CA on appeal from Commercial Court (Mr Justice Moore-Bick) before Waller LJ; Clarke LJ; Sir Murray Stuart-Smith. 8th June 2000.

LORD JUSTICE CLARKE:

Introduction

1. This is an appeal from a decision of Moore-Bick J which was made on the 12th May 1998 after a seventeen day trial and which is reported at [1999] 1 Lloyd's Rep 307. He gave judgment for the claimant cargo interests against the defendant disponent owners and owners of the motor vessel FJORD WIND in respect of loss and damage which he held were caused by the unseaworthiness of the vessel which manifested itself when the no 6 crankpin bearing on her main engine failed while she was proceeding down the River Paraná on the 1st July 1990. She had sailed from Rosario on the 30th June laden with a part cargo of 27,535 tonnes of Argentine soya beans in bulk. She was bound for Rio Grande do Sul where she was to complete loading before sailing to ports in Europe.

Parties and Contracts

2. The second defendants, who were the owners of the vessel, had chartered her to the first defendants under a time charter on the New York Produce Exchange form dated the 13th December 1989 for the period 25th January to 30th April 1990, later extended to 30th November 1990. On 31st May 1990 the first defendants chartered her to the first plaintiffs ("Eridania") under a voyage charter on the Norgrain form for the carriage of a cargo of soya beans in bulk from berths or anchorages in the River Plate not above San Lorenzo with completion at one safe port in Brazil to a range of Spanish and Italian ports. The goods shipped at Rosario were carried under a single bill of lading signed on behalf of the master. It named the second plaintiff ("Emiliana") as shipper and showed the goods as being consigned to order. It is not necessary to refer to the third or fourth plaintiffs, although the relationship between the various interests is described by the judge at pages 310 and 311.

Voyage Charter and Bill of Lading.

3. The first point which arises in this appeal depends upon the true construction of the voyage charter and of the bill of lading. The charter provides, so far as relevant, as follows:

   IT IS THIS DAY MUTUALLY AGREED ....

   1 That the said vessel, being tight, staunch and strong and in every way fit for the voyage, shall with all convenient speed proceed to [the River Plate] ... and there load ...

   5 On being so loaded, the vessel shall proceed to ... .

   35 Owners shall be bound before and at the beginning of the voyage to exercise due diligence to make the ship seaworthy and to have her properly manned, equipped and supplied and neither the vessel nor the Master or Owners shall be or shall be held liable for any loss of or damage or delay to the cargo for causes excepted by the U.S. Carriage of Goods by Sea Act, 1936 or the Canadian Water Carriage of Goods Act, 1936.

4. The bill of lading was on the North American Grain Bill of Lading form designed to be used with the Norgrain charter. It was issued on behalf of the master and evidenced a contract of carriage with the owners of the vessel. By clause 1 of the "Conditions of Carriage" printed on the reverse it incorporated all the terms, conditions and exceptions of the voyage charter. It was common ground, therefore, that clause 35 of the charter, which clearly applies to the laden voyage, was effectively incorporated into the bill of lading contract. The plaintiffs say that clause 1 of the "C*onditions"* was also apt to incorporate clause 1 of the charter, but that clause is concerned with the approach voyage rather than the laden voyage, so that, as the judge pointed out at page 312, recognising the difficulties in the way of that argument, Mr. Gee QC quite rightly did not place it at the forefront of his submissions.

5. The issue between the parties under the charter is the nature of the owners' obligations as to seaworthiness. The plaintiffs' case is that by virtue of clause 1 the owners gave an absolute warranty that the vessel was seaworthy at the beginning of the approach voyage, that the vessel was not seaworthy at that time and that that breach of warranty caused the loss because it was the same unseaworthiness which caused the subsequent breakdown of the vessel and its consequences. The owners say, on the other hand, that clause 1 must be read in the light of clause 35 and that, so construed, the owners' obligation was to exercise due diligence to make the vessel seaworthy so that the nature of the obligation at each stage was the same.

6. The judge rejected that argument (at page 314), but then continued as follows:

   One is left, then, with the question how these two clauses are intended to operate together in practice. I do not think it follows from the conclusion I have just reached that any breach of the absolute undertaking of seaworthiness which subsequently causes damage to the cargo entitles the charterer to recover against the owner. Take the example I gave earlier of a latent defect in the hull which exists at the time the vessel sets out on the approach voyage but remains undiscoverable by due diligence until in the course of the laden voyage it gives rise to a crack which allows water to enter the cargo. It would in my judgment clearly be contrary to the intention of the parties as expressed in clause 35 that the owner should be liable in respect of the damage. On the other hand, if the crack occurred during the approach voyage and prevented the vessel from performing the voyage because of the need for repairs, I can see no reason why the owner should not be liable for any loss caused to the charterer. In my judgment clauses 1 and 35 are to be construed in this way: clause 1 governs the obligation of the shipowner in relation to seaworthiness of the vessel in respect of events occurring during the period prior to the commencement of loading, that being the point at which the cargo-carrying stage of the adventure begins. Clause 35 governs his obligation in relation to events occurring thereafter, although the fulfilment of the owner's duty will depend on what has gone on before. Although I recognise the force of the argument that it is commercially unattractive for the owner's obligation in relation to seaworthiness to

vary at different stages of the adventure in that way, I think that in this case the effect of including clauses 1 and 35 is to produce that result. This may not be the tidiest arrangement from the commercial point of view, but to construe the charter in that way gives effect to all its terms and does not seem to me to produce an unworkable result. It is, perhaps, not uninteresting to note that this very situation was considered by Devlin J. in Adamastos who did not find a difference of that kind between the owner's obligations in relation to ballast voyages and cargo-carrying voyages particularly startling: see [1957] 2 Q.B. 233, 252.

On that basis, although the judge expressly recognised that it was commercially unattractive for the owners' obligations in relation to seaworthiness to vary at different stages of the adventure, he held that the obligations of the disponent owners in relation to the seaworthiness of the vessel before the approach voyage were absolute but during the cargo-carrying voyage were limited to an obligation to exercise due diligence before and at the beginning of that voyage to make her seaworthy.

7. That is an ingenious solution, but, as I see it, the problem with it is that it involves drawing a distinction between different obligations as to seaworthiness in respect (as the judge put it in the above passage) of events occurring before and after loading, whereas there is nothing in the charter which supports such a distinction and it seems to me that it might be difficult to work in practice. For example, it is or may be difficult to identify when the `event' occurred depending upon what amounts to an event for this purpose.

8. On the other hand, the result achieved by the judge's approach in a case of this kind is in my opinion more consistent with the probable intentions of the parties than that proposed by the plaintiffs. It seems to me to be most unlikely that the parties intended liability for damage to cargo caused by unseaworthiness to be different under the charter and under the bill of lading, in circumstances where the bill of lading expressly incorporates all the terms conditions and exceptions of the charter. Yet that would be the effect of accepting the plaintiffs' construction, unless it were held that clause 1 of the charter were incorporated into the bill of lading, which I agree with the judge it was not because, in so far as it is concerned with the approach voyage, it is not germane to the loading and carriage of the cargo.

9. Moreover, as the judge pointed out in his latent defect example (at page 313), the effect of Mr Gee's submission (which was persuasively advanced before us by Miss Selvaratnam) would be that, where the vessel had a latent defect before the approach voyage began which subsequently caused leakage into and consequent damage to the cargo during the cargo-carrying voyage, the disponent owners would be liable even if they had exercised due diligence to make the vessel seaworthy. It is in my opinion most unlikely that that was what the parties intended or would have intended if they had given any thought to the matter.

10. I would reject both the claimants' submissions and the judge's solution as both commercially unattractive and commercially unlikely. The solution can I think be found by an analysis along the following lines. It is now well settled that particular terms of a contract must be construed in the context of the contract as a whole and that all contracts must be construed in their factual matrix or against their surrounding circumstances. As Lord Hoffmann put it in ***Investors Compensation Scheme Ltd v West Bromwich Building Society*** [1998] 1 WLR 896 at 912:

Interpretation is the ascertainment of the meaning which the document would convey to a reasonable person having all the background knowledge which would reasonably have been available to the parties in the situation in which they were at the time of the contract.

In this regard I accept that if clause 1 stood alone it would be likely to be held to have the meaning ascribed to it by the plaintiffs, but it does not stand alone.

11. Clause 1 provides that the vessel, being tight staunch and strong and in every way fitted for the voyage, shall with all convenient speed proceed to one or more loading ports and there load. If there were no clause 35 it is likely that it would be held that there was an absolute warranty that the vessel should be seaworthy for both the approach voyage and loading. Yet on any view clause 35 expressly applies "*before and at the beginning of the voyage*", which must include the loading process. Thus under clause 35 the owners must exercise due diligence to make her seaworthy for the loading process and thereafter they must exercise due diligence to make her seaworthy for the cargo-carrying voyage itself. It follows that clause 35 directly affects the true construction of clause 1 and the question arises whether it was intended to affect the whole operation of the clause. In my judgment, it was. The expression *"before and at the beginning of the voyage"* is apt to include the whole period before the beginning of the voyage.

12. In this regard some assistance can I think be obtained from ***Anglo-Saxon Petroleum Shipping Co Limited v Adamastos*** [1959] AC 133. The facts of that case were different from these: see the judgment in the instant case at page 313. ***Adamastos*** involved a consecutive voyage charter which contained a very similar clause to clause 1 in his case, but which also contained a clause paramount which provided that `this bill of lading' shall have effect subject to the Hague Rules. Devlin J held that the Hague Rules did not apply to ballast voyages, whereas the House of Lords held by a majority that it did. In the course of their speeches the majority placed reliance upon what they perceived to be the commercial probabilities. Viscount Simonds said (at page 156):

My Lords, it is, I think permissible in a consideration of this commercial transaction to ask what possible difference it makes to the charterers whether the delay, to which their loss is due, occurs when the ship is in ballast or is loaded with a cargo of oil or of water. It matters not for this purpose whether the charterparty was for a single voyage, as the original document seemed to contemplate, or for a number of consecutive voyages. The contractual subject-matter

was the whole period during which the vessel was under charter, and it is, in my opinion, to this whole period that the parties agreed that the statutory standard of obligation and immunity should relate.

Viscount Simonds then considered a point made by Devlin J and added:

I do not, in any case, find this consideration a sufficient counterweight to the fact that from a commercial point of view it is unlikely that owner and charterer will adopt a shifting standard of obligation between cargo carrying and non-cargo carrying voyages.

It seems to me that very similar considerations apply here. See also Lord Keith at page 179.

13. Lord Somervell said at page 185:

It would be a foolish consequence if the shipowner was under a greater liability when the ship was in ballast than when it was carrying cargo. It is natural, as I have said, that shipowners and cargo owners should intend to incorporate the code of obligations and immunities over the whole of the contract period.

I am not sure that I would go quite as far as Lord Somervell, but I would certainly hold that it is most improbable that the parties really intended that, so far as liability for loss of or damage to cargo is concerned, the disponent owners' liability should depend upon when the defect first occurred.

14. Both sides placed some reliance upon the decision of this court in ***Monroe Brothers Limited v Ryan*** [1935] 2 KB 28. In that case there was a clause in a voyage charter which was very similar to clause 1 of the charter here. That charter also included a clause in these terms:

The owners in all matters arising under this contract shall also be entitled to the like privileges and rights and immunities as are contained in ss 2 and 5 of the Carriage of Goods by Sea Act 1924, and in Article IV of the Schedule thereto.

One of the questions for decision was to what voyage or voyages the Hague Rules immunities in clause 3 applied. It was held that they did not apply to more than the approach voyage and the cargo carrying voyage. Thus they did not apply to a voyage prior to the approach voyage. Greer LJ said (at page 39):

... but it seems to me sound sense that when you make an agreement for a particular voyage the whole of the terms of that agreement relate to that voyage, and not to something which may happen before the voyage begins.

Roche LJ said much the same at page 41. The case is thus of some assistance because it suggests that immunities of this kind would be expected to apply to the approach voyage but not to other antecedent voyages.

15. The general approach in ***Adamastos*** would to my mind be included in the background knowledge (referred to by Lord Hoffmann) which the parties would have had in mind if they had thought about it. In short I accept the submissions made by Mr Hamblen QC that it is extremely unlikely that the parties would have agreed a different regime for cargo damage under the bill of lading and the charterparty. They would be expected to apply a Hague or Hague-Visby Rules regime and not to have agreed an absolute warranty of seaworthiness. In particular they would not be likely to have agreed a different regime for different voyages which were both subject to the same contract in respect of which the charterers were to pay freight.

16. In all the circumstances I have reached the conclusion that the correct construction of clauses 1 and 35 of the charter when read together in the context of the contract as a whole and in the light of the commercial considerations to which I have referred is that the disponent owners' obligation as to seaworthiness at each stage was the same, namely to exercise due diligence to make the vessel seaworthy. In these circumstances I would uphold the decision of the judge on this part of the case but not for the same reasons.

17. I should add that, like the judge, I do not accept what he described as the half-way house suggested by Mr Gee. I agree with the view expressed by the judge at page 314 that the second part of clause 35 is clearly intended to dovetail closely with the opening part of the clause and presupposes the existence of the more limited obligation as to seaworthiness which it contains.

Unseaworthiness

18. The judge held that the FJORD WIND was unseaworthy on leaving Rosario. He first set out at page 315 what he correctly described as one of the classic tests of seaworthiness from the judgment of Scrutton LJ in ***FC Bradley & Sons v Federal Steam Navigation Co*** (1926) 24 Ll L Rep 446, approving a statement from Carver on Carriage by Sea:

The ship must have that degree of fitness which an ordinary careful owner would require his vessel to have at the commencement of her voyage having regard to all the probable circumstances of it. Would a prudent owner have required that it (sc the defect) be made good before sending his ship to sea, had he known of it?

The judge further correctly stressed that seaworthiness is not an absolute concept but is relative to the nature of the ship, to the particular voyage and even to the particular stage of the voyage.

19. Under this heading, between pages 315 and 318, the judge considered in detail the history of earlier failures of crankpin bearings, to some of which it is necessary to return briefly below, but his conclusion that the vessel was unseaworthy when she left Rosario was not dependent upon that analysis, but on the following reasoning at pages 318 to 319:

The history of crankpin bearing failures is of particular significance in relation to the question whether the owners exercised due diligence to make the vessel seaworthy. However, as far as unseaworthiness at the commencement of the voyage is concerned, the most telling evidence in my view is the very fact that there was a failure of No 6 crankpin bearing within a few hours of the vessel's departure from the loading port. There is nothing to suggest that

the conditions which the vessel encountered in the river were in any respect unusual or that the casualty was the result of any outside intervention. In these circumstances, although it has been impossible to identify the precise cause of the bearing failure, the inference must be that there was a defect of some kind in the bearing itself or the lubricating system which rendered the vessel unfit to encounter the ordinary incidents of the voyage. Mr Tomlinson submitted that without knowing what the defect was in this case, one could not be satisfied that it was likely to lead to a casualty within 24 hours, or indeed at any stage during that voyage. The most that could be said was that there was a propensity for failures to occur at unpredictable, though extended, intervals, usually without serious consequences. In those circumstances, he submitted, the prudent owner would not think it necessary to withdraw the ship from service altogether which, he said, was the only practical alternative open to him.

I am unable to accept that submission. The yardstick of the prudent owner in this context simply reflects the fact that seaworthiness is to be judged by reference to the realities of commercial life and does not require absolute perfection. Thus it might be the case that a prudent owner when told about the existence of a particular defect might quite properly decide that the risk of its causing loss was so remote that it need not be made good immediately but could be left to a more convenient occasion. It remains the case, however, that seaworthiness as such is concerned with the condition of the vessel herself at the relevant time rather than with whether the owner has behaved prudently in sending her to sea in that condition. Where, as here, a vessel suffers a serious casualty without any outside intervention, the natural inference is that there was something wrong with her which a prudent owner would have rectified if he had known about it. I do not think it makes any difference for this purpose whether the defect is one which can subsequently be specifically identified, such as a crack in a component, or is one which cannot be specifically identified but whose existence can be inferred from a propensity for failures to occur for unknown reasons and at unpredictable intervals. What matters is whether such a defect actually exists, and if it does, whether the risks involved in leaving it unrepaired are sufficiently serious to require remedial action to be taken before the ship proceeds farther. In this case I think it is clear that there was a defect, albeit unidentified, in the vessel's propulsion equipment which was liable to result in a crankpin bearing failure at some time during the voyage without warning and with potentially disastrous consequences. It had manifested itself as a propensity for crankpin bearings to fail at unpredictable intervals, and I have little doubt that a prudent owner, if he had been aware of the nature of the defect, would have taken steps to correct it rather than risk the consequences. I am satisfied, therefore, that the vessel was unseaworthy both when she left Rosario and, for that matter, when she left Barcelona at the beginning of her approach voyage.

20. Mr Tomlinson QC repeated before us the submissions which had failed before the judge. I say nothing about the position at Barcelona because it is not necessary to do so, but I entirely agree with the judge that the vessel was unseaworthy when she left Rosario for the reasons which he gave in the passage which I have just quoted. When she left Rosario she was not in a fit condition to navigate down the River Paraná in ordinary weather conditions because within a few hours her no 6 crankpin bearing failed with the results described by the judge at the beginning of his judgment on page 310, which may be summarised in this way.

21. At 1908 on 1st July as she was passing down the River Paraná there was an automatic reduction in the speed of the main engine as a result of the operation of the high temperature alarm at the thrust bearing. About 40 minutes later at 1950 the main engine was automatically stopped following the activation of an oil mist detector alarm in the crankcase. At that time the vessel was navigating a dangerous stretch of the river and the master therefore ordered the main engine to be restarted so that the vessel could continue to a place at which it would be safe to anchor. Subsequently the main engine was automatically stopped four more times and on each occasion except the last the master ordered that the engine be restarted to enable the vessel to continue her progress towards a safe anchorage. On the last occasion the vessel was already close to a place of safety and it was not necessary to start the engine again. She anchored in a safe place. When the ship's engineers opened up the main engine they found that no 6 crankpin bearing had failed and that there was also damage to no 5. They tried to carry out repairs, but the bearing failed again very soon after the engine was restarted and it became apparent that it would be necessary to remove the crankshaft for repairs to be carried out in a workshop ashore. The repairs took much longer than anticipated and the cargo was subsequently transshipped, which involved considerable delay and expense.

22. No-one criticised the master for any of the actions which he took in difficult and potentially dangerous circumstances, so that it can fairly be said that all those consequences flowed from the defect which caused the no 6 crankpin bearing to fail. Moreover, it would have been reasonably foreseeable to an owner who knew that the bearing might fail, that consequences of such a kind might occur. This is, I think, an important consideration because, as the judge pointed out, an owner informed of some types of defect might properly decide that the risks were such that its repair could be left for future action. This was not, however, such a defect, as appears from a later passage in the judgment, which although it was written under the heading of due diligence seems to me to be relevant here. The judge said at page 321:

However, if, as the authorities indicate, it is necessary when considering this question to take into account the seriousness of the consequences which may flow from a failure to identify and remedy the defect, one must recognise that a bearing failure in the main engine is potentially very serious. Whether it proves to be so or not will depend largely on the circumstances under which it occurs. The history of the earlier bearing failures indicates that on this ship any significant overheating of a crankpin bearing was likely to activate the Graviner alarm and shut down the engine before any serious damage was caused to components other than the bearing shells themselves. The incidents in the Mississippi and at Port Kamsar are examples of such cases. However, as this case and the incident at Tarbert show,

the failure of a crankpin bearing could have very serious consequences because it could result in the vessel's being without motive power altogether in circumstances which endangered both the ship and cargo. A prudent owner would not, therefore, regard a potential bearing failure as a matter of minor significance. How far he would go in seeking to identify the cause of a problem of this kind would depend in part on the likelihood of a failure occurring, which in turn would depend to a significant extent on the particular vessel's operating history.

23. In these circumstances the judge was in my opinion right to hold that the vessel was unseaworthy when she left Rosario because there was present a defect which meant that it could not operate on an ordinary voyage, since it failed on the voyage down-river, with the consequences described above, which were entirely foreseeable. Thus, if the owners had known that such a defect was present the bearing would fail in those circumstances, they would have rectified the defect.

24. I agree with the judge that seaworthiness is concerned with the state of the vessel rather than with whether the owners acted prudently or with due diligence. The only relevance of the standard of the reasonably prudent owner is to ask whether, *if he had known of the defect* (my emphasis), he would have taken steps to rectify it. In the instant case, there can I think be no doubt that he would, if he had known that there was a defect which would cause the bearing to fail as it did, which it seems to me is the relevant state of knowledge for these purposes. It follows that the vessel was unseaworthy when she left Rosario because she was not in a fit condition to withstand an ordinary voyage down the River Paraná.

Due Diligence

25. It is not in dispute that, once the claimants have proved unseaworthiness, the burden of establishing due diligence is on the owners. It is also common ground that they must establish that due diligence to make the vessel seaworthy was exercised, not only by themselves, their servants and agents, but also by their independent contractors. That has been accepted to be the correct position since the decision of the House of Lords in ***Riverstone Meat Co Pty Ltd v Lancashire Shipping Co Ltd*** [1961] AC 807. That is a very important principle on the facts of this case because the judge held that the owners had shown that they and their servants or employees had exercised due diligence, but had failed to show that their independent contractors MAN had done so.

26. The principal problem which bedevilled this whole case was that, despite a considerable amount of investigation both before and after the casualty the owners never succeeded in discovering the cause of the problem which led to the defect or defects in the no 6 crankpin bearing which in turn led to failure. As the judge pointed out, this made it difficult for the owners to prove that due diligence had been exercised. He referred in this connection to the following passage from the judgment of Staughton LJ in ***The Antigoni*** [1991] 1 Lloyd's Rep 209 at 213:

Of course a judge may be so impressed by the evidence of those whose task it was to exercise due diligence as to find that they did so, even though he is totally mystified as to how the vessel became unseaworthy; he may think it right to believe that evidence, while not being able to identify any possible latent defect which they can reasonably have overlooked. There may indeed be cases where a judge has reached that result. But in practice the shipowner will wish, if he can, to lead evidence of such a latent defect and the judge must necessarily have regard to that evidence before deciding whether due diligence has been exercised. If he concludes that there is no possibility of a latent defect which could be overlooked in the exercise of due diligence, he will find it very difficult to accept that due diligence was in fact exercised, if not wholly impossible. . . . . There is not imposed on the shipowner in law any burden to establish a latent defect if he seeks to rely on Art. IV,r.1. But he will find it much easier to establish due diligence if he can point to the likelihood of a latent defect, and much more difficult if he can suggest none, or only one which is wholly implausible.

As the judge pointed out at page 319, the problem facing the owners here was that they sought to show that they had exercised due diligence to make the ship seaworthy but they were unable to identify the latent defect which was said to be responsible for the crankpin bearing failure.

27. Mr Tomlinson stressed the principle that the exercise of due diligence means no more than the exercise of reasonable care and skill and that want of due diligence involves negligence. In this regard it is helpful to consider the decision and reasoning of the House of Lords in **Union of India v NV Reederij Amsterdam (The Amstelslot)** [1963] 2 Lloyd's Rep 223. In that case a vessel had suffered a fatigue crack of unknown origin in the reduction gear of the main engine and the main question was whether the defect which caused the failure could have been discovered by the exercise of due diligence. That question was answered no. Lord Reid said at page 230:

The question always is whether a reasonable man in the shoes of the defendant, with the skill and knowledge which the defendant has or ought to have had, would have taken those extra precautions.

That statement requires some refinement to take account of the fact that the question was whether surveyors employed by the owners were negligent. In this regard Lord Devlin said at page 234:

But it is for the appellants to prove that the surveyors they employed made as thorough an examination as, in the circumstances, they could reasonably be expected to make and that it revealed nothing suspicious. It is not disputed that the examination was conducted efficiently and that it revealed nothing. The question to be decided is whether, in the circumstances, it was thorough enough.

Lord Devlin added on page 235:

Proof of unseaworthiness fulfills, as Mr Brandon says, the same function in this type of case as res ipsa loquitur does in the ordinary case of negligence. But where, as here, the defendant meets the prima facie case against him by calling two surveyors of unchallenged reputation who are found by the judge to be impressive and who say what they did and why

they did it and why they did not do more, then, unless they can be successfully criticised for their omissions, a judge is entitled to say that due diligence was exercised. No doubt he must remember that if, in the end, he is unable to make up his mind whether or not the criticisms are weight enough to disturb his confidence in the surveyors' judgment, he must find for the plaintiff and not for the defendant. But that is not the sort of situation that often arises.

Those principles are to my mind of particular assistance in considering the issues in this appeal.

28. As indicated above, between pages 315 and 318 the judge considered the history of crankpin failures and their causes. He later considered the owners' response to those failures. He first did so by asking whether the owners themselves had responded properly. In this connection it is important to note that the owners were responsible owners doing their best to respond to the problems as they arose. They consulted the engine builders MAN for advice and assistance as the problems arose. However, one of the problems which faces the owners here, as it did before the judge, is their failure to adduce evidence from MAN as to what they did at crucial stages.

29. An example of that problem arose out of the failure of the no 6 crankpin bearing at Tarbert in April 1985. On that occasion there was damage to the bearing shells which was partly due to the need to restart the engine many times. What then occurred is described by the judge at page 321:

As a result it was more difficult to identify the cause of the original failure. The owners clearly took the right step in consulting MAN and having repairs carried out by their service engineers. No explanation for the failure was ever put forward and in the absence of any evidence or contemporaneous documents emanating from MAN themselves I am in no position to judge whether proper steps were taken at that time to investigate the cause of the casualty. From the point of view of the owners, however, I do not think there was any reason at that stage to doubt the quality of MAN's investigation and I am unable to accept the suggestion made by Mr Todd [the claimants' expert] that they should have commissioned an independent inquiry following this incident. Mr Todd also suggested that the owners could be criticised for failing to inform the vessel's classification society of the casualty promptly with the result that the local surveyor did not see the damage in its original form and so did not have the opportunity of giving his own advice about the investigations which ought to be undertaken. However, with the engine builder's service engineers already present, I think it unlikely that the local classification society surveyor would have suggested any line of investigation over and above that which MAN themselves considered appropriate.

As can be seen from that passage, the judge acquitted the owners themselves of responsibility but was or would have been unable to do the same for MAN because there was no evidence of what investigations they carried out.

30. The next crankpin failure occurred in the Mississippi in May 1987 when there was again a crankpin bearing failure at no 6 unit. It is not necessary to consider this failure further because the judge concluded (at page 322) that it was not ultimately of great significance since both experts, namely Mr Todd for the claimants and Mr Vince for the owners, agreed that an investigation was called for after a further series of failures which occurred in 1988. Three such failures occurred in 1988. Although none of them involved the no 6 crankpin bearings, they involved the nos 5, 4 and 2 crankpin bearings and occurred at Port Kamsar, Gibraltar and during a voyage from Venice to Trincomalee respectively. They occurred in circumstances which were broadly similar to those of the failure in the Mississippi in 1987, but for reasons which could not be satisfactorily determined. The judge held that (whatever might be said about earlier failures) those failures ought to have alerted them to the fact that there was an underlying problem. He added (at page 322):

Indeed, it seems that it did so, because they took the matter up with MAN. In February 1988 the bearing shells which had been removed following the incident at Port Kamsar were sent to MAN for examination together with those removed following the earlier incident in the Mississippi, but MAN appear to have been unable to identify the cause of either failure. Mr. Petarius [the owners' superintendent] said that the owners worked very closely with MAN throughout this period and that all their discussions were conducted orally. I have no reason to doubt what he said, but the fact remains that Mr Petarius himself was unable to recall these discussions in any detail. In these circumstances and in the absence of any evidence from MAN themselves or even any contemporaneous notes or correspondence dealing with these matters it is very difficult for me to form a view about the nature of the investigations which were undertaken and whether it was reasonable for the owners to leave matters in the hands of MAN rather than instruct an independent expert. However, I can well understand that an owner who has had a good relationship with first class engine builders such as MAN over many years would be slow to commission an independent expert to undertake an investigation into a problem of this kind, and I should be slow to criticise Mr Petarius or the owners for continuing to rely upon them at that stage. I did not understand Mr Petarius to say that he had by that time lost confidence in MAN's ability to get to the root of the problem (though later on and with the benefit of hindsight he did think that they had not done as much as they should have done), and if he had done so, I think he would probably have sought independent advice. As it was, his discussions with MAN led to the decision to undertake the overhaul of the vessel's engine which was carried out at Durban in November 1989.

Again it can be seen from that passage that the owners did not put before the court any evidence from MAN as to what investigations they carried out at that time.

31. The reason (or one of the reasons) for the overhaul of the engine at Durban in November 1989 was that there was yet another failure in February 1989, this time of the no 5 connecting rod head and the no 5 crankpin bearing. As in the case of some of the previous failures the first indication of the problem was the shut down of the main engine as a result of the operation of the Graviner alarm. The owners now realised that, as the judge put it at page 322, a determined effort was needed to ensure that the recurrent problem with the crankpin bearings was resolved. They accordingly provided MAN with information relating to the failures between 1983

and 1989. MAN then drew up a table of failures. The judge noted that it was apparent that the failures tended to occur when the vessel was manoeuvring and the load on the engine fluctuating. The only suggestion that MAN made at that time as to the possible cause of the bearing failures was the presence of a section of piping which might act as a trap for particles of dirt.

32. The judge held that the overhaul at Durban under the supervision of MAN was designed to eliminate any possible causes of future bearing failure. There was an issue between the experts as to whether the owners should have allowed the vessel back into service after the overhaul, given that MAN had still not identified the cause of the bearing failures in the past. The judge acquitted the owners of blame in this respect. He said this (at pages 322 to 323):

Mr Vince expressed the view that after this major overhaul had been carried out the owners had every reason from a technical point of view to think that adequate steps had been taken to cure the problem and that there were no grounds for instructing an independent consultant to investigate the cause of the earlier bearing failures. Mr. Todd on the other hand suggested that the owners ought not to have been willing to allow the vessel back into service until they had obtained some explanation of the earlier bearing failures and could be satisfied that steps had been taken to avoid them in the future. I think that would be to impose too high a burden on the owners. If it was reasonable for them to entrust the investigation to the engine builders at all, as I think it was given that MAN probably had as much, if not more, expertise in the field than any other body, I cannot see that the owners had any substantial grounds for thinking that the work carried out under MAN's supervision was inadequate to deal with the problem if MAN said it was. It is true that MAN had been unable to identify the cause of the earlier failures, but one has to have some regard to the practicalities of life when dealing with questions of this kind. I am unable to accept, therefore, that the owners themselves were in breach of their duty to exercise due diligence by failing at that stage to commission further independent investigations into the problem.

33. The judge's conclusion that MAN told the owners that the work carried out under their supervision was adequate to deal with the problem must I think have been based on the evidence of Mr Petarius, who said that the work done at Durban was carried out according to normal technical standards and nothing was found at the time. He said that nothing more could have been done. The crankshaft was inspected, all the bearings were replaced and the work was accepted by Germanische Lloyd. He said that he was convinced that the damage would not recur, but that to be sure he decided that the bearing shells should be replaced after 10,000 running hours, which would be the equivalent of two years' operation. He relied upon the fact that MAN had sent Mr Schnoor to Durban to deal with the problem. He described Mr Schnoor as a service engineer in the service department in Hamburg and as "*the person with the most experience of medium speed engines*".

34. The respondent claimants have not sought to challenge the judge's finding that the owners were not personally at fault for failing to commission a further investigation after Durban. I therefore assume that it is correct. The question then arises whether the owners have discharged the burden identified by Lord Devlin in the passages from his speech in the *Union of India* case quoted in paragraph 27 above.

35. The question is whether the owners have proved that MAN conducted as thorough an investigation as they could reasonably have been expected to conduct in the circumstances. In this connection it is, to my mind, important to note that this is not a case like that being considered by the House of Lords because, whereas in that case, as Lord Devlin pointed out in the second of the two passages which I have quoted, the owners called two surveyors of unchallenged reputation who were found by the judge to be impressive and who said what they did and why they did it and why they did not do more, in the instant case the owners did not call anyone from MAN to tell the court what they had done and why. Thus, as on the earlier occasions identified by the judge to which I have referred above, no evidence was called from MAN and the court does not have available to it MAN's documents or any clear account of what investigations were thought necessary and what investigations were carried out in order to identify the cause of the bearing failures.

36. There may of course be many reasons why the owners did not adduce any evidence from MAN. The owners have chosen not to explain the reasons and I do not think that we should speculate about them, but it does mean that it makes it more difficult for the owners to discharge the burden of proof. That is in my judgment so, even though I accept Mr Tomlinson's submission that the court must determine the question whether the owners have discharged the burden on the evidence before the court. In doing so the starting point seems to me to be the judge's finding that, in the light of the previous bearing failures, detailed investigation was called for. Given that the owners do not purport to have carried out such investigations themselves, it follows that the only way in which they could discharge the burden would be if they could show both that they delegated to MAN the responsibility of carrying out a thorough investigation into the true position and that MAN themselves exercised all proper care and skill in doing so. I shall assume that they asked MAN to carry out the detailed investigation required and turn to the question whether, on that assumption, it is shown that the MAN carried out the necessary investigations.

37. The judge expressed his conclusions on this part of the case in this way at page 323:

That still leaves the question whether the investigations carried out by MAN were as complete and thorough as the situation demanded. Here I have greater difficulty because there was very little evidence of any kind before me to indicate what steps MAN had taken to investigate this problem. Mr Todd attempted to describe certain investigations which he suggested might have given rise to valuable information or which might have led to fruitful lines of further enquiry, but in the absence of any reliable indication, even at the time of the trial, of the true nature of the problem, it was inevitably difficult for him to say that any particular kind of specialist or any particular line of investigation would be likely to have yielded the desired information. However, the history of bearing failures was in my view

sufficiently serious to call for a very thorough investigation into, among other things, the physical condition of the failed bearing shells, the lubrication conditions, and the operating conditions under which the failures had occurred. That might have called for investigations by engineers, metallurgists, tribologists or specialists in other disciplines; the precise nature and course of the investigations would no doubt have been determined by what was discovered at each stage. One specific investigation which could have been, but it seems was not, carried out at Durban was a check on the alignment of the crankpins relative to the crankshaft, although there is no reason to think that there was in fact any misalignment and Mr Todd himself accepted that the casualty with which I am directly concerned is unlikely to have been caused by relative misalignment of no 6 crankpin. Mr Tomlinson submitted that the very fact that no one had been able to identify the cause of the failures, either at the time or in the years since the casualty, makes it very difficult to say that anything more should have been done which would be likely to have provided an answer to the problem, but I think that approaches the matter from the wrong end. It is for the owners to show that they themselves and those for whom they were responsible exercised due diligence to make the ship seaworthy, or that any failure to do so, if there was one, did not cause or contribute to the casualty. Since the cause of the casualty remains unknown, the owners can only discharge that burden by showing that they and MAN between them did not overlook any lines of enquiry which competent experts could reasonably be expected to have pursued, but in the absence of evidence as to what investigations were in fact carried out and why, I cannot be satisfied that that is so. In these circumstances the owners are unable to discharge the burden of showing that they exercised due diligence to make the ship seaworthy.

38. I agree with those conclusions, which are really the crux of this part of the case. A very thorough investigation was required in order to identify the cause of the problems which had occurred on a number of occasions. In this regard it is important to reiterate the point made by the judge on page 321 in the passage which I have quoted in paragraph 22 above, namely that a bearing failure may have very serious consequences, including the shutting down of the main engine in dangerous circumstances. I accept Mr Gee's submission that the more serious the possible consequences the greater the effort that must be made to identify the cause of the problem and, if possible, to eradicate it. It was partly for this reason that the experts agreed that a full investigation of the possible causes of the earlier failures should be carried out.

39. It is true that Mr Schnoor of MAN went to Durban, together with one or more fitters, and carried out certain work, but there is no document evidencing what investigations the owners asked MAN to carry out or what MAN asked Mr Schnoor to do and there is no report of detailed investigations in fact being carried out. There is no evidence of any scientific study of the possible causes of the problem and no report of the likely causes. Indeed there is only one document emanating from MAN which simply refers to *"overhaul work"*, and not to the kind of investigation which the evidence shows was required. It states that because of repeated bearing damage, crank bearings were opened up. It also includes the following:

The visible wear on the bearings indicates that wear in the upper and lower shells is abnormally high after a short working period. All bearings were renewed because of the expected service life of 15,000 hours, resulting from abrasion already visible.

In particular bearing no 1 was extremely worn, although it is fair to say that that bearing had been running for 32,000 running hours (which may have been a mistake for about 24,000 running hours). It was then said that "the removed bearing and connecting rod head were despatched to Hamburg for inspection". It may be that it was no 1 bearing that was sent to Hamburg, but it is not clear and there is in any event no report of any inspection in Hamburg of any of the bearings that were removed.

40. As the judge observed in the passage just quoted, there is no evidence of an investigation into the physical condition of the failed (or indeed worn) bearing shells or the lubrication conditions and the operating conditions when the failures occurred. There is no evidence of what, if any, thought was being given to these problems by MAN in Hamburg and there is no suggestion that Mr Schnoor or anyone else from MAN who was sent to Durban considered any of them. Mr Tomlinson submitted that it was reasonable of the owners to decide to renew the bearing shells every 10,000 running hours, but there is no support for the conclusion that that decision was made as a result of a proper scientific study of the causes of the bearing failures carried out by MAN. On the contrary, it was Mr Petarius' own idea, after discussion with the MAN engineer. It was not based upon any reasoned view as to the causes of the earlier failures because the causes had still not been identified. In these circumstances the owners did not in my judgment demonstrate that it was reasonable simply to limit the life of a bearing to 10,000 running hours.

41. Mr Tomlinson further submitted that it is a reasonable inference that MAN did all that a reasonable engine builder would have done and that there is no basis for holding that they were guilty of such a negligent act or omission as no reasonably competent engine builder would commit or fail to commit; cf ***Saif Ali v Sydney Mitchell & Co*** [1980] AC 198 per Lord Diplock at 220. However, I am unable to accept that submission. It was agreed between the experts that a thorough investigation was called for and, to my mind, there is no or no sufficient evidence that such an investigation was carried out. There is no sufficient evidence upon which the court could draw the inferences suggested by Mr Tomlinson.

42. In short I agree with the judge that the owners failed to demonstrate that a proper investigation was carried out. They adduced no evidence from MAN, with the result that they have not demonstrated what was done, so that it is not possible to say that due diligence was exercised. As I see it, there are three possibilities. The first is that the owners failed to give MAN sufficient instructions to carry out a proper and thorough investigation, the second is that MAN failed to carry out the owners' instructions and the third is that MAN did carry out a proper and

thorough investigation but no or insufficient evidence of it was put before the court in order to enable the court to say that due diligence was exercised.

43. For these reasons I am not persuaded that the judge was wrong to hold that the owners had failed to discharge the burden of proving that they exercised due diligence, through themselves, their servants, their agents and their independent contractors, to make the vessel seaworthy before she sailed from Rosario by responding sufficiently to the earlier bearing failures. That conclusion makes it unnecessary to consider the other bases upon which the judge found a failure to exercise due diligence. I shall not therefore further lengthen this judgment by doing so.

Conclusion

44. It follows from the conclusion that the owners have failed to show that due diligence was exercised to make the vessel seaworthy before she sailed from Rosario that, given the further conclusion that the vessel was unseaworthy at that time, the defendants are liable for any loss caused by that unseaworthiness as damages for breach of the charter or of the contract of carriage contained in or evidenced by the bill of lading as the case may be. On that basis I do not understand the defendants to challenge the conclusions reached by the judge on questions of causation or quantum and none of the interesting questions arising out of the abandonment of the voyage and the law of frustration arise. In all the circumstances I would dismiss the appeal.

LORD JUSTICE WALLER:

I agree that for the reasons given by my lord that this appeal should be dismissed.

On the question of construction I have nothing to add. On the question of unseaworthiness in agreement with my lord the position seems to me to be clear. There was a defect which caused the bearing to fail on a perfectly ordinary voyage down the Parana within a short distance of the loading port. If a prudent owner had known that that defect existed or in the context of this case that such a defect *still* existed, he would have been bound to remedy the situation or not send the vessel to sea.

On the question of due diligence I have also read in draft the judgment of Sir Murray Stuart-Smith. I do not share his hesitations. I would put the matter simply in this way. There was a problem causing bearing failures which had been identified prior to Durban. The casualty in this case demonstrated that the problem had not been cured. The existence of the problem called as the judge said for detailed investigations in Durban. The owners delegated the making of those investigations to MAN, but did not produce evidence as to the extent of the investigations carried out by MAN. The owners thus failed to discharge the burden of proof that was on them.

SIR MURRAY STUART-SMITH:

1. Three issues fall to be determined in this appeal. First the construction of the Norgrain Voyage charterparty and particularly the relationship between clause 1 and clause 35. For reasons given by Clarke LJ, with which I agree, I consider that the due diligence provision in clause 35 governs the whole voyage. Secondly, was the `Fjord Wind' seaworthy when she loaded at Rosario? Again, for reasons given by my Lord, I agree that she was not. Thirdly, in the light of the finding of unseaworthiness have the shipowners discharged the burden which is upon them of showing that they acted with due diligence? It is this third issue that I have found more difficult.

2. Once it is established that the vessel is unseaworthy the onus shifts to the shipowner to show that that state of affairs came about without negligence on his part or those for whom he is responsible. This is because proof of unseaworthiness fulfils the same function in this type of case as *res ipsa loquitur* does in an ordinary case of negligence (see per Lord Devlin in ***Union of India v N.V. Reederij Amsterdam*** [1963] 2 Lloyd's 223 at p235). Putting the matter in simple terms, a ship should not be unseaworthy if proper care is taken; therefore, the shipowner must show that it has come about without his fault.

3. The classic exposition of the principle relating to *res ipsa loquitur* is to be found in the judgment of Asquith LJ in ***Barkway v South Wales Transport Co.*** [1948] 2 All ER 460. That was a case where a bus had left the road and crashed as a result of a tyre burst. In stating how the defendant could discharge the onus at p471 the Lord Justice said:

   "*To displace the presumption [of negligence] the defendants must.....prove (or it must emerge from the evidence as a whole) either (a) that the burst itself was due to a specific cause which does not connote negligence on their part but points to its absence as more probable, or (b) if they can point to no such specific cause, that they used all reasonable care in and about the management of their tyres.*"

4. This statement has been consistently followed, see for example in ***Moore v R. Fox and Sons*** [1956] 1 QB 596 at 611 a case which was referred to in the ***`Antigoni'*** [1991] 1 Lloyd's 209 by Staughton LJ at p213. He went on to say:

   "*There is not imposed on the shipowner in law any burden to establish a latent defect if he seeks to rely on Art. IV R1 [the due diligence defence]. But he will find it much easier to establish due diligence if he can point to the likelihood of a latent defect, and much more difficult if he can suggest none, or only one which is wholly implausible.*"

5. There is one important respect in which shipowners are in a more difficult position in showing due diligence than a defendant in an ordinary case of negligence where the maxim *res ipsa loquitur* occurs. That is because the duty of seeing that the ship is seaworthy is not delegable; the owner is responsible for any failure to exercise due diligence on the part of those whom he has relied upon to make the vessel seaworthy. ***Riverstone Meat Co. Pty. Ltd. v Lancashire Shipping Co. Ltd.*** [1961] AC 807. In this case that is the engine manufacturers M.A.N. on whom the appellants relied.

6. The owners could not point to a specific defect as being the likely explanation as to why No.6 crankpin bearing failed after only 3500 hours. In order to avoid liability therefore they had to show that they had exercised all

reasonable care in relation to the serviceability and fitness of the crankpin bearing and the lubrication system upon which it depended for its efficacy. Moreover, the standard of care was high because of the history of crankpin bearing failures and the extremely serious consequences if the failure occurred in a situation where, as on this and previous occasions, the vessel could not stop and replace the bearing.

7. The judge found that the owners had not discharged the onus upon them in three respects. His principal finding is under the rubric (a) `*The owners' response to the earlier crankpin bearing failures'* at p320 RHC to 323 RHC. Additionally under the rubric (b) `*The temperature of the lubricating oil*' he held that for some unexplained reason the temperature of the lubricating oil entering the main engine was, after the overhaul at Durban, increased from 46 deg. C. to 54 deg. C. And thirdly under the rubric (f) Failure to implement M.A.N's recommendations, he held that the owners had ignored the recommendation to increase the viscosity of the Luboil and install an additional purifier. Mr Tomlinson QC, for the owners, described these last two as make-weight points and in any event he submitted that the judge was wrong. Even if they cannot be dismissed as make-weight points, it seems to me that the main thrust of the judge's decision is under the first head; it was to this issue that argument in the court was mainly directed. And it is to this issue that I turn.

8. The judge held:

(i) `The history of bearing failures was in my view sufficiently serious for a very thorough investigation into, among other things, the physical condition of the failed bearing shells, the lubrication conditions, and the operating conditions, under which the failures had occurred.' (323 LHC).

(ii) That the owners had entrusted this investigation to M.A.N.

(iii) That *`if it was reasonable for them to entrust the investigation to the engine builders at all, as I think it was given that M.A.N. probably has as much, if not more, expertise in this field than anybody, I cannot see that the owners had any substantial grounds for thinking that the work carried out under M.A.N's supervision was inadequate to deal with the problem if M.A.N. said it was'* (322 RHC - 323 LHC). He therefore acquitted the owners of personal liability in respect of the investigation. But of course the owners were responsible for M.A.N.

(iv) His crucial finding is at 323 LHC - RHC:

"It is for the owners to show that they themselves and those for whom they were responsible exercised due diligence to make the ship seaworthy, or that any failure to do so, if there was one, did not cause or contribute to the casualty. Since the cause of the casualty remains unknown, the owners can only discharge that burden by showing that they and M.A.N. between them did not overlook any lines of enquiry which competent experts could reasonably be expected to have pursued, but in the absence of evidence as to what investigations were in fact carried out and why, I cannot be satisfied that that is so. In these circumstances the owners are unable to discharge the burden of showing that they exercised due diligence to make the ship seaworthy."

9. The owners did not join M.A.N. in the proceedings nor did they seek to adduce evidence from them as to exactly what they did and why they did not do some of the things which Mr Todd suggested that they should have done. Instead they relied upon the evidence of Mr Petarius and their expert Mr Vince.

10. The owner's argument as ultimately refined in this Court, perhaps with a little encouragement from this member of it, proceeded by the following steps:

(i) Although no specific explanation could be found for it, the documents, such as they are, and Mr Petarius' evidence show that there was a thorough investigation at Durban and the problem was found to be a tendency or propensity of the crankpin bearings to wear out before their expected life of 30,000-40,000 hours.

(ii) There was no specific defect which would cause a catastrophic and unexpected failure within a short time of installation of a new bearing.

(iii) It was reasonable to deal with the problem by replacing all bearings after 10,000 hours. This was reasonable because a prudent shipowner would regard the risk of failure in less than 10,000 hours as negligible, especially if the bearings were inspected every 3000-5000 hours.

(iv) The alternative to (iii) was to change the engine or keep the vessel from going to sea until the cause was discovered, which it never was even after the casualty.

11. If these matters had been established, for my part I should have been prepared to hold that the owners had discharged the onus upon them. But there are a number of problems. First, I am not convinced that this was really the way the owners put their case in the court below. Mr Tomlinson frankly accepted that he did not put it this way to Mr Todd. The judge, in what I regard as a meticulously careful judgment does not deal with such a submission. Mr Tomlinson has drawn our attention to the following passage in his final submission: D16 PM p51 line 46-52 line 19:

"Mr Tomlinson: Or you take the step that Mr Petarius, and the engine builders took which was to say, "We have looked at absolutely everything. We have found a reservoir in which dirt can accumulate and we have eliminated that, because there has been evidence of dirt in the past. We have looked at the bearings and their context and the conditions in which they are operating. We really can't find anything at all but we've already formed the view that these bearings are not going to last for more than about 10,000 hours and the proper way forward seems to be we put in new bearings now, having thoroughly overhauled everything and looked at everything that needs to be looked at, and for the future we'll change them every 10,000 hours.

Mr Justice Moore-Bick: That is fine if the information you have suggests that what you have is in a sense a wear problem, in other words, something that will reduce the life of the bearings to far less than it might otherwise have

been expected to be. But if the evidence suggests that you have a different sort of problem, a sudden failure problem under certain circumstances, that would not solve that problem, would it?

Mr Tomlinson: No, my Lord. Again two answers: firstly on the facts, we would submit, that there was no such evidence in that all the indications were that it was a wear problem in that when they looked at them in Durban they found that some of them were more heavily worn than one would have expected given the number of hours they had run; secondly, that there was no indication that there was any particular problem."

It seems that the judge did not deal with the submission because he concluded that the defect, whatever it was one which was `liable to cause sudden failure under certain circumstances'.

12. I think that this is what the judge did find when he was dealing with the issue of seaworthiness at the point of loading. He said at 318 RHC:

"However, as far as unseaworthiness at the commencement of the voyage is concerned, the most telling evidence in my view is the very fact that there was a failure of No. 6 crankpin bearing within a few hours of the vessel's departure from the loading port. There is nothing to suggest that the conditions which the vessel encountered in the river were in any respect unusual or that the casualty was the result of any outside intervention. In these circumstances, although it has been impossible to identify the precise cause of the bearing failure, the interference must be that there was a defect of some kind in the bearing itself or the lubricating system which rendered the vessel unfit to encounter the ordinary incidents of the voyage."

13. Mr Tomlinson submits that while this may justify the conclusion that the vessel was unseaworthy, it does not justify the conclusion that the problem was not a propensity to excessive wear, but some defect that would cause sudden failure in certain circumstances. He relies on M.A.N's repair report of 10.11.89, the relevant part of which is at Core Bundle p46 and is in these terms:

" Re. 1 Crank bearings

Because of repeated bearing damage, crank bearings 1-6 have been opened after the following working hours:
Cylinder 1 - 32,000 hrs (Connecting rod head 32,000 hrs)
Cylinder 2 - 4,000 hrs (Connecting rod head 32,000 hrs)
Cylinder 3 - 32,000 hrs (Connecting rod head 32,000 hrs)
Cylinder 4 - 8,100 hrs (Connecting rod head 8,100 hrs)
Cylinder 5 - 3,500 hrs (Connecting rod head 3,500 hrs)
Cylinder 6 - 12,2000 hrs (Connecting rod head 20,000 hrs)

The visible wear on the bearings indicates that wear in the upper and lower shells is abnormally high after a short working period. All bearings were renewed because of the expected short service life of 15,000 hrs., resulting from the abrasion already visible.

The appearance of the crank pins gave no indication of the high wear.

The locking bolts of cylinders 1,2,5 and 6 were removed and refitted with a 2.0mm diameter flush bore. There was no sign of coke formation.

Bearing no. 1 was extremely worn. The bronze was visible in large areas, and was showing a dark colouration in the central area, to a width of 20mm. The [illegible] of the bearing shell had worn by 3.0mm, and coke formation was found between the bearing box and the bearing shell. The connecting rod head was replaced because of increased working at the joint. The connecting rod overhauled during Service No. 2 711 750 was used.

The removed bearing and the connecting rod head were despatched to Hamburg for inspection."

Mr Gee points out that the hours for No.1 cylinder should be about 24,000 and not 32,000.

14. Mr Tomlinson also relied on the evidence of Mr Petarius. I need only refer to certain passages in cross-examination: D7 AM p6 lines 9-13:

"Q.....But at Durban did you realise that one of the factors that might have been at play was a relative misalignment of the crank pin to the crank shaft?

A. It was investigated, this possibility, in Durban. In Durban every possible cause of the incident was investigated."

At p7 line 48:

"Q. You were not dissatisfied with M.A.N in Durban?

A. No, because the work done in Durban was carried out according to normal technical standards and nothing was found at that time. Nothing else could have been done at that time. The crank shaft was inspected; all the bearings were replaced. The surrounds were inspected and the works were accepted by Germanischer Lloyd and at that time we were firmly convinced that the damage would not recur. And to be quite sure, we decided, or rather I should say that this was mainly my decision, that after 10,000 running hours which would approximate equivalently to the ship being in dock every two years, that the shells, the bearing shells would be replaced." At p16 line 31:

"Q. You were just gambling on whether you could avoid it.

A. No, because the situation as ascertained with the bearings which had been operation was that they were good for at least 10,000 more operating hours.

Q. How did you know that?

A. Through our discussions with M.A.N., with Mr Schnoor, and also through my 40 years experience in shipping and my own ability to judge the situation, and I myself have been to the works, the premises of the manufacturer in

Braunsveig (?) of the bearings where they make, they go through all the manufacturing processes for the bearings and, have had discussions with the people there." At p17 line 12:

"Q. And the fact was that a life of 10,000 hours on bearing shells was in itself wholly exceptional and abnormal, was it not?

A. Yes, it is unusual. Normally it would be 40,000. That is exactly the problem we had here and why we could not ultimately come to any explanation. We can only make the best of the situation.

Q. And in fact the 10,000 hours life reflected your knowledge that these bearings were abnormal and not satisfactory.

A. Yes, we knew that after the first casualty."

15. M.A.N's invoice for the work done in Durban related to the period 23.10 to 15.11.89 when for the most part of the time not only Mr Schnoor who was M.A.N's most experienced engineer, but two other technicians, were working on the engine, albeit not exclusively on the crankpin bearing problem. This shows, says Mr Tomlinson, that this was not just a routine overhaul and replacement of the bearings.

16. Does all this displace the judge's finding that it was not a specific defect liable to give rise to sudden failure, but a propensity to wear before the normal expected life of the bearing? The fact that the bearing failed within 24 hours of leaving Rosario does not help. On the other hand the fact that it failed after only 3,500 hours, without there being any explanation such as a badly manufactured bearing or dirt affecting this particular bearing (which on the history was most prone to failure) does tend to support the judge's conclusion. Moreover, there is a remarkable lack of evidence as to what happened in relation to the bearings after the casualty. We know that at one time the owners contemplated substituting a different kind of bearing with aluminium instead of lead/bronze. But the vessel was sold and we do not really know what happened, save that there does not appear to have been a continuing problem. Without knowing this history, we are left to speculate. If there was no continuing problem it certainly suggests that whatever it was that was causing the failure could and should have been discovered at Durban. Furthermore I find it surprising that there does not seem to have been any relevant exchange between the owners and M.A.N. after the casualty. One might have thought that the owners, having placed their confidence in M.A.N. to cure the problem, which they manifestly failed to do and when their advice that the bearings would last at least 10,000 hours proved so lamentably wrong, would make a very aggrieved complaint against M.A.N. If there was, we have heard nothing of it. If there was not, one cannot help wondering why not. Accordingly although I have had very considerable doubt about the matter, I do not feel able to dissent from the judge's conclusion, shared by my Lords, that at the end of the day we simply do not know enough about what M.A.N. did and why they did not do some of the things suggested by Mr Todd.

17. Furthermore, I do not think we should interfere with the judge's conclusion that the owners' failure to implement M.A.N's recommendation to increase the viscosity of the oil and to install another purifier constituted a failure to exercise due diligence. Both these recommendations could affect the longevity of the bearings. Having regard to the gravity of the problem and the fact that no explanation for it had been found, it seems to me that if the owners were to rely on the bearings lasting 10,000 hours, they ought at least to have adopted these recommendations. I am not impressed by the semantic distinction between a suggestion and a recommendation. True it is that M.A.N. never put the recommendation in writing. But the judge found, as he was entitled to do, that it had been made and ignored. No very satisfactory explanation for ignoring it was given.

18. On the other hand I do not think the evidence justified the judge in concluding that the inlet temperature of the engine oil was increased by some 8 deg. C. after Durban. The matter was never pleaded; the owners did not have available the witnesses who made the relevant entries in the log or wrote the telex at p320 on which much reliance was placed. It was not particularly helpful to put entries to witnesses not responsible for them. Moreover, Mr Vince's analysis (though Mr Gee says it cannot be dignified by such a term) of the temperatures before and after Durban at p351 persuades me that there must be very considerable doubt, to put it no higher, that the inlet temperatures were so increased. No one could suggest any conceivable reason why this should have been done, or for that matter, how it was done. True it is that Mr Tomlinson was unable to suggest why the temperature at the outlet from the oil cooler should be taken in preference to that at the inlet to the engine. But to my untutored mind this does not seem so extraordinary. If you are only going to take two instead of three readings. I cannot see any reason why the inlet to the engine should be preferred to the outlet from the oil cooler. The former is bound to be somewhat higher than the latter because of the ambient temperature of the engine room through which the pipes flow. The figures after Durban on the owners' case show a slight rise of two or three degrees, in what are said to be the cooler outlet, engine outlet and thrust bearing. This seems to me quite inconsistent with an increase of 8 deg. C. at the engine inlet as found by the judge. I think the judge should have declined to make any specific finding on this point, as Mr Tomlinson invited him to do. But I do not think this point affects the validity of the judge's overall conclusion that the owners did not discharge the burden of proof upon them.

Order: Appeal dismissed. Respondents awarded 90% of costs of appeal and respondant's notice. Leave to appeal to House of Lords refused. (Order does not form part of the approved judgment)

Mr Steven Gee QC and Miss Vasanti Selvaratnam (instructed by Clyde & Co, London, EC3M 1JP) represented the Respondents
Mr Stephen Tomlinson QC and Mr Nicholas Hamblen QC (instructed by Richards Butler, London, EC3A 7EE) represented the Appellants