regulate customs treatment of ships of States which are not Parties to the Treaty. By

[83] *Danske Traktater efter 1800.*

Section 2, the King of Denmark furthermore undertakes not to try to reintroduce indirectly the abolished dues by means of new or increased port taxes or the like.

664. By Article 2 of the Copenhagen Treaty, the King of Denmark undertakes a number of *other* responsibilities distinct from the abolition of the Sound and Belt dues. Sections 1 and 2 deal with the conservation and maintenance as hitherto of the lighting and marking without charge of the waters of the Kattegat, the Sound and the Belts. Section 3 stipulates the duty in the future to watch over as hitherto the pilotage service, the utilization of which in the Kattegat, the Sound and the Belts shall be voluntary and carried out in return for a moderate charge, to be the same for Danish and foreign ships. Section 4 deals with the right of foreign contractors to station tugs in the Sound and the Belts. Section 5 and 6 deal with transit dues on transport by roads or canals between the North Sea and the Baltic. Finally, Section 7 deals with special arrangements concerning maintenance of lighting in the Sound and the Kattegat to be entered into with Sweden/Norway.

665. Article 3 requires that Articles 1 and 2 shall enter into force on 1 April 1857.

666. Articles 4, 5 and 6 deal with the payment of compensation to the King of Denmark for the sacrifices imposed by the stipulations of the Treaty.

667. Articles 7 and 8 contain stipulations concerning the execution of the Treaty in accordance with the constitutional rules of the Contracting Parties and concerning ratification of the Treaty.

668. The separate bilateral treaties on the Redemption of the Sound Dues follow the same scheme as the Copenhagen Treaty, though to some extent phrased differently compared with that Treaty. The bilateral treaties also provide for the abolition of the Sound Dues in return for a compensation to Denmark once and for all, and furthermore stipulate a special régime in the Sound and the

Belts similar to Article 2 of the Copenhagen Treaty. Nothing suggests an interpretation of the bilateral treaties different from the interpretation of the Copenhagen Treaty.

669. For a detailed description of the origin and history of the Sound Dues, levied by Denmark on foreign vessels passing through the Sound and the Belts, reference is made to the treatise by Dr. Erik Brüel, *International Straits* and to paragraphs 554 - 560 of this Counter-Memorial.

670. By the Copenhagen Treaty of 14 March 1857 and the bilateral treaties for the same purpose, the special rights exercised by Denmark were terminated, the result being that the legal position of the Danish straits thereafter was regulated by the special régime stipulated in Article 2 of the Copenhagen Treaty, supplemented by the customary rules of international law related to the Danish straits.

671. This interpretation, which is supported by Danish as well as foreign writers, follows naturally from the wording as well as from the whole structure of the Copenhagen Treaty[84]. Article 1 of the Treaty deals exclusively with the abolition of the dues on merchant ships and their cargoes, while Article 2 deals with other responsibilities undertaken by Denmark, distinct from the abolition of the dues. The sentence stipulating that "no ship shall henceforth, under any pretext whatsoever, be subjected in its passage of the Sound or the Belts to any detention or hindrance" originates from a draft submitted by France, Great Britain and Prussia to the Conference on the Redemption of the Sound Dues on 3 February 1857. It was not included in the original Danish proposal of 2 February 1856. The object and purpose of including the said stipulation, which was accepted by Denmark, was to obtain "abandonment of status quo, not only in relation to ships from States which, like the Contracting States, undertake to pay a

[84] See Erik Brüel, *International Straits*, Vol. II, p. 40 note 3.

compensation but also in relation to ships from States which do not undertake any obligation whatsoever, and which might never persuade themselves to do so." (Statement by the Danish Commissioner during the meeting of the Conference on 16 February 1857, included in the Protocol of that meeting - *Historisk Tidsskrift* 3.1, Copenhagen (1858 - 1859), pp. 526 - 527, Annex 77). The sentence is placed in the middle of Article 1, between the stipulation concerning the abolition of the dues and the stipulation containing the reservation of the right to regulate by special agreements customs treatment of ships belonging to States which are not Parties to the Treaty. Thus, there can be no doubt that this particular sentence, relating in its origin only to fiscal matters, cannot provide the basis for an interpretation designed to limit the sovereign rights of Denmark over the Danish straits in any way that does not follow from the general rules of international law concerning innocent passage through the territorial sea as later codified in the 1958 Convention on the Territorial Sea and the Contiguous Zone, supplemented by the special régime contained in the rules of Article 2 of the Copenhagen Treaty.

*Scope of the Treaties*

672. The geographical scope of the right of passage for foreign ships established by the 1857 Treaties is described as a right of passage for ships passing "through the Sound or the Belts".

673. It should be noted that Chapter I in Part III of the Memorial deals with the rules governing the right of passage "through the Great Belt". As elsewhere in the Memorial, Finland attempts to focus exclusively on the Great Belt instead of on the whole integrated system of the Danish straits.

674. The Danish straits, in respect of which there is a right of passage, are not constituted by the Great Belt only. Geographically, it is an integrated system of straits as the Memorial recognizes at page 12, paragraphs 5 and 6.

675. The Copenhagen Treaty for the Redemption of the Sound Dues provides in its Article 1, Section 1, that Denmark undertakes not to levy any charge whatsoever on ships "passing through the Belts or the Sound", adding the provision upon which Finland fundamentally relies:

> "No vessel shall henceforth, under any pretext whatsoever, be subjected in its passage of the Sound or the Belts to any detention or hindrance".

676. These provisions confirm, from a legal point of view, the geographical facts: the international Danish straits in respect of which there is a right of passage are not constituted only by the Great Belt.

677. It follows that the obligation of allowing passage, undertaken by Denmark is fulfilled equally whenever the passage may be safely completed through the Sound. In other terms, there is a right of passage through the Danish straits; there is not an exclusive and specific right of passage through the Great Belt.

678. The use of the alternative "or" in the Copenhagen Treaty, in relation to passage through the Belts or the Sound signifies that the obligation may be fulfilled by using one or the other seaways, and that there is a choice.

679. As stated in paragraph 645 the established customary law in general, codified in Article 22 of the 1982 Convention on the Law of the Sea, and that established for the Danish straits in particular authorizes, in very special circumstances, the territorial State to make that choice as to which of the seaways shall be used.

680. It results from the definition in the Preamble of the object and purpose of the Copenhagen Treaty that its provisions concern merchant ships. This follows directly from the vocabulary used in the Preamble - "foreign ships and their cargoes" - and the reference to "commercial relations".

681. Oil rigs and drilling platforms were of course unknown at the time when the Treaty was concluded. They cannot be described as merchant ships or ships in the traditional sense of that term as shown in Chapter III. Consequently, such structures fall outside the scope of the Treaty.

682. As far as ships in the traditional understanding of this term are concerned, the Parties to the Copenhagen Treaty as well as the international community at large have acquiesced in a vertical clearance of 65 metres as being sufficient for the exercise of their right of passage, thus denying the existence of an absolute, unlimited, and expanding right of passage.

*Finland as a Third Party Beneficiary to the Copenhagen Treaty*

683. Denmark agrees that the rights provided in the Copenhagen Treaty were accorded to ships of all States, not only to ships belonging to the Parties of the Treaty, but also to ships from third States.

684. Finland is not a Party to the Copenhagen Treaty. It may, however, invoke the Treaty as a third party beneficiary in accordance with Article 36 of the Vienna Convention on the Law of Treaties. This legal situation as a third party has been conceded by Finland in its Memorial, paragraphs 380 - 381.

685. As a third party beneficiary Finland cannot, however, claim or exercise more extensive rights than those enjoyed and claimed by the actual Parties to the Copenhagen Treaty.

686. The Parties to the Treaty have acquiesced in a vertical clearance of 65 metres as being sufficient for the exercise of their right of passage through the Danish territorial sea, thus denying the existence of an absolute, unlimited and expanding or elastic right of passage and accepting Denmark's right to build a bridge with such a clearance. Finland cannot invoke additional rights or a more favourable treatment than that agreed by the actual Parties to the

Copenhagen Treaty. There cannot be two different measures for the right of passage; an elastic or expanding one for Finland, up to 180 metres high or beyond, and another for the Parties, 65 metres high.

687. The above consideration is based on the letter and the spirit of Article 36 of the Vienna Convention on the Law of Treaties, an article which deals with "treaties providing for rights for third States".

688. According to paragraph 1 of this Article "a right arises for a third State from a provision of a treaty if the Parties to the treaty intend the provision to accord *that right*" to the third State (Italics added). This is the case here; the Parties of the Copenhagen Treaty intended to confer a right of passage in favour, not just of themselves, but of all States. Now, what is granted to the third State is exactly the same right, "that right" obtained by the Parties, in this case a right of passage with a vertical clearance of 65 metres.

689. The subordination of the right of the third State to the actual conditions obtained by the Parties is confirmed by paragraph 2 of Article 36 of the Convention on the Law of Treaties, which provides that "a State exercising a right in accordance with paragraph 1 shall comply with the conditions for its exercise provided for in the treaty, or *established in conformity with the treaty*" (Italics added).

690. Once Denmark has established as the condition for vertical clearance a height of 65 metres, and the existence of a bridge with such clearance has been agreed, expressly or tacitly, by the Parties to the Treaty, then such a regulation becomes binding on Finland, as a condition "established in conformity with the Treaty", and not as an unlawful restriction of its rights.

691. Finland has opposed this line of reasoning saying in the Memorial, paragraph 415, that the Parties to the Copenhagen Treaty cannot by tacit consent revoke a third party beneficiary's treaty rights under Article 37 (2) of the Convention.

692. The answer to this observation is that the right of passage derived from the Treaty was not revoked by the Parties when they accepted a 65 metres clearance; they merely agreed that their right of passage could be satisfactorily exercised within that limit.

693. It follows that the Parties did not deprive Finland of the rights it derives from the treaty stipulations in its favour resulting from the Copenhagen Treaty. But Finland cannot claim or exercise its rights in a more extensive way than is exercised by the actual Parties. There cannot be two different measures for the right of passage.

694. Finland must adjust its conduct and the exercise of its rights to the conditions agreed upon by the Parties, which have denied the existence of an absolute, unlimited, and expanding or elastic right of passage and acquiesced in the existence of a bridge with a height of 65 metres.

*The Copenhagen Treaty does not Create an "Objective Régime"*

695. Finland further contends in paragraph 382 of the Memorial that "the Copenhagen Treaty creates an objective régime, in other words a set of rules which may be invoked by all interested states, independently of their being parties to the treaty.". In support of this contention, reference is made to a legal opinion from 1920 concerning the demilitarization of the *Åland Islands* by the International Committee of Jurists established in 1920 by the Council of the League of Nations.

696. The idea that in contemporary international law a so-called "objective régime" or an "international settlement" such as the demilitarization of the *Åland Islands* may be imposed on non-parties by means of a treaty between certain States only was rejected by the International Law Commission during the preparation of the Convention on the Law of Treaties. The Special Rapporteur, Sir Humphrey Waldock, had proposed to incorporate

that concept, although with hesitation, but a large majority of the members rejected the proposal.

697. The main objection was that the concept of "objective régimes" was regarded as an approval of *de facto* legislation or of government of the world by the Great Powers, for objective régimes had in fact been used in the past to impose certain conditions on small States at a time when the sovereign equality of States had not been much respected. Also, from a juridical point of view, it was considered incorrect to say that treaties could, of themselves, create an objective régime, (Deliberations of the International Law Commission, *I.L.C. Yearbook* 1964, Vol. I, pp. 96 - 109, reproduced in Annex 78).

698. The International Law Commission decided, in the light of the discussion, and at the initiative of the Special Rapporteur, to withdraw the proposed article and agreed that such matters as right of passage over maritime waterways or rivers were to be covered by the article concerning treaty stipulations in favour of third States. (*I.L.C. Yearbook 1964, Vol. I*, p. 105, para. 68).

699. This decision was confirmed by the Vienna Conference on the Law of Treaties, which rejected an amendment introduced by Professor Castrén of Finland. The main reason invoked for rejecting the Finnish amendment and supporting the Commission's proposal was that Article 36 on treaties providing for rights of third States, was the legal basis for treaty provisions establishing freedom of navigation and right of passage for all states through maritime waterways. (*United Nations Conference on the Law of Treaties, First Session, Official Records, 35th Meeting of the Committee of the Whole*, paras. 13 - 43, especially paras 20, 21, 38, 39, 43. - Annex 79).

## 2. THE 1958 GENEVA CONVENTION ON THE TERRITORIAL SEA AND THE CONTIGUOUS ZONE

700. The Geneva Convention of 1958 on the Territorial Sea and the Contiguous Zone is the second applicable treaty, having been ratified by both Parties in 1965 (Finland) and in 1968 (Denmark).

701. The provisions in Section III of the 1958 Convention on the right of innocent passage apply, like the provisions of the 1857 Copenhagen Treaty, to ships of all States. There is no foundation for interpreting the term "ship" in Section III as applying to other structures than ships in the traditional sense of the term.

702. Furthermore, the Convention defines "passage" as "navigation ..." (Article 14, paragraph 2) and "ordinary navigation ..." (Article 14, paragraph 3). In Article 16, paragraph 4 on straits the expression "international navigation ..." is used. The same terminology is used in the 1982 Convention, Articles 18, paragraphs 1 - 2 and Article 34.

703. No generally accepted definition exists in international law of the term "navigation".

704. Common sense would suggest that what is envisaged is *normal traffic,* regularly moving both ways, as a means of communication in the interest of international relations, first and foremost trade relations, between various parts of the world; whereas the occasional movement of floating objects such as MODUs cannot be covered by that concept. Movements of that kind do not represent a case of such navigational interests as are embraced by the right of innocent passage (Max Sørensen in *Brückenbau und Durchfahrten in Meerengen*, as referred to in para. 597 above). This is particularly true with regard to the Finnish drilling platforms which have all passed through the Danish straits under tow or on heavy-lift ships.

705. The 1958 Geneva Convention contains only one single provision specifically dealing with the régime of straits, namely Article 16, paragraph 4, forbidding suspension of the right of innocent passage of foreign ships in straits used for international navigation. This provision, a codification of customary law as defined by the International Court of Justice in the *Corfu Channel* case, is, however, not relevant to the present dispute.

706. With that exception, the 1958 Convention does not deal directly with passage of ships through straits. This matter is governed by the same rules which are applicable to innocent passage of ships through the territorial sea. Thus, passage through straits is a derivative and incidental corollary of innocent passage through the territorial sea. It is significant, too, that the only reference to international straits is to be found in a convention dealing with the territorial sea and as part of the article regulating innocent passage in the territorial sea, whereas no reference to international straits exists in the 1958 Convention on the High Seas.

707. Finland wants to avoid the 1958 Convention, arguing at paragraph 395 of the Memorial that "present day customary law on passage through straits does not correspond any longer with the prescriptions of the Geneva Convention", meaning that it was applied in practice more liberally than the letter of the Convention provides for.

708. However, the record of the discussions at the United Nations Sea-Bed Committee, established in 1968 by General Assembly Resolutions 2467 A, B, C, and D (XXIII) and at the Third United Nations Conference on the Law of the Sea shows exactly the opposite. The practice of States had been so restrictive, consisting of a strict application by the coastal States of the provisions of the 1958 Convention, that the maritime States succeeded in correcting and improving in the 1982 Convention what they described as the ambiguities and inadequacies of the régime of passage through straits. To that effect, the consensus reached at the Conference incorporated, in Part III of the 1982 Convention, a

novel right of transit passage through straits based on the principle of freedom of navigation.

*Differences between the 1958 Geneva Convention and the 1982 Convention on the Law of the Sea*

709. Leaving aside the question of the passage of aircraft, warships and submarines, *other differences between the 1958 text and the 1982 Convention* reveal the deficiencies and practices that UNCLOS III wanted to correct and improve in the application of the 1958 régime.

710. One of these corrections relates to the scope of the regulatory competence enjoyed by the coastal State. According to the Geneva Convention the bordering State has under Article 14, paragraph 5 and Article 17 a broad prescriptive power to issue laws and regulations defining what constitutes innocent passage, without the need to refer only to certain subject matters. Thus, the regulatory competence of the coastal State includes, under the 1958 Convention, the power of fixing reasonable clearance limits.

711. A comparison of the scope of this regulatory competence shows that in 1982, for the transit passage, the prescriptive power of the coastal State has been drastically reduced.

712. For instance, Article 42, paragraph 1 of the 1982 Convention enumerates exhaustively the subject-matters which may be regulated by the littoral State; safety of navigation, fisheries, control of pollution, control of customs and immigration. And also, in respect of certain subjects, the coastal State is obliged to give effect to applicable international regulations, and in some cases these regulations have to be agreed by the competent international organization.

713. The regulations as to innocent passage that have been issued by Denmark in the exercise of its regulatory power are undoubtedly restrictive but fully reasonable (paras. 568 - 578

above). They take into account the introduction, in respect of innocent passage, of the new notion of "special characteristics of particular ships" as a ground justifying a non-discriminatory but different treatment for certain categories of ships. This notion, introduced in Article 22 in Part II of the 1982 Convention, is designed to take due account of scientific and technological developments which have occurred in recent years. These changes required the adoption of appropriate rules to regulate navigation of certain ships with special characteristics.

714. Among these are mentioned in Article 22 in Part II of the 1982 Convention tankers, nuclear powered ships and ships carrying nuclear or other inherently dangerous or noxious substances[85].

715. The reference to ships of special characteristics envisages the applicability of differential treatment to certain categories of ships. Drill ships and heavy-lift ships with their extraordinary cargo (jack-ups) would naturally fall within this category of ships. Obviously, the Finnish oil rigs and similar artifacts, even if they were considered ships, would fall within the *non-exhaustive* category of ships with special characteristics, requiring special treatment for their passage. In this connection it should be recalled that drilling platforms have never been navigating the Danish straits. They are towed through or transported on heavy-lift ships.

716. Exceptional structures and platforms cannot have all obstacles up to 180 metres high magically disappear at their passage. If their builders want them to pass through the Great Belt,

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[85] Tankers were not expressly mentioned in the original draft considered by the Sea-Bed Committee in 1973 (Document A/AC.138/5cII/L.18). H.E. Judge Oda pointed out, however, in his comprehensive account of the work of the Sea-Bed Committee, that tankers would also fall within the category of "ships with special characteristics" *(The Law of the Sea in Our Time, II, The United Nations Seabed Committee,* 1968-1973, Sijthoff, Leiden 1977, p. 247).

they should erect their additional gear, towers, columns, jack-up legs, etc. after having passed under the bridge.

717. Another important difference between the 1958 Convention and the 1982 Convention is that in the Geneva Convention the coastal State has direct enforcement powers over foreign ships and as Article 16, paragraph 1 says, it "may take the necessary steps in its territorial sea to prevent passage that is not innocent".

718. This provision was described at the Conference by the representative of the United States, J.N. Moore as "(m)ost indicative of an intent to give coastal States certain rights to take unilateral action to prevent non-innocent passage" (J.N. Moore, *The Régime of Straits and UNCLOS,* American Journal of International Law, 1980, p. 102).

719. This direct enforcement power over a foreign ship has disappeared in the 1982 régime of transit passage, where, as described by Professor Caminos ".... ships in transit cannot be seized, refused passage, subjected to inspection or any other type of control that would impair transit passage. The only exception ... occurs when a violation ... causes or threatens major damage to the marine environment of the Strait. Then, and only then, may the State bordering the strait take "appropriate enforcement measures" (under Article 233) ...". (H. Caminos, *The Legal Régime of Straits in the 1982 United Nations Convention on the Law of the Sea,* Académie de Droit International, Recueil des Cours 1987 V, p. 169).

720. Still another difference between the 1958 and the 1982 régime is that the 1982 Convention in Part III recognized the right of transit passage "to all ships and aircraft", see Article 38.

721. It has been said that this granting clause in the 1982 Convention, "... perhaps the most important phrase from the standpoint of the user State ... makes no distinction between

categories of ships and aircraft, their nationality or ownership, their status as warship or merchant ship, or civil or State aircraft. The right of transit passage [in Part III], therefore, applies literally to all types of ships and aircraft, regardless of their individual characteristics ...". (Caminos *op. cit.*, p. 144).

722. All this cannot be said of the 1958 Convention. This fundamental difference is reflected in the terminology employed; innocent passage for "ships of all States" is the phrase used in the 1958 Convention, Article 14, paragraph 1. In the 1982 Convention, the transit passage is for "all ships and aircraft".

723. This striking difference as to the placement of the word "all" in the definition of the right of passage between the two Conventions, has a significance of its own, in the carefully considered terminology of both Conventions. It signifies that, for the application of Article 38 of the 1982 Convention, among the various interpretations given to the word "ships" in different treaties, a wide interpretation of that term is to be applied, since the text refers to "all ships".

724. On the contrary, Article 14 of the 1958 Convention refers merely to "ships of all States". Consequently, a restrictive interpretation of that term "ship" is called for, taking into account not only the different terminology utilized, but also the principle that restrictions to the sovereignty of the State over its own territory, submerged or not, cannot be presumed and must be strictly interpreted.

725. The corollary to extract from the comparative study of the 1958 and the 1982 Conventions is that the discussions and conclusions at UNCLOS III revealed certain deficiencies of the 1958 Convention, demonstrating that from the point of view of the freedom of the high seas it was an instrument from which only an imperfect and not an absolute right could at best be inferred. States, in particular the maritime powers, were legitimately concerned with the possibility that coastal States could deny "innocent passage"

through straits used for international navigation based on matters such as flag, cargo or destination of the vessels.

## 3. The invocation of Part III of the 1982 United Nations Convention on the Law of the Sea

726. Finland, instead of taking into account the restrictions as to the right of passage resulting from the applicable 1958 Convention, invokes the broader provisions of Part III of the 1982 Convention, as reflecting "the present trend in customary law" which "can serve as an interpretation of the Geneva Convention" (para. 409 of the Memorial). In that way Finland picks and chooses which it considers the most favourable provisions of the 1857, 1958 and 1982 Conventions in order to build its absolute, unlimited, and expanding right, ignoring the limitations resulting from the applicable treaties.

727. In paragraphs 394 and 395 of the Memorial, Finland invokes Part III of the 1982 Convention on transit passage, as a trend in international practice towards the establishment of a customary rule on passage making such passage independent of the notion of "innocent passage".

728. It is true that the new régime of transit in Part III is much more liberal than the one governed by the provisions applicable to the Danish straits.

729. But Part III is not applicable to the Danish straits nor to the Finnish *Åland Straits*. Thus, Article 35 (c) of the 1982 Convention provides, under the title "Scope of this Part" that "Nothing in this Part affects:

> (c) the legal régime in straits in which passage is regulated in whole or in part by long-standing

international conventions in force specifically relating to such straits.".

730. Professor Caminos, who was an attentive witness at UNCLOS III, as Deputy Director of its Secretariat, has written, in an interpretation of this provision, that:

> "Examples of conventional régimes thought to qualify under Article 35 (c) when the 1982 Convention was adopted were the Turkish Straits, (Dardanelles and Bosphorus), the Danish Straits, the Strait of Magellan and the Åland Straits". (Caminos *op.cit.*, pp. 130 - 131)[86].

731. Finland played, together with Denmark, a protagonist role in originating Article 35 (c), which excludes the right of transit passage from both Finnish and Danish strait régimes.

732. On 22 July 1974, Denmark and Finland co-sponsored an amendment to a United Kingdom proposal which was the basic text of what later became Part III of the Convention.

733. The joint Danish-Finnish amendment, reads as follows:

...

> "3. This article applies to any strait or other stretch of water which is more than six miles wide between the baselines, whatever its geographical name ....

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[86] Similar views are expressed by J.N. Moore, in *American Journal of International Law*, 1980, p. 114; by Dupuy-Vignes, in their *Traité du Nouveau Droit de la Mer*, Treves, pp. 790-791; by S.N. Nandan and D.H. Anderson in *A Commentary on Part III of the United Nations Convention on the Law of the Sea*, published in *British Year Book of International Law*, 1989, p. 176; by J.A. Yturriaga, in *Straits used for International Navigation*, Nijhoff, 1991, p. 292.

5. The provisions of Chapter II, Part III apply to straits used for international navigation not wider than six miles between the baselines".

... (*UNCLOS III, Official Records*, Volume III, p. 191. DOCUMENT A.Conf. 62/C.2/L.15).

734. The joint amendment had the effect of excluding from the novel concept of transit passage the Danish and the Finnish straits and in that respect it was the original source of Article 35 (c).

735. In submitting the joint amendment, the representative of Denmark pointed out, that his delegation failed to see the need to change the rules of innocent passage through straits less than 6 miles wide, where the right of free passage and overflight had never existed. The problem could be solved, in the opinion of the Danish delegate "by maintaining the existing rules of innocent passage through international straits of less than 6 miles and establishing a new régime of "transit passage" through new wide straits, which would emerge as a result of establishing a maximum of 12 miles for the territorial sea". (*UNCLOS III, Official Records*, Volume II, Second Committee, 11th meeting, p. 124, Annex 80).

736. A similar view was expressed by the representative of Finland, who noted "that none of the texts submitted so far made an express exception for circumstances where the breadth of the territorial sea in a strait connecting two parts of the high seas would remain unchanged, in spite of the new provisions, and where the prerequisites for transit passage would thus also remain unchanged. Such was the case especially with regard to straits within or leading to enclosed sea areas, and being either completely within the territory of a coastal State, or passing through the territorial seas of States which already bordered on each other. If no special rules had been agreed upon, the provisions concerning innocent passage were applicable and could be applied also in the future. The situation had not changed and, therefore, there was no reason to require the

opening of such a strait to free passage .... Neither fishing nor other peaceful uses of the high seas required the proposed change in the *status quo* of straits traditionally used for international navigation based on the rules of innocent passage ....", (*UNCLOS III, Official Records*, Volume II, Second Committee, 11th meeting, pp. 124 - 125, Annex 81).

737. The joint amendment also demonstrates that in 1974, one year after the adoption of the 1973 Act on the Construction of a Bridge across the Great Belt providing for a high-level bridge spanning the Eastern Channel. Finland was perfectly satisfied with the *status quo* and the existing régime applied in the Danish straits and did not feel the necessity of extending to them the more liberal régime of transit passage.

738. In the light of the history of Article 35 (c), to invoke now Part III of the 1982 Convention, as Finland has done, is an admission that the two applicable instruments, the 1857 Treaty and the 1958 Geneva Convention, are not sufficient to support the absolute right of passage claimed by Finland. The explanation of Finland's making this argument is that Finland realizes that only the broader and more liberal transit passage régime of Part III would give legal support to the absolute, unlimited, and elastic right it is claiming before the Court. And even in taking that view, Finland may well be mistaken.

739. Nevertheless, Finland, in the Memorial paragraph 398 observes that Article 35 (c) is not in force yet. But Part III is not in force either, and they are interrelated provisions; if Part III has repercussions for this case, the express exclusion in Article 35 (c) must also have repercussions on the applicable law.

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740. Around the conventional right of passage for merchant ships established by the 1857 Treaty, the legal régime of the Danish straits has been completed by norms of customary law, codified in

the 1958 Convention, such as the concept of innocent passage, and also by norms of an exclusive customary nature, such as those concerning the passage of warships. Account must be taken also of the practice, now well established, which allows coastal States to prescribe sea lanes for ships of special characteristics and traffic separation schemes in order to ensure the safety of the navigation. This practice has been codified by Article 22 in Part II of the 1982 Convention on the Law of the Sea.

741. Yet, Finland contends that the provisions of the Treaty of 1857 have now become rules of customary law (para. 392 of the Memorial) and on this ground it denies the applicability of Article 36 of the Vienna Convention on the Law of Treaties concerning stipulations in favour of third States.

742. It is true that, as indicated in the Memorial, paragraph 711, there have been customary law accretions to the legal régime of the Danish straits, but these accretions have not displaced the provisions of the 1857 Treaty; the legal régime as a whole has been built upon the core of legal norms having a conventional and not a customary origin. If any doubt remains, it is dissipated by Article 35 (c) of the 1982 Law of the Sea Convention, initiated by a joint amendment submitted by Denmark and Finland. This Article recognizes conclusively that the legal régime of the Danish straits is *"regulated in whole or in part by longstanding international conventions in force specifically relating to such straits."* It follows that the Danish submission developed above (paras. 683 - 694) concerning the applicability of Article 36 of the Vienna Convention on the Law of Treaties continues to be valid.

### 4. Has new Customary International Law Developed?

743. Having established that no general or specific rule of conventional international law prohibits Denmark in the exercise of its sovereign rights from constructing a fixed link across the Great Belt which allows for innocent passage for ships of all nations navigating those straits at a given time in the past, the question may

nevertheless be raised, as indeed Finland has done in paragraphs 377 and 401 of the Memorial, whether a rule of customary international law has come into being attributing a legal right of MODUs to be towed through the Danish straits. In the view of the Government of Denmark such a rule cannot be said to have materialized.

744. In particular, it should be stressed that the régime of transit passage regulated in Part III of the 1982 Convention cannot be applicable in the present case as emerging customary law, substituting the régime of the 1958 Convention.

745. Such a substitution can only take place in accordance with Article 311, paragraph 1 of the 1982 Convention which provides that "(t)his Convention shall prevail, *as between States Parties*, over the Geneva Conventions on the Law of the Sea of 29 April 1958" (Italics added). But neither Denmark nor Finland is a Party to the 1982 Convention.

746. Furthermore, the insertion of Article 35 (c), supported and proposed by Denmark and Finland, (paras. 731 - 739), demonstrates the *opinio juris* of the Conference, in exempting the Danish and the Finnish straits and other historic straits from the legal régime in Part III of the 1982 Convention. This result rules out completely the possibility of the emergence of Part III as customary law, in respect of the excluded straits.

747. It is correct, as stated in the Memorial, *inter alia* in paragraphs 427 and 508, that some MODUs have been passing without permission or hindrance through the Danish straits during the past years.

748. The number of such cases has been very limited, so limited that it cannot possibly form the basis for claiming that a legal norm is established through such limited practice obliging Denmark to permit forever an unlimited right of passage for such structures whatever their height or size. Moreover, the factual

conditions are different. In the absence of a bridge there was no reason for Denmark to object to the passage of the MODUs. But this did not mean that Denmark conceded that they used the strait *as of right*, and even less did it mean that, under quite different factual conditions - i.e., the existence of a bridge - Finland would have the right to demand that they still use the strait, as of right and without any restriction.

749. Thus the material element of custom necessary to prove the emergence of a right of passage for these structures through the Danish straits based on practice is entirely insufficient.

750. It is by mere tolerance from the Danish side that such structures have occasionally traversed the Great Belt through the past years and not because Denmark had the *opinio juris* that there was a duty to allow their unimpeded passage. There was at the time simply no actual interest or immediate risk of danger which would make it necessary for Denmark not to allow the MODUs in question to pass through the Danish straits. The fact that Denmark in 1973 adopted a law providing for a bridge with a 62 metres clearance also makes it abundantly clear that there was no *opinio juris* to require Denmark to tolerate the passage through the Danish straits of floating structures exceeding that height.

751. In the *North Sea Continental Shelf* cases, 1969, the Court pronounced itself in paragraphs 71 - 78 on the difficulties of demonstrating the existence of a customary rule based on State practice, stating *inter alia* that "... this result is not lightly to be regarded as having been attained." *(I.C.J. Reports 1969*, p. 41, para. 71). This *dictum* related to the rejection of an argument forwarded by Denmark and the Netherlands to the effect that a rule of customary law had come into being on the basis of a State practice consisting of some 15 cases of delimitation of the continental shelf on the basis of the equidistance principle.

752. In the same connection the Court made the following observations concerning the difficulty of demonstrating the existence of an *opinio juris sive necessitatis:*

> "The essential point in this connection - and it seems necessary to stress it - is that even if these instances of action by non-parties to the Convention were much more numerous than they in fact are, they would not, even in the aggregate, suffice in themselves to constitute the *opinio juris*; - for, in order to achieve this result, two conditions must be fulfilled. Not only must the acts concerned amount to a settled practice, but they must also be such, or be carried out in such a way, as to be evidence of a belief that this practice is rendered obligatory by the existence of a rule of law requiring it. The need for such a belief, i.e., the existence of a subjective element, is implicit in the very notion of the *opinio juris sive necessitatis.* The States concerned must therefore feel that they are conforming to what amounts to a legal obligation. The frequency, or even habitual character of the acts is not in itself enough. There are many international acts, e.g., in the field of ceremonial and protocol, which are performed almost invariably, but which are motivated only by considerations of courtesy, convenience or tradition, and not by any sense of legal duty. (*I.C.J. Reports 1969*, p. 44, para. 77).

753. As to the material evidence for the existence of a customary right of passage for MODUs through the Great Belt, there are not sufficient grounds for such a conclusion. It is based on the passage of less than one Finnish MODU per year on average since 1974 and only one MODU since 1985. Chile reports the passage of one MODU per year on average through its straits (Annex 36 to the Memorial, p. 182). Turkey reports that no MODUs have transited the Turkish Straits during the past 20 years (Annex 36 to the Memorial, p. 188). Several other countries for which no statistics are available report height restrictions or consider MODUs craft *sui generis* or with limited manoeuvrability

or require advance notice for passage, see paragraphs 630 - 634 above. There is nothing in this material that would point to a generally accepted custom.

754. On the contrary, bridges with clearances similar to that of the East Bridge across the Great Belt have been built across other international straits e.g., in Turkey. No objections having been voiced by the rest of the international community against the construction of these bridges, the *opinio juris* among States is likely to be that contemporary international law on the subject supports the conduct of Turkey and Denmark and thus accepts the right of States in the exercise of their national sovereignty to build bridges across their territorial sea in international straits as long as existing shipping traffic at the time of the construction is not hampered.

755. This legal position is further confirmed by the fact that during the Third United Nations Law of the Sea Conference an attempt was made at the early stage of the Conference to have inserted into the future text the following provision: "The coastal State shall not place in the straits any installations which could interfere with or hinder the transit of ships". The proposal was contained in Doc. A/CONF.62/C.2/L.11 of 17 July 1974, Art. 1, 2 (f) sponsored by Bulgaria, Czechoslovakia, German Democratic Republic, Poland, Ukrainian Soviet Socialist Republic and Union of Soviet Socialist Republics.

756. The Danish representative stated his opposition to this proposal in an intervention in the 11th meeting of the Second Committee of the Conference on 22 July 1974, see the Summary Records of the meeting, Volume II, page 124, paragraph 12, which reads as follows:

> "With reference to document A/CONF.62/C.2/L.11, which stated in article 1, paragraph 2 (f) that the "coastal State shall not place in the straits any installations which could interfere with or hinder the transit of ships", he pointed out that Denmark had geographically the character of an island

country, the main island being separated from the other main parts of the country, as well as from neighbouring Sweden, by narrow international straits. It was of vital social and economic importance for Denmark and its neighbouring countries to be able to build bridges or tunnels across those straits, and the Danish Parliament had already taken a decision in principle to that effect. Existing plans took full account of the obligation not to hamper the free passage of ships in transit. His delegation took it that the reference in article 1, paragraph 2 (f) to the placement of installations in straits did not modify the right of coastal States to build traffic links of the nature referred to, on the understanding that transit through the straits would be able to continue unhampered."

757. The views expressed were in no way opposed by the Finnish delegation to the Conference or by any other delegation, and the proposal failed to gain the support of the Conference.

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758. This survey of conventional and customary international law governing the aspect of passage through the Danish straits, including the Great Belt, shows that no general or specific rule of international law exists which would prohibit Denmark from constructing the planned high-level bridge across the Eastern Channel of the Great Belt in the exercise of its national sovereignty.

759. This result is supported by the following further considerations of law concerning the principles of good faith and equity.

## B. Equitable Principles

### 1. The Principle of Good Faith

760. Good faith is a basic concept of law closely related to the conduct of the parties. The concept figures prominently in the Vienna Convention on the Law of Treaties (1969) where it forms part of the most fundamental principle of any legal order: *Pacta sunt servanda*. In the words of Article 26 of the Convention: "Every treaty in force is binding upon the parties to it and must be performed by them in good faith". Likewise, a treaty shall be interpreted in good faith, see Article 31(1) of the Convention.

761. The concept of good faith implies that a State must act in a manner that takes into account the reasonable expectations and needs of other States in the international community. A State must be able to rely upon the conduct of other States and to expect that its own declarations are taken seriously and given legal effect according to their contents.

762. In the *Nuclear Tests* cases the Court gave added emphasis to the principle of good faith in interstate relations in particular as far as unilateral declarations are concerned. The Court stated the following:

> "One of the basic principles governing the creation and performance of legal obligations, whatever their source, is the principle of good faith. Trust and confidence are inherent in international co-operation, in particular in an age when this co-operation in many fields is becoming increasingly essential. Just as the very rule of *pacta sunt servanda* in the law of treaties is based on good faith, so also is the binding character of an international obligation assumed by unilateral declaration. Thus interested States may take cognizance of unilateral declarations and place confidence in them, and are entitled to require that the

obligation thus created be respected." (*I.C.J. Reports 1974*, p. 268, para. 46 and p. 473, para. 49.)

763. The notifications from the Danish Ministry of Foreign Affairs concerning the Great Belt Project sent to the Heads of all Diplomatic Missions accredited to Denmark in 1977, 1987 and 1989 - *in particular the Circular Note of 12 May 1977* - are indeed unilateral declarations of which States must take cognizance and in which they may place confidence. Likewise, the Government of Denmark has been fully entitled to trust that these notifications would receive serious attention by the States concerned, and that Denmark could safely rely on the reactions of other States to the notifications when continuing to carry out the Great Belt Project.

764. The Government of Denmark wishes to underline how succeeding Danish Governments have been acting in good faith in regard to Denmark's plans for the construction of a permanent link between the two main parts of the Realm divided by the Great Belt. Finland cannot claim to have acted in the same spirit.

765. As stated in Chapter II of Part II, great care was taken by succeeding Danish Governments to investigate the problems arising under international law in connection with the bridge project and to assess the international legal obligations incumbent on Denmark in this respect.

766. The conclusions reached were given maximum publicity by publication of the Reports from the Commission on a Great Belt Bridge (Report 237/1960 and 508/1968) and the enactment of specific legislation in this respect in 1961, 1973, and 1987. Furthermore specific notifications concerning the Great Belt Project were sent to the Heads of all Diplomatic Missions accredited to Denmark in 1977, 1987 and 1989.

767. In the course of this process, which has been described in detail above in Chapter II of Part I, no objections to the Project were made by foreign States until Finland in June 1990 notified the

Danish Government of its demand for a free passage through the Great Belt for Finnish MODUs. In particular, it should be stressed that for twelve years (1977 - 1989), Denmark had no sign from Finland that it could not accept a high-level bridge with a vertical clearance of 62 metres as notified in 1977. On the contrary, as late as in the spring of 1989 the President of Finland, could tell the Danish Ambassador that no bilateral problems existed between the two countries (para. 514). This statement came at a time when the execution of the entire Great Belt Project had been in progress for almost 2 years. The Danish Government had therefore no reason to believe that the Project would not be acceptable to the international community at large, including the Baltic States which have a particular interest in the passage through the Danish straits to the North Sea. Consequently, the Government of Denmark proceeded in good faith to carry out the Project, which is an integrated whole, engaging in very considerable economic investments as described earlier in paragraphs 114 - 120 and 138 - 140.

768. Finland obviously has an interest in the conditions of passage through the Danish straits. Finland has also had every opportunity through its Embassy in Copenhagen and through numerous formal and informal contacts between the Nordic Governments throughout the year to be fully aware of the precise development in the plans and the actual stage of the construction works for the building of a bridge across the Great Belt. Denmark, therefore, for its part has had every reason to rely upon this conduct of Finland as an acceptance of the bridge project as planned i.e., as a fixed construction with vertical clearance of around 65 metres allowing for all existing ships using the Great Belt to pass under the bridge, whereas no opening part of the bridge in the form of, for instance, a swing-bridge has ever been foreseen.

769. In this context it should be recalled that the plan to construct a *high-level bridge* across the Eastern Channel of the Great Belt originated in the Commission Report of 1960 and has never since been abandoned. The plan was made into law in 1973, and the preparatory work was initiated the same year. In 1977, the

time was ripe to announce the exact terms for the construction of the high-level bridge across the Eastern Channel of the Great Belt. This was done on *12 May 1977* by a Circular Note to all Heads of Mission accredited to Denmark. Though Denmark of course considered the bridge project as such to be legal under international law - otherwise the Act of 1973 would be in violation of international law, a point of view which has never been expressed by any foreign State - it could be that the vertical clearance of 62 metres as proposed would not meet the navigational needs of all States. Denmark might not have been aware of the existence of certain specific ships. Accordingly, the 1977 Circular Note - the first of its kind in international relations - was designed to act as an assurance to Denmark that the vertical clearance of 62 metres would meet with no objection from foreign States. It was thus a crucial, written communication by Denmark to the international community - following upon the announcement of the Project during the early days of UNCLOS III in 1974 (para. 756). As stated in the Note, the actual construction of the bridge was scheduled to begin in 1978 or 1979 and to go on for about eight years, and when construction had been completed the traffic separation scheme for the area would be adjusted. The announcement of the height of the bridge (62 metres) and the information about the time when actual construction would start (1978 or 1979) could leave no Government in doubt about the seriousness and actuality of the Project.

770. Within a year, the Note had been answered by several States with only one State, the then Soviet Union, asking the minimum height of the bridge to be set at 65 metres. Denmark was ready to carry out the Project - when a change of Government took place in the summer of 1978 with the formation of a Government consisting of the Social Democratic Party and its long time opponent the Liberal Party. This led to a postponement of the whole Great Belt project for a period of approximately 4 - 5 years. That political development came as a surprise to everybody and was certainly not to be foreseen in 1977 and the first half of 1978.

771. Against this background, which is well-known to Finland, it is remarkable to read the Finnish account in paragraph 542 of the Memorial which finishes: "...In all the circumstances and in the light of the long history of abortive plans to construct a bridge over the Great Belt, it is hardly surprising that Finland should not have reacted immediately to the Danish Circular Note of 12 May, 1977. ...". It is indeed surprising that Finland should not have reacted if the high-level Bridge across the Eastern Channel created serious problems for Finnish ships, as it is now claimed. The truth is, of course, that the bridge project did not cause such problems as has been demonstrated in Chapter IV of Part I. As far as the Finnish MODUs are concerned, which at that time had occasionally passed through the Danish straits, the lack of any Finnish reaction also in that respect points decisively towards an attitude on the part of Finland similar to the view of Denmark and other States according to which MODUs could not qualify as ships having a *right* under contemporary international law to innocent passage through the Danish straits.

772. Finland asserts that the announced vertical clearance of 62 metres did not give rise to any major concern because existing ships were assured of being able to navigate the Great Belt "as in the past", meaning that Finnish drill ships, semi-submersibles and jack-ups which had already passed through the Great Belt would be able to continue to do so (para. 543 of the Memorial). That assertion violates the very logic of announcing the height of the bridge, in so far as no bridge could be built with a height of 100 metres and more. Already in the 1973 Act it is stated in Section 2 that the design of the high-level bridge shall allow for the necessary navigational clearance i.e., the width and the height of the bridge. It is indeed these two "clearances" which have always been at the centre of the international legal considerations in constructing bridges across waterways with a heavy traffic of ships. To assume that the words "as in the past" contains the possibility of inserting an opening in the bridge would amount to nothing but wishful thinking as no evidence exists in the long history of planning the Fixed Link across the Great Belt to support such an assumption. An

opening had never been contemplated as evidenced by Figure 1 and would run counter to the whole scheme for a high-level bridge.

773. Finland further explains why the Government of Finland did not respond to the 1977 Note (para. 544 of the Memorial). The express and simple announcement given by the Danish Minister for Public Works in the Danish Parliament on 17 October 1978 (one-and-a-half year after the diplomatic notification) in which the Minister stressed that the Great Belt Project was merely postponed, is construed by Finland in the following way:

> "...However one interprets the terms in which the project was finally suspended in 1978, there is no doubt that it was put "into the refrigerator" for an indefinite period, even if it was expected or anticipated on the Danish side that work on it might be resumed within a measurable period. Accordingly, as from 30 August, 1978, at the latest, the then Great Belt project, to which reference was made in the Danish Circular Note of 12 May, 1977, was effectively suspended for an undefined period. It follows that any immediate threat to Finnish rights and interests was (at least temporarily) removed as from the summer of 1978, so that no reaction from Finland to the Danish Circular Note of 12 May, 1977, was or could have been called for as from the date of the announcement of the suspension. ...".

774. This represents a clear example of interpretation through hindsight and contrary to the facts as they existed at the time as explained in detail in Chapter II of Part I. On the other hand, it reveals a close interest in Danish politics, especially as regards the Great Belt Project. The more surprising is it then to read in paragraphs 553 - 554 of the Memorial that Finland had no idea that the tunnel alternative had been abandoned in the fall of 1988, and that it was not until receipt of the third Danish Circular Note of 24 October 1989 that Finland and other States were informed of the high-level bridge of 65 metres. These assertions are in direct contrast to the fact that Finland, for the first time, reacted to the

Bridge Project in July 1989 i.e., *before* the Circular Note of October 1989. That Finland did not consider the 1989 Circular Note as the crucial communication can be seen from the wording of the Finnish reaction. Thus, the letter of *18 July 1989* addressed to the Danish Maritime Authority asks for possible alternative routes for Finnish drilling platforms with a full height of 150 metres (Annex 60). This approach from Finland could not be understood by Denmark to represent a request for adjusting the height of the bridge because no bridge could be built with a vertical clearance of 150 metres. According to the letter, *the Finnish industry had followed the planning of a fixed bridge across the Great Belt*, so it was only natural to read the letter as a request from Finland about how best to adapt to the fixed bridge. In the Danish reply of 29 August 1989 (Annex 61) reference is made to the Sound as an alternative route for offshore craft, as well as to the possibility of modifying these high structures for transportation.

775. Finally, Finland explains its passivity regarding the Danish notifications in 1977 and 1987 by suggesting that the *decision* to build the Bridge was not taken until 1988 (para. 554 of the Memorial). However, the decision to build the bridge was taken in 1973 (Act No. 414 of 13 June 1973) and specific notification of the height of the bridge was issued in 1977. The Circular Note of 12 May 1977 is the decisive communication. That this is so, is shown by the fact that States did react to the 1977 Note realizing that now was the time to express any views concerning the proposed design of the bridge. The 1977 Note offered a clear and detailed basis on which to react. That the year 1977 was seen by the international community as the relevant time for considering the matter is moreover borne out by the fact that no State reacted to the Circular Notes of 1987 and 1989 - except for Finland's objection conveyed to the Government of Denmark in June 1990, more than twelve years after the *principal* question of the bridge project was settled.

776. What remained to be decided in 1989 was the exact height of the bridge. That question had to be settled at a time when

there was clarity on the design of the bridge, but before the projected work had so far progressed as to render alterations that might prove desirable, no longer possible. In the view of the Government of Denmark, that point in time had been reached already in May 1977 and, having received the comments from the States concerned, Denmark was ready in the summer of 1978 to send out notice for tender - a step which *par hazard* was never taken.

777. When the 1973 Act was reactivated in 1987 through a new act, the Government of Denmark believed itself to be assured that the bridge project would not meet with any objections from foreign States, as long as the vertical clearance would be set around 65 metres. Nevertheless, Circular Notes of 30 June 1987 and 24 October 1989 were sent to all Heads of Mission Accredited to Denmark in order that they be kept informed about the progress of work.

778. Based on the 1987 Act notice for tender by restricted procedure for the East Bridge was given on 15 July 1989. At that point in time the Government of Denmark, through the Report from *Det Norske Veritas*, as well as through the reactions received up to that time from foreign States had satisfied itself, that a vertical clearance of 65 metres would meet the requirements of existing traffic of ships through the Great Belt. Up to the date of 15 July 1989 Denmark had thus used its best endeavours as a strait State to accommodate the need for passage through the Great Belt for ships of all nations.

779. In the interest of promoting stability in international relations based on the general concepts of good faith and equity, international law must require *protest* or some other form of action on the part of States in order to preserve their legal positions, in cases where they believe that their legal rights may be infringed by acts performed or contemplated by another State, and where the possibility of expressing such a protest in fact existed - see the *dictum* in the *Lotus* case concerning the lack of protest in

circumstances where according to international practice it would be a normal procedure to react if a State believed that a violation of international law had taken place (*P.C.I.J. 1927 Series A, No. 10*, p. 29).

780. The duty for a State to protest, or to proceed to some other form of action, in order to protect a legal right arises at the time when the State by notification or otherwise has come into possession of knowledge of such acts performed or contemplated by another State which are presumed to infringe upon its own legal rights.

781. The importance of the duty to protest or take other similar action, and to do so within a reasonable time, is increasingly dependent upon the relationship between the interests at stake for either side[87]. Where a State is likely to proceed, in the absence of protest, with a course of conduct involving great cost, and vital national interests, another Party is expected to protest promptly if its interests are likely to be adversely affected and are of comparable importance. The political history of the Danish straits as well as the Turkish and the Japanese Straits - as described in the treatise on International Straits by Dr. Erik Brüel - is clear evidence of this fact. The States concerned have always been ready to lodge a protest immediately with the strait State, whenever prospects of a closure of the strait were present[88]. If, on the other hand, the passage in principle has been kept free, the States concerned have acquiesced in even detailed regulations of the traffic, including

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[87] In Article 13 of the "Draft articles on the law of the non-navigational uses of international watercourses" (*Report of the International Law Commission, 43th Session* (46 - Suppl. No. 10)) the period of reply to an obligatory notification from a watercourse State of planned measures which may have an appreciable adverse effect upon other watercourse States, is fixed to six months only. According to Article 16 of the Draft the notifying State may proceed with the implementation of the planned measures, if it receives no communication from a notified State to the effect that the planned measures are inconsistent with the pertinent rules on utilization of international watercourses.

[88] See Erik Brüel, *International Straits*, pp 101-108, Vol. I.

fixed bridges, such as the Bosphorus bridges, as long as the existing regular traffic of ships has not been excluded.

782. In the present case there can be no doubt that, since the adoption of the 1973 Act on the Construction of a Bridge across the Great Belt, States have been fully aware of the paramount importance of that project, including the high-level bridge across the Eastern Channel, to the Danish society and of the importance for the Government of Denmark to be informed well in advance of the execution of the Project of any reactions on the part of other States. The huge dimension of the Project as well as its integrated character makes it a duty for States concerned to react - if necessary - without undue delay. There has been ample time to react.

783. Thus, timely protest is an essential element in the administration of international straits. Consequently, the fact that no State protested against the Danish Bridge Project within a reasonable time, just as no State has ever protested against the existence of the Bosphorus bridges, could not be interpreted by the Government of Denmark otherwise than as an acquiescence in the construction of the bridge.

784. The lack of protest by the international community to the Great Belt Bridge Project goes as far back as the beginning of UNCLOS III where a proposal which would prohibit States from placing in Straits any installations which would interfere with or hinder the transit of ships was defeated (paras. 755 - 757). The Danish opposition to this proposal was presented to the Conference in an intervention on 22 July 1974 in which it was stated *inter alia* that it was of vital social and economic importance for Denmark and its neighbouring countries to be able to build bridges or tunnels across the Danish straits, and that the Danish Parliament had already taken a decision in principle to that effect. The intervention met with no objection from any State.

785. The line of reasoning developed above concerning the principle of good faith does not necessarily mean that all other States favour the implementation of the Bridge Project, but it must mean that all States, with the exception of Finland, have accepted that priority in law be given to the building of the high-level bridge in the exercise of national sovereignty and out of concern for the further development of the Danish society and the well-being of its population.

## 2. The Principle of Equity

786. The present case demonstrates, in the view of the Government of Denmark, a conflict between two interests governed by two sets of legal rights. First and foremost, there are the sovereign rights of a coastal State over its territorial sea, including international straits. Second, there is the general right of innocent passage through the territorial sea, appertaining to ships of all Nations, with the particular safeguards attaching to that right of passage in an international strait. The balancing of these two sets of rights, which are lacking in precision, must in any given case be subject to a legal evaluation taking into account the principle of equity recognised by international law as an expression of justice and the rule of law.

787. In its Memorial (para. 420) Finland quotes a passage from Dr. Erik Brüel to the effect that Denmark cannot actively deprive the straits of their character as navigable waterways. The quotation is used in support of the following contention contained in the same paragraph:

> "While there can be no doubt that territorial sovereignty over the land whose coasts border the strait and over the waters of the strait includes the right to build a fixed link between the coasts separated by the strait, there can be no doubt either that such a right cannot be exercised in such a

way as to deprive that strait - in whole or in part - of its character as a navigable waterway. ...".

788. The interesting aspect of that proposition is Finland's recognition of the fact that Danish sovereignty provides the basis for constructing a bridge across the Great Belt as long as that construction does not deprive the strait of its navigable character. As it appears from Dr. Erik Brüel's treatise on international straits, the Danish policy towards its straits since the conclusion of the 1857 Treaty can be characterized as liberal (compared to the policy of other strait states) and far from *depriving* the Great Belt of its character as a navigable waterway the Kingdom of Denmark has endeavoured to improve the conditions for the passage of ships through the Great Belt, taking into account the changing development, in size and character, of that traffic. In particular, reference is made to the establishment in 1975 of the so-called Route T through the Great Belt (paras. 568 - 569), which has been further improved since 1975 in order to improve the safety of navigation in accordance with experience gained. The construction of the bridges and the tunnel across the Great Belt are also to be seen as an essential improvement in the safety of navigation in the Belt in so far as the *daily* transport of some 28,000 persons and 11,000 tonnes of goods carried by approximately 150 ferry crossings will from now on be separated from the north-south bound traffic of ships. The alternative, a further intensification of the ferryboat service, would make the Belt more and more complicated and dangerous to navigate.

789. Finland treats the Danish straits as waterways through which any form of passage may take place up to their natural limits. Thus, in the Memorial (para. 241) it is stated that

> "... it can now be concluded that with a future increase of ship draught into the maximum allowable Baltic draught (15 m), ships might have an air draught of about 99 m and in any case much in excess of 65 m. ..."

and in paragraph 227 it is said:

> "The possibility cannot be excluded that the consequent increases in tanker height, together with an already used transportation method (i.e. "lightening" a VLCC into Baltic draught) becomes critical if the Great Belt bridge will have a clearance of 65 metres."

790. However, neither can it be excluded that the passage of such ships or floating objects does not meet the requirement of "innocent passage" taking into account the increasing traffic in the Great Belt, in particular the east-west bound traffic, if the fixed traffic link were not established. A glance at the map of Denmark shows how narrow the Danish straits are and how vulnerable the surrounding land territory is to accidental pollution and collision disasters. The Danish straits cannot be subject to unrestricted exploitation. The well-being of the people living in the vicinity of the straits must be given due and primary consideration. In this respect the bridge solution for the Fixed Link across the Great Belt strikes an almost perfect balance between the interests of the international community, the national Danish interests, and the future safety of navigation through that strait corresponding to a norm of equity.

791. While the high-level East Bridge across the Great Belt respects the existing traffic of ships navigating that strait it is equally clear that the bridge does not and cannot respect any piece of cargo being towed or transported through the Great Belt. The rule of equity is there to adjust the obvious imbalance between the construction of the high-level bridge in the exercise of national sovereignty and the occasional transport of an outsized piece of cargo carried on a heavy-lift ship claimed to be part of the right of innocent passage. If such transports were to be respected it would spell the end of the construction of high-level bridges across waterways governed by international rules securing innocent passage or freedom of navigation through those waterways. It is impossible to plan a bridge if future cargo - like future ships - had

to be taken into account. The principle of equity redresses such a situation and secures an equitable result.

792. In order to reach an equitable result, one cannot escape a *proportionality* test of the factual circumstances of the present case. In this respect, it immediately leaps to the eye that the Fixed Link across the Great Belt will in 1997 secure an estimated *daily* transportation of some 60,000 persons and 25,000 tonnes of goods crossing the Belt and leave untouched the regular traffic of some 20,000 ships *yearly* through the Belt. Against these figures stands the passage until today of less than one Finnish offshore drilling unit a year and no actual plans for any passage in the coming years.

793. The demand by Finland for inserting an opening in the bridge - which is not feasible in particular because of the high risks involved - would in terms of costs be out of all proportion to the costs involved in completing the last section of the derrick of an offshore craft after passing under the bridge, an operation which carries no risk. Moreover, the Sound is a perfectly viable route for the passage of the Finnish MODUs.

794. In sum, the importance of the Great Belt Project to the traffic of the region completely outweighs the importance of the possible passage of a few Finnish offshore craft.

795. To advance this point of view in the discussion of the legal rules governing the present dispute is but to recognize the importance of the Court's *dictum* in its Advisory Opinion of 20 December 1980 concerning Interpretation of the Agreement of 25 March 1951 between the WHO and Egypt where it says:

> "...But a rule of international law, whether customary or conventional, does not operate in a vacuum; it operates in relation to facts and in the context of a wider framework of legal rules of which it forms only a part. Accordingly, if a question put in the hypothetical way in which it is posed in the request is to receive a pertinent and effectual reply, the

Court must first ascertain the meaning and full implications of the questions in the light of the actual framework of fact and law in which it falls for consideration. ..." (*I.C.J. Reports 1980*, p. 76, para. 10).

*

796. The Government of Denmark submits that the factual circumstances of the present case evaluated against the principles of good faith and equity support the conclusion that the construction of the high-level East Bridge across the Great Belt does not violate international law.

### C. Summary of Legal Arguments

797. The Danish legal arguments may be summarized in the following way:

(1) The fact that the Danish straits form part of Denmark's territorial sea and have done so throughout the history of the Kingdom of Denmark makes it a right of Denmark in the exercise of its national sovereignty to regulate the passage through the straits and to construct a fixed link of vital interest to the development of the Danish society, as long as such measures do not unduly interfere with the international community's right of innocent passage through the straits.

The construction of the high-level bridge across the Eastern Channel of the Great Belt with a main span of 1,624 metres and a vertical clearance of 65 metres does not interfere with the existing traffic of ships through that strait - on the contrary, the existence of the bridge will enhance the safety of navigation through the Belt by removing the steadily increasing cross ferry traffic.

(2) Floating offshore units such as jack-ups and semi-submersibles do not come within an internationally recognized concept of ships and are, therefore, not entitled, as a matter of legal right, to unimpeded passage through the Danish straits.

Furthermore, it is an established fact that these so-called MODUs have never navigated the Danish straits, like ships do, but have been towed through or transported on heavy-lift ships.

Even if these MODUs were to be considered ships Denmark is entitled, to exercise the option granted by Article 1, Section 1 of the Copenhagen Treaty of 1857, and decide to establish a traffic separation scheme according to which the drilling platforms shall exercise their right of passage through the Sound and not through the Great Belt. Furthermore the right of the coastal State to direct ships with special characteristics to use such sea lanes and traffic separation schemes as it may designate is an established customary rule codified in Article 22 of the Law of the Sea Convention of 1982.

(3) Finland has acknowledged not being a Party to the 1857 Treaty but a third party beneficiary. It follows that it cannot exercise its rights in a more extensive manner than the actual Parties, which have accepted a 65-metre clearance. Article 36, paragraph 2 of the Vienna Convention on the Law of Treaties provides that third party beneficiaries must exercise their rights in accordance with the conditions established by the Parties in conformity with the treaty.

(4) The notion of objective régimes established by treaties is an obsolete concept, rejected by contemporary international law. The legal position concerning treaties establishing a right of passage over maritime waterways is that they

constitute treaty stipulations in favour of all States, based on Article 36 of the Vienna Convention.

(5) The legal situation which has developed from the Copenhagen Treaty of 1857 is not changed by the legal régime codified in the 1958 Geneva Convention with regard to territorial waters and international straits. The principle of innocent passage is firmly established, and so also is the competence of the territorial State to administer the right of passage.

(6) The 1982 United Nations Convention on the Law of the Sea exempts expressly international straits like the Danish straits from that part of the Convention which deals with straits used for international navigation. Thus, the right of transit passage established by the 1982 Convention as a result of the fixing of the territorial sea at a maximum of 12 nautical miles does not apply to the Danish straits, which are less than 6 miles wide.

(7) No rule of customary international law has developed to allow drilling platforms an unimpeded right of passage through the Danish straits.

(8) Equitable principles such as the principle of good faith and the principle of equity support the conclusion that Denmark has not acted against international law in planning, deciding and now constructing the Fixed Link across the Great Belt. Acting within its national competence, Denmark has notified the international community several times about the Project to build *inter alia* a high-level bridge across the Great Belt. No objection has been presented to the successive Danish Governments in charge of the Project - until the

much belated Finnish diplomatic reaction on 19 June 1990, more than twelve years after the first and crucial notification was issued on 12 May 1977. Denmark has been entitled to rely on the silence of Finland in exercising its sovereign right to construct the Fixed Link across the Great Belt.

# PART III

# SUBMISSIONS

798. In the light of the facts and the law set forth above,

*May it please the Court to adjudge and declare*

(1) that the rules of international law applicable to the Danish straits do not prevent the Kingdom of Denmark from constructing the Fixed Link across the Great Belt as planned and decided, and

(2) that the Submissions by Finland cannot be sustained, and consequently should be rejected.

Copenhagen, 18 May 1992

TYGE LEHMANN PER MAGID PER FERGO

*Agents of the Government of the Kingdom of Denmark*

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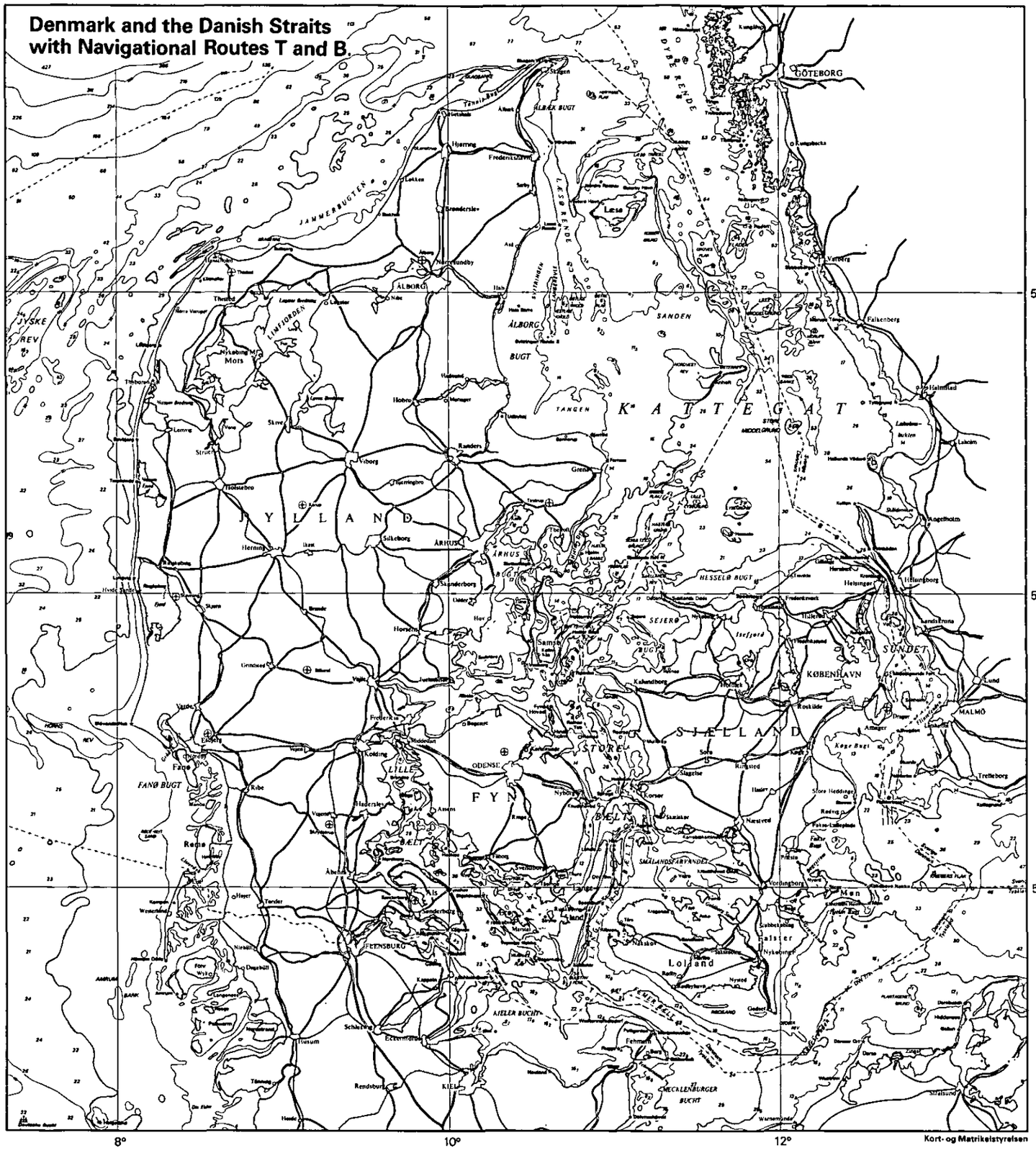
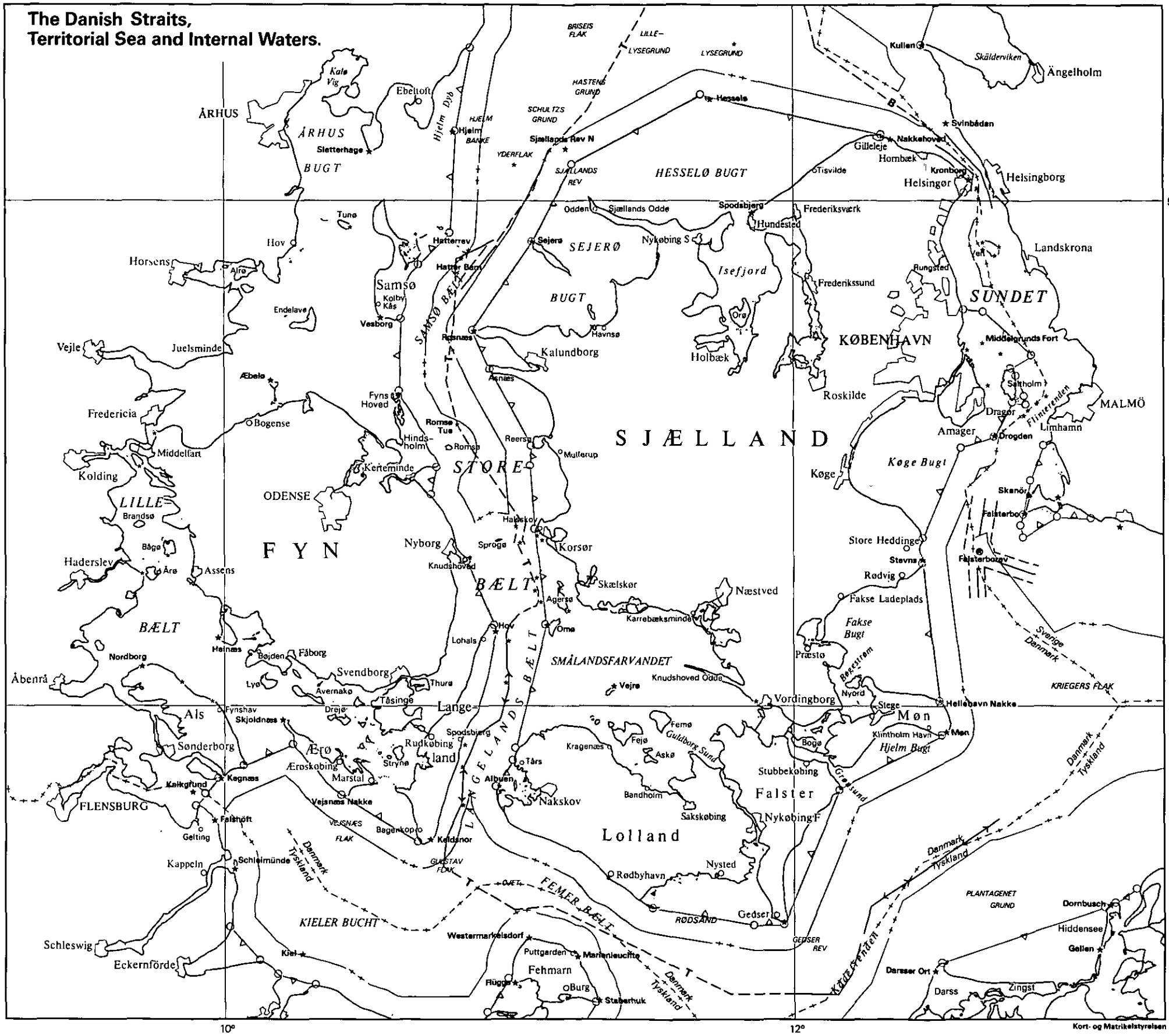
* Photographs courtesy of Oilfield Publications Limited.


Denmark and the Danish Straits
with Navigational Routes T and B.
MAP I
GÖTEBORG
SKAGEN
JYLLAND
FYN
SJÆLLAND
KØBENHAVN
MALMÖ
ÅRHUS
ÅLBORG
ODENSE
ESBJERG
FREDERICIA
KOLDING
VEJLE
HORSENS
RANDERS
VIBORG
SILKEBORG
HOLSTEBRO
NYKØBING M.
THISTED
HJØRRING
FREDERIKSHAVN
LÆSØ
SKIVE
HOBRO
AALBORG BUGT
LIMFJORDEN
JAMMERBUGTEN
SANDEN
TANGEN
KATTEGAT
HESSELØ BUGT
SEJERØ BUGT
ISEFJORD
SAMSØ BUGT
ÆBELØ
STORE BÆLT
LILLE BÆLT
FANØ BUGT
SKAGERRAK
KIELER BUCHT
MECKLENBURGER BUCHT
FEHMARN
FLENSBURG
SCHLESWIG
HUSUM
RENDSBURG
KIEL
ROSKILDE
HELSINGØR
HELSINGBORG
FALKENBERG
HALMSTAD
LAHOLM
ANGELHOLM
VARBERG
LUND
TRELLEBORG
STRALSUND
Lolland
Falster
Møn
Rømø
Fanø
JYSKE REV
HORNS REV
ANHOLT
57°
56°
55°
8°
10°
12°
Kort- og Matrikelstyrelsen

# The Danish Straits, Territorial Sea and Internal Waters.

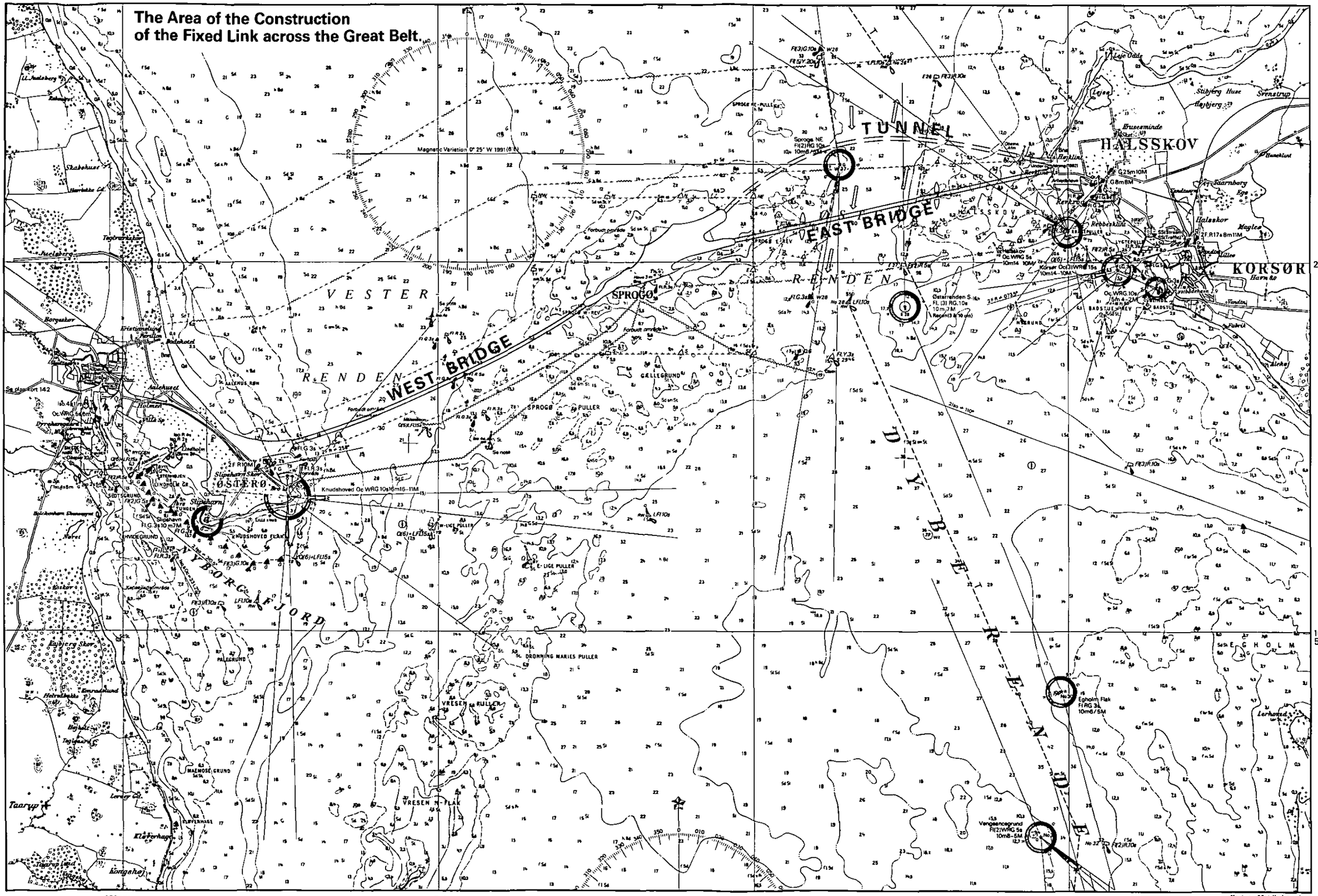
**MAP II**

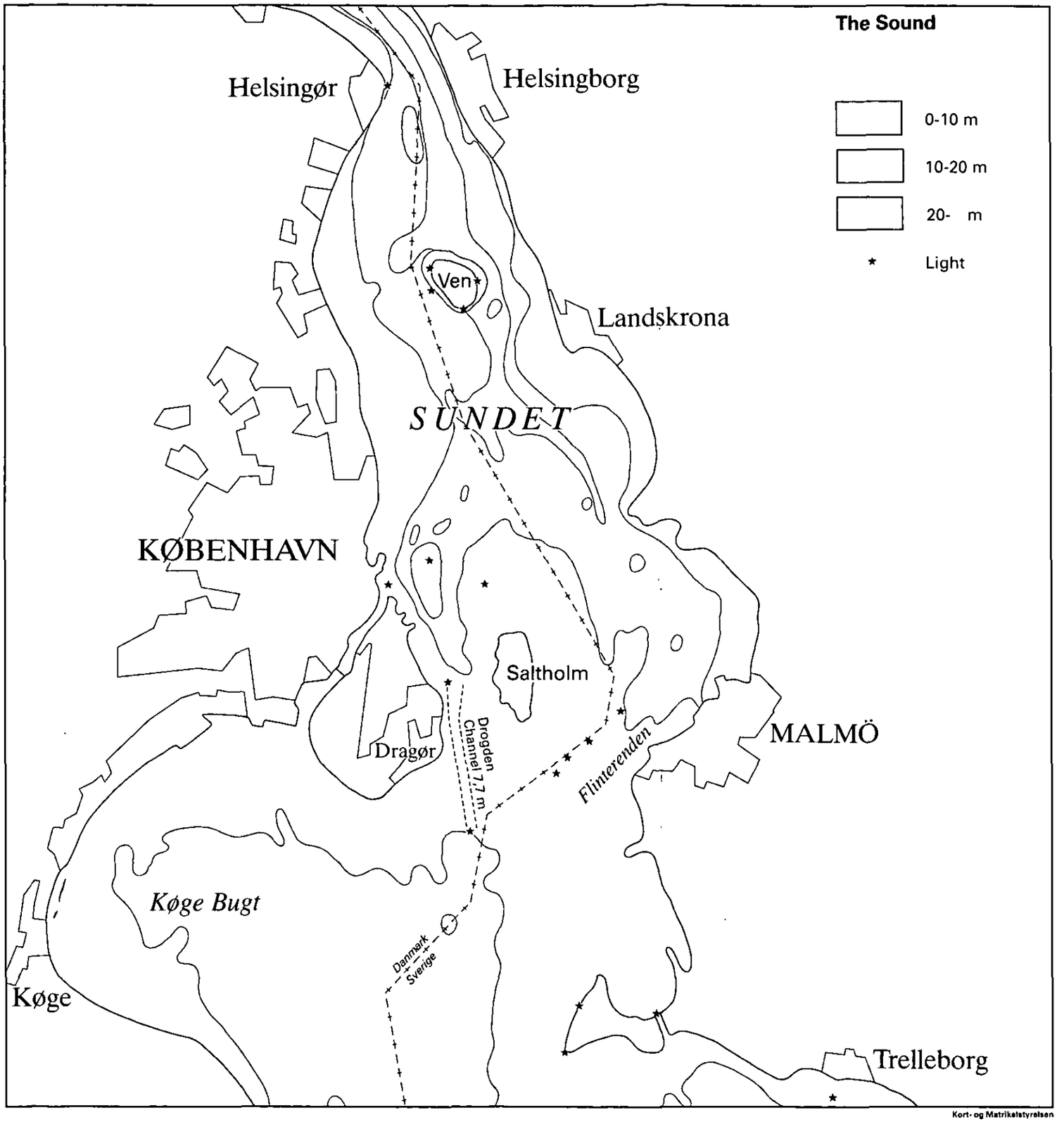



Kort- og Matrikelstyrelsen

# The Area of the Construction of the Fixed Link across the Great Belt.

MAP III




The Sound
0-10 m
10-20 m
20- m
Light
Helsingør
Helsingborg
Ven
Landskrona
SUNDET
KØBENHAVN
Saltholm
Drogden Channel 7,7 m
Dragør
Flinterenden
MALMÖ
Køge Bugt
Danmark
Sverige
Køge
Trelleborg
Kort- og Matrikelstyrelsen

MAP IV

MAP V


55°30′N

55°25′N

1. Knudshoved

2. Sprogø

3. Halsskov

55°20′N

55°15′N

55°10′N

10°50′E 10°55′E 11°00′E 11°05′E 11°10′E

Scale = 1 : 169500

0 km 2 4 6 8 10 km

Compiled by
ROYAL DANISH ADMINISTRATION OF
NAVIGATION AND HYDROGRAPHIC

## Coverage Plot

0.0 m
3.1 m
6.2 m
9.4 m
12.5 m
15.6 m
18.8 m
21.9 m
25.0 m
>25.0 m

Mercator Projection
Ref.Lat.: 56°00′00"N
HAYFORD

Normal DTM (Min)
0- 0 / normal / 0- 4

**Water Depths in the Great Belt.**

**Honeywell ELAC**

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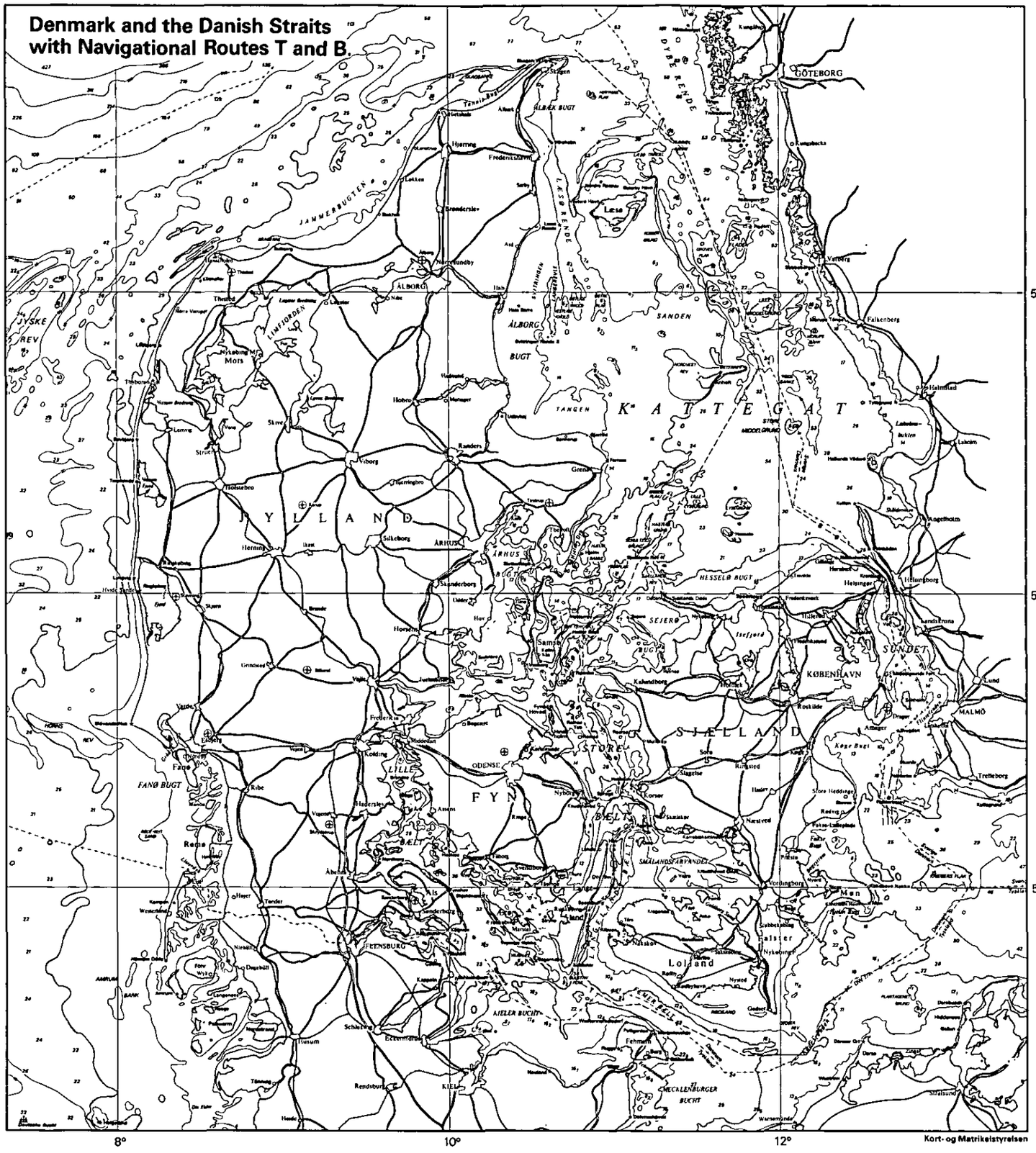
Denmark and the Danish Straits
with Navigational Routes T and B.
MAP I
GÖTEBORG
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FYN
SJÆLLAND
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MALMÖ
ÅRHUS
ÅLBORG
ODENSE
ESBJERG
FREDERICIA
KOLDING
VEJLE
HORSENS
RANDERS
VIBORG
SILKEBORG
HOLSTEBRO
NYKØBING M.
THISTED
HJØRRING
FREDERIKSHAVN
LÆSØ
SKIVE
HOBRO
AALBORG BUGT
LIMFJORDEN
JAMMERBUGTEN
SANDEN
TANGEN
KATTEGAT
HESSELØ BUGT
SEJERØ BUGT
ISEFJORD
SAMSØ BUGT
ÆBELØ
STORE BÆLT
LILLE BÆLT
FANØ BUGT
SKAGERRAK
KIELER BUCHT
MECKLENBURGER BUCHT
FEHMARN
FLENSBURG
SCHLESWIG
HUSUM
RENDSBURG
KIEL
ROSKILDE
HELSINGØR
HELSINGBORG
FALKENBERG
HALMSTAD
LAHOLM
ANGELHOLM
VARBERG
LUND
TRELLEBORG
STRALSUND
Lolland
Falster
Møn
Rømø
Fanø
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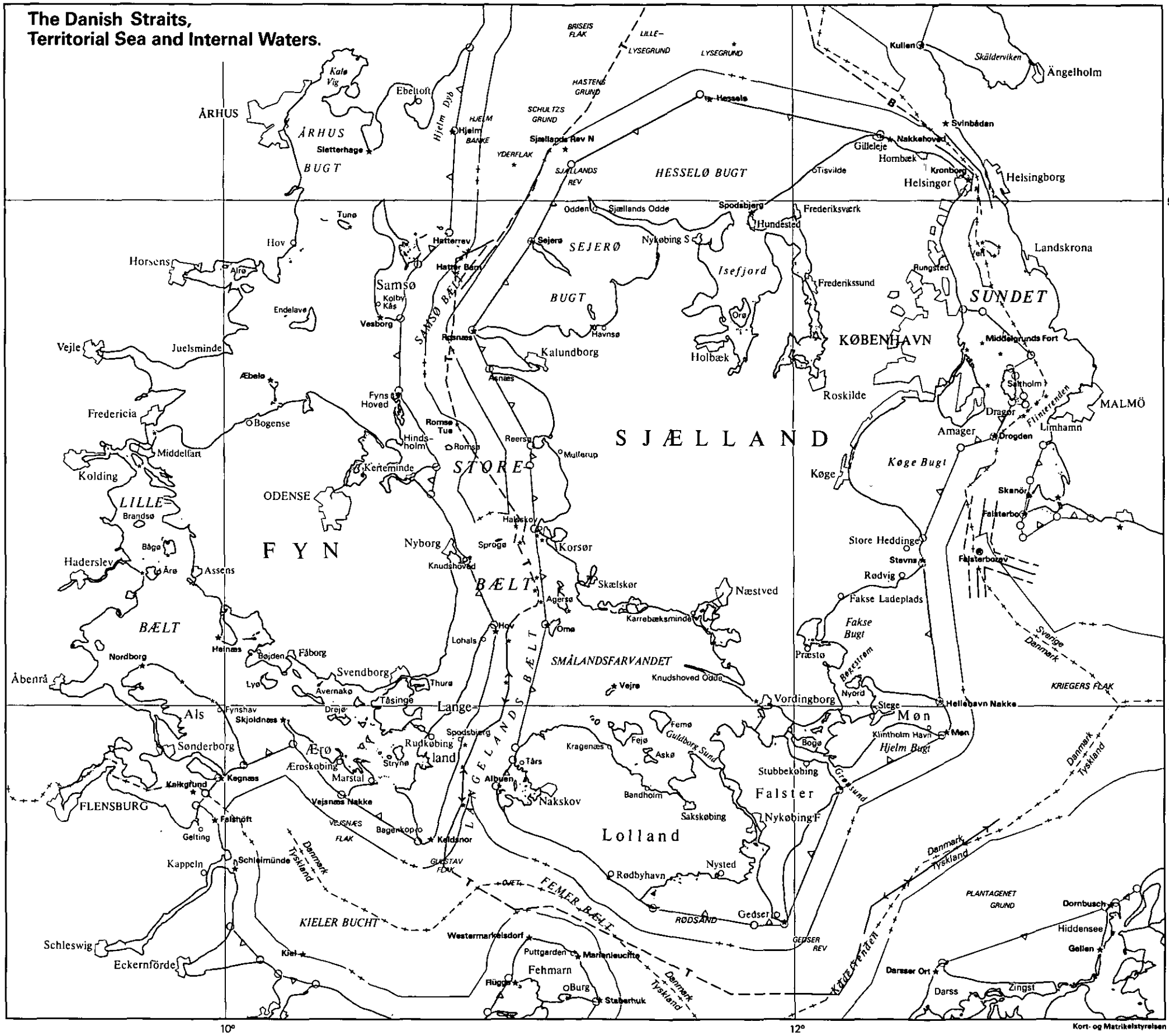
# The Danish Straits, Territorial Sea and Internal Waters.

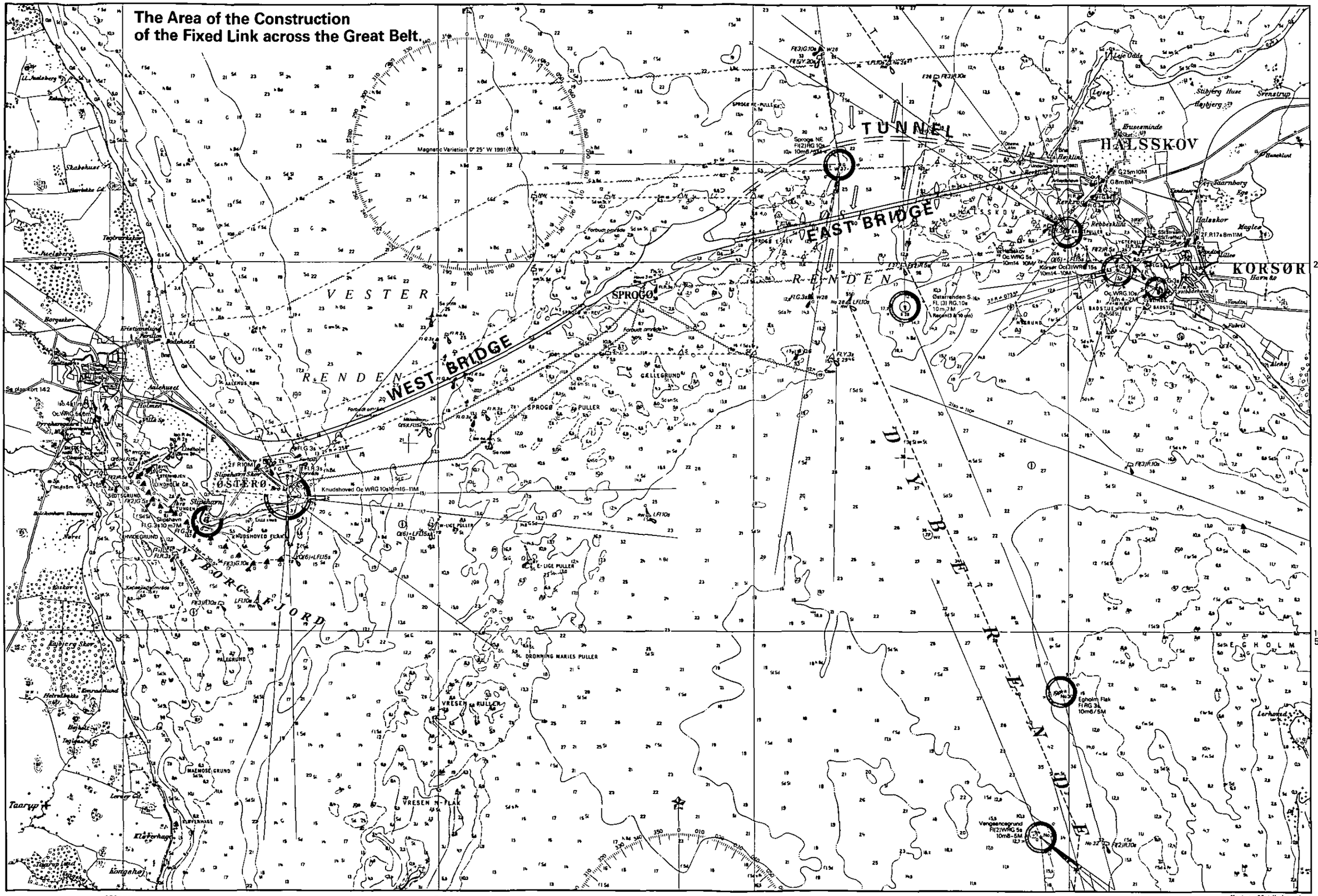
**MAP II**

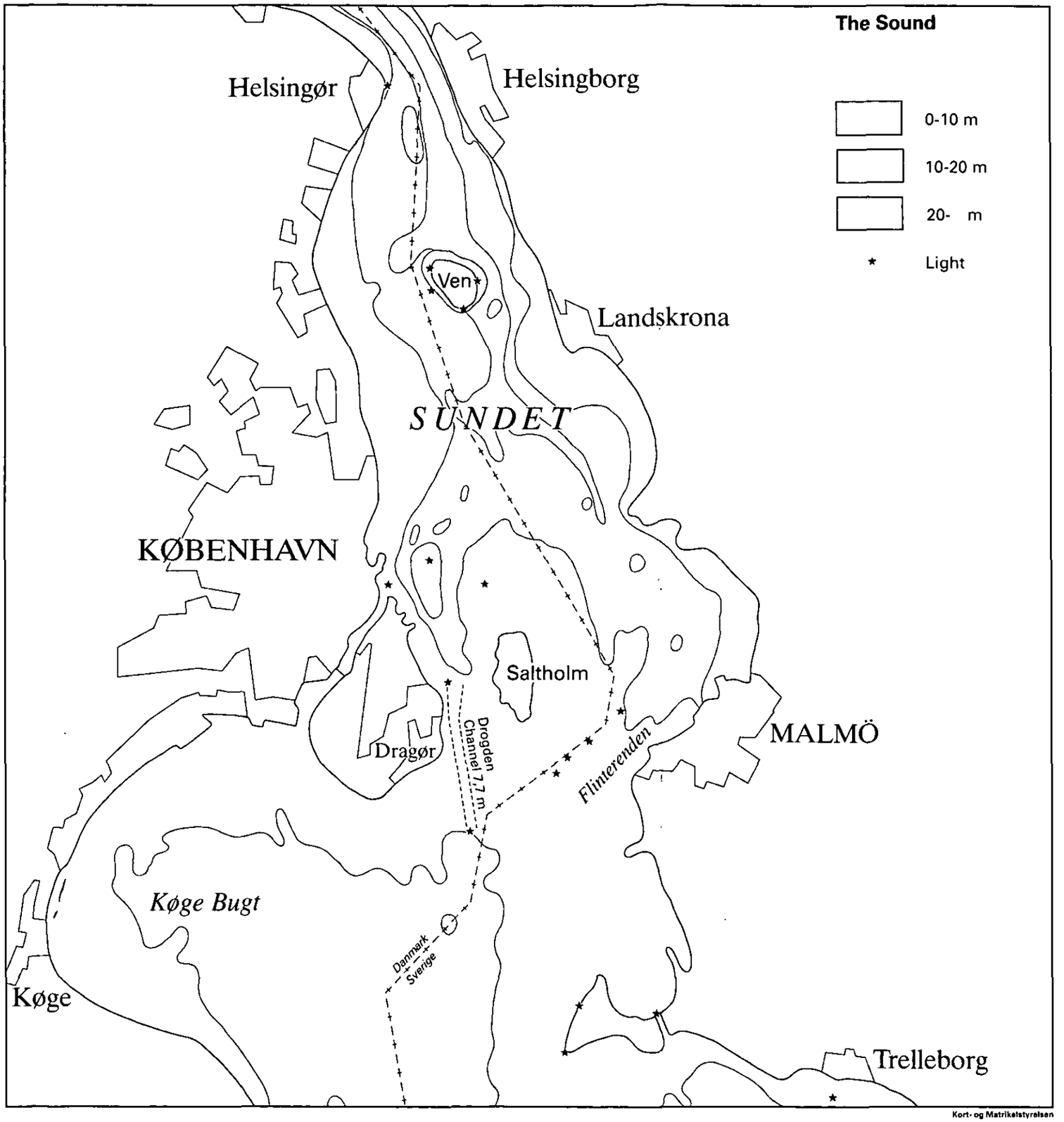



Kort- og Matrikelstyrelsen

# The Area of the Construction of the Fixed Link across the Great Belt.

MAP III




The Sound
0-10 m
10-20 m
20- m
Light
Helsingør
Helsingborg
Ven
Landskrona
SUNDET
KØBENHAVN
Saltholm
Drogden Channel 7,7 m
Dragør
Flinterenden
MALMÖ
Køge Bugt
Danmark
Sverige
Køge
Trelleborg
Kort- og Matrikelstyrelsen

MAP IV

MAP V


55°30′N

55°25′N

1. Knudshoved

2. Sprogø

3. Halsskov

55°20′N

55°15′N

55°10′N

10°50′E 10°55′E 11°00′E 11°05′E 11°10′E

Scale = 1 : 169500

0 km 2 4 6 8 10 km

Compiled by
ROYAL DANISH ADMINISTRATION OF
NAVIGATION AND HYDROGRAPHIC

## Coverage Plot

0.0 m
3.1 m
6.2 m
9.4 m
12.5 m
15.6 m
18.8 m
21.9 m
25.0 m
>25.0 m

Mercator Projection
Ref.Lat.: 56°00′00"N
HAYFORD

Normal DTM (Min)
0- 0 / normal / 0- 4

**Water Depths in the Great Belt.**

**Honeywell ELAC**