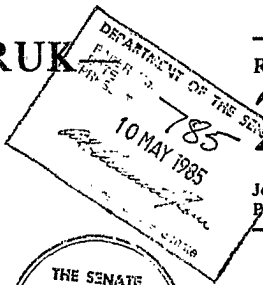
HMAS TOBRUK
Response



Report

227

Joint Committee of Public Accounts

Parliament of the Commonwealth of Australia 1985

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

JOINT COMMITTEE OF PUBLIC ACCOUNTS

227TH REPORT

HMAS TOBRUK - RESPONSE

FINANCE MINUTE ON THE COMMITTEE'S 223RD REPORT -

HMAS TOBRUK

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DUTIES OF THE COMMITTEE

Section 8.(1) of the Public Accounts Committee Act 1951 reads as follows:

Subject to sub-section (2), the duties of the Committee are:

(a) to examine the accounts of the receipts and expenditure of the Commonwealth including the financial statements transmitted to the Auditor-General under sub-section (4) of section 50 of the Audit Act 1901;

(aa) to examine the financial affairs of authorities of the Commonwealth to which this Act applies and of intergovernmental bodies to which this Act applies;

(ab) to examine all reports of the Auditor-General (including reports of the results of efficiency audits) copies of which have been laid before the Houses of the Parliament;

(b) to report to both Houses of the Parliament, with such comment as it thinks fit, any items or matters in those accounts, statements and reports, or any circumstances connected with them, to which the Committee is of the opinion that the attention of the Parliament should be directed;

(c) to report to both Houses of the Parliament any alteration which the Committee thinks desirable in the form of the public accounts or in the method of keeping them, or in the mode of receipt, control, issue or payment of public moneys; and

(d) to inquire into any question in connexion with the public accounts which is referred to it by either House of the Parliament, and to report to that House upon that question,

and include such other duties as are assigned to the Committee by Joint Standing Orders approved by both Houses of the Parliament.

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PREFACE

Following the creation of the Department of Finance in 1976, it was agreed that the 'Treasury Minute' arrangements for ensuring that appropriate action is taken in response to Committee recommendations, should continue. These procedures then became known as the 'Department of Finance Minute'.

Although these arrangements are periodically reviewed, they have been in operation, in more or less their current form, since 1952, when the Public Accounts Committee was re-established.

The Finance Minute procedures, as they now stand, are as follows:

1. The Report of the Committee is tabled in both Houses of the Parliament and motions are moved in both places that the Report be printed as a Parliamentary Paper.

2. The Chairman of the Committee thereafter forwards a copy of the Report to the responsible Minister and to the Minister for Finance with a request that he give the Report his consideration and inform the Chairman of the action taken to deal with the Committee's conclusions.

3. The reply which is in the form of a Department of Finance Minute, is then examined by the Committee and, together with the conclusions of the Report to which it relates, is submitted as soon as possible as a Report to the Parliament.

4. Should the Committee find during its examination of a Department of Finance Minute that certain recommendations are not fully dealt with or are subject to a further Minute, it holds an exploratory discussion with officers of the Department of Finance prior to the submission of the Minute to the Parliament.

5. In reporting a Minute to the Parliament, the Committee, except in special cases does not usually make any comment other than to note recommendations not fully dealt with or subject to a further Minute.

6. When the Committee next examines the Department concerned the Department of Finance Minute is considered by the Committee if applicable.

7. The Department of Finance furnishes the Committee with a half-yearly report on outstanding Minutes, indicating the progress made in dealing with the Committee's comments.

In accordance with the procedures outlined above, this report documents the Department of Finance Minute which was submitted in response to the Committee's 223rd Report.

For and on behalf of the Committee.

Senator G. Georges
Chairman

M.J. Talberg
Secretary
Joint Parliamentary Committee of Public Accounts
Parliament House
Canberra
8 May 1985

CHAPTER 1

INTRODUCTION

1.1 The Committee's 223rd Report, HMAS Tobruk, was tabled in Parliament on 7 March 1984[1]. A brief summary of that report appears in Chapter 2 below.

1.2 The sixty three conclusions and associated thirty three recommendations of Report 223, together with the Department of Finance Minute appear in Chapter 3 below. The Finance Minute differs from previous Finance Minutes received by the Committee in that it is prefaced by supplementary observations of the Minister for Defence commenting generally on the Committee's HMAS Tobruk Report and inquiry.

1.3 The Committee acknowledges that the Minister for Defence and the Minister for Social Security have agreed with the majority of the Committee's conclusions and have begun to implement the recommendations of Report 223 accordingly. However, the Committee views very seriously the critical observations of the Minister for Defence and the unsatisfactory nature of many of the Defence Department's responses to Report 223's conclusions/recommendations.

1.4 The Committee firmly believes that many of the Minister for Defence's observations prefacing the Finance Minute misrepresent the facts of the Tobruk project and are unwarranted and inaccurate. From current evidence before the Committee it would appear that the Minister for Defence has been poorly advised as to the success of the HMAS Tobruk project and the conduct of the Committee's inquiry. In addition, the Defence Department's Finance Minute responses, while generally voicing agreement with the Committee's findings, contain several unjustified and ambiguous statements which warrant further comment.

1.5 Generally the Committee questions the utility and motives for including a Minister's supplementary observations in a Finance Minute. The Committee believes that such observations should be aired at the time, or soon after, the Committee's Report is tabled. They should not be repeated in a Finance Minute. In the case of this Finance Minute the Minister's supplementary observations do not relate to the specific comments and responses of the Department.

1.6 For these reasons the Committee has undertaken the following detailed analysis of the Finance Minute response in order that that response can be seen in perspective.

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1. Refer Parliamentary Paper No. 318 of 1984.

The Observations of the Minister for Defence

1.7 In paragraph 3.2(a) the Minister states that 'the Department took a proven ship design to meet the RAN requirement'. This statement is arguable - both on the grounds that the ship design was 'proven' and that it met the RAN requirement.

1.8 HMAS Tobruk, a landing ship heavy or LSH, is a modified variant of the 1960's UK RN Sir Bedivere LSL (landing ship logistic) class of vessel. This original LSL class has been 'proven' in the sense that six LSL ships were launched in the UK between 1963 and 1967 and most are still in operation[2]. However the original LSL was substantially modified by the Department to derive the LSH[3]. These modifications have not been 'proven' (as the LSH is essentially a 'first-of-class' ship) and may be directly linked to the severe problems of HMAS Tobruk[4].

1.9 Significantly a senior naval officer of the Department has described the situation as follows:

> Because of the Royal Navy connection and the age of the class used as a general arrangement for our ship, much of the philosophy adopted is outdated both in machinery as fitted and hull construction configuration. The advances in outline, location of accomodation and machinery spaces current in the mid to late seventies have not been adopted. The bow and stern door arrangements are untidy and mirror the age of the RN and early single hold design, rather than that expected for a ship laid down in 1979.[5]

1.10 In paragraph 3.2(b) the Minister describes Carrington Slipways Pty Ltd as 'this reputable shipbuilder'. No inference should be drawn from the use of this description that the Committee's report has suggested the contrary. Indeed Chapter 8 of Report 223 acknowledges the company's good standing in the Australian shipbuilding industry and contribution to the local economy.[6]

1.11 Unlike the Minister's evenhanded explanation of why problems arose - 'neither the Shipbuilders Quality Control system nor the Departments Quality Assurance performed to the standard expected'[7] - the Committee, at paragraph 8.1 of Report 223 accurately noted that 'the Department of Defence is primarily responsible for these problems'. As the then Chief of Naval

2. Refer Tables 1A, 1B of Report 223, pp. 4-5.
3. Refer paragraphs 5.10 to 5.14 of Report 223, pp. 57-59.
4. Refer to Appendix 5 and paragraph 17 of Appendix 3.
5. Appendix 3, paragraphs 19 and 20.
6. Paragraphs 8.1 to 8.4, Report 223.
7. Refer paragraph 3.2(b), Chapter 3 below.

Technical Services stated to the Committee:

> I believe our appreciation of the difficulty of applying Australian standard quality control systems to shipbuilding has improved substantially in the last five years. Therefore it is almost axiomatic to say that at the time we were doing it with 'Tobruk' we were not as good as we would like to have been.[8]

1.12 The Committee does not agree with the qualified nature of the Minister's acknowledgement of deficiencies in his Department's management of the HMAS Tobruk project. In paragraph 3.2(c) the Minister comments that '....some mistakes have been made .... performance in some cases has been less than required .... some of these deficiencies should have been prevented'. The Committee believes that this is an understatement of the myriad of problems detailed in its 223rd Report.

1.13 While agreeing with the Minister that there are 'limitations on resources and it is a matter of judgement for management as to how resources are allocated between competing financial demands'[9] the Committee contends that, in the case of the HMAS Tobruk project, the Department's system and quality of managerial decision making was poor. The Department has acknowledged this. For example in its second submission to the Committee's inquiry the Department stated:

> By the time an inspection had been completed and a report written, circulated and considered, matters on which Navy Office decisions had been sought had, in most cases, been overtaken by events as shipbuilder's work could not normally cease during the Navy Office consideration process.[10]

1.14 The Committee's current comprehensive inquiry into the Defence Department's overall project management and associated administration reflects the Committee's concern for improvement in this area.

1.15 The Committee completely rejects the criticisms made by the Minister at paragraph 3.2(c) and again questions the quality of advice given to the Minister on these matters. As is clearly stated in section 8 (1)(b) of the Public Accounts Committee Act, the Committee has a duty 'to report .... with such comment as it thinks fit, any items .... or any circumstances connected with them, to which the Committee is of the opinion that the attention of the Parliament should be directed'.

1.16 Significantly no departmental individual was named in Report 223. Reference was only made where necessary to offices, not officers, within the Department.

8. Minutes of Evidence, 7 September 1983, p. 776.
9. Refer paragraph 3.2(c), Chapter 3 below.
10. Report 223, Appendix C p. 159.

1.17 With regard to the integrity of witnesses, it can be observed that verbatim extracts of public evidence together with views expressed in official Defence Department documents are the sources of statements seen by the Minister to 'impugn' witnesses. The Committee's conclusions have been based on these official, acknowledged sources.

1.18 The Committee wishes to record that it has been the statements of senior departmental witnesses which have been interpreted by personnel in the Naval Technical areas (including the Overseeing Organisation) as 'impugning integrity'. The Committee is aware that, on 14 September 1983, the Area Representative of the Association of Draughting Supervisory and Technical Employees lodged an official protest to the Department's General Overseer and Superintendent of Inspection East Australia Area. The author voiced his 'great concern' about 'recent statements made by (a senior Service officer) to the Joint Parliamentary Committee of Public Accounts .... regarding the building of the Tobruk .... that the overall quality objective was not fully met owing to the inexperience of naval personnel'.[11]

1.19 The Department's Central Office replied to the protest on 6 October 1983 stating that the comments referred to had been 'misinterpreted (in the media) and hence misrepresent the facts' but 'nevertheless the Department does accept that the management arrangements and the number of field representatives resident at the shipyard was not sufficient to provide an adequate level of management visibility .... both the Department and the contractor underestimated their respective tasks and did not have the depth of expertise applied to these tasks now seen to be necessary with hindsight'.[12]

1.20 The Minister's comment at paragraph 3.2(c), that 'it does not reflect credit on a Parliamentary Committee when it implies that witnesses have not told the truth without having evidence in support', is without foundation. It does not reflect credit on a Commonwealth Department when it fails to bring readily to the attention of a Parliamentary Committee documents of central relevance to the Committee's inquiry.

1.21 As the Minister correctly observes in paragraph 3.2(d) of his comments, 'once the Committee decided to re-open its inquiry and provide explicit advice of its needs everything asked .... was made available.' It should not have been necessary to reopen the inquiry, then to have to explicitly detail a list of required documents and then to continue asking that relevant documents be made available.[13] These documents and events should have been raised at the outset of the Inquiry in 1982, not produced as a result of considerable Committee pressure when it re-opened the inquiry in 1983.

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11. Committee file 82/17/B(1) Pt. 19.
12. Department of Defence reference DGNP 287/83, 49/5/168; also Committee file 82/17/B(1) Pt. 19.
13. For example, the Review of the Board of Inquiry Report was completed in May 1982, not mentioned at the September 1982 Committee hearings and only produced in June 1983 following the Committee Chairman's written request after the Committee re-opened its inquiry.

1.22 As the Committee's Chairman commented when tabling Report 223:

> The Committee was not satisfied with this aspect of the Department's conduct for it believed that a committee of the Australian Parliament should be given a full and frank account of all relevant events and documents pertinent to the matter under consideration. It is not a matter of receiving information on a need to know basis.[14]

1.23 The Minister's comment at paragraph 3.2(f) below, that the Review of the Board of Inquiry Report was 'issued before the first PAC hearing', is wrong. The Review Report was completed in May 1982 and directions given in respect of its recommendations in June 1982 by the Deputy Chief of Naval Staff prior to the Committee's September 1982 hearing.[15] However, in no sense was the Review Report issued as a public document in 1982. It was classified as a restricted document, thus 'possibly harmful to national security'[16] and not widely circulated. Its existence was not acknowledged by departmental witnesses at the Committee's September 1982 hearing nor did such witnesses make references to the events which it analysed. Furthermore the Department, only after receiving many requests and representations, most reluctantly made the Review Report available to the family of Naval Reserve Cadet Kenneth Dax.[17]

1.24 Significantly, when the Committee's Chairman (in May 1983) requested the Department to forward a copy of the Board of Inquiry Report and the Review of the Board of Inquiry Report the Minister, in June 1983, decided to forward expurgated versions of both Reports.[18] Following the Committee Chairman's request for unexpurgated versions of both Reports in July 1983 the Minister, in August 1983 forwarded the full copies of both Reports 'in confidence' as per section 11 of the Committee's Act.[19] Hence it is wrong for the Minister to suggest that the document was 'issued before the first PAC hearing in September 1982'.

1.25 The Committee does not accept the implication in the Minister's comments at paragraph 3.2(f) below that the Committee's report was solely based on 'evidence gathered from the Navy's and the Department's self-examination exercises and consequential rectification action.' The Committee's sixty three conclusions and thirty three recommendations demonstrate that, in many cases, appropriate rectification action did not automatically follow after the completion of these departmental reports and that the Department's 'self-examination exercises',

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14. Senate Daily Hansard, 8 March 1983, pp. 629-630.
15. Report 223, Table 2: Chronology of Events, pp. 15-16.
16. Department of Defence 'How to Classify a Document', March 1983.
17. Report 223, paragraphs 7.9 to 7.17, also Table 5: Chronology of Dax Family Correspondence, pp. 112-115.
18. Committee file 87/17/B(2) Pt. 3
19. Committee file 87/17/B(2) Pt. 5.

though commendable,[20] did not cover all appropriate matters. In addition much of the Committee's report drew on other recognised sources of information e.g. public and in camera evidence, the reports and conclusions of the Auditor-General, industry statements, and experience gained from field inspections. The genesis of the Committee's current Defence Project Management inquiry may be found in Report 223 and in widespread concerns raised during the conduct of the HMAS Tobruk inquiry.

1.26 In preparing Report 223 the Committee fulfilled its duty to report to the Parliament all relevant facts and findings associated with its inquiries. This duty involves not only reaching conclusions and making recommendations but, more importantly, providing relevant information in an accessible form for Parliament and hence the community . In the case of HMAS Tobruk the mere existence of classified departmental documentation does not fulfil this public acountability need. Rather the Committee's inquiry process, Report and comments in this Finance Minute Report more satisfactorily achieve this end.

1.27 Perhaps the most unwarranted criticism of the Committee is contained in paragraph 3.2(g) of the Ministers comments. This paragraph asserts that the Department's response to the Committee's report is dependent on the Department's perception of the calibre of some witnesses, regardless of the evidence, arguments and conclusions presented in the report. This attitude implies that the Department of Defence should have the right to identify and judge the professional standing and competence of all Committee witnesses.

1.28 It is for very good reasons that section 19 of the Public Accounts Committee Act exists. This section gives the Committee's witnesses the same protection and privileges as witnesses in proceedings in the High Court. Two issues of privilege are relevant here:

- the right of the Parliament to seek and obtain information required in the proper execution of its investigatory role; and
- the necessity to protect witnesses and prospective witnesses before committees of the Parliament from molestation, intimidation and discrimination or threats of such action.[21]

1.29 The Committee observes that the '1984 Government Guidelines for Official Witnesses Before Parliamentary Committees and Related Matters' detail the operation of section 19 of the Committee's Act and, in relation to privilege and protection, state that 'the special provision of the (Committee's) Act take precedence'.[22]

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20. Refer paragraph 3.19 of Report 223 wherein the Committee supports the commendations of the Deputy Chief of Naval Staff, p. 38.
21. Report of the Committee of Privileges, 158(1980)3.
22. Paragraph 41, page 12 of the Guidelies refer.

1.30 As the Administrative and Clerical Officers' Association has succinctly stated to the Committee:

> Clearly the PAC must ensure that adequate protection from reprisals is available to dedicated public servants who seek to provide information on aspects of administration which have an adverse effect on efficiency, and the achievement of Government objectives.[23]

1.31 The Committee does not agree with the Minister's observation, made in paragraph 3.2(f) that 'it is of further concern to the Department that some of the conclusions and recommendations of the Report are expressed with a degree of authority which is not supported by material in the Report'. The Committee believes there is no lack of evidence in support of its Report. For example Appendix 3 of this Finance Minute, an RAN 1984 Engineering Symposium paper, expressly reinforces the Committee's findings in Report 223. Paragraph 4 of Appendix 3 acknowledges that 'the unfortunate aspects of Tobruk's subsequent performance have been reasonably well addressed in the Joint Committee of Public Accounts Report 223 of 1984'.

1.32 The symposium paper is more candid in its criticism of the Tobruk project than the Commitee's Report, for example:

> The fact that HMAS Tobruk was delivered 297 tonnes overweight is history. The deadweight of the ship to meet an assigned Load Line embarrasses the ship and frustrates the client. A ship of the measurement tonnage of Tobruk should not be considered loaded on acceptance of 900 (+) tonnes of cargo. A commercial ship of similar dimensions would be sent to the breakers by an owner measuring cost effectiveness, or thirty years ago, taken out of Class, registered under the Panamanian or Liberian flag and assigned a new Load Line in the dead of night by an unscrupulous agent with a paint brush.[24]

1.33 Disturbingly, the symposium paper discusses 'some of the less published problems of HMAS Tobruk'.[25] Many of these serious problems were perceived in less detail by the Committee during the inquiry and so are discussed below in connection with the Defence Departments Finance Minute responses.

1.34 The Department's general comments on this symposium paper are reproduced in Appendix 4 below.

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23. Committee file 82/9/B(84), 30/11/84.
24. Appendix 3, paragraph 34.
25. ibid., paragraph 1.

1.35 It would appear that there is much support for the Committee's inquiry. As a naval Commander noted in the Pacific Defence Reporter article 'the troubles of HMAS Tobruk':

> .... when the Commonwealth Auditor-General - who almost alone among senior public servants appears to be beyond reproach - alleges waste and inefficiency in a major government department, the Parliament and the community are entitled to an explanation.[26]

Response by the Attorney-General's Department

1.36 The Committee notes that the Department has consulted with the (then) Department of Defence Support and the Department of Defence about the provision of legal advice on aspects of the Commonwealth's contractual arrangements for naval ship construction.

1.37 It should be noted that the term 'contracts proposal' (refer paragraph 3.3 below) was used in the general sense in the Committee's recommendation in order that the ideas and criticisms of the Australian Shipbuilders Association be actively considered by the appropriate Commonwealth Departments.

Response by the Department of Defence Support

1.38 Generally the Committee is pleased with the Department's response and actions taken in conjunction with the Department of Defence and the Attorney-General's Department. The Committee fully supports the Department's consultations with the Australian Shipbuilder's Association.

1.39 As the Department of Defence Support has now merged with the Department of Defence the inter-departmental committee, referred to at paragraph 3.8 below, no longer formally exists. Hence it may be possible that the more objective deliberative process of the inter-departmental committee may be replaced with a less flexible departmental stance on issues. In this environment it will be essential for the Defence Department to consult regularly with private sector representatives to assess contractor/client relationship deficiencies and rectify them.

Response by the Minister for Social Security

1.40 The Committee welcomes the initiatives taken by the Minister concerning the Dax case.

1.41 It is noted that, in paragraph 3.11 below, the Minister accepts that the special factors of the Dax case 'have created a situation where a more adequate act of grace payment should be made to Mr and Mrs Dax'.

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26. Pacific Defence Reporter, July 1984, pp. 26-7.

1.42 The Committee is pleased with the Government's decision to approve a payment of $35,500 to the parents of Naval Reserve Cadet Kenneth Dax in place of the previous act of grace offer of $3,550.

1.43 The Committee is also pleased to note the Minister's comments, at paragraph 3.13 below, that 'officers of the Department of Social Security were more than willing to take part in a review of the Dax case ....'. With hindsight, it would have been far preferable for officers of the Department of Defence to have recognised the tragedy and gravity of this case at the outset, and advised the Minister of Defence in the first instance to recommend a more adequate act of grace payment.

1.44 The Committee is particularly pleased to note the Minister's intention (refer paragraphs 3.16 to 3.19 below) to amend the Compensation (Commonwealth Government Employees) Act 1971 to provide a payment to the parents of minors who die in compensable circumstances without leaving dependants.

Comments and Responses by the Department of Defence

Excess Weight

1.45 In general the Committee welcomes the Department's agreement with the Committee's conclusions and recommendations on HMAS Tobruk's excess weight. However, there are several aspects of the Department's observations at paragraphs 3.20 to 3.38 below which warrant further comment.

1.46 With reference to the comments at paragraph 3.20, the Committee does not challenge the 'Department's judgement that his (the contractor's) intentions to provide the quality were sound ...'. Rather the problem was that the Department did not ensure that the contractor's intentions were carried out. As HMAS Tobruk was a first-of-class ship and 'the first ship of its size to be built for the RAN for many years', extra care should have been taken with contract supervision and project management.

1.47 Although the Department, at paragraph 3.22, notes the Committee's observation that HMAS Tobruk's specifications stressed weight control and weight savings measures,[27] it remains that the Department did not ensure that these specifications were met. Contract specifications should have been sufficiently/appropriately detailed, and contract consultative processes worked out with sufficient forethought, to avoid these problems.

1.48 While the Committee recognises the problems of contract enforcement and penalties for shipbuilders, referred to by the Department at paragraphs 3.23 and 3.112, if quality assurance and project management are satisfactory, enactment of such punitive measures should not be required. In addition the use of contractual incentives may be relevant here.

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27. Report 223, paragraphs 2.11 - 2.15, pp. 19-20.

1.49 The paper referred to by the Department in paragraph 3.28, 'Cheap Warships Are Not Simple', has been considered by the Committee. It is noted that the paper models its arguments not on a logistic support ship such as HMAS Tobruk, but on a 3,000 tonne frigate. The frigate model is not comparable to a support ship such as HMAS Tobruk as it has a different functional role, displacement, production costing and dimensions. It also possesses major weapons systems.[28]

1.50 Given that HMAS Tobruk is based on a 21 year old UK design,[29] it is noted that the authors of the article state:

> The increased unit cost of warships implies not only fewer ships in the fleet but also fewer ships in each class. It is UK experience that changes both in the threat and in technology force a design change about every five years.

1.51 The Committee agrees with the Department's comment at paragraph 3.31 that HMAS Tobruk 'was neither required nor designed to be exclusively a specialized beaching vessel'. At no stage either in Report 223 or during its inquiry did the Committee suggest that HMAS Tobruk was required or designed to be exclusively a specialized beaching vessel. However, HMAS Tobruk's beaching capability has been repeatedly stressed as an important feature by the Department, e.g., the RAN Commissioning Ceremony handbook describes the ship as 'able to deploy troops, stores and vehicles by sea and put them across the beach in remote areas where there are not established port facilities.'[30]

1.52 *In addition to the comments on the ship's reduced* beaching ability at paragraphs 2.51, 2.59 and 2.60 in Report 223, the Committee notes that the Fleet Commander's Report on HMAS Tobruk's Trials and Evaluation Programme states:

> *The major limitation identified during the trials* was the ship's limited beaching capability in the Australian environment....[31]

1.53 The Committee does not agree with the Department's *comment at paragraph 3.33 and reiterates its conclusion that the* Department's performance in managing the weight control aspects of the local ship construction contracts is poor. In his

28. *The authors state that the functional cost of a frigate's* fight function is about 70% of the total UK£100M cost.
29. HMAS Tobruk Trials and Evaluation Report by the Joint Evaluation Working Party, Part 1 paragraph 60.
30. See also a similar description in HMAS Tobruk Trials and Evaluation Report by the Joint Evaluation Working Party. Refer also Report 223, paragraphs 2.52-3, pp. 27.
31. HMAS Tobruk Trials and Evaluation Programme - Report by Fleet Commander 28 March 1983, paragraph 49. PAC 82/17/B(2) Pt. 6.

September 1983 Report the Auditor-General comments:

> (HMAS Success): Weight control procedures were not approved by Navy Office until September 1981 or 23 months into the build.[32]
> (Fremantle Class Patrol Craft): The lead craft and follow-on craft contracts did not contain overweight compensation clauses for exceeding the contractually agreed lightweight or standard displacements. The lead craft was 20.1 tonnes (9.5%) overweight and follow-on craft were overweight by between 5% and 11%.[33]

1.54 *The Committee welcomes the Department's development* and issue of DI(N) Tech 49-3, referred to in paragraph 3.34, establishing weight control measures. In addition to the Department's comments on the success of this weight control programme, viz. '... rely on the shipbuilder or contractor ...', *the Committee observes that success in the area of weight control* also depends heavily on the Department's contract management skills. The Department itself has recognised the limited usefulness of penalty clauses in paragraphs 3.23 and 3.112 below.

Quality Assurance and Contractual Matters

1.55 The Department's general agreement, at paragraphs 3.39 to 3.47 below, to the Committee's conclusions and recommendations on quality assurance and contractual matters is noted.

1.56 It should be recognised that the shipbuilder, Carrington Slipways Pty. Ltd., concurs with the Committee's findings on the Department's poor contractual lines of communication and unsuitable inspection, tests and trials programme. *In its December 1984 submission to the Committee's* Inquiry into Defence Project Management the Company comments:

> During the building of HMAS Tobruk, the Company had to cope with, what appeared to be, very cumbersome lines of communication that the Commonwealth had established which involved the Company with having to deal with both a project staff and a technical services staff in Navy Office, Canberra, via the office of the Navy's General Overseer and Superintendent of Inspection, East Australia Area (GOSIEA) in Sydney and then with Navy's responses to the Company again having to go via the Sydney GOSIEA office. It was a system that seriously hindered timely decisionmaking as, apart from the delays of having to process each submission or enquiry and then the response through Sydney, the GOSIEA staff worked for Navy's Chief of Technical Services, while the Project Director worked for

32. Auditor-General's Report, September 1983, p. 21.
33. ibid., p. 33.

Navy's Chief of Materiel. On a number of occasions, the Company had to recognise that Navy was taking many weeks to respond to matters on which a commercial client would have made a decision in hours or days.

As with the requirements of the AS1822 Quality Control System, the Company found itself unprepared for the way Navy would conduct its very extensive testing and trials programme. It quickly became apparent that Navy's standard method of conducting such tests and trials in a Naval Dockyard was not compatible with the requirements of a commercial shipbuilder operating to a fixed price contract. Too long was taken for inspecting officers to compile reports and circulate them through naval channels and then for Navy to issue its decisions on the results of these inspections and trials. As was noted in Volume 223 of the Joint Committee's Report on HMAS Tobruk, the Company could not cease work in areas that had been subject to formal inspection while Navy followed its traditional processing of inspection and trials reports.[34]

1.57 Carrington's December 1984 submission also accords with the Committee's findings about inadequate on-site representation:

> Navy's single-person on-site representation was too small (sic) and his terms of reference were too imprecise to reduce the delays caused by our having to deal with Canberra via Sydney. For the first half of Tobruk's building period, Navy provided a single Project Officer on the staff of GOSIEA who was located at Carrington Slipways only to monitor progress. Even when this position was up-graded to that of a Resident Overseer, that overseer reported to the Sydney office and his direct links with Navy Office appeared tenuous.[35]

1.58 The Committee acknowledges the Department's considerable efforts to rectify these deficiencies in current projects. It is pleased to note the following favourable comments by Carrington Slipways on arrangements surrounding the Minehunter Catamaran project.

> Unlike our experience with the building of HMAS Tobruk, the Company was given a very thorough briefing by the Director of Naval Quality Assurance and his staff on what Navy's requirements for the implementation of AS1822 QC Standards would be during the Minehunter build many months before the start of construction.
>
> Both this company and Navy have learned from the weaknesses revealed during the Tobruk build. Both sides lacked appreciation of the other's mode of operation for inspections and trials. This time Navy has stream-lined its requirements to ones that, while still ensuring that the Commonwealth's high standards are met, are much better adjusted to the shipbuilder requirements of a fixed price contract. The Company has also received valuable advice from the Navy in compiling an Inspection, Tests and Trials programme for the Minehunter that should suit both the Navy's supervisory and our production requirements.[36]

34. Defence Project Management, submission by Carrington Slipways Pty. Ltd., paragraph 3, p. 8.
35. ibid., paragraph 4.

Landing Craft Vehicular and Personnel (LCVP)

1.59 The Department's agreement with the majority of the Committee's conclusions and recommendations on HMAS Tobruk's landing craft and hydraulic systems is noted.

1.60 Because of its concerns for the safety of personnel carried in LCVP's, the Committee wishes to restate its recommendations that:

- the Department proceed as soon as possible with rectification work on the LCVP's to improve their buoyancy, such work should be completed before the craft are transferred for use on HMAS Success;
- replacement LCVP's for HMAS Tobruk should be procured as soon as possible and be available before the scheduled refit of the ship; and
- replacement LCVP's should be acquired to improved specifications developed with the hindsight of the problems experienced in the original craft.

1.61 The Committee does not agree with the Department's observation at paragraph 3.49. The strength of HMAS Tobruk's davits is satisfactory only in the sense that the LCVP's, which the davits raise and lower, have had restrictions placed on their loads. The need for imposing such restrictions indicates that the davits do not meet their original performance specifications.

36. op. cit., paragraph 16, 17.

1.62 The Department's remarks, at paragraph 3.52, that '... better oversight of the contractor may have avoided these problems which are largely the result of contamination in the system ...' are unnececessarily cautious. Better oversight of the contractor should have avoided these contamination problems. Clearly the Department's own senior engineers are well aware of the need for, and processes for ensuring that, hydraulic systems are clean at first component fit.

1.63 Paragraphs 40 and 41 of Appendix 3 demonstrate such an awareness:

> Some mention should be made of hydraulic systems and the problems associated with a lack of basic cleanliness at first component fit. Overseas shipyards are meticulous, insisting on clinical cleanliness as the norm commencing with the pickling of pipes and the removal of mill scales and spatter. Before the machine is connected to the system pipelines are circulated through a flushing cart for up to 24 hours with regular inspections of paper filters. During this trial the contractor, in the case of Japanese yards, camps on the site and at hourly intervals wooden mallets are used to hammer pipes and ensure total removal of mill scale or any other solids that may have escaped previous checks. All filter papers are presented to the Resident Engineer for approval or, in the case of rejection, extension of the trial. There is very little mysticism about hydraulics.[37]
>
> Applied cleanliness is essential to ensure smooth machinery operation whether it be the bow thrust unit or a high pressure fuel line.

1.64 The Department, at paragraph 3.56, details various steps being taken to improve hydraulic expertise in the Department. The Committee welcomes these moves but notes that perhaps a more fundamental problem may exist with the size of HMAS Tobruk's complement and the ability of the RAN to provide appropriate engineering education for such a large crew.

1.65 Paragraphs 63 to 67 of Appendix 3 are most relevant here, in particular paragraphs 64 and 67.

> The RAN Scheme of Complement of HMAS TOBRUK is about 130 whereas the Royal Fleet Auxiliary manning of the Sir Bedivere type is 68. A commercial ship of the same tonnage and service as HMAS TOBRUK would be manned by 24 (Australian/British flags) and 15 (Scandinavian/Japanese flag), with a UMS notation.

37. Emphasis added.

> If there are to be so many sailors onboard there is a need for some dedicated responsibility in the matter of their engineering education.

Design and Modifications

1.66 The Committee acknowledges the Department's agreement with many of its conclusions and recommendations concerning HMAS Tobruk's design and modifications.

1.67 The Department's comment at paragraph 3.66, while pertinent, does not directly address the points made in the Committee's conclusion. It remains that in several important areas the Department did not exercise sufficient design oversight, e.g., the shipbuilders detailed systems drawings for HMAS Tobruk's sewerage system should have been included in the list of 'key build approval drawings' to be submitted to the Department for approval in principle.

1.68 The Committee stands by its conclusion that the problems experienced by HMAS Tobruk since commissioning are not 'minor teething problems'. The Department's comment at paragraph 3.67 is misleading. The very nature and number of major problems are evidence in themselves that HMAS Tobruk's faults are not 'minor'. HMAS Tobruk's operational tasks have been set and scheduled by the Department with full knowledge of the ship's limitations.

1.69 Paragraph's 17 and 18 of Appendix 3 demonstrate that the Department, since 1982, has recognised that HMAS Tobruk has major engineering problems:

> At the 1982 Symposium a paper on Fleet Engineering problems was presented. The major items described as being the most difficult to overcome and generally requiring considerable design effort were listed as follows:
>
> a. the main engine control system,
> b. air conditioning system deficiencies,
> c. excessive noise and vibration levels,
> d. deficiencies with the sewage system.'
>
> Unfortunately a number of other major engineering problems were found to be live in TOBRUK, some of them ongoing as a result of specifications, stores and spares inadequacies, some of them resulting from a lack of operator/maintainer skills, and some emanating from confusion over interpretation of laid down instructions.

1.70 The Fleet Commander's report on HMAS Tobruk also comments:

> From the commissioning of Tobruk a number of deficiencies quickly became apparent. These were mainly design related ....[38]

1.71 The Committee notes the Department's comments on the ship's airconditioning system (paragraphs 3.70, 3.71). The Committee welcomes the fact that prolonged defect rectification work has been carried out under warranty, though it remains that the system has not yet been proven under tropical conditions with a full troop load.

1.72 The Department's comments on the ship's engine control system, at paragraph 3.72 below, would appear to be an understatement of the problems in this area. Paragraphs 47 to 50 of Appendix 3 clearly demonstrate that the failure of HMAS Tobruk's control air system has not been 'a minor teething problem'. Paragraph 47 states:

> The control air system had repeatedly failed during the life of the ship. Its unreliability had produced a nervousness and lack of confidence in ship's staff. The decision by the Fleet Commander to withdraw the ship from its programme and undertake replacement of main engine and clutch control air piping, at the same time service all control air valves, has been justified by the ship's improved performance. The steel piping originally fitted had suffered severe internal corrosion from the high moisture content of control air produced. The resultant oxidisation had been pumped around the system for three years producing a situation not unlike russian roulette on each occasion the engines received a signal.

1.73 The problems with HMAS Tobruk's control air system highlight several characteristics common to many aspects of the project:

- unsuitable original equipment;
- poor installation of original equipment;
- poor testing, quality assurance of original equipment and fitting method;
- slow diagnosis of problem, but development of a ability to cope with unsatisfactory equipment;
- repeated attempts at rectification work; and
- current uncertainty as to the success of rectification work.

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38. HMAS Tobruk Trials and Evaluation Programme - Report by Fleet Commander, 28 March 1983, paragraph 54; PAC 82/17/B(2) Pt. 6.

1.74 The Department's responses to the Committee's conclusions and recommendations on HMAS Tobruk's excessive noise and vibration are noted. Generally it appears that the Department is addressing this problem and taking appropriate steps to protect the ship's personnel.

1.75 Again, the findings of the Naval Symposium paper at Appendix 3 are most relevant here, in particular paragraphs 22 to 28. The discussion in these paragraphs, apart from concisely detailing some reasons for HMAS Tobruk's excessive noise and vibration, also reinforces several aspects of the Committee's inquiry. The Symposium paper's detail contrasts with the two general reports on noise and vibration forwarded by the Department to the Committee.[39]

1.76 The Symposium paper's comments on the lack of shipyard and RAN inspecting technique reinforces the Committee's findings at Chapters 3 and 6 of Report 223. The removal of 5kg of steel offcuts from the ships engine turbo blower intake is evidence of poor quality control, quality assurance and project management.

1.77 The Symposium paper also comments that:

> Poor fit of trunking butts and the absence of many metres of welding increments had contributed to unstable air supply to the blowers. This was further highlighted by long standing damage to the intake manifold bellows and venturi connection where a number of previous failures had been welded and additional external stiffening added.[40]

1.78 These comments support the following observations of the Committee's Chairman, made at a public hearing on 14 September 1984 during a discussion with the shipbuilder's representative, subsequent to an inspection of the ship at sea:

> Senator Georges - .... visual inspection of the HMAS 'Tobruk' left one with the impression that the welding standards were not the best, whereas that did not seem to be apparent on the construction of your normal run of vessels. Would that be correct? Would somebody else's opinion - a tradesman, not my own - concur that the welding on the 'Tobruk' was atrocious. I know you will not accept that, but would you be prepared to comment?
>
> The shipbuilder's representative - I would not only not accept that, Mr Chairman, I would take

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39. Refer Appendices 6 and 7 for associated comment on noise and vibration investigations.
40. Refer Appendix 3, paragraph 24.

exception to it. I would suggest to you that one of the things we do have is welding records to say the welding is done. If you look at welding from a layman's point of view - the appearance of a weld is all that it is possible to view from the outside - you can get a pretty weld in appearance that has absolutely no connection value at all. The most important thing with welding is to make sure the connection between the two parent metals is strong. All our welders were insepcted by the various survey authorities, in this case it was Lloyds, and they were all certified welders, proved welders. X-rays were conducted in the most critical areas of welding on the ship

Senator Georges - On the 'Tobruk'?

The shipbuilder's representative - On the 'Tobruk'. More X-rays were done on the stress points on the 'Tobruk' than on any other ship because this was above the normal requirements and particularly because of the steel. The repair rate on that was lower than what could normally be expected....[41]

1.79 Similarly the Symposium paper critically comments on the ship's scuppers, thus reinforcing another query raised during the Committee's inquiry. Among the comments on HMAS Tobruk's scuppers the Symposium paper states:

> The many hours spent by ship's staff attempting to clear blocked soil lines and common scuppers indicates a problem in pipe area, fit and fall. From taking part in the tracing of offending systems including the removal of deck head fire-rated panels and the hacksawing of wedges from downcomers in an effort to locate the blockage, it can be stated that the problem will not diminish without expensive pipe re-runs. The quality of pipe workmanship leaves much to be desired and this comment includes the timber noggings fitted for the fixing of deck head panels.[42]

1.80 This matter was raised by the Committee's Chairman at the public hearing on 14 September 1983. As the following excert from the transcript of evidence for that hearing shows, the matter was addressed only in an oblique way by the shipbuilders representative.

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41. PAC Minutes ot Evidence, HMAS Tobruk Inquiry, 14 September 1983, p. 876.
42. Refer Appendix 3, paragraph 37.

Senator Georges - It concerns both you (the shipbuilder's representative) and you (the Chief of Naval Technical Services) that the scuppers were so placed in the first instance that the deck at certain places became waterlogged. Is that correct?

The shipbuilder's representative - I do not recall the exact instance but I might say that it is not uncommon for additional scuppers to be placed on ships in operation and also during construction. When a naval architect designs a vessel he has to allow for all stages of trim of the ship - when it is standing at the wharf under operation - and the angle of the ship can change considerably during loading and unloading. If there is a load on the ship it will be lying at a certain angle; if it is unloaded it will be at a different trim. The trim can change quite a lot and we have had over the years to add additional scuppers because the one that was located foundered the ship in practice because fuel used from one tank udder will lie only one or two degrees different from what was visualised and in that certain trim during loading an additional scupper will have to be put in. It is quite common with a larger ship.[43]

1.81 Generally the Committee questions the processes that led to the acceptance of the ship's design. For example, the design or the ship's main engine air intake system is such that it 'is bounded on one side by accommodation bulkheads through three decks, considerable resonance was generated and transmitted to accommodation causing acute discomfort when the ship was unnderway. Accommodation areas had been designated 'Noise Dangerous'.'[44]

1.82 The Department's comments on HMAS Tobruk's boilers are noted. Also of relevance here are the Symposium papers comments on boilers (paragraph 58, Appendix 3) and lubricating oil (paragraph 53, Appendix 3). From a reading of these latter comments it would appear that, fundamentally, problems with HMAS Tobruk's steam boilers may stem from acceptance of an outdatea design philosophy.

1.83 The Committee acknowledges the Department's comments on HMAS Tobruk's sewage system and welcomes the development of new sewage system designs.

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43. PAC Minute of Evidence, HMAS Tobruk Inquiry, Vol. 3, p. 879.
44. Refer Appendix 3, paragraph 26.

1.84 The Committee agrees with the comment of the Department, at paragraph 3.86, that:

> the large number of critical conclusions and recommendations of the Board of Inquiry Review reflects favourably on the Department in that it stresses the importance which the RAN places on self-examination, self-criticism and correction of deficiencies when identified, within resource constraints.

1.85 However it remains that such comments and actions are **ex post**. It is preferable for the need for such praiseworthy endeavours to be kept to an absolute minimum. A professional approach of the necessary calibre to the design challenges, quality assurance tasks and overall project management needs of HMAS Tobruk's construction would have very much reduced the need for the measures stressed by the Department.

1.86 The Department's comments, at paragraph 3.96 on HMAS Tobruk's external PVC piping are noted. Further comment on this system is provided at Appendix 9. Similarly the Committee notes the Department's commments, at paragraph 3.91, on HMAS Tobruk's watertight integrity. Related information on HMAS Tobruk's damage control system is at Appendix 10.

1.87 In addition to the Department's comments on the Australian shipbuilding industry (at paragraph 3.100 below), further departmental comment on 'governments as customers' of the local shipbuilding industry is contained in Appendix 8.

Project Management

1.88 Generally the Committee welcomes the Department's agreement with the Committee's conclusions and recommendations on project management. As the Committee's current Defence Project Management Inquiry is analysing this matter in depth *only minor observations on the Department's project management* responses to Report 223 are given herein.

1.89 It is noted that the Committee's conclusions and recommendations that departmental project managers be given *greater authority and responsibility are supported by* the builders of HMAS Tobruk. In their submission to the Committee's Defence Project Management Inquiry, Carrington Slipways Pty Ltd state:

> ... the Company considered that further unnecessary difficulties and delays were caused during the Tobruk build by the lack of financial delegation available at that time to either the Project Director or to GOSIEA. The proposal of even very minor modifications resulted in

> frustratingly lengthy delays while, as we learned at Progress Meetings, the agreement of the same variety of senior officers had to be obtained for a $200 modification as for a $200,000 modification.

1.90 The Committee notes with some concern the following comment of Carrington Slipways Pty Ltd about project design managers.

> ... we find it surprising that for both the Tobruk project and this present Minehunter project, the Project Design Manager is not responsible to the Project Director, whereas the Project Production Manager is. Although, as has been explained to us, the Design Manager is responsive to the requirements of the Project director, his direct responsibilities are to his own Director, Director General, and Admiral. This is a different organisational chain from that to which the Project Director reports and, quite naturally, the Design Manager's loyalties can be expected to be primarily to his own department. Certainly, it has been our experience that those of our queries that can be dealt with by the Project Director's staff are generally dealt with much more promptly than those that have to be directed to areas not under the Project Director's immediate command.

1.91 This matter will be addressed in the Committee's Defence Project Management Inquiry.

1.92 The Committee welcomes the Department's comments at paragraph 3.116 below concerning the development of a policy for the transition of ships from procurement to maintenance. While this matter may be raised further during the Committee's Defence Project Management Inquiry the following comments of Carrington Slipways Pty Ltd demonstrate the problems that can arise when a ship's key personnel have unclear status.

> The arrival in the shipyard of the ship's (HMAS Tobruk) Commanding Officer (designate) with his key officers and senior sailors caused further problems as these personnel possessed both a considerable weight of experience and strong personal reasons for wishing the completed ship to be as efficient as possible, but their role in the shipyard and responsibilities vis a vis that of GOSIEA and his staff seemed unclear between

themselves and the GOSIEA staff and was certainly not clear to the shipbuilder. When they wished to make practical user suggestions for what they saw as useful design changes for better operation of the ship, there seemed to be no clear-cut procedure for processing such ideas and obtaining quick decisions on them.

1.93 The Committee stands by its general comments on project management made in Chapter 6 of Report 223. As noted in paragraphs 6.26 to 6.27 of Report 223, the Department clearly needs to improve its existing approach in the following areas:

- consultation accross functional boundaries;
- adoption of a systems approach to problem solving;
- appropriate role delineation and delegation of authority;
- timely provision of appropriately detailed documentation; and
- project personnel management.

1.94 While the Committee welcomes the Department's comments on its initiatives to improve project management, it remains concerned about the comments on training, reporting and inspections contained in the HMAS Tobruk Symposium paper at Appendix 3.

1.95 For example paragraph 68 of the Symposium paper comments:

> The volume of paper work necessary to report the performance of a ship at sea is not matched by the end result. The format of reporting machinery trials is ponderous and does not allow for any rapid comparison of performance. The absence of any type of formalised abstract for internal combustion engines tends to leave machinery evaluation to the operator in the Machinery Control Room.

1.96 Of more concern is the comment at paragraph 70:

> The quality of Fleet inspections does little to improve ship performance. In the case of Tobruk, the 1984 report was congratulatory, and as a result, misleading; not the motivation necessary to induce sailors to try a little harder. Months of long hours by technical sailors preparing for the Fleet Commander's inspection by painting and

> polishing in the dogs indicates a loss of direction and a waste of available manpower when the ship's machinery operation is suspect and planned maintenance schedules are long outstanding.

1.97 It is expected that the above matters will be addressed in general during the Committee's Defence Project Management Inquiry this year.

The Death of Naval Reserve Cadet Kenneth Dax

1.98 The Committee welcomes the Department's agreement with the Committee's conclusions and recommendations concerning the death of NRC Kenneth Dax.

1.99 In particular the Department's agreement to supply technical information promptly if requested together with appropriate explanations to a deceased's family or spouse is acknowledged.

1.100 The Committee does not agree with the Department's comment at paragraph 3.134 below. Inspection of the correspondence between the Department and the Dax family shows that much of the Department's correspondence with the Dax family frustrated the family's desire for specific information about their son's death. It is noted that, in discussions with the Committee, members of the Dax family praised the general attitude and helpfulness of the service personnel with whom they had contact, but remained critical of the indifferent unsympathetic attitude of several key senior civilian departmental officials.

CHAPTER 2

SUMMARY OF THE COMMITTEE'S 223RD REPORT

2.1 The Committee's inquiry into HMAS Tobruk commenced on 12 July 1982 following the Auditor-General's Report on the HMAS Tobruk project in March 1982.[1] Initially the Committee planned to report on the findings of this inquiry in conjunction with its findings on other references from the Auditor-General's March 1982 Report.[2] However, because of the magnitude and the seriousness of the problems associated with the project, the Committee decided to issue a separate report on the matter.

2.2 During the conduct of the inquiry the Committee found that many highly significant events and documents were not readily brought to the attention of the Committee by the Department. Rather, their existence was revealed only after prolonged investigation and probing inquiry by the Committee.

2.3 Overall five days of public hearings and five days of in camera hearings were conducted by the Committee for this inquiry. The Committee inspected HMAS Tobruk three times (twice at dockside and once at sea) and also visited the shipbuilder's yards. Evidence at public hearings was taken from twelve senior civilian and service representatives of the Department and from three representatives of the shipbuilder.[3]

2.4 Report 223 contains sixty-three conclusions and thirty-three recommendations grouped on the following basis:

- excess weight;
- quality assurance and contractual matters;
- landing craft vehicular and personnel;
- design and modifications;
- project management; and
- the death of Naval Reserve Cadet Kenneth Dax.

2.5 The details of these conclusions and recommendations, together with the Finance Minute responses are in Chapter 3 below.

2.6 In this instance the Committee's inquiry process and resultant report had several unusual characteristics:

- the inquiry, Report 223 and this Finance Minute span three Committee's (13th, 14th and 15th Public Accounts Committee) over a four year period;

1. Refer Report 223, Table 2: Chronology of Events and Appendix A: Extract from March 1982 Report of the Auditor-General.
2. Report 222 details the Committee's findings on other references from the Auditor-General's March 1982 Report.
3. Refer Report 223; Appendices D, E and F; pp 185-188.

- the Report focuses not only on deficiencies and ways of improving the Commonwealth's administration but also on the detailed circumstances of an individual's cause (Naval Reserve Cadet Dax);[4]
- much evidence for the Report was gained from public and in-camera discussions with expert private sector witnesses;
- the Report contained an extensive, detailed chronology which synthesized the long series of relevant events that preceeded the Committee's inquiry;
- the inquiry stimulated the Committee to undertake a detailed and comprehensive examination of the Defence Department's overall project management and administration, this separate inquiry is expected to be reported on by the Committee later this year;
- for the first time the Committee held a public hearing on board an Australian Navy vessel;
- the Committee's Report departed from previous Public Accounts Committee Report formats in using photographs to illustrate its arguments; and
- in respect of technical matters specific to ship design, construction and operation much of the evidence relied upon by the Committee was contained in departmental evaluations and independent professional assessments.

2.7 In its examination of HMAS Tobruk's 297 tonnes of excess weight the Committee concluded, amongst other things that:

- the Department did not allocate sufficient resources to developing quality assurance programs for monitoring, amongst other things the weight control procedures of the contractor's quality control system. With hindsight it was a poor decision or the Department to sign the contract for the ship's construction when it did. The Department knew or the need to upgrade the contractor's quality control system and should have accurately assessed the difficulty and duration of this task.

2.8 Among its findings on contractual matters and quality assurance the Committee recommended that:

4. Refer Senator Macklin's comments, Senate Hansard 8 March 1984, pp 633-664.

- the Department in all future projects ensure that as team a resident quality assurance team, of a size commensurate with the scale and complexity of the contract, be present throughout the project.

2.9 One of the Committee's conclusions about HMAS Tobruk's landing craft was that:

- continuing problems with HMAS Tobruk's (landing craft) davit hydraulic system point to a lack of expertise with hydraulics in the Department or inefficient systems in the Department to rectify defects in well known engineering technology.

2.10 Significant among the Committee's twenty-four conclusions on HMAS Tobruk's design and modifications were that:

- the Department's design modifications were of such an extensive nature that either, they were beyond the Department's available design expertise to specify sufficient detail and oversight or that the design expertise in the Department was not adequately applied to the project; and

- the problems experienced by HMAS Tobruk since commissioning are not minor teething problems. Their number and significance suggest that HMAS Tobruk has experienced a higher than expected amount of major problems when compared to what should be the outcome of a well managed project.

2.11 The Committee's ten conclusions on the Department's project management included the following:

- for the HMAS Tobruk project, the Department's formal lines of direct functional responsibility reduced the responsiveness and interaction of project team personnel with the other specialised personnel in the Department; also

- the manager of a departmental project should be given greater authority and responsibility for the overall administration and management of the project.

2.12 In respect of the death of Naval Reserve Cadet Kenneth Dax the Committee concluded that, among other things:

- a more adequate act of grace payment should be made to Mr and Mrs Dax.

2.13 The Committee made four recommendations relating to Naval Reserve Cadet Dax's death, including that:

- the Compensation (Commonwealth Government Employees) Act 1971 be revised and amended as soon as possible to provide for adequate compensation payments in circumstances like the Dax case, or that appropriate legislative changes be made.

2.14 Approximately 54% of Report 223 contains reproductions of official Department of Defence documents. In including this documentation in its Report the Committee was mindful of its duties under Section 8 (1) of its Act.[1] These duties involve not only reporting to Parliament items or matters which the Committee thinks fit, but also drawing Parliament's attention to any circumstances connected with such items or matters. Both the Committee and the Department of Defence, through this parliamentary reporting process, further their public accountability.

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1. In particular refer section 8 (1)(6) of the Public Accounts Committee Act 1985, refer page (v) of this report.

CHAPTER 3
DEPARTMENT OF FINANCE MINUTE

Introduction

3.1 In order to prepare the Department of Finance Minute in response to the Report, comments on and responses to the recommendations and conclusions contained in the Report were sought from:-

- Minister for Defence
- Minister for Social Security
- Department of Defence Support
- Attorney-General's Department.

3.2 The written responses are as indicated below. However, in addition to these replies, the Minister for Defence made the following supplementary observations in his letter, dated 7 August 1984, to the Minister for Finance. These observations relate to the Report and to statements made in the Senate and in the House of Representatives at the time the Report was tabled:

(a) "TOBRUK was the first major vessel built for the RAN by a commercial yard for many years. She is the largest vessel constructed by Carringtons, and is or a special purpose design. The Department took a proven ship design to meet the RAN requirement. Only such design changes as were considered essential were permitted."

(b) "The Department entered into a fixed price contract with this reputable shipbuilder. Under the aim of this contract, responsibility was placed on the shipbuilder to procure and install equipments. In accordance with evolving Defence policy, quality control was considered to be the responsibility of the shipbuilder, and the contract negotiated accordingly. However, as neither the Shipbuilders Quality Control system nor the Department's Quality Assurance performed to the standard expected, problems arose."

(c) "It is acknowledged that some mistakes have been made and that the performance in some cases has been less than required, and it is clear (particularly with hindsight) that some of these deficiencies should have been prevented. However, it is relevant to point out that there are limitations on resources and it is a matter of judgement for management as to how resources are allocated between competing priority demands."

(d) "The report and statements in both Houses seriously impugn the integrity of witnesses and, possibly less directly but no less seriously, the supporting staff in the Naval Technical areas (including the Overseeing Organisation). This is notwithstanding the fact that the principal witnesses categorically stated under oath that they did not deliberately mislead, or conspire together to mislead, the Committee. It does not reflect credit on a Parliamentary Committee when it implies that witnesses have not told the truth without having evidence in support. The Committee's report would have been the better had it refrained from this kind of attack."

(e) "The Report, the tabling statement and other statements in the Parliament give particular emphasis to the Committee's view that much significant information was not readily brought to their attention. It was indicated that only after prolonged investigation and probing that information was made available to the Committee. The implication is that all information had to be dragged out of reluctant witnesses. This is not correct. Once the Committee decided to re-open its Inquiry and provided explicit advice of its needs, everything asked or considered likely to be relevant was made available. In particular, an 'in camera' briefing was provided to the Committee in August 1983 after which, as a result of Committee members requests, further information was again provided."

(f) "As a further indication of the extent of information provided it is relevant that much of the Report is made up of verbatim extracts of evidence volunteered by witnesses and/or quotes or data derived from the Review of the Board of Inquiry. This latter document, issued before the first PAC Hearing, was produced by Navy in accordance with normal practice and was critical of many aspects of Naval and Departmental practices. Thus, the Committee's

extensive Report used, as ammunition for its criticisms of Departmental shortcomings, evidence gathered from the Navy's and the Department's self-examination exercises and consequential rectification action."

(g) "Many of the conclusions and recommendations of the Report turn on what are, or are very close to being, professional judgements, and as such are not amenable to quantifiable assessment of performance and the unequivocal criticism of the Department implicit in some of the findings. My letter of 16 November 1983 to the Chairman of the Committee has already set out my concern that some critical evidence to the PAC appeared to be based on statements and assertions by unnamed persons whose qualifications were not revealed by the Committee. The professional standing of these persons, and therefore the competence of their advice, has thus not been able to be tested; nevertheless evidence from these unnamed sources has been used to support some of the Report's comments reflecting unfavourably on the professional ability of certain officers of the Department of Defence. It is of further concern to the Department that some of the conclusions and recommendations of the Report are expressed with a degree of authority which is not supported by material in the Report. It must be stressed that this concern is particularly relevant with a project such as this involving almost re-establishment of naval shipbuilding capability and the construction of a one-off first-of-class naval ship."

Paragraph 2.80.4

The Committee recommends that the Department (of Defence) should investigate and assess the utility of the contracts proposal of the Australian Shipbuilders Association in conjunction with the Department of Defence Support and the Attorney-General's Department.

Response by the Attorney-General's Department

3.3 The implication contained in this recommendation is that the association has a contract proposal for consideration by the Commonwealth. This is not borne out by the Australian Shipbuilding Industry position paper set out at Appendix G of the Committee's 223rd Report. The recommendations of which, at Section 14 paragraph 5, are that the Commonwealth join with the association in an urgent review of the Commonwealth's contractual arrangements for naval ship construction.

3.4 On 18 April 1984 an officer of this Department met with officers of the Departments of Defence and Defence Support to pursue the recommendation contained in Paragraph 2.80 of the report. As a result the Departments of Defence and Defence Support have met, and, it is understood, are to meet again with the association, to attempt to define the association's position in relation to contractual arrangements for naval ship construction. It is understood that advice of the Australian Government Solicitor will be sought on legal aspects of any contractual proposal.

Response by the Department of Defence Support

3.5 As a result of the above recommendation, meetings were held between officers of the Departments of Defence and Defence Support and the Attorney-General's Department on 29 March and 18 April 1984. The Attorney-General's representative confirmed that he will provide legal advice on any proposals arising from later discussions.

3.6 On 24 May 1984 a Working Group comprising officers of the Departments of Defence and Defence Support met with the Australian Shipbuilders Association and discussed:

- the appropriateness of various contract pricing bases eg firm price, variable, cost plus etc, to the different situations encountered in the shipbuilding industry;
- the principle in respect of and manner of calculating variations to contract pricing where contracts provide for such adjustment including applicability to sub-contractors and suppliers;
- insurance policies/practices of the Commonwealth, how these affect sub-contractors and the implications for all parties with the Commonwealth having a dual role of underwriter and recipient of benefits (or customer);
- contract variation procedures including costs associated with their preparation, effects of lengthy approval processes and recovery of often significant preparation costs when proposals are not proceeded with;
- the methodology to be used in determining and calculating actual additional costs resulting from delays beyond a contractor's control;

- the effect of approved excusable delay claims on a contract, the implications of putting in place alternative work plans to make up time lost and return to previously agreed schedules;

- warranty liability on items supplied by sub-contractors;

- the legal aspects of involvement of crew, not employed by the contractor, in acceptance trials;

- the need to continue the Commonwealth's practice of approving sub-contractors, prior to their employment on a project, in view of a prime contractor's contractual obligations to meet specifications, performance criteria etc.

3.7 The meeting produced a frank and benericial exchange between the Commonwealth and the Australian Shipbuilders Association and identified a number ot weaknesses in the existing arrangements that need further consideration in the light of the Commonwealth's needs and the requirements of members of the Association.

3.8 It is now proposed that regular meetings between the concerned Departments, will occur, to discuss and resolve the issues identified and to address deficiencies in the contractor/client relationship. The Australian Shipbuilders Association will be consulted as deemed appropriate by the inter-departmental committee.

3.9 These discussions are considered to be a significant step towards meeting the Committee's recommendation.

Response by the Minister for Social Security

Paragraph 7.32.1

The Committee concludes that the amount of $3550 is not an adequate amount to be paid for compensation to Mr and Mrs Dax given the circumstances.

Response:

3.10 The Minister agrees with the Committee that the amount of $3,550 is not an adequate amount to be paid to Mr and Mrs Dax, given the circumstances which caused the death of their son Kenneth.

Paragraph 7.32.2

The Committee concludes that a more adequate act of grace payment should be made to Mr and Mrs Dax.

Response:

3.11 The Minister accepts that the factors specifically mentioned by the Committee (such as the horrible circumstances of the death, the age of the deceased, volunteer Service status and the particular problems of the HMAS Tobruk project) have created a situation where a more adequate act of grace payment should be made to Mr and Mrs Dax. However, those factors have nothing whatsoever to do with the principles of worker's compensation. No Australian worker's compensation code provides for higher payments in particularly tragic cases by having regard to factors such as these. Payments to a deceased employee's dependants are made on the basis of their dependency, and no account of the circumstances surrounding the employee's death, his age or employment status is taken into consideration in determining the quantum of compensation. While these factors may be relevant to a claim for damages for negligence, or an act of grace payment under the Audit Act, the Minister cannot agree to their being taken into account in determining adequate compensation under the Compensation (Commonwealth Government Employees) Act, (C(CGE) Act).

Paragraph 7.32.3

The Committee concludes that the provisions of the Queensland Workers Compensation Act provided a guide for compensation but its provisions were not relevant to the Dax case.

Response:

3.12 The Queensland Worker's Compensation Act at the time of Kenneth Dax's death provided for a payment of $4,090 to the parents of a minor who died in compensable circumstances without leaving dependants. At that time the full death benefit payable in Queensland was $36,230. The benefit available to the parents of minors therefore represented approximately 11% of the full death benefit. The act of grace offer ($3,550) was determined on a similar basis, representing 10% of the death benefit payable under the C(CGE) Act at the time of Kenneth's death. The Committee was aware of the method of calculating the act of grace offer at the time of writing its report.

Paragraph 7.33.1

The Committee recommends that the Dax case be reviewed by the Department in conjunction with the Departments of Finance and Social Security, as a matter of priority, to determine an adequate amount to be paid for compensation to Mr and Mrs Dax. Among the factors to be

considered by this review should be the horrible circumstances of the death, the age of the deceased, his volunteer Service status and the particular departmental problems of the HMAS Tobruk project as discussed elsewhere in this Report.

Response:

3.13 Officers of the Department of Social Security were more than willing to take part in a review of the Dax case and the Minister for Social Security in fact wrote to the Minister for Defence advising him of this.

3.14 At an interdepartmental meeting on 10 January 1984, before the Report was tabled, representatives of the Department of Social Security together with those of the Departments of Defence, Finance and the Prime Minister and Cabinet agreed that the Department of the Prime Minister and Cabinet should adopt a co-ordinating role in a review of the Dax case. The Attorney-General thereafter advised the Prime Minister that he could not recommend on legal grounds any payment to Mr and Mrs Dax beyond the amount of the act of grace offer of $3,550. Nevertheless, the Minister for Social Security believed that the Department of the Prime Minister and Cabinet might recommend to the Prime Minister that a higher offer be made in view of the exceptional circumstances of the case. The Minister stated that he would fully support such a proposal.

Comment by the Department of Finance:

3.15 After the Department of Finance received a copy of the above response from the Minister for Social Security, the Government, as a result of the above review, approved, on 30 July 1984, the payment of $35,500 in compensation to the parents of Naval Reserve Cadet Kenneth Dax in place of the previous act of grace offer of $3,550.

Paragraph 7.33.4

The Committee recommends that the Compensation (Commonwealth Government Employees) Act 1971 be revised and amended as soon as possible to provide for adequate compensation payments in circumstances like the Dax case, or that appropriate legislative changes be made.

Response:

3.16 Since first being made aware of this case, the Minister has been concerned at the inadequacy of Commonwealth legislation and procedures for making payments for grief and suffering. The Minister knows of no Commonwealth legislation which makes provision for solatium payments in cases such as this, although he believes that some States have legislation which provide small payments for grief and suffering caused by the death of a member of the family. South Australia, for example, provides for a maximum solatium payment to parents of $3,000. With the exception of the Northern Territory, however, statutory limitations on the size of such payments in the States are below that offered to Mr and Mrs Dax.

3.17 In June 1983 the Minister decided to amend the Compensation (Commonwealth Government Employees) Act to provide a lump sum payment amounting to 10% of the full death benefit to the parents of minors who die in compensable circumstances without leaving dependants. It was on this basis that the act of grace payment of $3,550 was approved.

3.18 The proposed amendment represented something of a departure from the principles of worker's compensation in that it was a solatium payment rather than a payment based on dependency. The Minister still believes that such a payment, in normal circumstances, would be a generous response within the limited parameters of compensation legislation. However, the proposed amendment was rejected by Caucus at a meeting on 10 May 1984 on the ground that it was insufficient.

3.19 The Minister intends to re-introduce this amendment in conjunction with a further amendment based on the provisions of Victorian and Tasmanian worker's compensation legislation. This further amendment would provide for the payment of compensation, up to the maximum death benefit, to the family of a minor who had been contributing to the maintenance of the home of the members of the family prior to his death, with the actual quantum reflecting the level of such contribution. In any case involving the death of a minor therefore, a minimum of 10% of the full death benefit would be payable. The Minister believes that the combination of these two amendments would satisfy as far as possible the concerns of both Caucus and the Committee in regard to worker's compensation entitlements although it would not result in higher compensation for Mr and Mrs Dax since they were not dependent on Kenneth at the time of his death. When these proposals are further developed the Minister for Social Security will write to the Minister for Finance again seeking the latter's approval to their being put forward.

Response from the Minister for Defence

Conclusions - The Original Reference : Excess Weight

Paragraph 9.1.1

The Department did not allocate sufficient resources to developing quality assurance programs for monitoring, amongst other things, the weight control procedures of the contractor's quality control system. With hindsight it was a poor decision of the Department to sign the contract for the ships construction when it did. The Department knew of the need to upgrade the contractor's quality control system and should have accurately assessed the difficulty and duration of this task.

Comment by the Department of Defence

3.20 The conclusion is basically agreed. However, it was stated in evidence to the Committee that, despite the fact that the Shipbuilder did not meet Australian Standards for Quality Assurance before the signing of the contract, it was the Department's judgement that his intentions to produce the quality were sound, and that overall, he was a very capable shipbuilder. It was also pointed out in evidence that TOBRUK was the first ship of its size to be built for the RAN for many years, and there was a general lack of experience in this type of undertaking, throughout the Industry and the Department.

Paragraph 9.1.2

The Department misled the Committee in giving evidence that it (the Department) 'discovered late rather than early that the vessel was overweight'. The Auditor-General reported that in September 1978, the month the first steel was cut at the shipyard, the contractor advised Navy Office that the ship would be overweight and Navy Office confirmed this view. This instance appears to be another example of poor consultation across the functional boundaries of the Department.

Comment by the Department of Defence

3.21 The Department advises that there was never any intentional misleading of the Committee on the overweight state of the ship, or any other matter. At the Committee's Hearing in September 1982, the Department tendered a submission on the Auditor-General's report of March 1982 which stated (paragraph 8):

"During construction of the vessel, steel plate of required Imperial measurement thickness used in the SIR BEDIVERE class design was not readily available in Australia and consequently metric plate was used by the Shipbuilder without the prior approval of Navy Office. Navy Office became aware of this action in October 1978".

3.22 The Committee observed (in paragraph 2.11 of the Report) that, in the TOBRUK specifications, weight control and weight saving measures were stressed.

Paragraph 9.1.3

HMAS TOBRUK'S unauthorised weight increase was due to the Department not ensuring that the contract specifications were met.

Comment by the Department of Defence

3.23 This point is not contested. However, also relevant is the Department's comment at item 9.9.9 on the problems of contract enforcement and penalties for Shipbuilders not meeting contractual obligations.

Paragraph 9.1.4

The Department did not give adequate consideration to the commercial practicalities of converting HMAS TOBRUK's specifications from imperial to metric measurements.

Comment by the Department of Defence

3.24 See also responses to paragraphs 9.1.5 and 9.1.6.

3.25 These conclusions are agreed with hindsight. It is, however, pointed out that in the fixed price type of contract used in this case, a great deal of autonomy is placed on the Shipbuilder to meet his contractual commitments, with the intention that Departmental involvement should be kept to a minimum.

Paragraph 9.1.5

The Department did not recognise, in a timely manner, the adverse consequences of a 'soft conversion' from imperial to metric measurements of the specifications for HMAS TOBRUK's steel plate.

Comment by the Department of Defence

3.26 See response to paragraph 9.1.4.

Paragraph 9.1.6

Given the magnitude and obvious implications of converting the ship's design from imperial to metric measurements, the Department should have monitored more closely the contractor's conversion processes and materials acquisition. In this respect the Department was derelict in carrying out its contract supervisory role.

Comment by the Department of Defence

3.27 See response to paragraph 9.1.4.

Paragraph 9.1.7

By contracting for HMAS TOBRUK to be built to a mix of commercial and RAN specifications the Department may have saved on the capital costs of the project at the expense of incurring high ship maintenance costs.

Comment by the Department of Defence

3.28 The Department strongly contends that to have redesigned the ship to full Naval Standards would have greatly increased the capital costs. It is not necessarily agreed that maintenance costs would be lower, had the ship been built to full RAN warship standards. Care needs to be exercised in the taking of subjective judgement by bodies which may not completely comprehend the full technical implication of matters such as this. As an example, in a paper delivered to the American Society of Naval Architects and Marine Engineers on 30 September 1982, by D.J. ANDREWS B.Sc. MSc C. Eng. MRINA RCNC and D.K. BROWN M.Eng. C.Eng. F.R.I.N.A. RCNC, entitled "CHEAP WARSHIPS ARE NOT SIMPLE", it is stated that the cost per tonne of warship structure is 5 to 10 times that of a merchant ship.

3.29 In addition, the use of commercial standards for TOBRUK has enabled Depot and Intermediate level maintenance to be conducted by contractors at Brisbane, rather than by HM Dockyards, with resultant cost savings and a reduction of Dockyard load.

Paragraph 9.1.8

As a result of not being built to specifications HMAS TOBRUK's beaching capability has been significantly reduced. While the Committee acknowledges that the ship's flexibility allows it to discharge cargo by other means, it remains that the ship would be more flexible and useful if it was able to beach at its specified gradient.

Comment by the Department of Defence

3.30 It is not agreed that the ship's beaching capability has been significantly reduced. The overweight condition of the ship means that there has been a slight change to the minimum criteria to be met when determining suitability of a beach to beach on. In reality this change has very little impact on the vessel's beaching capability as other factors, particularly weather, are of much greater significance.

Paragraph 9.1.9

There is little purpose in building a specialised beaching design vessel such as HMAS TOBRUK if the resultant ship can only use the specified design feature in a secondary role under restricted conditions.

Comment by the Department of Defence

3.31 It has to be understood that the vessel was neither required nor designed to be exclusively a specialised beaching vessel. It was stated in evidence on 5 August 1983, that the original requirement for the vessel was to replace HMAS SYDNEY, formerly an aircraft carrier, with obviously no beaching capability. The three options considered by Defence included the SIR BEDIVERE design of a Landing Ship Logistic, eventually chosen to meet the RAN requirement. These vessels have a limited beaching capability.

Paragraph 9.1.10

HMAS TOBRUK's excess weight does not jeopardise the ship's longitudinal strength.

Comment by the Department of Defence

3.32 Agreed; this advice was provided by the Department during the hearings of 17 September 1982.

Paragraph 9.1.11

The Department's performance in managing the weight control aspects of the local ship construction contracts is poor. HMAS SUCCESS, HMAS TOBRUK and the Fremantle Class Patrol Craft have all been allowed to be constructed with excess weight.

Comment by the Department of Defence

3.33 This conclusion is not agreed : the first of the FREMANTLE Class boats was overweight as designed and built by the UK contractor. The Department initiated a weight reduction programme for the follow-on vessels to be built in Australia. First measurements of SUCCESS, taken after her launch recently, indicate that she is not overweight.

3.34 In addition, DI(N) Tech 49-3 (Defence Instruction-Navy-Technical - 49-3) has been developed and issued, establishing weight control management measures. The success of any such programme has to rely on the shipbuilder or contractor meeting his contractual commitments. In accordance with this DI(N), incentive and penalty clauses have been introduced to provide increased assurance of contractor performance.

Recommendations - The Original Reference: Excess Weight

Paragraph 9.2.1

The Department develop, in consultation with the Australian shipbuilding industry and other groups, standardized techniques for assessing the weight of vessels. Effort should be directed towards developing a range of agreed methods (with differing costs and accuracies) for objectively determining the weight of a vessel during construction and at the time of its commissioning.

Response by the Department of Defence

3.35 The degree of weight control achieved is largely dependent on the resources devoted to it. Many vessels are not "weight-critical" and allocation of resources to weight control from a limited budget is not always cost-effective. The subject of weight control is included in the discussions between the Department and Australian Shipbuilders, see response to Recommendation 9.2.4. The recently published Defence Instruction (Navy) 49.3 has formalised the intentions of the Department for future contracts.

Paragraph 9.2.2

For future contracts the Department either:

ensure that a contractor's quality control system meets the appropriate Australian standard at the time of signing the contract, or

***if, at the time of signing the contract, the* contractor's quality control system is judged not to meet the relevant Australian standard but is thought to be able to do so at a later date, a development plan for the contractor's quality control system should be incorporated into the contract specifications by the Department.**

Response by the Department of Defence

3.36 The intent of the recommendation is agreed. The second option has already been adopted by Navy, and was used in the HUNT class contract, as negotiated in 1981, though never placed, and the IMH (Inshore Minehunter) contract, negotiated in 1982.

Paragraph 9.2.3

The Department ensure that development of a *contractor's quality control system is carried* out as promptly as possible. Contract progress payments should be linked to stages in such a development plan.

Response by the Department of Defence

3.37 Agreed. These recommendations were initiated by the Department for future contracts prior to the Committee findings.

Paragraph 9.2.4

The Department should investigate and assess the utility of the contracts proposal of the Australian Shipbuilders Association in conjunction with the Department of Defence Support and the Attorney-General's Department.

Response by the Department of Defence

3.38 The recommendation is agreed. The Department has initiated moves towards assessing the utility of the contract proposals of the Australian Shipbuilders Association. Following meetings on 2 February and 30 March 1984, a formal meeting comprising representatives from Australian Shipbuilders, Defence, and Defence Support was held on 24 May 1984 to discuss aspects of Navy

contract clauses, and the need for future meetings. Specific clauses addressed included:

a. Pricing basis for contracts.

b. Escalation.

c. Insurance.

d. Change control.

e. Delay and dislocation.

f. Excusable delay.

g. Warranty.

Conclusions - The Original Reference: Quality Assurance and Contractual Matters

Paragraph 9.3.1

The Department's explanation that 'by the time an inspection had been completed and a report written, circulated and considered, matters on which Navy Office decisions had been sought had, in most cases, been overtaken by events as shipbuilder's work could not normally cease during the Navy Office consideration process' is completely unacceptable and an indictment on the efficiency of the Department.

Comment by the Department of Defence

3.39 This deficiency was recognised at the time, and was partly the result of a very tight trials and inspection schedule. Improved procedures and responsibilities are covered in the recently revised departmental publication ABR 1921. The document is in the final draft stage and planned for introduction this year. Meanwhile, specific documentation has been developed for the AOR-1 and IMH contracts. (HMAS SUCCESS is referred to as AOR-1, meaning Auxiliary Oiler Replenishment-1.)

3.40 Further improvements in the time taken to reach decisions are expected to follow from the increase in delegation planned, and in part already provided, to Project Directors and the field representatives (PARCBS - Production Authority Representative Contractor Built Ships) under improved Project Management arrangements.

Paragraph 9.3.2

The number of on-site departmental representatives at the shipbuilders yard was grossly inadequate.

Comment by the Department of Defence

3.41 With hindsight these conclusions are agreed and have been corrected for current and future contracts.

Paragraph 9.3.3

The level of on-site departmental expertise and experience was inadequate given the task at hand. The Department was negligent in that it did not even meet the level of resident overseeing staff as laid down (by itself) in section 1.24.1, v. 1 of HMAS TOBRUK's specifications.

Comment by the Department of Defence

3.42 See comment on paragraph 9.3.2 above.

Paragraph 9.3.4

It is not a matter of the 'visibility' of resident departmental quality assurance staff which is important in a project like HMAS TOBRUK. It is important that there be skilled departmental quality assurance staff on site in sufficient numbers to efficiently and effectively fulfil the quality assurance function.

Comment by the Department of Defence

3.43 Departmental witnesses may not have made sufficiently clear to the Committee that "visibility" in this case was meant to reflect the customer interest in the quality control of the ship - which was the responsibility of the shipbuilder for this contract.

Paragraph 9.3.5

There is a need to review the efficiency and effectiveness of the organisation of the General Overseer and Superintendent of Inspection East Australia Area, this issue will be addressed by the Committee during its Inquiry into Defence Project Management in 1984.

Comment by the Department of Defence

3.44 The organisation and effectiveness of the General Overseer and Superintendent of Inspection is a subject that the Chief of Naval Staff directed the Naval Support Commander to investigate in December 1982. This involves complex issues of which the Naval Support Commander and the Chief of Naval Technical Services are

currently addressing, observing that Navy has to keep within manpower constraints. The Committee's intention to address this issue further in 1984 is noted.

Recommendations - The Original Reference: Quality Assurance and Contractual Matters

Paragraph 9.4.1

The Department in all future projects ensure that as part of the on-site resident team a resident quality assurance team, of a size commensurate with the scale and complexity of the contract, be present throughout the project.

Response by the Department of Defence

3.45 See comment on paragraph 9.3.2.

3.46 The Department had recognised the problem well before the Committee hearings. Steps in line with this recommendation have been taken for 3 major subsequent projects, so far as is possible under existing manpower constraints eg for the AOR project, 2 full-time staff have been on-site since November 1980. Prior to this quality assurance requirements were met by itinerant visits by DNQA (Directorate-Naval-Quality-Assurance) staff from Canberra while the protracted recruiting process was in train. These two permanent officers are now supported by 4 itinerants from the staff of the General Overseer and Superintendent of Inspection East Australia Area, and it is intended that at least 2 of these will be transferred on-site in the near future to meet the increase in workload associated with fitting out. For the Inshore Minehunter, the quality assurance engineer was appointed on-site full-time in April 1983 and is supported by a full-time staff of 3 Senior Technical Officers.

Paragraph 9.4.2

Members of all future on-site resident departmental quality assurance teams have adequate skills and expertise and a clear understanding of the Department's policy on quality assurance.

Response by the Department of Defence

3.47 This is agreed, and steps have been taken within the Department to improve the previous situation, eg:

(a) For the AOR (Auxiliary Oiler Replenishment), the senior Staff in DNQA (Directorate-Naval-Quality-Assurance) have spent considerable time with on-site quality assurance representatives. In addition, the two on-site representatives have attended the quality assurance course in Canberra.

(b) For the Inshore Minehunter, in view of the increased complexity of the project, 2 of the on-site representatives have attended 3 months of specialist training in Europe. These two plus the 3 quality assurance representative staff have attended GRP (glass reinforced plastic) training, and the quality assurance course.

(c) For the Australian Frigate, negotiations are in hand to obtain training from the US for Defence and for Williamstown Dockyard quality control/quality assurance officers.

Conclusions - The Original Reference: Landing Craft Vehicular and Personnel (LCVP)

Paragraph 9.5.1

The Department's tender specifications for HMAS TOBRUK's LCVPs were deficient and not correctly oversighted by the Department when the contract for the LCVPs (Landing Craft Vehicular and Personnel) was awarded.

Comment by the Department of Defence

3.48 Agreed.

Paragraph 9.5.2

The Department's statement that it tested the LCVP's on the davits 'with 12 times the weight of 34 troops (using) pig iron blocks', and found the strength of the davits satisfactory, conflicts with the Auditor-General's concern that the weight of LCVP embarked troops was understated by 900 kg resulting in the Department placing restrictions on the number of armed personnel lifted/lowered in on LCVP.

Comment by the Department of Defence

3.49 Not agreed. The Committee took evidence that the weight of fully equipped embarked troops was underestimated by the Department, but this does not conflict with the statement that the strength of the davits is satisfactory.

Paragraph 9.5.3

Initial problems with HMAS TOBRUK's davit hydraulic system point to problems with supervision and oversight of the contractor's quality control.

Comment by the Department of Defence

3.50 See comments on paragraphs 9.5.4 and 9.5.5.

3.51 The Contractor was responsible for the quality control of installation aspects of the davit hydraulic systems.

3.52 It is agreed that, with hindsight, better oversight of the Contractor may have avoided these problems, which are largely the result of contamination in the system and an inadequate davit control design. The hydraulic systems have been flushed and commissioned. Modifications are being developed to allow improved monitoring of hydraulic oil hygiene and to improve davit performance.

Paragraph 9.5.4

The Department has been dilatory in devising a remedy for HMAS TOBRUK's contaminated hydraulic system.

Comment by the Department of Defence

3.53 See comments on 9.5.3 and 9.5.5.

3.54 Agreed, in as much as the system was contaminated on installation, and given the restrictions on improvements to the system imposed by an arduous operational programme. The improvements to the design will require extensive work on the existing system and full decontamination of the system before recommissioning.

Paragraph 9.5.5

Continuing problems with HMAS TOBRUK's davit hydraulic system, point to a lack of expertise with hydraulics in the Department or inefficient systems in the Department to rectify defects in well known engineering technology.

Comment by the Department of Defence

3.55 See responses to items 9.5.3 and 9.5.4.

3.56 It is admitted that the Department has difficulty recruiting and retaining specialist personnel of all types. It is not agreed that the continuing problems with TOBRUK's davit system are due to the lack of such specialist expertise, but reflect problems caused by contamination during installation. A lack of hydraulic expertise was recognised in Navy over 3 years ago, and the following steps to remedy the situation have been taken:

(a) hydraulic training has been included in the career courses for Marine Engineering specialist sailors and a "bridging" course has been introduced to cover the transitional period;

(b) a Defence Instruction covering hydraulic system cleanliness has been published; and

(c) the Hydraulics Committee has been reconstituted to discuss hydraulic problems, and direct Navy policy.

Paragraph 9.5.6

Although the Department states that HMAS TOBRUK's LCVP's are not the main method of getting troops ashore, problems with other methods (eg beaching) or restrictions with other methods (eg operation of the stern door only during calm sea conditions) compounds the significance of the davit problems.

Comment by the Department of Defence

3.57 See Departmental responses to items 9.1.8 and 9.1.9 where the Department contends that the restrictions on beaching are minor.

Paragraph 9.5.7

HMAS TOBRUK's landing craft vehicular and personnel are unsatisfactory in their design, operational capability and safety.

Comments by the Department of Defence.

3.58 The Department stated in evidence to the Committee that open tender procedures were used for the

landing craft, and the selected design best met the requirements. A more modern design is being considered to replace the existing craft.

Paragraph 9.5.8

The LCVP's design and specifications were poorly determined and the decision to purchase them was completely unsatisfactory.

Comment by the Department of Defence

3.59 See comment on paragraph 9.5.7.

Recommendations - The Original Reference: Landing Craft Vehicular and Personnel (LCVP)

Paragraph 9.6.1

The Department proceed as soon as possible with rectification work on the LCVP's to improve their buoyancy, such work should be completed before the craft are transferred for use on *HMAS SUCCESS*.

Response by the Department of Defence

3.60 Design work to improve buoyancy in existing craft is complete and can be implemented when funding and opportunity arise.

Paragraph 9.6.2

Replacement *LCVP's for HMAS TOBRUK should be* procured as soon as possible and be available before the scheduled refit of the ship.

Responses by the Department of Defence

3.61 The replacement LCVP specification takes account of operational experience and possible design improvements. The current plan is for the Invitation to Register Interest to be issued in Australia in 1984 for delivery in 1985, *dependent on Australian Industry* responses, timely negotiation of contract and availability of funds.

3.62 Tender evaluation will be governed by current *Government policy concerning the use of Australian* companies.

Paragraph 9.6.3

Replacement *LCVP's should be acquired to* improved specifications developed with the hindsight of the problems experienced in the original craft.

Response by the Department of Defence

3.63 See response to paragraph 9.6.2.

Paragraph 9.6.4

Preference be given to Australian contractors who tender for the replacement LCVP contract and the rectification contract for existing LCVP's.

Response by the Department of Defence

3.64 See response to paragraph 9.6.2.

Conclusions - Design and Modifications

Paragraph 9.7.1

In principle, there is nothing inherently *wrong with purchasing an old ship design and* changing it.

Comment by the Department of Defence

3.65 *Agreed.*

Paragraph 9.7.2

The Department's design modifications were of *such an extensive nature that either, they were* beyond the Department's available design expertise to specify sufficient detail and oversight construction, or that the design expertise in the Department was not adequately *applied to the project.*

Comment by the Department of Defence

3.66 The Department considers that the design *information provided to the Shipbuilder, including design* changes to meet RAN requirements, was adequate for preparation of detailed design and working drawings by the Shipbuilder. The Department is not aware that the Shipbuilder holds any other view.

Paragraph 9.7.3

The problems experienced by HMAS TOBRUK since commissioning are not minor teething problems. *Their number and significance suggest* that HMAS TOBRUK has experienced a higher than expected amount of major problems when compared to what should be the outcome of the well managed project.

Comment by the Department of Defence

3.67 The basis for the Committee's comparison is not known to the Department. It is relevant to note that the ship has met all the operational tasks placed upon her.

Paragraph 9.7.4

Comparing the problems of HMAS TOBRUK with those of other contemporary RAN vessels such as HMAS COOK, SUCCESS, PARRAMATTA, IPSWICH, CESSNOCK, STUART and ADELAIDE may be spurious. Differing design and construction methods have been used, the functional roles of these ships are different and generally the financial, industrial and political environment surrounding their construction have varied. Some of these ships have also had or are having severe problems and the Department's management of their construction has also been criticized by the Auditor-General.

Comment by the Department of Defence

3.68 It is considered that the management complexities involved in such widely differing projects illustrate the difficulties in establishing a base line against which to judge the performance of the Department.

Paragraph 9.7.5

Many of the major problems HMAS TOBRUK has suffered since its commissioning stem from design related causes.

Comment by the Department of Defence

3.69 The Department agrees that some of the problems in TOBRUK are design related, but it is not agreed that the proportion of problems attributable to design (rather than to construction and operation for instance) is unusually high in TOBRUK.

Paragraph 9.7.6

The ship's existing airconditioning system is unsatisfactory and in need of replacement in the long term.

Comment by the Department of Defence

3.70 This conclusion is not agreed. There is no clear evidence that the system will need replacement in the long term. The air conditioning system has been unsatisfactory and has been the subject of prolonged defect rectification work under warranty. It is now

performing satisfactorily although it has not yet been proved under tropical conditions with a full troop load. A trial will be conducted when the operational programme permits. Some of the trunking is known to have been poorly constructed and is causing leakage problems; repair involves removal, and replacement of false deckhands, panel linings etc and will be undertaken on a progressive basis.

Paragraph 9.7.7

HMAS TOBRUK's airconditioning system should have been inspected, tested and trialled within its warranty period.

Comment by the Department of Defence

3.71 The system was not able to be accepted until September 1983, because outstanding work was to be completed by the Shipbuilder. On page 370 of the Committee's Report, the completion of the air conditioning system can be identified as an outstanding item on list TI 338, Report of Inspection, HMAS TOBRUK (part of the normal process in a Navy Shipbuilding project).

Paragraph 9.7.8

Problems with the ship's engine control system, partly attributable to the use of a mixture of ferrous and non-ferrous pipes, contravene the contract specifications on dissimilar metals.

Comment by the Department of Defence

3.72 There have been many problems with the ship's main engine pneumatic controls, but the main cause has been the failure to fit the right equipment to ensure the control air is clean and moisture free. The high carry over of moisture has led to internal corrosion of the pipework resulting in blockages of the very fine clearances in the pneumatic controls. Additional filters and moisture traps have now been fitted and all the steel pipework of the control system has been replaced in copper. Further, less important, modifications will be undertaken in the near future.

Paragraph 9.7.9

HMAS TOBRUK's quality assurance project staff and on-site supervisors did not adequately inspect the construction of the air conditioning system and ensure that dissimilar metal components were correctly installed.

Comment by the Department of Defence

3.73 So far as the Department is aware, there are no significant problems in the air conditioning system caused by dissimilar metals. It is regretted that the Committee apparently did not appreciate that the problem of dissimilar metals applies to the engine control system, and not to the air conditioning system.

Paragraph 9.7.10

The initial design of HMAS TOBRUK's deck mountings for its forward FAVCO cranes was not satisfactory, given the loads the cranes were expected to handle the need for robust reinforcement from below should have been anticipated.

Comment by the Department of Defence

3.74 Agreed. The selection and acquisition of the cranes, and their installation arrangements, were the responsibility of the Shipbuilder. Rectification work was completed in 1982.

Paragraph 9.7.11

The problem of HMAS TOBRUK's excessive vibration has not been resolved.

Comment by the Department of Defence

3.75 Generally agreed. The Committee was advised of specific design aspects of the ship, notably her flat bottom, shallow-draft and propeller siting, and the type and installation of main machinery (ie commercial diesels rigidly mounted to the hull); these factors involved a risk of greater than normal vibration, compared with usual commercial or warship designs.

Paragraph 9.7.12

Technical reports detailing HMAS TOBRUK's excessive vibration were not made available to the Committee.

Comment by the Department of Defence

3.76 It should be clearly understood that the Department was not withholding information. The Committee took evidence that testing for noise and vibration levels was in hand, and that a large number of the investigations

had been contracted out to Garden Island Dockyard. An interim report was forwarded in time for inclusion in the Committee's Report.

Paragraph 9.7.13

The ship's excessive vibration may constitute a long term health hazard to the crew.

Comment by the Department of Defence

3.77 This possibility is recognised. Noise measurements in accommodation spaces have indicated levels higher than recommended in Australian Standards for commercial ships. The next stage of the Department's investigations will assist in determining the sources of the noise, and if possible, proposed remedies.

3.78 The Department's response should be read in conjunction with the response to pargraph 9.7.12.

Paragraph 9.7.14

The cause of the ship's excessive vibration should have been diagnosed when purchase of the LSL (Amphibious Logistic Landing Ship) design was considered and attempts made to redesign the LSH (heavy lift ship) class of vessel to minimise the problem.

Comment by the Department of Defence

3.79 It must be pointed out that, during consideration of the design, queries to the United Kingdom and requests for information from personnel with sea experience of the SIR BEDIVERE class, disclosed no information that vibration was a problem with the British design.

Paragraph 9.7.15

There is little doubt that HMAS TOBRUK's excessive vibration will increase the ship's maintenance costs and reduce its life.

Comment by the Department of Defence

3.80 It is agreed that there is a maintenance penalty for increased levels of vibration. The Department's judgement is that any such penalty is small compared with other costs.

3.81 The Department does not believe that the ship life will be affected by vibration.

Paragraph 9.7.16

Problems with HMAS TOBRUK's auxiliary boilers typify the difficulties of procuring spare parts from overseas manufacturers.

Comment by the Department of Defence

3.82 The auxiliary boilers in TOBRUK are basically to the original United Kingdom requirement for the SIR BEDIVERE class. Boilers of the original type were not available, having been superseded. These new models were acquired for the ship. The manufacturer is an experienced supplier for the marine industry, including the Royal Navy. It is submitted that there is no evidence to suggest that the procurement of spare parts for these boilers has been any more difficult because the boilers are of overseas manufacture.

Paragraph 9.7.17

HMAS TOBRUK's auxiliary boilers should have been built for endurance and thoroughly tested under warranty.

Comment by the Department of Defence

2.83 The boilers were set to work by the Shipbuilders' agent in September 1980, with the 12 months warranty period providing an effective 6 months of service after commissioning of the ship in which to detect warranty defects. Acknowledging the difficulties in obtaining satisfactory warranty provisions, those for the auxiliary boilers were considered acceptable.

Paragraph 9.7.18

The many serious problems with the design, installation, modification, quality control, quality assurance, management and rectification of HMAS TOBRUK's sewerage system serve to characterise the Department's poor approach to the TOBRUK project generally.

Comment by the Department of Defence

3.84 The identification of a suitable design of sewage systems for use in ships is a very complex matter which has received major attention only in the recent past, as the intended IMCO (Inter-governmental Maritime Consultative Organization) Regulations for Control of Pollution at Sea have come to the forefront. Thus experience at design and shipbuilder level is low and the great variety of principles and design utilised throughout the maritime world indicate that the 'state of the art' is not well advanced. The Review of the Board of Inquiry,

into the death of Naval Reserve Cadet (NRC) Dax is very explicit concerning the design, installation and commissioning aspects of the TOBRUK sewage system and it also illustrates the high level of concern of the Department in this matter. The sewage system in TOBRUK has been modified to discharge directly overboard and meantime the collection holding and transfer system has been isolated and is maintained in a safe state. A package of modifications to the sewage system has been developed and it is planned to implement them at the next refit. A trial is also in hand in another ship with a new design of sewage processor based on an entirely different principle which avoids the need to store the sewage. It is to early yet to decide its suitability for fleet fitting.

Paragraph 9.7.19

The large number of critical conclusions and recommendations of the Review of the Board of Inquiry into the death of NRC Dax are indicative of the magnitude of mismanagement in the Department.

Comment by the Department of Defence

3.85 See also response to paragraph 9.7.18.

3.86 The Department considers that the large number of critical conclusions and recommendations of the Board of Inquiry Review reflects favourably on the Department in that it stresses the importance which the RAN places on self-examination, self-criticism and correction of deficiencies when identified, within resource constraints.

Paragraph 9.7.20

HMAS TOBRUK's sewerage system was not adequately understood by the department's designers, the contractor's designers and installation staff, the ship's company and the department's maintenance personnel during the build of the ship.

Comment by the Department of Defence

3.87 Agreed, but see the Department's responses to paragraphs 9.7.18 and 9.7.19. The Department again emphasises that this particular system was largely new to Navy and the Contractor.

Paragraph 9.7.21

Although no one person can be identified as having acted in such a way to cause NRC Dax's death it appears that the contractor's and the

Department's lack of understanding about HMAS TOBRUK's sewerage system, and the departmental design changes made to HMAS TOBRUK's sewerage system, were most signficiant contributory factors.

Comment by the Department of Defence

3.88 Agreed.

Paragraph 9.7.22

HMAS TOBRUK's poorly designed kit locker spaces have led to the development of a potential safety hazard in the form of congested troop passageways when troops are onboard.

Comment by the Department of Defence

3.89 This conclusion is agreed, and the Department acknowledges that modifications are highly desirable. Design studies to modify the kit lockers are complete, as is drawing work for the necessary rearrangements to the accommodation spaces. The proposals will be verified, and an alteration to the ship's configuration will then be raised. Implementation of the work will be subject to availability of funding.

Paragraph 9.7.23

The shipbuilder's detailed systems drawings for HMAS TOBRUK's sewerage system should have been included in the list of key build approval drawings to be submitted to the Department for approval in principle.

Comment by the Department of Defence

3.90 Agreed. This reflects the Department's position as stated to Committee.

Paragraph 9.7.24

HMAS TOBRUK, under certain circumstances, may have a lack of watertight integrity.

Comment by the Department of Defence

3.91 The Department, in evidence to the Committee, stated that the extent of watertight sub-division of TOBRUK is the same as that of the original United Kingdom design, and conforms to the general commercial standards applicable to the type. The standard of watertight sub-division of "Roll On/Roll Off" ships has recently become the subject of attention of designers world-wide.

The Department is monitoring developments in this field. In addition, the Report states that the Committee understood that the probability of the ship sustaining the type of damage likely to bring the ship's watertight integrity into question was very low. The Department agrees with this understanding, and states that the same standards apply equally to a large number of other ships now at sea.

Recommendations - Design and Modifications

Paragraph 9.8.1

Detailed systems drawings for sewerage systems be included in future key build approval drawings to be submitted by a shipbuilder for approval in principle by the Department.

Response by the Department of Defence

3.92 Agreed, see Departmental response to paragraph 9.7.23.

Paragraph 9.8.2

The Department institute a formal evaluative research program into the design of currently available ship sewerage systems.

Response by the Department of Defence

3.93 See comment on paragraph 9.7.18. Agreed. Within available resources, investigations are in hand into range of ship sewage system options existing or under development. It should be noted that earlier work in this field led to the procurement of an "Omnipure" system for installation in FLINDERS for trials (still continuing). This system is in use in the United States Coast Guard.

Paragraph 9.8.3

Departmental documentation controlling proposed design changes be amended so that consideration of the safety implications of design changes becomes a mandatory and formalized part of the design approval process.

Response by the Department of Defence

3.94 The formal Departmental documentation used to control proposed configuration changes in commissioned

ships does require the safety aspects to be specifically addressed.

Paragraph 9.8.4

The Department proceed as a matter of urgency to thoroughly research questions surrounding HMAS TOBRUK's potential for lack of watertight integrity and initiate corrective action as soon as possible if needed.

Response by the Department of Defence

3.95 See response to paragraph 9.7.24.

Paragraph 9.8.5

The Department research the risks associated with HMAS TOBRUK's external PVC piping.

Response by the Department of Defence

3.96 The basis for the Committee's comment is not known. The "risk" referred to was the danger of pipework splitting due to the air exposed environment and ultraviolet degradation, and the failure of chemically bonded joints. The Department considers that the personnel and operational risks associated with this system are negligible. Apart from routine testing and operational use, the system is not pressurised with water.

Paragraph 9.8.6

The Department complete its investigation into the sources of HMAS TOBRUK's excessive vibration and take action to reduce this vibration to more desirable levels during the ship's next major refit.

Response by the Department of Defence

3.97 Agreed, and see also comment on paragraph 9.7.11.

Paragraph 9.8.7

Rectification of HMAS TOBRUK's many serious technical problems (as detailed in this Report) should be carried out in advance of the scheduled refit. In the meantime consideration should be given to the operation of the ship to ensure its safety.

Response by the Department of Defence

3.98 Within the constraints of an arduous operational programme, and the necessarily limited resources available to Navy, continuous efforts are in hand to rectify the technical problems. For example, in the *Assisted Maintenance Period (May 1984)*, a large amount of work is being undertaken, particularly on the Main Engine Control System and the sanitary arrangements, in advance of the planned first refit November 1985 to April 1986.

3.99 In addition, the Fleet Commander has initiated a review under a Commander (Engineering) to include:

(a) Development of a training programme for the *incoming Marine Engineering Officer*.

(b) A review of the on-board training system for sailors.

(c) The establishment/verification of safe watchkeeping practices.

(d) A review of spares holdings, and achievability of Planned Maintenance.

(e) A review of safety of on-board fuel systems.

(f) A report on the state of progress on completion of deficiencies identified by the Committee, by July 1984.

(g) To prove refurbished equipment and revised watchkeeping practices during sea trials.

Paragraph 9.8.8

Departmental management effort should concentrate on making the Australian shipbuilding industry both efficient and effective, significant problems with locally built ships will not be overcome until this objective is attained.

Response by the Department of Defence

3.100 See also response to paragraph 9.2.4. It is not agreed that the responsibility for making Australian shipbuilding efficient lies with the Department, however desirable the aim may be. It should be recognised that Naval shipbuilding in commercial yards was practically non-existent before the LSH (heavy lift ship) contract. This, and other subsequent contracts, have given valuable

experience to all parties, and provided a boost to the Australian Shipbuilding Industry in new technology.

Conclusions - Project Management

Paragraph 9.9.1

For the HMAS TOBRUK project, the Department's formal lines of direct functional responsibility reduced the responsiveness and interaction of project team personnel with the other specialised personnel in the Department.

Comment by the Department of Defence

3.101 The Department considers that it is possible that this was the case. However, it is considered that the deficiencies in this contract may have resulted more from excessive workload and lack of resources, rather than from the Department's formal lines of responsibility.

Paragraph 9.9.2

The manager of a departmental project should be given greater authority and responsibility for the overall administration and management of the project.

Comment by the Department of Defence

3.102 This is generally agreed as far as is practical with individual projects. Action has been taken to give greater authority where appropriate to Navy project Directors by strengthening the Project Directive within current Departmental Instructions and guidelines.

Paragraph 9.9.3

Personnel from the Department's Fleet Maintenance Branch should have become involved in the HMAS TOBRUK project earlier than they did.

Comment by the Department of Defence

3.103 This conclusion is generally agreed, and this has been recognised. Under improved Project Management arrangements, the Director-General, Fleet Maintenance, is now involved at the earliest stages of the formation of the Project Management Organisation as a member of the Integrated Logistics Support team. Furthermore, the Department's Fleet Maintenance Branch is being

re-organised with one intention of providing a means for the easier transfer of responsibility from the Project to Fleet Maintenance at acceptance of the ship.

Paragraph 9.9.4

The Department did not ensure that the contractor provided, in a timely manner, HMAS TOBRUK system handbooks and 'as fitted' drawings.

Comment by the Department of Defence

3.104 The Department cannot but agree with this conclusion. However, this is always a problem for first of class ships because of the difficulties of producing some handbooks and drawings until detailed installation arrangements are known, ie until relatively late in the build process; in addition, some manuals cannot be validated until after the machinery is operated. Nevertheless, it is seen as essential that all technical documentation should be available to the ship on commissioning, even if this means that some of it may have had only preliminary status.

Paragraph 9.9.5

Either the Department did not allocate sufficient draftsmen/engineers to the task of examining HMAS TOBRUK's 'key build approval drawings' or the Department generally has an insufficient number of design draftsmen/engineers.

Comment by the Department of Defence

3.105 Observing that the strategy of acquisition for the vessel, and the type of contract used, was based on minimal Departmental involvement, with hindsight, this conclusion is agreed. The Department feels that the problems were the result of a combination of the alternatives in the Committee's conclusion. This response should be read in conjunction with the covering remarks.

Paragraph 9.9.6

The shipbuilder did not comply in a timely manner with the provision of information on HMAS TOBRUK's equipment warranties and guarantees as specified in the ship's contract.

Comment by the Department of Defence

3.106 Agreed. See also comment on paragraph 9.9.8.

Paragraph 9.9.7

There may be grounds for instituting a line approach to the management of major projects instead of having a Project Director act as a co-ordinator. The Committee will be following up this point during its inquiry into the Department's overall project management in 1984.

Comment by the Department of Defence

3.107 Noted. Recent changes in project management arrangements are consistent with this view.

Paragraph 9.9.8

In respect of warranties and guarantees the Department neglected its contract supervision duty to ensure that the contractor supplied the Department with warranty/guarantee information in a timely manner.

Comment by the Department of Defence

3.108 See also response to paragraph 9.2.4.

3.109 These comments apply additionally to paragraphs 9.9.6, 9.9.9, 9.10.6, 9.10.7 and 9.10.8.

3.110 The Department observes that there was no detailed discussion at the hearings relating to TOBRUK warranty or guarantee provisions. The aim of the Department is to obtain warranty/guarantee provisions which would provide cover for 12 months after the delivery of the vessel; unfortunately, neither the Government (for Australian Government Furnished Equipments), nor the Shipbuilder, (for Contractor Furnished Equipments) have been able to obtain such provisions from equipment manufacturers. The problem is often compounded by slippage in delivery of the vessel. It is the Department's intention that warranty/guarantee provisions be discussed during the meetings with the Australian Shipbuilding Industry.

Paragraph 9.9.9

The Department should have simplified and standardised the warranty/guarantee terms, conditions and periods for HMAS TOBRUK's equipment through the use of appropriate contract clauses and specifications.

Comment by the Department of Defence

3.111 See also Departmental response to conclusion 9.9.8.

3.112 This conclusion is generally agreed, but the Department recognises that there is only limited scope for enforcing contracts using contractual provisions without the danger of forcing the Shipbuilder out of business.

Paragraph 9.9.10

The high turnover of personnel related to the HMAS TOBRUK project was unsatisfactory and detrimental to the outcome of the project.

Comment by the Department of Defence

3.113 This conclusion is agreed. The Department now aims for Project Directors to be appointed for a minimum of three years and ideally for five years. Remaining project staff will be appointed for three years. It is recognised, however, that this ideal policy is bound to be affected by resignations, transfers and promotions beyond the Department's control.

Recommendations - Project Management

Paragraph 9.10.1

The Department investigate and trial (in different parts of the Department) the use of simulation models to improve its management information systems. The Committee may follow this matter up during its inquiry into the Department's project management in 1984.

Response by the Department of Defence

3.114 Agreed. The Department has been aware for some years of the need to investigate computer based Management Information Systems. A study using Computer models for Project Management began in 1981. A micro computer has recently been purchased by the Chief of Naval Material to allow development of project networks. The Committee's possible intention to follow up this matter is noted.

Paragraph 9.10.2

The Department accord a high priority to the development of a policy for the transition of ships and craft from procurement to maintenance. The existence of such a policy will benefit the management of projects currently in hand e.g. HMAS Success.

Response by the Department of Defence

3.115 See also comment on paragraph 9.9.3.

3.116 A transition Plan Policy Instruction will soon be promulgated giving guidance and policy relating to plans for the transition of Navy projects from procurement to maintenance. Transition plans have already been published for existing major projects, eg, Fremantle Class Patrol Boats.

3.117 The Project Management Manual is in the course of extensive revision and should be complete by the end of this year, and the transition process for new projects will be incorporated.

Paragraph 9.10.3

The Department, as soon as possible, clarify the duties of personnel standing by ships under construction.

Response by the Department of Defence

3.118 Agreed. The Department is in the process of a major revision of its publication ABR 1921, in which Chapter 10 is devoted to the duties and responsibilities of personnel standing-by ships under construction. For existing contracts, terms of reference for stand-by ships' companies are laid down by Project Directors. It is planned for Chapter 10 of departmental publication, ABR 1921, to be promulgated within the next few weeks, in advance of the remainder of the publication.

Paragraph 9.10.4

Personnel from the Department's Fleet Maintenance Branch be included in Naval Project Management Teams.

Response by the Department of Defence

3.119 See response to Conclusion 9.9.3.

Paragraph 9.10.5

The development of ship's systems documentation should be an ongoing process commencing, in outline, at the commencement of a ship's construction. The preparation of handbooks should not be treated as a discrete activity at the end of a ship's build but should be thought of, and carried out as, an activity which is done continuously through the build and refined during the ship's service.

Response by the Department of Defence

3.120 See also comments on paragraphs 9.9.4 and 9.10.6.

3.121 This problem is recognised by the Department. Under revised Project Management arrangements, a Technical Documentation Working Party is to be established under the Integrated Logistics Support Management Team as soon as the project is created. Guidelines will be laid down in the revised version of departmental publication, ABR 5069, entitled 'RAN Project Management Manual'.

Paragraph 9.10.6

The Department, for future ship construction contracts, ensure that system handbooks and 'as fitted drawings' be produced in a timely manner. The preparation and development of such documentation should be treated as an on-going task commencing early in the build.

Response by the Department of Defence

3.122 See comments on paragraph 9.9.4 and response to paragraph 9.10.5.

Paragraph 9.10.7

For all future capital equipment contracts the Department ensure that the major contractor compiles a register of equipment guarantees and warranties and copies that register, in a timely manner, to the Department on an on-going basis throughout the contract period.

Response by the Department of Defence

3.123 The Department agrees this recommendation which forms a subject for discussion between Defence and the Australian Shipbuilding Industry. See response to Recommendation 9.2.4.

Paragraph 9.10.8

The Department inspect, test and trial equipment within its warranty/guarantee period.

Response by the Department of Defence

3.124 The Department's aim is in line with this Recommendation. However, as stated in the comment on paragraph 9.9.8, there are difficulties in this approach that have not yet been resolved. At the present time, an equipment manufacturer generally guarantees his equipment for a specified time (usually 1 year) from the date of its

supply to the Shipbuilder. Dependent on circumstances at the Shipyard the equipment may or may not be installed shortly thereafter. The construction times for Naval Ships are such that the guarantee period for equipment may have expired, therefore, long before it can be tested. In these circumstances, the shipbuilder is unwilling to guarantee another company's equipment, perhaps understandably so. Attempts have been made by the Department to obtain extended warranty provisions from contractors at increased costs, but with only marginal success. This is a further item for discussion with the Australian Shipbuilding Industry. See also Departmental response to paragraph 9.2.4.

Paragraph 9.10.9

The Department, for future major equipment contracts, specify the period of equipment warranties and guarantees. The range of warranty/guarantee periods should be kept to a minimum.

Response by the Department of Defence

3.125 See response to paragraph 9.10.8.

Paragraph 9.10.10

The Department explore ways in which it might promote officers through various civilian grades or Service ranks while keeping them on the same departmental project and/or position; or if an officer retires he/she might be retained as a civilian on the project. The Committee will be addressing this issue further in its inquiry into departmental project management in 1984.

Response by the Department of Defence

3.126 The Department accepts this recommendation. There is a greater awareness in Navy of providing a career structure for civilian and naval personnel in Project Management. For example, 3 Engineer Class 5 positions have recently been created in major projects. In Naval Technical Services, by far the largest civilian employer in Navy in Canberra, an investigation is in hand to improve career development for civilian officers. This will involve discussions with other Government Departments. The Department is aware that any proposals in this area will always be subject to the normal processes of resignations, transfers and promotions, over which it has no control.

3.127 The Department notes the Committee's intention to address this issue further.

Paragraph 9.10.11

The Department investigate immediately the development of a line approach to the management of major projects. The elements of this approach should include sufficient delegation of authority and continuity of resources for the project manager to plan, review and use resources to achieve an end product that meets specified technical performance objectives, is on time and within budgeted cost. The Committee will be examining this matter during its inquiry into the Department's overall project management in 1984.

Response by the Department of Defence

3.128 A capital procurement organisation was established in the Department on 24 July 1984. The new organisation will bring together those areas of the Department involved in execution of the capital equipment acquisition programme and related policy and financial management responsibilities. It provides a framework to simplify procurement systems and at the same time establish clearer lines of responsibilities for the efficient management of projects.

3.129 The Committee's intention to investigate this matter further in 1984 is noted.

Conclusions - The Death of Navel Reserve Cadet Kenneth Dax

Paragraph 9.11.1

The amount of $3550 is not an adequate amount to be paid for compensation to Mr and Mrs Dax, given the circumstances.

Comments by the Department of Defence to Paragraphs 9.11.1, 9.11.2, 9.11.3, 9.12.1 and 9.12.4.

3.130 The Government has agreed that $35,500 is to be paid as compensation to Mr and Mrs Dax.

Paragraph 9.11.2

A more adequate act of grace payment should be made to Mr and Mrs Dax.

Comment by the Department of Defence

3.131 See comment on paragraph 9.11.1.

Paragraph 9.11.3

The provisions of the Queensland Workers Compensation Act provided a guide for compensation but its provisions were not relevant to the Dax case.

Comment by the Department of Defence

3.132 See comment on paragraph 9.11.1.

Paragraph 9.11.4

In this instance the Board of Inquiry Report and the Review of the Board of Inquiry Report are not so technical nor confidential that they should have been withheld from the Dax family.

Comment by the Department of Defence

3.133 It is now Departmental policy that requests for technical reports will be met, together with a covering letter to the effect that, if the report is not understood because of its technicalities, then explanation will be provided.

Paragraph 9.11.5

The Department did not sympathetically respond to the Dax family's request for information.

Comment by the Department of Defence

3.134 This is not agreed. An inspection of the correspondence between the Department and the Dax family will reveal that they were treated sympathetically throughout.

Recommendations - The Death of Naval Reserve Cadet Kenneth Dax

Paragraph 9.12.1

The Dax case be reviewed by the Department in conjunction with the Departments of Finance and Social Security, as a matter of priority, to determine an adequate amount to be paid for compensation to Mr and Mrs Dax. Among the factors to be considered by this review should be the horrible circumstances of the death, the age of the deceased, his volunteer Service status and the particular departmental problems

of the HMAS TOBRUK project as discussed elsewhere in this Report.

Response by the Department of Defence

3.135 See Comment on paragraph 9.11.1.

Paragraph 9.12.2

When a person dies in Service the deceased's spouse (or family if appropriate) be informed of, as soon as possible, the full circumstances surrounding the death of the deceased.

Response by the Department of Defence

3.136 The Department generally agrees this recommendation. Technical information is not normally supplied unless requested. Similarly, pathological details might cause unnecessary distress. The Department therefore intends to follow a policy of supplying technical information only if requested, together with a letter to the effect that if the report is not understood because of its technicalities, then explanation will be provided. General information is always supplied at the first opportunity, as occurred in the Dax case.

Paragraph 9.12.3

The Auditor-General be informed of and supplied with, in a timely manner, unedited Board of Inquiry Reports and Reviews of Board of Inquiry Reports.

Response by the Department of Defence

3.137 The intention of the Committee's recommendation is not fully understood, but after discussions with the Auditor-General's Office, it is believed the Committee has an idea that the Auditor-General should receive reports of this nature as they do in relation to bad cases of misappropriation, fraud etc. The Department has difficulty in accepting the validity of such a proposal which, taken in the Defence context, could mean that details of every accident, including, say, aircraft crashes would have to be made available. The administrative burden would be immense and the Department has difficulty in appreciating that there could be ultimate benefit.

Paragraph 9.12.4

The Compensation (Commonwealth Government Employees) Act 1971 be revised and amended as soon as possible to provide for adequate compensation payments in circumstances like the

Dax case, or that appropriate legislative changes be made.

Response by the Department of Defence

3.138 See comment on paragraph 9.11.1.

Comment by the Department of Finance:

3.139 See also the response provided by the Minister for Social Security to Paragraph 7.33.4.

APPENDIX 1 - Letter from the Minister for Defence to the Chairman of the PAC, 16 November 1983.

COMMONWEALTH OF AUSTRALIA

MINISTER FOR DEFENCE
PARLIAMENT HOUSE
CANBERRA A.C.T. 2600

16 NOV 1983

My dear Senator Georges,

In your letter of 7th November 1983 you informed me that the Public Accounts Committee wished to have further discussions with officers of my Department in relation to some serious matters concerning HMAS TOBRUK. I am informed that at the Hearing the list of matters was expanded upon and you did not see fit to advise on the source, qualifications or standing of the person or persons who provided you with the information.

It is of concern to me and the Department that, in essence, Departmental witnesses have been asked to comment upon and defend in a public hearing allegations which are almost bordering on being anonymous. In the circumstances it would be appreciated if the Committee could have regard to the following in making its judgements on the matters raised.

Throughout the 1983 hearings, my Department has been at pains to provide, for the Committee's information, statements of the qualifications of the great majority of the Departmental officers associated with the design, construction, and oversight of HMAS TOBRUK. I am now prepared to provide, if required, full statements of the qualifications of each of the Departmental witnesses so that the Committee can make its own assessment of the professional qualifications and integrity of the officers representing the Department. In brief, it is considered relevant that on the professional and technical side, the Department made available people whose individual experience, as Naval engineers and civilian staff working for the Department, extended over more than 30 years. Collectively they had participated in the majority of shipbuilding programs in which the RAN has been involved since at least the mid 1950s. It is therefore suggested that this experience, when taken with the fact that the officers' evidence has been given under oath, should be a substantial factor in determining the validity of the allegations or the Department's statements in answer to these allegations.

It is believed the continuing willingness of the Department and its witnesses to do everything possible to co-operate and meet the Committee's wishes is a matter of record. This has again been amply demonstrated in

/Mr Pritchett's

Mr Pritchett's letter to you on 8th November, and the Departmental witnesses decision, after a quick appreciation of the list of allegations presented to them at the hearing on Wednesday, to proceed with evidence in public. I am advised this decision (to proceed in public as opposed to seeking an in camera hearing) was taken in the knowledge of the additional responsibility placed upon the witnesses to maintain security in the light of the probability that the resultant discussion could impact upon an area which had been the subject of a classified disclosure at an in camera briefing to the Committee on 3rd August 1983.

Yours sincerely,

(GORDON SCHOLES)

Senator G. Georges,
Chairman,
Joint Parliamentary Committee of Public Accounts,
Parliament House,
CANBERRA. ACT. 2600

APPENDIX 2 - Letter to the Minister for Defence from the Chairman of the PAC, 13 December 1983.

COMMONWEALTH OF AUSTRALIA

JOINT PARLIAMENTARY COMMITTEE OF PUBLIC ACCOUNTS

PARLIAMENT HOUSE
CANBERRA, A.C.T.
TEL. 72 7455

Our reference: 82/17/223/B(2)

The Hon G. Scholes, MP
Minister for Defence
Parliament House
CANBERRA ACT 2600

Dear Minister

I advise that my Committee has completed taking evidence for its inquiry into HMAS Tobruk. Committee members are currently considering a draft report for this inquiry.

It is expected that the Committee's report on HMAS Tobruk (PAC Report 223) will be tabled as soon as possible after the commencement of the Autumn Sittings of Parliament in late February 1984.

I note the concerns you raise in your letter of 16 November 1983 but point out that the allegations discussed at the hearing on 9 November 1983 were copied to your Department prior to that hearing and your Department was given the opportunity to respond to those allegations privately if it so wished.

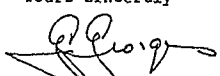
The Secretary of your Department, Mr Pritchett, wrote to the Committee on 8 December 1983 advising that the Department would be pleased to co-operate fully with the Committee and attend a public hearing on 9 November 1983. Mr Pritchett made two further comments in his letter. First, that more details be made available on the matters of concern to the Committee. These were provided by the Committee to departmental witnesses at the commencement of the public hearing before they were tabled and discussed. Second, that some aspects of HMAS Tobruk's damaged stability were classified.

The Committee recognised the sensitivity of these allegations and repeated its offer to discuss the matter in camera at the commencement of the public hearing on 9 November 1983 after departmental officers had inspected a detailed precis of the allegations. The officers decided to proceed to discuss the allegations in public and the Committee accepted this decision. The aspects relating to HMAS Tobruk's damaged stability were addressed later by the Committee at an in camera hearing on 6 December 1983.

I acknowledge and welcome the co-operation your Department has given to the Committee during its inquiry into HMAS Tobruk. All members of the Committee recognise that the senior Service officers and civilian personnel who represented your Department at the hearings are very experienced and able personnel.

You will be aware that arising from the Auditor-General's Report of September 1983, my Committee has decided to hold an inquiry into Project Management in your Department in 1984. I will be writing to you in the New Year about the detailed arrangements for this inquiry, including its terms of reference. At this stage I do not anticipate hearings for this inquiry will commence before March 1984.

Yours sincerely



Senator G. Georges
Chairman
13 December 1983

APPENDIX 3 - Department of Defence, Naval Engineering Symposium 1984 paper, "HMAS Tobruk - A Marine Engineering Viewpoint".

HMAS TOBRUK - A MARINE ENGINEERING VIEWPOINT

ALAN WATKINS COMMANDER RANR FI MAR.E - FRINA

FLEET OIC - FIMA

Commenced sea going career in 1951 with Anglo Saxon Petroleum Co. Tankers. Chief Engineer on Australian and overseas ships (steam and motor).

Superintendent of Dockyards, Brisbane 10 years and Senior Engineer Surveyor to the Queensland Marine Board (QLD Government) four years.

Has held appointments as non-exclusive hull and engine surveyor to most major classification societies.

General Manager, Tropic Lines International (shipping company).

Resident Engineer in Japan and UK for the construction of two roll on-roll off and one general cargo ship.

Currently completing four years full time service which has included two periods in HMAS TOBRUK

SUMMARY OF PAPER

1. The Paper summarises some of the less published problems of HMAS TOBRUK and includes comparisons between Merchant Service and Naval management, operation and manning techniques.

DISCUSSION

2. Included are references to Merchant ship constuction rules used by Classification Societies and Statutory (Government) Authorities. to ensure the production of minimum acceptable standards.

INTRODUCTION

3. HMAS TOBRUK was commissioned on 23 April 1981 following construction at Carrington Shipyard, Newcastle, and is based on the RN Landing Ship Logistic class. It is an update of the Sir Bedivere type with modifications to suit Australian conditions.

4. The unfortunate aspects of TOBRUK's subsequent performance have been reasonably well addressed in the Joint Committee of Public Accounts Report 223 of 1984. It is not intended to devote too much space to the more publicised aspects of TOBRUK's career but rather to discuss some of the equally important features, (or in some areas the lack of them), considered desirable to ensure the quality of ship performance expected by ship owners as a return of investment. Tied with this reliability is the morale of the ship's company and the satisfaction of agencies involved with the movement of cargo.

5. Some comparisons of design and ship building including the supervision of construction to meet specification will be commented upon, as will subsequent ship operation and management techniques. It is to be hoped that some contained reference to Statutory and Classification Society Rules for the Construction and Survey of Steel Ships (commercial) will be accepted in the right context.

Class

6. A Classification Society is an organisation whose function is to ensure that a ship is soundly constructed and that the standard of construction is maintained. The ship is classified according to the standard of its construction and equipment. The cost of insurance of both ship and cargo depends to a great extent upon this classification and it is therefore to the advantage of the ship owner to have a Class ship. A point to remember is that the classification societies are indpendent of the insurance companies.

7. There are a number of large societies with whom a ship owner is free to negotiate. The one exception is found in Japan where all Japanese owners must class with the Japanese Society.

8. Each of these societies produces its own rules, however there is very little variation between the rules of each society.

9. At this stage it could be of interest to briefly describe the procedures leading to acceptance and delivery after construction of a commercial ship of comparable tonnage.

10. The proper preparation of a specification to cover all aspects is the first requirement to be satisfied. The

specification is well discussed with the prospective tenderers in the first place and in more depth with the successful tenderer at the time of acceptance. Approved drawings are usually available at commencement of construction although in the case of some Japanese yards the rate of construction can outstrip the reception of drawings from either the Classification Society or the Statutory (Government) Authority, this prompting telex dialogue. In the case of Australian flag ships it is also necessary for drawings to be read and accepted by representatives of the various maritime unions. Agreement exists between ship owners and unions that accommodation standards are maintained on the basis of equality of cabin space, furniture and fittings using the 3rd Engineer/2nd Mate's accommodation as a yardstick for the crew spaces.

11. It is usual at the time of the delivery crew joining in overseas yards to find sailors running the tape rule over cabins to ensure there are no discrepancies in the areas allocated and carefully checking the quality of carpets, coverings and drapes to ensure equivalent standards.

Construction Supervision

12. A Resident Engineer acts as the shipowners' sole on site representative, responsible for the finished product according to the specification and approved drawings. He has the authority to object and correct in the event of unsatisfactory yard performance, including any deviation from the specification. As the ship is constructed to Class, regular visits to the shipyard are also made by Classification Society surveyors.

13. The Resident Engineer is also responsible for attending all up-country trials of machinery (mechanical and electrical) prior to acceptance and subsequent delivery to the shipyard.

14. After the installation of machinery and prior to launching of the ship, tank testing is undertaken. Fitting out continues after the launch, and about one month before sea trials, a deck officer arrives to assist in the Navigation and safety equipment installation and set to work.

15. Sea trials are very often carried out using shipyard staff for crew. The remainder of the complement arrive as close as possible to the date of delivery by the shipyard. In the case of a ship with UMS (Unattended Machinery Space) notation, extensive trialling of control machinery is undertaken including scheduled blackouts and automatic start ups of machinery systems.

16. The inclining experiment is carried out in a wet dock supervised by Statutory Authority (Australian Government) surveyor prior to docking down for removal of launching shelf-plate brackets and a final spot and full coat of paint.

HMAS TOBRUK / TANK DECK BULKHEAD - DECKHEAD

HMAS TOBRUK

17. At the 1982 Symposium a paper on Fleet Engineering problems was presented. The major items described as being the most difficult to overcome "and generally requiring considerable design effort" were listed as follows:

a. the main engine control system,

b. air conditioning system deficiencies,

c. excessive noise and vibration levels,

d. deficiencies with the sewage system.

18. Unfortunately a number of other major engineering problems were found to be live in TOBRUK, some of them ongoing as a result of specifications, stores and spares inadequacies, some of them resulting from a lack of operator/maintainer skills, and some emanating from confusion over interpretation of laid down instructions.

19. Because of the Royal Navy connection and the age of the class used as a general arrangement for our ship, much of the philosophy adopted is outdated both in machinery as fitted and hull construction configuration.

20. The advances in outline, location of accommodation and machinery spaces current in the mid to late seventies have not been adopted. The bow and stern door arrangements are untidy and mirror the age of the RN and early single hold design, rather than that expected for a ship laid down in 1979.

21. The unhandiness and the mechanical and sealing arrangement of the stern door has apparently influenced load line assignment, creating an unfortunate and unrealistic restriction in cargo lifted. The cluttering of the tank deck bulkheads restricts ability to close stow cargo, and exposed fittings such as piping, cable runs and light fittings are vulnerable to any high stowage. The crane fit and absence of deckhead king beams is reflected in failures of some existing deck beams.

Excessive Noise and Vibration

22. Due to the heavy surging of main engine turbo blowers under load and during periods of rapid engine acceleration and deceleration on extreme helm movement, contact was established with the engine supplier who advised that there had in fact been some minor surging during test bed trials. As a result, the turbo blower throat ring area had been reduced. Prior to the information being received, the main engine air intake manifolds were opened looking for some excuse for unsatisfactory performance. From observed condition, including excessive carbon build up, the manifolds were opened for the first occasion. Sea trials after cleaning produced nil reduction in surging and it was decided to climb down into the turbo blower intake trunking from 02 deck, using a rope ladder.

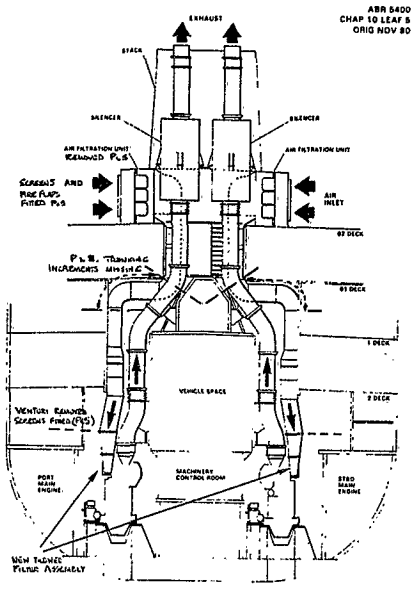
23. The result of this survey was spectacular to say the least, and reflected a lack of shipyard and RAN inspecting technique.

24. Poor fit of trunking butts and the absence of many metres of welding increments had contributed to unstable air supply to the blowers. This was further highlighted by long standing damage to the intake manifold bellows and venturi connection where a number of previous failures had been welded and additional external stiffening added.

25. At the time of the internal trunking inspection, five Kg of steel offcuts were removed from the horizontal section leading to the final drop to the blower.

STEEL OFFCUTS FROM BLOWER INTAKE

26. As the turbo blower inlet trunking is bounded on one side by accommodation bulkheads through three decks, considerable resonance was generated and transmitted to accommodation causing acute discomfort when the ship was underway. Accommodation areas had been designated 'Noise Dangerous'.



MAIN ENGINES
AIR INTAKE & EXHAUST SYSTEM

SECTION AT FRAME 30

27. A recommendation was made to FHQ to remove the M/E turbo blower suction from 02 deck. By substituting an engine mounted blower filter assembly a two fold result would be achieved:

a. the removal of considerable noise nuisance, and

b. a cleaner engine room environment due to increased local extraction.

Fire flaps have been fitted at original 02 deck intakes, now open ventilators.

28. Vibration experience in HMAS TOBRUK is no worse than that experienced in many other ships. The unpleasantness experienced is due more to the fact that the ship is tortured with Officer of the Watch exercises rather than the steady steaming usually maintained by cargo ships. Close inspection of all stern scantlings including aft tank internals revealed no increment failure as usually experienced in ships with heavy vibration.

Fuel and Lub Oil Service Tanks

29. The placement of a number of gravity fuel oil and lub oil tanks in the uptakes of HMAS TOBRUK offends the commercial ship regulations applied by both Classification Society and Statutory Authority.

Lloyds Register of Shipping (1983) Chapter 14 Part 5 Section 1/2 (2-8):

> 'Settling or Daily Service oil fuel tanks and oil fuel filters are not to be situated immediately above boilers or other highly heated surfaces.'

Commonwealth of Australia/Navigation Orders Regulations 24 of 83:

> '14-2-4. No oil fuel tank shall be situated where spillage or leakage from it can constitute a hazard by falling on heated surfaces.'.....

30. The diesel generator service tank and the incinerator fuel tank are both located in areas of excessive temperature, situated adjacent to the funnel base and co-located with exhaust runs from all engines, incinerator and auxiliary boilers.

31. Similarly, the boiler fuel tank and a lubricating oil holding tank for bow thruster supply are situated one deck above auxiliary boilers. Leakage from any of the tanks could spill over the gear box of the Port main engine, the after port D/G or boilers with unhappy consequences. It has been long

established and traditional that sailors, whether they be uniformed or merchant service, have an abhorrence of fire at sea.

32. The incinerator takes its supply from the diesel generator service tank and does not burn sludge as originally proposed.

33. To remove a potentially dangerous hazard from the machinery space the diesel generator service tank should be replaced by a fuel rail from a dedicated boost pump. A small tank for emergency purposes could be installed in a less vulnerable location and certainly not in the uptakes.

Load Line

34. The fact that HMAS TOBRUK was delivered 297 tonnes overweight is history. The deadweight of the ship to meet an assigned Load Line embarrasses the ship and frustrates the client. A ship of the measurement tonnage of TOBRUK should not be considered loaded on acceptance of 900(+) tonnes of cargo. A commercial ship of similar dimensions would be sent to the breakers by an owner measuring cost effectiveness, or thirty years ago, taken out of Class, registered under the Panamanian or Liberian flag and assigned a new Load Line in the dead of night by an unscrupulous agent with a paint brush.

35. The departure of TOBRUK on short voyages with 28 days fuel needs a realistic review to maximise freight capacity.

36. As air escapes are an important part of Load Line surveys, reference should be made to the escapes on 01 and 1 decks fitted with hinged flaps locked in the open position with a split pin and many frozen in the open position which contradicts the Safety Rules for Load Line survey. The LRS Rule Chapter D 2912 states "All openings of air and sounding pipes are to be provided with permanently attached satisfactory means of closing to prevent the free entry of water." Chapter E Section 4/405 states that the closing appliances in accordance with D 2912 are to be of type which will prevent excessive pressure coming on to the tanks. Provision is to be made for relieving vacuum when the tanks are being pumped out, and for this purpose, a hole of 10mm diameter in the bend of the air pipe or in a suitable position in the closing device will be suitable.

Pipes/Scuppers

37. The many hours spent by ship's staff attempting to clear blocked soil lines and common scuppers indicates a problem in pipe area, fit and fall. From taking part in the tracing of offending systems including the removal of deck head fire-rated panels and the hacksawing of wedges from downcomers in an effort to locate the blockage, it can be stated that the problem will not diminish without expensive pipe re-runs. The quality of

pipe workmanship leaves much to be desired and this comment includes the timber noggings fitted for the fixing of deck head panels.

38. Because of the unsavoury odours emanating from some accommodation scuppers all systems including sewage discharge were dye cleaned using condies crystals, supplied by the sick bay, as the medium. One only scupper was found to be incorrectly connected to the sewage overboard system and this was the galley food disposal unit. This has since been corrected by ship's staff.

39. Galley drainage is inadequate and catering staff appear to have become used to doing the best they can under conditions that could only be described as adverse.

Hydraulics

40. Some mention should be made of hydraulic systems and the problems associated with a lack of basic cleanliness at first component fit. Overseas shipyards are meticulous, insisting on clinical cleanliness as the norm commencing with the pickling of pipes and the removal of mill scales and spatter. Before the machine is connected to the system pipe lines are circulated through a flushing cart for up to 24 hours with regular inspections of paper filters. During this trial the contractor, in the case of Japanese yards, camps on the site and at hourly intervals wooden mallets are used to hammer pipes and ensure total removal of mill scale or any other solids that may have escaped previous checks. All filter papers are presented to the Resident Engineer for approval or, in the case of rejection, extension of the trial. There is very little mysticism about hydraulics.

41. Applied cleanliness is essential to ensure smooth machinery operation whether it be the bow thrust unit or a high pressure fuel line.

Anchor Windlass

42. It is understood that the performance of the anchor windlass has been suspect and that twisting of the cable both on deck and in the lockers has occurred. The cable link and gypsy appear to be incompatible and the jockey pulley of insufficient depth to prevent rolling of the cable. After two and a half years of operation, FIMA, in October 1983, modified the windlass brake hinge pins bed plate frames to allow access for lubrication.

Machinery and Spares

43. The change to the main engine turbo blower assembly by ship's staff has been previously mentioned, and both turbo blowers have been serviced by Brown Boveri.

44. During the service of the starboard blower a large piece of mild steel angle was found across the throat of the turbine.

45. There is no reason why blowers should not be serviced by ship's staff. TOBRUK and FIMA personnel have spent time at Brown Boveri workshops for purposes of instruction and familiarisation.

Main Engines

46. The engines are direct reversible Mirrlees KDMR8 Major (medium speed) and it is not intended to criticise the choice of engines. If anything, the unhappy early life of the engines reflects in their favour. There has been a tendency in commercial medium speed engined ships to select a single direction installation, reversal being obtained via the gear box, (this choice removes much of the offending control air system.

Control Air System

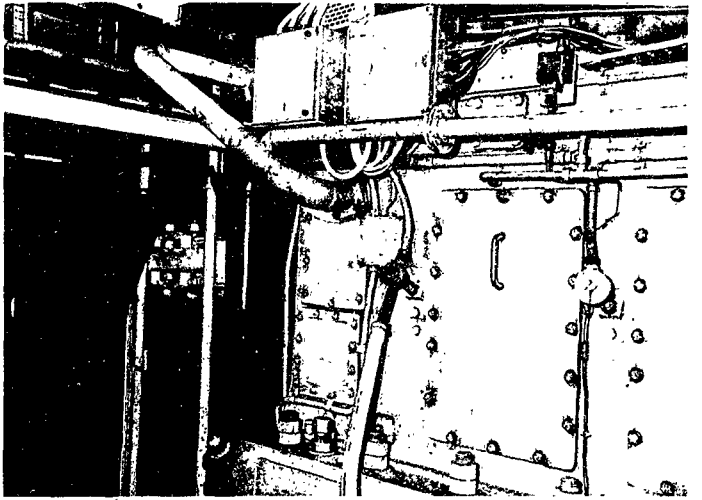
47. The control air system had repeatedly failed during the life of the ship. Its unreliability had produced a nervousness and lack of confidence in ship's staff. The decision by the Fleet Commander to withdraw the ship from its programme and undertake replacement of main engine and clutch control air piping, at the same time service all control air valves, has been justified by the ships improved performance. The steel piping originally fitted had suffered severe internal corrosion from the high moisture content of control air produced. The resultant oxidisation had been pumped around the system for three years producing a situation not unlike russian roulette on each occasion the engines received a signal.

48. An unsatisfactory situation developed during the renewal of the pipe system. It was found that copper pipes were being fitted with burred ends and containing copper swarf. On two occasions long runs of new pipe were removed until it was agreed that the contracter should continue the pipe erection and then remove the entire run for complete cleaning and individual inspection prior to re-fit.

49. All control air valves were dmismantled by a local contractor, cleaned, lubricated and refitted. Many beehive type filters (incorporated in valve assemblies) were cleaned for the first time.

50. Pending the fitting of approved heat exchangers at both main air compressors and a modification to the auxiliary air compressor, three DDG type Frigi filters were installed in the control air system with additional separators and driers. The system to date remains dry but, as in the case of commercial ships, it is felt that an annual (contractual valve) service is

essential to guarantee the continued well being and positive valve operation necessary to ensure rapid and reliable engine response.



Crankcase Extraction

51. For three years of operation, HMAS TOBRUK had been discharging main engine lubricating oil via crankcase breathers teminating on both sides of the funnel casing. The problem had been accentulated by the fitting of a crankcase extraction fan for each engine (not usually fitted in medium speed engine installations). Due to an incorrect pipe run, commonality between the crankcase breather and the Gravier oil mist detection unit had been introduced leading to a potentially dangerous situation caused by back flooding (and fouling) of the unit. A design fault was also found in the main engine crankcase extraction pipe at the entablature take off, the internal pipe suction being too close to the piston cooling oil gallery return. Blanks have been fitted to divorce the Gravier system from the crankcase extraction line and the mist detection sample now discharges into the MMR atmosphere. The crankcase extraction fans have been shut down since February 1984 without any obvious signs of entablature leaks.

Lub Oil

52. Due to some misinterpretation, the quality of lubricating oil in main and auxiliary engines could be best described as suspect. The infrequent use of purifiers could not cope, and instead of a couple of hours every few days the purifiers have been properly set to work. The benefits, apart from the initial heavy cleaning of the purifier discs and bowl do not require any elaboration. A chemical cleaning tank was fabricated by FIMA STALWART to considerably reduce the manpower expenditure for a generally unpleasant task.

53. An unfortunate legacy of earlier ships designed for the western ocean is the heavy dependence on steam. In TOBRUK, steam coils are fitted in main engine lubricating oil drain tanks, purifier heater, gear box sumps and the engine jacket cooling water system. The practise of steam heating has been stopped in all systems apart from the LO purifier heater due to the associated dangers. To my knowledge on two occasions main engine lubricating oil has been boiled during the process of preparing for sea. Blanks have been fitted to the offending steam lines. The Class requirement, when steam heating is used in association with lubricating oil, includes the fitting of thermo-alarms. An electric heater should be fitted for the LO purifiers.

Waste Heat

54. Due to the amount of waste heat generated to total loss by the diesel generators in TOBRUK, cross connections have now been fitted between main and auxiliary engines (MMR) jacket systems allowing the jacket water of the running DG to be pumped around the main engine instituting a considerable fuel cost saving and denying bird and marine life some of the comforts of life. This is a common fitting in diesel engined ships.

55. The tendency to boil systems by the inadvertent admission of steam to systems is also suggested as the cause for the rapid deterioration of the internal spaces of the Distiller. The appearance of the evaporator space indicates overheating without the presence of salt water feed. Most motorships of the past decade evaporate sea water under a vacuum using the jacket cooling water and the main engine as the heating medium (150-160°F) for the production of fresh water.

Bow Thrust Unit

56. The bow thrust unit has been previously mentioned in association with hydraulic systems. An analysis of an oil sample taken from the BT unit in March of this year indicated unhealthy contaminates. An unsuccessful attempt was made at the May 84 Assisted Maintenance Period to circulate the contents of the unit through a portable flushing rig. Forty eight hours of circulation did not produce more than an insignificant quantity of mill scale. The unit will need to be drained and flushed at the next docking.

57. As a matter of interest, some shipyards are now fitting the bow thrust unit at an angle of 2° to the athwartship line to achieve a propulsive effect in the event of total main engine failure.

Boilers

58. The performance of boilers leaves much to be desired and perhaps suffer from 'rating', maintenance, and the sailor's tendency to fiddle. Steam demand has been considerably reduced by the previously mentioned fitting of a main engine/DG jacket cooling water cross connection. Fleet were requested, and approved, the use of raw rather than distilled feed for the boilers on a trial basis thus further reducing steam demand. During the same AMP, FIMA STALWART overhauled all steam range valves. The previously shut down water softener has been set to work and more attention given to the measurement and recording of feed quality.

Oil Water Separator

59. The Oily-Water Separator has not worked since commissioning, the reason being given as supply of incorrect oil level detection probes housing an adjustable printed circuit board oil detection circuit. The current method of disposing of bilges in TOBRUK is questionable and liable to cause the RAN some embarrassment. The Commonwealth Department of Transport requires the presentation of a bilge/ballast disposal book at inspections of commercial ships.

Emergency Gear

60. A register of emergency gear was initiated in TOBRUK to ensure the regular testing and recording of alarm systems, closing appliances including M/C space fire flaps, fire/smoke detection units, emergency fire pumps and emergency generator. This is also a statutory requirement in commercial ships. At these tests it was found that the set point of bilge alarm cards had been altered to minimise the noise nuisance to inhabitants of the Machinery Control Room.

The Sailor

61. This brings us to the sailor and his managers. The machinery control room concept has been an important improvement in the life of a marine engineer. In merchant ships for the largest installation they are unattended and Classed ships attract a UMS notation. The air conditioned comfort of the MCR in TOBRUK had produced a sanctuary complete with seating of various quality depending on rank. It became difficult to obtain sufficient oxygen during periods of Special Sea Dutymen and difficult to properly monitor the control panel during this time. The situation was overturned in March 1984, congestion

relieved and the MCR is now manned by the EOOW only at sea. The OOW and third hand are now engaged in maintenance on watch and are on call if required by the EOOW.

62. The general enthusiasm of the sailor cannot be questioned. He is conditioned to working long hours without much redress and without much privacy or comfort when compared to conditions available to merchant seamen.

Training

63. The training of the sailor and the Engineer leaves much to be desired and is matched by skill of hand. The introduction of unit overhauls by TOBRUK ship's staff has created considerable sailor interest but has also generated other problems requiring constant supervision. The lack of trade skills observed in TOBRUK are matched with a corresponding degradation at FIMA bases where the same jobs are done more than once on too many occasions.

64. The RAN Scheme of Complement for HMAS TOBRUK is about 130 whereas the Royal Fleet Auxiliary manning of the Sir Bedivere type is 68. A commercial ship of the same tonnage and service as HMAS TOBRUK would be manned by 24 (Australian/British flags) and 15 (Scandinavian/Japanese flag), with a UMS notation.

65. More interest in the on-the-job training of junior (and senior) sailors is required from the MEO and this presents a problem: who trains the engineer?

66. Experience with the operation of TOBRUK machinery caused concern, with some of the causes of 'U/S' machinery being: motors running the wrong way, pump cross connection valves open under the plates, or 'I picked it up from my predecessor' and 'its not my part of ship' syndromes.

67. If there are to be so many sailors onboard there is a need for some dedicated responsibility in the matter of their engineering education.

Reporting/The RAN System

68. The volume of paperwork necessary to report the performance of a ship at sea is not matched by the end result. The format of reporting machinery trials is ponderous and does not allow for any rapid comparison of performance. The absence of any type of formalised abstract for internal combustion engines tends to leave machinery evaluation to the operator in the Machinery Control Room.

69. The Chief Engineer of a Merchant ship spends an hour a day at sea completing the voyage abstract and associated paperwork. At the end of each month and on the day before voyage termination, voyage reports including the abstract,

Statutory Authority declarations, fuel/stores and spares demands and advice notes for Class survey are prepared. Telephone and signal traffic, ship to owner, is discouraged and rather, initiative is encouraged.

Inspections

70. The quality of Fleet inspections does little to improve ship performance. In the case of TOBRUK, the 1984 report was congratulatory, and as a result, misleading; not the motivation necessary to induce sailors to try a little harder. Months of long hours by technical sailors preparing for the Fleet Commander's inspection by painting and polishing in the dogs indicates a loss of direction and a waste of available manpower when the ship's machinery operation is suspect and planned maintenance schedules are long outstanding.

Stores/Spares

71. The inadequacies of the RAN stores and machinery spares support system are well illustrated by the fact that we are still searching for many of the TOBRUK machinery spares that were purchased prior to commissioning and are assumed to have disappeared into the Random Stowage of Zetland. For three years, HMAS TOBRUK undertook many voyages of unrestricted limits of operation without any Class spares other than 17 cylinder head gaskets for the main engines, a small degree of comfort for the then operating staff. The frustrations of TOBRUK have been largely relieved by the duplication of invoices on the engine supplier. The aforementioned frustrations have been shared by MIRRLEES/HAWKER SIDDELEY who until recently have not had the contact with the RAN normally maintained between the ship, the owner and the engine supplier. The original situation is unheard of in commercial ship management and would be untenable to shareholders in a cost effective organisation.

CONCLUSION

72. The value of the RAN of Classification for a one off merchant type ship such as HMAS TOBRUK has, in hindsight much to offer, and has been recognised in the case of the RFA vessels.

73. Continuous survey and the simplified planning and recording of maintenance provides an excellent service to the shipowner by an independent authority. The strength and impartiality of a Classification Society would have removed the uncertainty of the end product.

74. The current method of apprentice training is having an effect on the quality of trade work undertaken and needs some urgent review. Damage to equipment being refitted leads to a decline rather than an expected improvement in item performance. TOBRUK was not an exception, and some parallels

can be drawn with the performance of HMAS MORESBY and other diesel engined ships.

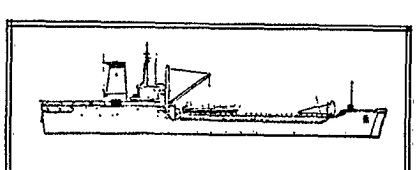
75. One of the most disturbing features in TOBRUK was the number of sailors starting expensive machinery without any awareness of safety procedures for either the sailor or the machine.

76. The traditional methods of educating sailors should still, appeal as a challenge. The MEO and, hopefully, senior sailors should have the experience and ability to instruct joining staff in the safe and economical methods of machinery operation.

77. Marine Engineering in the RAN is in a catch up situation and some concern is felt for younger and enthusiastic sailors and officers embarking on a career.

78. There is no reason why TOBRUK could not burn lower grade fuels with some very minor modification to engines. Ship's staff should become familiar with other than premium grade fuels that may not be available in emergency situations, this being when the quality of the engineer is put to test.

79. With the improvement in habitability and new found reliability of the engine control system HMAS TOBRUK has turned the corner. A couple of years of concentrated hard work could see the ship figuring in desirable exchange postings for others than Brisbane residents.



SHIPS OF THE ROYAL FLEET AUXILIARY CLASS NOTATIONS

APPENDIX 4 - Department of Defence, comments on Naval Engineering Symposium 1984 paper, "HMAS Tobruk - A Marine Engineering Viewpoint".

DEPARTMENT OF DEFENCE

RUSSELL OFFICES
CANBERRA, A.C.T. 2600

IN REPLY QUOTE:

RFP84/26950

26 April 1985

Mr M.J. Talberg
Secretary
Joint Parliamentary Committee of
Public Accounts
Parliament House
CANBERRA ACT 2600

Dear Mr Talberg

PAC REPORT 223 - HMAS TOBRUK

1. Your letter 84/7/B(1) dated 22 April 1985, sought comment on a Naval Engineering Symposium Paper "HMAS TOBRUK - A Marine Engineering Viewpoint" presented in December 1984 by Commander A. Watkins.

2. In the timeframe provided it has not been possible to produce a detailed document addressing all points raised in the paper. This would be able to be prepared, if so needed by the Committee, and if given sufficient notice of the requirement.

3. The attached document, while general in nature, is considered to reflect the circumstances surrounding the preparation and presentation of the report, and departmental action in respect of the contents.

Yours sincerely

F.R. HARVEY
First Assistant Secretary
Financial Services and Internal Audit

Enclosure:

JOINT PARLIAMENTARY COMMITTEE OF PUBLIC ACCOUNTS (PAC) - HMAS TOBRUK - DEFENCE COMMENT ON A PAPER BY COMMANDER A. WATKINS TITLED "HMAS TOBRUK - A MARINE ENGINEERING VIEWPOINT"

1. The following remarks are offered to establish a context in which Commander Watkins came to produce his report, eventually presented at the December 1984 Naval Engineering Symposium, and to illustrate the scope of subsequent Navy actions. If the PAC should feel that a further, more detailed response is necessary, this could be provided in due course.

Background

2. As a result of continuing concern with TOBRUK, particularly over the problems then being experienced with Main Engine Controls, the Fleet Commander initiated a "Review of Operational Availability" in February 1984. The leader of the Review Team chosen for the task was CMDR Watkins. The review findings, on which the Symposium paper was based, were submitted on 23 March 1984.

3. CMDR Watkins was selected as the most appropriate officer for the task, observing his extensive background and experience in commercial marine engineering. He was, and is, held in high regard, particularly in this capacity. His naval experience and understanding of the Defence procurement process are understandably less comprehensive, and his comments on ship design and the philosophy of RAN manning and maintenance practices should be taken in this light. A large proportion of the paper's recommendations have nevertheless been adopted, but the Committee should be aware that this does not imply departmental acceptance of all the contents.

4. It is considered that the Committee might note with favour the Navy decision to use someone who might be described as "an objective expert" to study perceived deficiencies in an RAN vessel, and then to give prominence to the consequent report at the RAN Engineering Symposium, so that the benefits of his work should receive wide dissemination.

General Comments

5. Some of CMDR Watkins observations are critical of the choice of design for the vessel. Prior to compilation of his report he was unaware of the constraints under which TOBRUK was procured ie the purchase of a proven in-service design with minimum changes. Inherent in adoption of this design of vessel was the acceptance that some features to be found in vessels of later design would not be able to be incorporated.

6. CMDR Watkins makes several observations concerning quality assurance and the performance of the shipbuilder and Navy overseers in this regard. It is considered that the departmental response to the PAC report has covered such points adequately. Any further specific questions could be further addressed if requested by the Committee.

/7. Of the other

7. Of the other points raised by CMDR Watkins, there were two main avenues of actions identified viz, those that were the responsibility of Navy Office, and those in the province of the Fleet Commander. Navy Office actions were mostly detailed in the departmental responses to the PAC Report. Particular points addressed by Navy Office in correspondence with the Fleet Commander included:

a. the requirement for Special Sea Dutymen;

b. turbo-blower surge;

c. graviner crankcase monitoring;

d. main engine crankcase ventialation fan;

e. configuration changes;

f. planned maintenance;

g. training of the ship's company; and,

h. spares support.

8. As a further outcome of the Review, a brief investigation was carried out to establish the appropriateness or otherwise of using a commercial Classification Society. The Committee should be aware that, while the use of such Societies was not general Navy practice in the 1970s when the TOBRUK project was developed, they have been used to a much greater extent in the last few years. Examples include the oversight of the build and classification of 2 Navy tugs, assistance with the South Pacific Patrol Boat design process and tender evaluation, and use of Bureau Veritas and Lloyds for technical assistance in assessment of welding quality at Cockatoo Island and the alignment of Destroyer Escort shafting at Williamstown and Garden Island Dockyards.

9. Among the items identified either by Navy Office or the Fleet Commander as being the responsibility of the Fleet Commander, actions on the following points have been taken:

a. operation of machinery;

b. spares allowances and necessary procurement;

c. rectification of control air system for main engines;

d. reduction of turbo-blower surge and consequent noise reduction;

e. machinery space manning levels;

f. graviner system set to work;

g. improvements in training of ship's company;

h. machinery records; and

i. planned maintenance changes.

 /10. In conclusion,

10. In conclusion, it is believed that the existence of CMDR Watkins' paper and the prominence given to it in Naval Engineering (previously Naval Technical Services) areas is evidence of Navy's self-critical attitude and demonstrates a determination to achieve and maintain high standards. Many of the findings of the review have already been covered by departmental answers to the conclusions and recommendations of the PAC Report, and in previous statements at the various preceding hearings. In addition, TOBRUK is due to commence refit in November 1985 during which the outstanding significant problems identified by the PAC Report and the WATKINS' investigation will be tackled, subject to the constraints imposed by overall Defence resource availability.

APPENDIX 5 - Comparison of 'Major Tobruk Problems' identified by Director-General Fleet Maintenance and 'Major Tobruk Design Changes' identified by Director-General Naval Design.

Comparison of 'Major Tobruk Problems' identified by Director-General Fleet Maintenance (DGFM) and 'Major Tobruk Design Changes' identified by Director-General Naval Design[1]

DGFM 'Major Tobruk Problems'	DGND 'Major Tobruk Design Changes'
1. 'the air conditioning proved inadequate' (Hansard p. 572)	1. 'we upgraded the air conditioning system marginally' (Hansard p. 546) 'increased air conditioning requirements' (Submission p. 5)
2. 'main engines could not be relied upon to respond to the manoeuvring orders given.... problem stems mainly from the compressors which supply the control air.... some problems stem from initial ad hoc system changes which were necessary to accommodate the use of different engines' (Hansard p. 573)	2. 'engines in the old British design were no longer available .... new engines had to be selected and installed.... consequential changes to engine controls and auxiliary machinery.... compressors... had to be changed because the original equipment was no longer in production' (Hansard p. 545)
3. 'the footings and strength members (of FAVCO deck cranes) had been under designed... cracking was discovered on the deck around the cranes' bases' (Hansard p. 574)	3. 'the original deck cranes were no longer available, new cranes had to be fitted' (Hansard p. 545) 'vehicle deck structure reinforced.... dredesign of focsle deck' (Submission p. 5)
4. 'earth bonding of the electrical circuits was unsafe.... concessions have been granted for the 115 volt system as there is no personnel hazard but no concession has been given for the 440 volt system' (Hansard pp. 574-5)	4. 'electrical distribution system... had to be changed... had to change those electrical systems so that we could use standard RAN equipment and appliances' (Hansard p. 546) '115 volt supply in liew of 230 volt supply for lighting and power.... modifications to 440 volt distribution system to cater for RAN equipment changes' (Submission p. 5)
5. 'HMAS Tobruk exhibits vibration in excess of that normally encountered in a ship.... investigation suggests that it is caused by the propeller being sited too close to the hull and rudder' (Hansard p. 575)	5. 'we had to introduce reduction gearing so that we could retain the original design of propellers and propeller shafting' (Hansard p. 545)
	cont'd

1. This document was tabled by the Committee at a public hearing on 7 September 1983.

6. 'Tobruks auxiliary boilers (used to provide steam for cooking and distillation of fresh water) have been unserviceable for a lot of time.... inoperable for a large part of 1982.... the boilers may not be quite man enough for the job' (Hansard p. 575)	6. 'we had a substantial change in the ships crew as compared with the British.... this meant significant changes (to) galleys, bathrooms, laundry.... there were consequential changes to auxiliary machinery.... because the original equipment was no longer in production' (Hansard p. 545) 'enlarged laundry.... one main galley' (Submission p. 5)
7. 'a design problem with landing craft... that of stability when the craft are completely flooded (when swamped will overturn but continue to float).... these craft have not achieved (their) operational performance.... engine not sufficiently powerful' (Hansard pp 575, 6)	7. 'we used the space... to provide for two landing craft' (Hansard p. 545) 'carriage of Landing Craft Vehicle Personnel in davits Port and Starboard' (major design change a. 5, Submission p. 4)
8. 'five failures of 'hydraulic motors on port and starboard davits.... presently both davits are unserviceable'	8. 'carriage of Landing Craft Personnel in davits Port and Starboard' (major design change a. 5, Submission p. 4)
9. 'the sewerage system.... a source of trouble for the ship since January 1981.... (major) overflows.... it stank.... air escape pipe modification was designed and incorporated.... smells persisted.... fatal accident.... entire plant (now) shut down.... made inoperable pending design review and modification' (Hansard pp. 577, 8)	9. 'the British design had no sewerage system.... we put one in' (Hansard p. 546) 'sewage plant and holding tanks to meet International Maritime Consultative Organisation requirements' (major design change a. 4, Submission p. 4)
Comments From Other Sources	
10. 'soldiers large packs will not fit into the lockers..... a damage control hazard and in some situations presents a personal safety hazard' (Trials and Evaluation Report, Part 1 p. 12)	10. 'we had a substantial change in the ships crew as compared with the British.... this meant significant changes and rearrangement of sleeping spaces, kit locker spaces....' (Hansard p. 545)

APPENDIX 6 - Department of Defence, paper on HMAS Tobruk "Noise and Vibration Investigations", 15 February 1984.

DEPARTMENT OF DEFENCE

RUSSELL OFFICES
CANBERRA, A.C.T. 2600

IN REPLY QUOTE RFP49/5/167(6)

15 February 1984

The Secretary
Joint Parliamentary Committee of
Public Accounts
Parliament House
CANBERRA ACT 2600

HMAS TOBRUK - NOISE AND VIBRATION PROBLEMS

Reference: A. Telecon Secretary PAC/Mr Blockey of Department of Defence, Financial Services and Internal Audit Division of 9 February 1984

1. As discussed in Reference A, attached as Annex A is an interim report on progress with investigations in to the noise and vibration problems experienced in HMAS TOBRUK.

2. As further reports from Garden Island Dockyard become available, you will be advised of their findings and remedial measures proposed.

(D.K. BLOCKEY)
for First Assistant Secretary
Financial Services and
Internal Audit by direction

Annex: A. HMAS TOBRUK - Noise and Vibration

ANNEX A TO
FASFIN RFP49/5/167(6)
DATED 15 FEBRUARY 1984

HMAS TOBRUK - NOISE AND VIBRATION

1. HMAS TOBRUK suffers from vibration problems characteristic of a shallow-draught vessel designed for amphibious operations. The propeller is tucked well up under the stern and the clearance of the propeller from the hull is kept to a minimum. This situation is conducive to the transmission of propeller-generated vibrations to the hull.

2. In conformity with the original design of the ship being largely to commercial rather than naval standards, most of the main machinery and equipment in the ship is hard-mounted to the ship's hull, rather than being resiliently mounted. This is a potential source of noise and vibration in the hull.

3. As designed and built, the insulation of the machinery spaces is largely thermal insulation rather than acoustic installation. The thermal insulation provides limited attenuation of noise from the machinery spaces to the adjacent areas of the ship.

4. Although subjective opinions have been expressed to the PAC that noise and vibration levels are acceptable and are not significantly worse than in other naval ships, it is believed that improvements can be made, subject to the availability of funds.

5. In 1983, Navy Office tasked Garden Island Dockyard with the conduct of noise and vibration surveys of the ship, to investigate the causes of high noise and vibration levels found, and to propose remedial measures. Progress on the work has been slow due to competing priorities and demands of other fleet support work for the limited specialist resources available at Garden Island.

6. The investigation work by Garden Island Dockyard to date has been concentrated mainly on noise, and has resulted in the undertaking of improvements to the balancing of some of the fans in the air conditioning system. The Garden Island work has also identified probable sources of noise in the superstructure air conditioning distribution system. This is being examined further, noting that much of the distribution air trunking is behind linings and panelling, and any remedial work is likely to be very expensive. Another problem area identified in these studies is in the sections of the ship adjacent to the main machinery casings.

7. The next step in the Garden Island work will be the conduct of vibration measurements covering overall hull vibration, natural frequencies of hull vibration, structural vibration in way of the propellers, hull pressures due to propeller/hull interaction, local vibration problems including that in the main machinery intake and uptake ducting and the possible requirement for acoustic booths around significant noise generators. Garden Island plans to commence these investigations within the next two months.

/8. Remedial

8. Remedial measures derived from the Garden Island studies will be considered for the programme of work for the ship in its first main refit commencing in late 1985. Priorities for any remedial work will have to be assessed closer to the time, against competing demands for the very limited funds expected to be available for the refit.

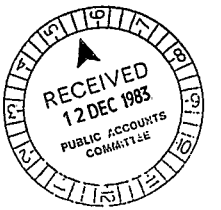
APPENDIX 7 - Department of Defence, paper on HMAS Tobruk "Noise and Vibration Investigations", 8 December 1983.

NOISE AND VIBRATION INVESTIGATIONS

A task was placed on Garden Island Dockyard early in 1983 to carry out a noise and vibration survey on HMAS TOBRUK. Progress on the matter has been slow because of limited resources and the higher priorities of other Fleet support tasks. The latest advice from Garden Island is that a preliminary report can be expected in Canberra within a matter of weeks, but that this report is likely to point the way to a programme of further investigations into a very complex subject. One particular area which has been identified for remedial action is that some ventilation fans have been shown to be out of dynamic balance, and these will be re-balanced progressively on an opportunity basis.

Department of Defence

8 December 1983



APPENDIX 8 - Department of Defence, comments on Australian Shipbuilders Association's criticisms of "Governments as Customers", 12 December 1983.

AUSTRALIAN SHIPBUILDERS' ASSOCIATION : INDUSTRY POSITION PAPER, DECEMBER 1982 : THE AUSTRALIAN SHIPBUILDING INDUSTRY AND ITS PROSPECTS IN THE 1980s

DEPARTMENT OF DEFENCE COMMENTS ON SECTION 10 : 'GOVERNMENTS AS CUSTOMERS'

General

The paper on which comment was sought is dated December 1982. Since that time there have been discussions between the Australian Shipbuilders Association and the Departments of Industry and Commerce, Defence and Defence Support (DDS) in relation to the matters raised with a view to reaching a better mutual understanding. An outcome of the discussions was that the Australian Shipbuilders Association would provide more facts to Commonwealth departments in support of the arguments contained in its report. It is planned to meet again with the Association when this information is available.

Prior to the phase out of large commercial ship construction in 1976 the services of the Shipbuilding Division of the Department of Transport (later transferred to Industry and Commerce) had been used to arrange contracts for Naval non-combatant ships from Australian shipbuilders. It was planned to use the Shipbuilding Division, Department of Industry and Commerce as the contract authority in the acquisition of HMAS TOBRUK. However, because of the run down in the resources of the Shipbuilding Division, the contracting task was passed to the then Purchasing Division of the Department of Administrative Services (DAS). In the same period, DAS also became involved in the purchasing arrangements for the Fremantle Class Patrol Craft and the Fleet Underway Replenishment Ship. These were the first major RAN commercial shipbuilding contracts in Australia for a number of years and the first handled by DAS.

The DAS approach to contracting, although consistent with Government policy, was undoubtedly different to that adopted by the Shipbuilding Division and there was an element of learning involved both for the Commonwealth and the industry.

The comments in the Australian Shipbuilders Association Paper will have been based on these three major contracts - there have been none since, except for the Minehunting Catamarans which would have been concluded after the report was published and which are fibreglass vessels of very special design. Lesser contracts for tugs of essentially commercial design have been let, but not to the major shipbuilders. Some specific comments are set out below:

A. Individual yards have generally experienced most satisfactory dealings with State Governments but have reported great difficulty in dealing with the Commonwealth as a client.

Defence Comment: The Australian Shipbuilding Association was invited to provide additional information to back up this statement. It should be recognised that Commonwealth requirements are generally more complex and demanding than those sought by

commercial ship operators and State Governments. We might speculate that difficulties which may have arisen have their origin in this difference in complexity. Where the Navy requirements and standards match those of commercial ship operators, for example in the new tug purchase, the suppliers have not expressed difficulties in their dealings with the Commonwealth.

B. Commonwealth negotiating teams are large and unwieldy and more often than not lack shipbuilding and operating expertise. The prime orientation of teams representing the Government in negotiating contracts is from a legal viewpoint rather than a commercial and/or operating viewpoint.

Defence Comment: The general comments about the change from Shipbuilding Division to DAS (now DDS) procedures and the difference in complexity of naval and commercial ships are relevant to this comment. Negotiating teams comprise two negotiators, one from the Department of Defence Support (previously DAS) and the other from the Department of Defence. These negotiators have the combined expertise in contractual and purchasing matters and where possible in the technical and production aspects of the equipment. The negotiators are supported by legal, specialist technical, operational and policy advisers as necessary. It is acknowledged that there were a large number of advisers present at negotiations, but it must be stressed that the Australian shipbuilders only negotiated with two Commonwealth officials. Advisers are instructed to only participate directly in negotiations when requested by the Commonwealth negotiators.

In respect of the legalistic approach, we are guided by the need for full legal protection of the Commonwealth (and the taxpayer) in contracts. It is a mandatory element of the procurement procedures stipulated or endorsed by Parliament. The attendance at most negotiations of a representative of the Crown Solicitor is part of this procedure. Also, naval ships are not operated commercially so aspects of contracts of most concern to commercial operators can be expected to be different from those of concern to the Commonwealth.

C. In dealing with Government, lines of communication are very complex and as a result the achievement of a final decision in respect of an aspect of a contract is most difficult.

Contractual problems with the Commonwealth, particularly those involving escalation in costs, can be hard to resolve.

Defence Comment: This is also a matter on which the Association was invited at the meeting to provide further information. The contracts specify officers responsible for particular aspects and lines of communication. Complexity does arise where variations proposed involve changes to design which require validation and where cost increases (outside those covered in the contract itself) are required. The financial

processes then require appropriate delegate approval and in the case of major cost increase this can involve reference to authorities outside the Department including Cabinet or the Minister for Finance.

We are continually striving to improve project management and related financial control, building on the lessons learned. Greater use is being made of multi disciplined Project Teams where the size of the project warrants their establishment.

The Committee's attention is drawn to the comment by the Minister for Defence in his statement to Parliament on 3 November 1983 in which he observed that proposals are being developed to streamline Defence procurement procedures and to bring into a central Defence organisation the procurement functions now undertaken by the single Services.

Department of Defence
November 1983

APPENDIX 9 - Department of Defence, paper on HMAS Tobruk's "Plastic Piping", 8 December 1983.

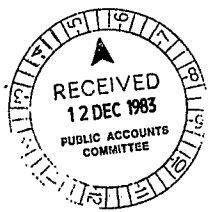
PLASTIC PIPING

1. Plastic piping is used in HMAS TOBRUK in the pre-wetting system.

2. The advantages of plastic piping are its light weight, its lower installation costs as compared with metal piping, and the fact that it is non-corrosive in the same sense as is metal piping left drained after being filled with sea water (as in a pre-wetting system). Although it is an acceptable material for use in support ships (such as TOBRUK), it would not normally be used in front-line combatant ships because of its reduced resistance to action damage, as compared with metal piping. It may also be used in ships where low magnetic signature requirements obtain.

3. The great majority of the plastic pre-wetting system piping in TOBRUK is mounted externally, the function of the pre-wetting system being to provide a water spray over exposed surfaces and fittings when the ship is proceeding through a contaminated environment. The piping is painted to reduce any ill-effects of normal atmospheric exposure. Inspection, testing and upkeep of the system to ensure its integrity and availability for use is a normal ship maintenance function, operational-level maintenance being undertaken by the ship, and maintenance and repairs beyond the capacity of ship's staff and facilities being referred to other support authorities. To date there have been no reports indicating significant problems with the upkeep or the life of the piping.

Department of Defence
8 December 1983.



APPENDIX 10 - Department of Defence, "Brief on Damage Control - HMAS Tobruk", 12 December 1983.

BRIEF FOR JOINT PARLIAMENTARY COMMITTEE OF PUBLIC ACCOUNTS

DAMAGE CONTROL - HMAS TOBRUK

Damage Control Markings and Control of Access

1. All watertight doors and hatches throughout the ship are assigned a damage control marking which controls the use of that hatch/door. The ship will, at any given time, be in one of the following three damage control states:

XRAY - all hatches and doors marked with X are closed. Permission of HQ1 (see paragraph 3) is required to open and the fact is logged in the Watertight Integrity Log. This is the normal state alongside in harbour and for single ship open water steaming at sea.

YANKEE - all hatches and doors marked with X or Y are closed. Hatches and doors marked with Y may be opened for through passage only and then closed. Permission of HQ1 is required to open X openings and to have Y openings remain open. This is the normal state for operations in close company, in navigationally restricted waters and in Defence Watches.

ZULU - all hatches and doors marked X, Y or Z are closed. Hatches and doors may be opened for through passage. HQ1 permission is required to open X and Y openings and for Z openings to remain open. This is the normal state when at Action Stations.

2. In addition to the above, openings near or below the waterline have a risk marking of a red triangle in the corner. This enables these openings to be closed without regard to the damage control state and, in fact, automatically overrides permission for any of these hatches to be open. This risk marking enables the rapid closing down of the ship in emergency situations ie. when danger of hull damage is imminent.

Damage Control Headquarters (HQ1)

3. Damage Control Headquarters (HQ1) is manned 24 hours a day both at sea and in harbour. Located in HQ1 is the Fire Alarm Panel which is connected to 318 thermal/ionisation detectors throughout the ship. HQ1 is fitted with a broadcast system with which the watchkeeper can alert the whole ship of the activation of an alarm or the verbal report of fire or flooding. HQ1 is connected to the ship's internal telephone system and to a system of sound-powered telephones used for controlling and directing pumping, counter flooding and fire fighting. When Emergency, Action or Defence Watches are closed up this manning is increased to 1 Officer, 2 Senior Sailors and 2 Junior Sailors.

/Emergency Parties

Emergency Parties

4. At sea, all emergencies are handled initially by the Standing Sea Fire Brigade (SSFB). This is a team of eight personnel who do not keep watches and are on call 24 hours a day. They are dressed at all times in overalls and carry anti-flash gear. Should the emergency be beyond their capability to handle, the ship goes to Emergency Stations which has an additional three parties closing up at the Section Bases (see paragraph 6) and the remainder of the ship's personnel are mustered at several locations to provide a pool of manpower.

5. In harbour, emergencies are handled by the Duty Watch which normally consists of 25 personnel. Should the Duty Watch be unable to cope with the situation, local emergency services are called upon to assist. Regular exercises are carried out with the local Fire Brigade.

Section Bases

6. Section Bases are manned at Action, Defence and Emergency Stations. There are three Sections in the ship and each section consists of 6 personnel and is responsible for patrols and damage control in its third of the ship.

Ship Fitted Equipment

7. Apart from the Fire Detector System mentioned at paragraph 3, the ship is fitted with the following equipment to counter fire and flood:

a. Pump and Flood Ringmain:

This services all compartments below 3 deck and is connected to the General Service Pumps which have an operating capacity of 176 tons/hour.

b. Firemain:

A separate pump for use only on the firemain is located in the Main Machinery Room and is capable of being operated from 6 remote positions throughout the ship. Fire hoses can be run from this firemain to any compartment in the ship and also to the upper decks.

c. Fitted Foam System:

All machinery spaces, Avcat pump rooms and Flight Decks have a fitted foam system. In the first two areas, foam is introduced through remote foam inlet tubes (9 in number) whilst there are two 500 litre foam drums fitted adjacent to the forward and after flight decks.

/d. Steam ...

d. Steam Ejectors/Firemain Eductors:

These are fitted to designated compartments.

e. Salt Water Drench:

This system is fitted to all machinery spaces, Magazines and flammable stores. A drench system is also fitted in the tank deck and is supplemented by 3 waterwall curtains which effectively divide the tank deck into 4 separate areas.

f. CO2 Drench:

The main engine crank cases are fitted with a CO2 drench.

g. Portable Pumps:

As part of fitted equipment, 5 electric submersible pumps, 3 portable CUB diesel pumps and 2 portable snorer pumps are carried.

h. Breathing Apparatus:

Seven Self Contained Breathing Apparatus units are carried for use in smoke filled compartments.

i. Pre Wetting System:

Although not a fire fighting apparatus as such, the as fitted pre wetting system for nuclear fallout transits, can be used to supplement upperdeck firefighting arrangements.

j. Shutter Fire Doors:

These are fitted in selected locations throughout the ship to prevent fires spreading to adjacent areas.

Training

8. All Officers and Senior Sailors are required to complete the Advanced Nuclear, Biological and Chemical Defence (NBCD) course of two weeks duration whilst junior sailors complete the basic course.

/9. Onboard

9. Onboard continuation training is carried out regularly and reported in the Monthly Report of Proceedings to the ship's Operational Authority. In harbour, the Duty Watch is exercised daily and at sea the SSFB (see paragraph 4) is exercised daily after a period alongside and then on an as required basis but at least twice weekly. Exercises for Section Base and HQ1 personnel are carried out at least monthly and a major exercise for the entire ship's company at least once per quarter. In addition to the onboard training, practical firefighting exercises are conducted whenever possible on the Jervis Bay fire range.

Prepared by HMAS TOBRUK

November 1983