SECRET

The displayed an apathy to the situation which, in itself, reflected a mental numbing that precluded his taking any active or constructive line of action. In the end, these officers opted to take actions which for them were the priority of the moment, to the exclusion of all else. I believe that this, too, illustrates the shocked mental state of these officers. (Page F3-11, para 47 b-o).

c. Intended Action. In these circumstances I have decided that this is not a case for formal administrative action in respect of any of these three officers. Nevertheless, since they were serving under my command at the time of the incidents concerned, I or my Chief of Staff or Chief of Staff (Engineering) as appropriate, will see each of them to ensure that they fully understand the situation.

MATERIAL AND EQUIPMENT

6. Partition Bulkheads. The conclusion (Page G4-5 para 32f) that 'the use of aluminium for construction is entirely acceptable...' is misleading. It is clearly based on the premise that the substitution of aluminium by steel in the existing LSL design would have severe operational penalties. The use of aluminium in warship construction to reduce topweight, and hence increase 'payload', is an undesirable design compromise which should be discouraged even at the penalty of increasing hull dimensions, and total displacement. However, I agree with the recommendation (page G4-7, para 33e) that asbestos-filled materials should not be used in new-construction ships as they constitute a health hazard, and that such bulkheads should be replaced in existing ships on an opportunity basis. My staff are investigating this matter and will make appropriate recommendations to MOD in due course.

NBCD

7. RFA Organisation and Training. Extracts from the report concerning NBCD have been passed to the Captain NBCD, HMS EXCELLENT. My staff and that of the Flag Officer Sea Training will consider jointly the improvement of RFA NBCD organisation and training.

MEDICAL MATTERS

- 8. Medical Organisation. The drafting of by CTF 317 to support the RFA Medical Organisations was vindicated and, but for their presence, the first-aid organisation would have been well below acceptable standards. In fact, that in SIR GALAHAD was never satisfactory, the having made little effort in this direction either before or after the arrived. Furthermore, the in SIR GALAHAD played little part in attending to casualties after the attack, being obviously dazed and shocked and, but for the initiative and ingenuity of NCOs and men of 16 Field Ambulance in SIR GALAHAD, little would have been done. I agree with the recommendations concerning first-aid training for RFA officers and for Chinese and other ratings designated for first-aid parties (page G1-4, para 11e-f).
- 9. Neil Robertson Stretchers. I support the requirement to increase the number of Neil-Robertson stretchers in LSLs. Recommendations for stretcher holdings in HM Ships, RFAs and ships taken up from trade will be forwarded in due course.

SECRET

STATE TO ENOE Copy No: / of 20

Room 1325 Express State Building Ministry of Defence Lillie Road London

The Commander-in-Chief, Fleet Northwood Middlesex

23 September 1982

Sir,

REPORT ON THE BOARD OF INQUIRY INTO THE LOSS OF RFA SIR TRISTRAM AND RFA SIR GALAHAD

Reference: A. CINCFLEET's 00520/8.X of 30 Jun 82.

- 1. We have the honour to submit our findings as members of the Board of Inquiry which you convened into the disablement and abandonment of the Royal Fleet Auxiliary Ships SIR TRISTRAM and SIR GALAHAD at PORT PLEASANT in the FALKLAND ISLANDS on 8 Jun 82 during Operation CORPORATE. (Reference A).
- 2. The Terms of Reference for the Board, together with its composition are shown in Annex A. It should be noted that Surgeon RFA was replaced on the Board by Surgeon Lieutenant Commander RN on 22 Jul 82.
- 3. All times used in this report are ZULU time.
- 4. Our complete Conclusions and Recommendations are to be found at Annex B.

AIM

5. The aim of the Board of Inquiry was to inquire into the circumstances leading to, and attending, the disablement and abandonment of RFA SIR TRISTRAM (Captain G R GREEN RFA) and RFA SIR GALAHAD (Captain P J G ROBERTS RFA) on 8 Jun 82 at PORT PLEASANT in the FALKLAND ISLANDS.

METHOD

- 6. Our task fell naturally into three parts:
 - a. Operations leading to the events of 8 Jun.
 - b. The state of readiness of RFA SIR TRISTRAM and the events that took place on board that ship on 8 Jun.
 - c. The state of readiness of RFA SIR GALAHAD and the events that took place on board that ship on $8\ \mathrm{Jun}_{\bullet}$

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APPRECIATIONS

- 19. The Board have been very ably supported in this work at both Empress State and Main Buildings by the Office Services Manager, the Audio Typing and Word Processing Pool, DGST(N) Sections 75C and 74A4, who have given excellent support in all that we have required.
- 20. Similarly the Board are very grateful to all the witnesses who mostly travelled considerable distances whilst on leave to assist. In particular we are most grateful to the witnesses from the Army who all answered our questions with co-operation and help despite the fact that this was a Naval inquiry.



Technical Superintendent Royal Fleet Auxiliary



Captain Royal Fleet Auxiliary



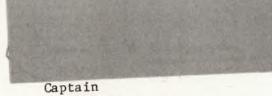
SEO Directorate of Supplies & Transport (Navy) Secretary

We have the honour to be, Sir, Your obedient Servants

Surgeon Lieutenant Commander Royal Navy



Commander Royal Navy



Captain Royal Navy President of the Board

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00520/8.X

BOARD OF INQUIRY
LOSS OF SIR TRISTRAM &
SIR GALAHAD
ANNEX A dated Sep 82
COMMANDER-IN-CHIEF, FLEET
NORTHWOOD
MIDDLESEX
HA6 3HP
Northwood 26161 Ext. 7157
TELEX 23139

See Distribution

30 June 82

LOSS OF RFAs SIR TRISTRAM AND SIR GALAHAD - BOARD OF INQUIRY

- 1. You are to assemble in Room 526, Empress State Building, London SW6, at 1000 on 12 July 1982 as a board of inquiry whereof Captain Royal Navy, is to be the President and hold a full and careful investigation into the circumstances leading to and attending the disablement and abandonment of RFA SIR TRISTRAM under the command of Captain G R GREEN RFA and RFA SIR GALAHAD under the command of Captain P J G ROBERTS RFA, on 8 June 1982, calling before you such Service and civilian witnesses as are necessary and reasonably available to enable you to form correct conclusions.
- 2. Specifically you should ascertain and identify by questioning those involved and other available witnesses the matters listed in Annex A. Although the matters in Annex A are significant, they are not intended to be exhaustive and all other areas of inquiry deemed pertinent should be scrutinized.
- 3. The preliminary reports of the Masters, RFAs SIR TRISTRAM and SIR GALAHAD are at Annexes B and C respectively.
- 4. Should any information come to light which the President considers should be communicated urgently to me or to any member of my staff, such information is to be sent by any appropriate manner in anticipation of completion of the inquiry.
- 5. Lists of those on board the two ships on 8 June 1982 are at Annexes D and E.
- 6. The inquiry is to be conducted in accordance with the directions contained in QRRN Chapter 23, Appendix 38, and FLAGO 1619.
- 7. The report of the board is to be accompained by minutes of evidence, or statements taken, and is to contain an expression of opinion on the degrees of adequacy of personnel, material and procedures.
- 8. The report is to be signed by each member of the board and is to be forwarded in original and unstapled form. The President is to deliver his report personally and brief me on the principal findings.
- 9. Shorthand writers and appropriate equipment will be provided by MOD Office Services as coordinated by MOD DGST(N)/DDSF.

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J D E FIELDHOUSE Admiral

Ann s:

- A. Specimen Matters for Investigation.
- B. Master, RFA SIR TRISTRAM's Report dated 18 June 82.
- C. Master, RFA SIR GALAHAD's Report dated 18 June 82.
- D. List of Personnel on board RFA SIR TRISTRAM on 8 June 82.
- E. List of Personnel on board RFA SIR GALAHAD on 8 June 82.

Distribution:

Captain Royal Navy
Captain (Marine Superintendent), Royal Fleet Auxiliary
Mr (Technical Superintendent), Royal Fleet Auxiliary
Commander Royal Navy
Surgeon Royal Fleet Auxiliary

Information:

Chief Marine Superintendent, Royal Fleet Auxiliary Service Mr (DDSF), Secretary to the Board of Inquiry

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Office of Commander-in-Chief, Fleet Northwood Middlesex HA6 3HP Northwood 26161 Ext. 7157 Telex 23139

00520/8.X

- Captain , Royal Navy
President
Board of Inquiry

21 July 82

BOARD OF INQUIRY - RFAs SIR TRISTRAM AND SIR GALAHAD

Reference: CINCFLEET's 00520/8.X dated 30 June 82.

Further to the reference, Surgeon Lieutenant Commander
Royal Navy will replace Surgeon
Royal Fleet Auxiliary as a member of the
board of inquiry into the disablement and abandonment
of RFAs SIR TRISTRAM and SIR GALAHAD with effect from
22 July 82.

J D E FIELDHOUSE Admiral

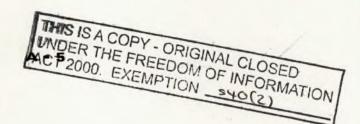
Information:

The Chief Marine Superintendent, Royal Fleet Auxiliary Service

Surgeon Royal Fleet Auxiliary

Surgeon Lieutenant Commander

Royal Navy -



- 58. The lack of a clear understanding of the responsibilities of those ashore controlling the offload had no effect on the situation in the event. (E10).
- 59. The limited assets and the conditions of the beach rather than a lack of urgency caused the relatively slow offload. (E10).
- 60. The defect on the LCU ramp equipment had some influence on the proceedings but its overall significance cannot be assessed. The response to this defect was satisfactory. (E10).

COMMUNICATIONS

- 61. Signal traffic load caused an increase in handling time to greater than that used previously for planning purposes. (E12).
- 62. The ABU cannot be controlled by the Naval Force unless in direct personal contact with a ship with a suitable communications fit. (E12).
- 63. Communications with the Command ship must not be susceptible to her movements. (E12).
- 64. The arrangements for promulgating air raid warning throughout all Forces was good. (E12) (but see E6 para 22 for LSL listening).
- 65. Information derived from insecure VHF circuits used in the control of logistics was a significant contributor to a raid being mounted on the LSLs in FITZROY. (E12).

STAFF COMPOSITION, PERFORMANCE AND TRAINING

- 66. The cohesion of CTG 317.0 staff was reduced by the speed at which it was expanded and the lack of experience of working together before operations started. (E13).
- 67. Once operations become fast and furious staff officers are naturally kept very busy in their own particular field; cross fertilisation of ideas or plans become more difficult. (E13).
- 68. There was a lack of amphibious training prior to officers taking up their appointments. Those officers appointed to the staff at short notice only had a limited knowledge of amphibious operations for the most part. (E13).
- 69. Stress and fatigue affected the performance of
 to the extent that by half way through
 CORPORATE he was exhausted and of little use to the staff thereafter.
 The degree of competence of this officer is open to question and
 additionally the Board consider that he made two errors of judgement
 during the night 7/8 Jun in that:
 - a. He did not instruct the Duty Staff Officer to inform CTG 317.0 of SIR GALAHAD's signal DTG 080015.

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STATE IN CONFIDENCE

STAFF IN CONFIDENCE

- b. He did not verify the content of SIR GALAHAD's signal himself nor the adequacy of the draft reply. (E13).
- 70. The justification for placing ______in a difficult and unprepared position is questionable. (E13).
- 71. COMAW's staff did well overall to compete with a very wide and demanding range of tasks. (E13).

RFA SIR TRISTRAM

- 72. In exercises and drills SIR TRISTRAM produced satisfactory results; however a much better standard of confidence and ability in the whole ship would have accrued by regular top management meetings to brief all departments, monitor standards and resolve mutual problems. (F2).
- 73. The confusion over callsigns and the lack of knowledge of the workings of tactical circuits contributed greatly to the OOW ignoring the information he heard on the AAWC net. However the Board feel that it was extremely naive of to believe that an air attack going on only 35 miles away could have no bearing on his own ships safety. (F2).
- 74. It is the Board's opinion that despite apparent conflicting testimony the Main Engines were on immediate notice and SIR TRISTRAM was in state of readiness consistent with the defence state in force at the time.
- 75. The precise damage attributed to individual weapons cannot be stated with confidence. The damage was caused by 3x500 1b bombs:
 - a. One bomb entered 25 Tank Stbd and passed through without detonation.
 - b. One bomb passed across the Tank Deck entered 25 Tank Port where partial detonation occurred blowing out, a large plate on the port quarter and causing damage to the ford bulkhead.
 - c. One bomb exploded under 25 and 26 Tanks rupturing the ships hull. It is believed this bomb also contributed to the combined effects of the other 2 bombs. (E3).
- 76. Fire damage to RFA SIR TRISTRAM could have been avoided had elementary damage control and fire procedures been followed. (F3).
- 77. The over-riding consideration in the minds of the Captain and Officers was that they had an unexploded bomb on board which might explode at any minute. (F3).
- 78. The Captain became almost mesmerised by the sight of SIR GALAHAD burning and as a result his ability to react and influence decisions concerning the safety of his own ship were impaired. (F3).

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- 79. The Captain acted entirely on the information given to him by the and he acted solely on this advice. (F3).
- 80. The carried out a reasonable search aft and discussed his findings with the 2nd Engineer before he reported to the Captain but the assessment he gave the Captain differed in that he stated there was a fire aft when there was no proper evidence to support this. (F3).
- 81. The made an error of judgement in his assessment that there was a fire burning aft. (F3).
- 82. The decision to move the ships company forward was correct in circumstances but a fire party should have remained to patrol the aft parts regardless of whether a UXB was present or not. (F3).
- 83. The decision to abandon ship was premature; the Captain might not be faulted for evacuating unnecessary personnel to shore in case of further hazard but he should still have left a party on board to fight fires or deal with other consequences. (F3).
- 84. The Captain at one time intended to return to the ship at a later stage but this never happened. (F3).
- 85. The Captain of SIR TRISTRAM did:
 - (i) make an error of judgement in sending away his two deck officers from the Bridge soon after the attack, thus seriously reducing his ability to control events.
 - (ii) make a serious error of judgement in abandoning ship completely rather than evacuating it and leaving a small fire attack group behind. (F3)
- 86. The made an error of judgement in that he did not volunteer information he had gleaned below decks, and not giving the Command the benefit of his specialist knowledge. (F3)
- 87. The made an error of judgement in informing the Captain that there was a fire in the steering flat, to which he could not gain access to. (F3).
- 88. The made a further error of judgement in that he decided upon complete evacuation of the after part of the ship rather than leaving a few personnel in that area to monitor events. (F3).
- 89. The overall performance of the Chinese crew was highly unsatisfactory and their employment in fire and repair parties is hazardous. (F3).

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APPENDIX 2 TO ANNEX B DATED SEPT 82

RECOMMENDATIONS

- No further action be taken in respect of CTG 317.0 personally, nor the Captain, RFA SIR GALAHAD. CTG 317.0 should be instructed to report as required by Annex E13 para 19c on one member of his (Main).
- The Commander in Chief considers whether he wishes to take further action in respect of RFA SIR TRISTRAM. (Main).
- Further study of the Command and Control Organisation for OPERATION CORPORATE be undertaken to ensure that all lessons are fully learnt; this Board was not tasked to do this in its entirety. (E2).
- If the Royal Navy is to be tasked to carry out national amphibious operations of the nature of CORPORATE, then either national doctrine must be developed or the relevant ATP's require review so as to cover the requirements. (E2).
- The reliability of Rapier on initial installation in a fire position needs further investigation. (E6).
- Sea and land commanders involved in the planning and execution of amphibious operations be given better guidance in the capability of Rapier to defend both shore and amphibious units. (E6).
- RFA personnel be better trained in Air Raid Warning procedures and limitations in giving accurate raid warnings. (E6).
- Guidance on the employment and siting of BLOWPIPE in RFA's be included in the LSL Handbook. (E6).
- Units given control of amphibious units must be trained to have full knowledge of their capabilities and limitations. (E7).
- 10. Units given control of forward amphibious units must have compatible and working communications with the amphibious commander. (E7).
- 11. In future operations of this nature more MHE is required to be available to ABUs. (E7).
- 12. In future joint operations of this nature much more attention must be paid to the clear definition of support responsibilities both within a Task Group, and between Task Groups. (E10).
- 13. The failure of relevant information reaching 5 Brigade's BMA at FITZROY should be represented to the Army for further investigation. (E10).

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COMFICENC

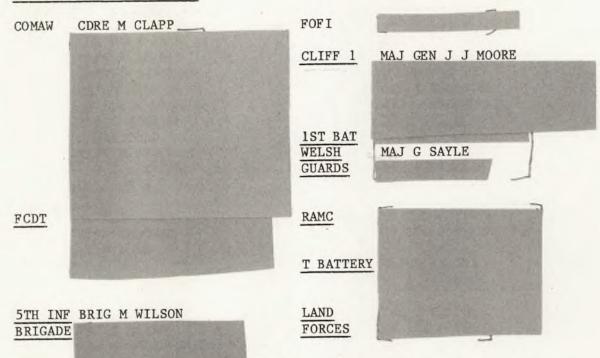
- 14. The significance of extended handling times on communications be studied in the overall evaluation of Operation CORPORATE. (E12).
- 15. The provision of portable secure HF communications to ABUs and Landing Craft be implemented. (E12).
- 16. Further study be made on the dependence of communications between ship and land forces at HF frequencies. (E12).
- 17. Portable secure VHF voice communications equipment be provided for the logistic control circuits. (E12).
- 18. Officers appointed to amphibious warfare appointments should undertake the appropriate courses before joining. (E13).
- 19. The future requirement for officers generally to be trained in AW be established. (E13).
- 20. COMAW be invited to comment further on the performance of (E13).
- 21. The maintenance of BA in RFA's is a skilled task and should not be undertaken by persons unqualified to do so. All personnel responsible for the maintenance of BA should attend a suitable course to qualify them to undertake competently these responsibilities. (F1)
- 22. Greater emphasis to be placed on management techniques and leadership training in the preparation of Officers for Command of RFA's or as Heads of Departments. (F1)
- 23. The Commander-in-Chief consider what action, if any, be taken in respect of the alleged errors of judgement by the Captain, of RFA SIR TRISTRAM. (F3)
- 24. Further consideration be given to the advisability of manning RFA vessels in forward operational areas with Chinese crews. (F3)
- 25. A damage control organisation for RFAs that includes an action stations state should be laid down, and this should be included and exercised during the Basic Operational Sea Training carried out by Flag Officer Sea Training at PORTLAND. (G1).
- 26. When on exercises Royal Fleet Auxiliaries should go to the action states as dictated by the tactical situation. (G1).
- 27. The Captain of any RFA should undergo a tactical course at the Maritime Tactical School HMS DRYAD and that designated Captains of LSLs should have a basic knowledge of AW. (G1).
- 28. Any Officer of the Watch of an RFA should have a basic tactical knowledge and be familiar with the tactical publications. (G1).

BOARD OF INQUIRY LOSS OF SIR TRISTRAM & SIR GALAHAD ANNEX D DATED 23 SEPT 82

LIST OF WITNESSES

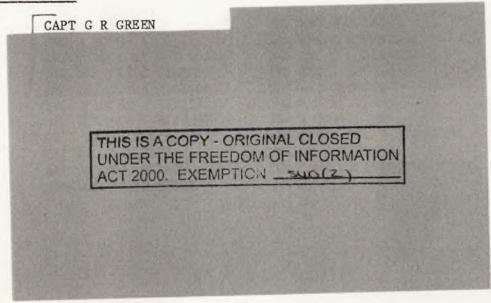
1. The following attended the Board of Inquiry:

COMMAND AND LAND FORCES



In addition statements were taken from 110 No Welsh Guards and 13 No 16 Field Ambulance Brigade.

SIR TRISTRAM



Gun Crew	Hedical
	Radio Ops
Air Defence	
RCT Detachment	
ROT DECACHMENT	
In addition statements We	ere taken from 38 Chinese crew.
SIR GALAHAD	
CAPT P J ROBERTS	0100ED
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CAPT P J ROBERTS	
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CAPT P J ROBERTS	
CAPT P J ROBERTS	
	ACT 2000. EXEMPTION _>(2)
Gun Crew	
	ACT 2000. EXEMPTION _>(2)
	ACT 2000. EXEMPTION _>(2)
	Medical
Gun Crew	Medical
	Medical Radio Ops
Gun Crew	Medical
Gun Crew	Medical Radio Ops
Gun Crew	Medical Radio Ops

In addition statements were taken from 41 Chinese crew.

2. The following were called to the Board of Inquiry to give advice:



NAVAL LAW
FIRE RESEARCH STATION BOREHAMWOOD
FIRE RESEARCH STATION BOREHAMWOOD
DG SHIPS BATH
ADMIRALTY MARINE TECHNOLOGY
ESTABLISHMENT DUMFERMLINE

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became more blurred; this was not too significant whilst operations	A0049
were near FALKLAND SOUND but as the land operation moved further	A0050
east they entered surrounding waters which, up until that time, had largely been the province of CTG 317.8. In the end it became rather a too loose arrangement since CTG 317.0 planned and conducted	A0059
amphibious support operations to FITZROY and TEAL in waters which up until that time had been the almost exclusive preserve of CTG 317.8. For example, when the two LSL's were sent to FITZROY in 7/8 Jun	
they were under the OPCON of CTG 317.0 whilst NGS units operating in the same area came under CTG 317.8. Such a situation can lead	
to a 'Blue on Blue' encounter as nearly occurred on the night of	
5/6 Jun when INTREPID's LCUs were on passage from LIVELY ISLAND to BLUFF COVE and then encountered 2 RN escorts; both sides were	A0059
unaware of the presence of the other and the LCU's were illiminated.	A0783

OPCON OF LCU's

12. CTG 317.0 retained the OPCON of all LCUs throughout but
chopped TACON to CTU 317.1.1 and CTU 317.1.2 when they were
required to direct the actual use of these assets for specific
tasks. CTG 317.0 relieved CTU 317.1.2 of TACON after events of
8 Jun which included the loss of F4 in CHOISEUL SOUND. CTU 31/.1.2
however was not entirely clear in his mind about who was controlling
the landing assets at FITZROY.

at FITZROY and carrying out a recce for the siting of
Main HQ when it arrived, understood from the CO of the ABU that he
had TACON of all landing craft assets at FITZROY; that seemed to be
the only way he discovered.

14. The CO of the ABU should have been responsible to CTG 317.0 whilst at FITZROY in accordance with the doctrine in ATP 8. However we do not believe he received any instructions as to his responsibility at FITZROY.

of CTG 317.0's staff was embarked in SIR TRISTRAM on 7 Jun and SIR GALAHAD on 8 Jun. He felt his position was one of a "supervisory capacity" at the LSL end.

A0624

A0095 A0097/8

A0618 A0841 A1576 A0723 T0124

states he told of Bde that he would take over responsibility for offloading SIR TRISTRAM and subsequently SIR GALAHAD. does not recollect this arrangement.

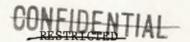
A0793 A1168

FAILURE OF COMMAND AND CONTROL BY CTG 317.0

17. CTG 317.0 promulgated his SITREP/INTENTIONS for 7 Jun in his signal 19F 071318 and which included CTU 317.1.2 and SIR TRISTRAM as info addressees (Priority). From this these two units (if they received it in time) should have known that:

E2-3

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BOARD OF INQUIRY LOSS OF SIR TRISTRAM & SIR GALAHAD ANNEX E5 DATED 23 SEPT 82

GENERAL NARRATIVE

1. The plan proposed in Annex E4 was initiated on 5 Jun. The following description covers the events in broad terms up to the time of the attack. Some aspects of the events are discussed in more detail in the accompanying Annexes, and will be referred to in this narrative.

5 JUNE 1982

The Captain of SIR TRISTRAM was briefed for the move of half the Welsh Guards to BLUFF COVE in accordance with the earlier plan (Plan 1). During this briefing it became apparent that this plan was not to be executed as briefed, however the Captain left believing that his destination was still to be BLUFF COVE with an, as yet, undefined load.

CTG 317.0 032110 Jun

During the afternoon the new plan (Plan 2) was completed, but both the Scots and Welsh Guards had commmenced loading into HMS INTREPID in accordance with their previous instructions. Amongst considerable confusion the Welsh Guards were eventually off loaded and HMS INTREPID sailed at 2100 around to LIVELY ISLAND in execution of the first phase. The point of launching the LCUs took into account:

CTG 317.1 051910 Jun

The danger zone of the land based EXOCET missile believed

A0373

at this time to be situated at HORSE POINT (see Annex B). The furthest point north to which HMS INTREPID could travel and return to SAN CARLOS under cover of darkness.

A1082 A0368

HMS INTREPID sailed with HMS PENELOPE as escort. This was considered to be an important asset to HMS INTREPID not only for the remote possibility of air attack but because of the reported enemy activity on SEA LION ISLAND. During the journey around HMS INTREPID was indeed illuminated by Tiger Cat Fire Control Radar. Apart from that the journey was uneventful, and HMS INTREPID returned

A0373

A0784

A0782

A0783

The 4 LCUs, loaded with the Scots Guards, were under the The journey, of some 50 miles command of was extremely difficult because of the weather, and was dangerous. During the night they came under fire from the mainland, as well as being illuminated by star shell from friendly forces.

to SAN CARLOS safely under cover of darkness.

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E5-1

In the event the Scots Guards arrived at BLUFF COVE at 0930 on 6 Jun. The men had been cold and wet for 4 hours and on arrival A0785 several were suffering from exhaustion and one had a damaged knee and had to be 'casevaced' to SAN CARLOS. The general state of the men was such that the assembly area at BLUFF COVE was altered so that houses in BLUFF COVE SETTLEMENT could be used as a temporary A0952 hospital. In short the men were not fit to fight as soon as they disembarked.

6 JUNE 1982

- returned to SAN CARLOS in order to be briefed for the following night. He was aware that HMS FEARLESS would transport the Welsh Guards to an R/V with his 4 LCUs but he A0787 required detailed briefing.
- The Captain of SIR TRISTRAM received a brief from on the modified plan. After some confusion the Captain A0529 was clear that his instructions were to proceed to FITZROY. He was concerned about his lack of air-defence and during the course of the day made arrangements with HMS EXETER, the Air Defence Ship for T0090 the TA, to receive air raid warnings via LAAWC. In summary, despite A0532 a hurried loading plan SIR TRISTRAM sailed at 2300 in accordance A0095 with the plan. The weather throughout the transit was calm and clear with a full moon.
- HMS FEARLESS, loaded with 1 Battalion The Welsh Guards, sailed for her rendezvous. At the time of sailing the weather was bad with reduced visibility but cleared during the journey. The point A0326 planned for this R/V (see Annex B) was considerably further north than HMS INTREPID had achieved. This was due in part to an A0326 interpretation of EXOCET's envelope but more significantly HMS FEARLESS was achieving faster speeds, and would still return to A0326 the TA under cover of darkness from the new R/V.
- had by this time returned to BLUFF COVE at dusk in preparation for the R/V. He found however that the weather locally was atrocious and that the 4 LCUs had sought shelter A0792 elsewhere in accordance with his instructions. 2330, his latest time of sailing, came and went, with no let up in the weather and no sign of his 4 LCUs.
- 11. HMS FEARLESS waited at the R/V whilst his escorts, HMS AVENGER and PENELOPE went forward to attempt to locate the LCUs. Eventually it was decided that only half the Welsh Guards could be landed in the 2 LCUs carried by HMS FEARLESS. These LCUs were successfully loaded and despatched to BLUFF COVE under the command of HMS FEARLESS made best speed for SAN CARLOS and arrived shortly after daybreak.

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A0614 A0329

7 JUNE 1982

- 12. SIR TRISTRAM having completed the transit without event arrived off FITZROY before daybreak, however, because of the brightness of the moon was able to make the difficult navigational passage into FITZROY and anchored by daybreak.
- The 2 LCUs arrived without incident at BLUFF COVE at 0700 and A0622 were unloaded within 1 hour. On completion sailed round to FITZROY to find SIR TRISTRAM already A0623 unloading with the assistance of the 4 LCUs from HMS INTREPID.
- 14. The off-load of ammunition from SIR TRISTRAM continued at a satisfactory rate throughout the day although for 2 hours either side of High Water Springs the beach was unworkable using the Mechanical Handling Equipment (MHE). The lack of MHE to back up the offload, and transport the stores to the command BMA also A0681 caused some interference (see Annex E7). It was anticipated that A0672 the offload of SIR TRISTRAM would take between 36 and 48 hours with A0680 the assets provided despite the recall of 4 LCUs to HMS INTREPID A0546 at 072000 Jun.
- 15. By this time the return to SAN CARLOS of 2 Coys, Welsh Guards and the implications had been appreciated. In order to recover the LCUs for the offloading in SAN CARLOS HMS INTREPID planned another R/V but it was not considered sensible to use this means to transport the remainder of the Welsh Guards. The reasons for this are described fully in Annex E4 para 12. During the morning CTG 317.0, in consultation with CTG 317.1 decided to use SIR GALAHAD to move the Welsh Guards, 16th Field Ambulance, and 4 Rapier Fire Units to the FITZROY area.

A0131

A0955/6

STATEMEN CAPT, SI

GALAHAD

- In the afternoon the Captain SIR GALAHAD was briefed by as follows:
 - To deliver 2 Coys Welsh Guards to BLUFF COVE by 080700 Jun.
 - To sail round to FITZROY to offload Rapier, Field Ambulance.
 - To sail from FITZROY at 082100 Jun. c.
- 17. The loading of SIR GALAHAD was progressed with some difficulty. G0103 There appears to have been no loading plan however the Welsh Guards together with some first line stores and the Rapier Units had arrived and were loaded satisfactorily by 2100. The Field Ambulance A1297 Unit had not arrived. The delay in this was caused by 2 factors.
 - Late instructions given to the CO 16th Field Ambulance. A1103
 - A1118 Lack of adequate facilities at Blue Beach. b.

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This resulted in the final loads reaching SIR GALAHAD at 2310. Because much of the equipment was not palletised, it was estimated that the earliest sailing time would be 080200. In view of earlier instructions the Captain informed CTG 317.0 that he intended to remain in SAN CARLOS until the following night. This was discussed having calculated by the staffs of both Commanders and the transit time advised the Duty Officer that SIR GALAHAD be instructed to sail in accordance with earlier instructions; by this he meant to BLUFF COVE. There appears to have been considerable confusion over the destination of SIR GALAHAD and this is covered in Annex E8. The result, however, was that SIR GALAHAD was instructed to sail to FITZROY. This destination was in accordance with the original plans, and as stated in CTG 317.0's 'Night Intention' signal. This signal does not seem to have been received in SIR GALAHAD. During the night, 4 LCUs were successfully recovered by HMS INTREPID (see para 15). An additional LCU was despatched to DARWIN from FITZROY to collect 5 Inf Bgde stores. 8 JUNE 1982

18. SIR GALAHAD arrived in FITZROY at 1100. That the arrival was

arrival both the assets remaining, namely 1 LCU and 1 66' Mexeflote, were partially loaded with ammunition. The beach at this time was unworkable as High Water Springs occurred at 1107 (See Annex E14 Table 4). The Welsh Guards declined to go ashore on the ammunition

at this time because of instructions not to be separated from their equipment and an expectation to go to BLUFF COVE. A full description

of the unloading is given in Annex ElO. The offload of the Rapier units started immediately. The partially loaded assets proceeded to the shore at approximately 1230 and unloading the ammunition was able to start at approximately 1300. Whilst the unloading of the assets continued a plan was devised to land the Field Ambulance on the Mexeflote, and to transfer the Welsh Guards to BLUFF COVE in two trips using the LCU. The confusion over the destination of the

Welsh Guards is covered in Annex E8, and Annex E9 para 5.

unexpected and caused considerable confusion in the use of assets is described in Annex E10 para 3. At the time of SIR GALAHADs

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G0192 SUPP G1818

G1908

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A1387

A0644 A1450

19. When the LCU returned to SIR GALAHAD at about 1445, because of the delays, and in the view of the CO 16 Field Ambulance the priority of establishing his unit ashore, an advance element of this unit went ashore next contrary to the initial plan. This was achieved promptly and after a short detour to collect stores the LCU returned to SIR GALAHAD at 1610.

A1131

A1452 A0645

A0824/4 A1452 A1494

The LCU then developed a hydraulic pump defect which prevented the use of her bow ramp and a new plan was devised whereby the Welsh Guards were to be embarked over the side with their equipment being loaded via the aft main hatch of SIR GALAHAD using the crane. It took about 20 minutes to open No 2 Cargo hatch and it was shortly after this that the first load was transferred. The raid occurred at 1710 whilst the second load was being hooked onto the crane in the hold. A description of the attack is given in Annex Ell.

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E5-4

BOARD OF INQUIRY LOSS OF SIR TRISTRAM & SIR GALAHAD ANNEX E9 DATED 23 SEPT 82

1ST BATTALION WELSH GUARDS

1. The 1st Battalion Welsh Guards were landed in SAN CARLOS on 2 Jun from CANBERRA having transferred from QE II in SOUTH GEORGIA. They were required to move on foot to an assembly area some 6 Km from the landing point. The Guards were required to take with them a quantity of heavy equipment, namely mortars, 0.5" Machine Guns and ammunition. Although Land Rovers had also been landed, these proved to be unusable in the boggy terrain. During this initial march, the Commanding Officer estimated a sustainable speed of advance of 1 Km/hr, for a duration of 2 days.

A1361 A1369 A1364

A1366/7

2. To assist in the support of the southern flank, a plan was proposed to march the Battalion over the SUSSEX MOUNTAINS to the DARWIN/GOOSE GREEN area. To support this move in the transportation of the heavier equipment, Snocat vehicles were to be provided; helicopters were not available. The need to preserve the fighting capability of these troops was emphasised in that the move was to be the prelude to possible fighting. In the event petrol was not available for the Snocats and the civilian tractors became bogged down. After a march of 7 Km it became apparent to the Commanding Officer that any advance, even by leaving the heavier kit for later transportation, would leave his force unbalanced. The aim of the move to DARWIN was only a stage in the move to BLUFF COVE and thence, if required into battle. They returned to SAN CARLOS.

A1011 A1369

3. On the morning of 5 Jun instructions were received to split the Battalion, one half to embark in SIR TRISTRAM and the other in HMS INTREPID. This was in accordance with Plan 1. During the loading this order was rescinded. The following night the whole Battalion embarked in HMS FEARLESS and sailed for a rendezvous with 4 INTREPID LCUs off ELEPHANT ISLAND. When the LCUs failed to appear the decision was made, in conjunction with CTG 317.1, to split the Guards; 2 Coys to proceed with the Commanding Officer,

CTG 317.0 0321104

Jun

the remainder to return in the ship to SAN CARLOS.

4. Instructions were issued by OCWG to Major G SAYLE now in charge

to keep his force and equipment together;

of the troops returning to SAN CARLOS

A1432

- to be landed the following night at BLUFF COVE;
- endeavour to obtain a considerable list of stores.

A1387

The instructions about separating troops and kit were emphasised because of earlier experience in the FALKLANDS.

A1389

5. The first 2 Coys reached BLUFF COVE and the remaining Companies were embarked in SIR GALAHAD at 071500. During the briefing providing the instructions to embark, Major SAYLE understood that a similar

operation would be mounted to the night before, viz 2 LCUs would
R/V with SIR GALAHAD and transport the men to BLUFF COVE. This was
not however the understanding of who gave the briefing.
In addition Major SAYLE was informed that the stores requested by
the Commanding Officer, Welsh Guards would be provided.

6. The troops embarked in SIR GALAHAD consisted of:

Prince of Wales' Coy	120	men
No 3 Coy	120	men
1 Mortar Platoon	35	men
'A' Echelon of the Battalion	45	men
Engineers Troop	40	men

The equipment included:

300 Mortar ammunition (HE and smoke)
66mm rockets
Mineclearing equipment
10 cases Hexamine
Electrical generator

7. On arrival Major SAYLE became OC Troops and commenced the normal duties undertaken by embarked troops in an LSL. The equipment was stowed by the troops under the direction of the Chief Officer, SIR GALAHAD. agreed later that he would not assume the duties of OC Troops; this was correct and in accordance with the LSL Handbook.

The sailing time was delayed as described in Annex E5 para 17. The ship finally anchored off FITZROY settlement at 081100 Jun. That no preparations had been made to offload the LSL is covered in Annex El0 para 3. At approximately 1200 a partially loaded Nexeflote and LCU arrived at SIR GALAHAD and Major SAYLE was invited to load his men on top of the ammunition in both craft and go ashore in FITZROY leaving his equipment to follow on. This instruction was in direct conflict with his instructions from his Commanding Officer (see para 4). In addition, from an intelligence briefing on 4 Jun both Major SAYLE and his Commanding Officer believed the bridge at FITZROY to be impassable for troops or vehicles. It was thought A0647 therefore that the march from FITZROY to BLUFF COVE was some 15-18 miles rather than 6 miles. Major SAYLE sought advice from 5 Brigade's A1444 Forward HQ at FITZROY. This had to be done via the Beach Unit comms net, which in turn took a message 1 mile up the road to FITZROY SETTLEMENT. A plan was proposed to land the 16 Field Ambulance by A0644 Mexeflote and the Welsh Guards were to be taken by LCU in two trips A1450 to BLUFF COVE. The details of the offload are given in Annex ElO. A1131 At no time was a direct order to disembark given to Major SAYLE by A1449 A0806 in his evidence to a superior officer. the Board stated that he gave a direct order, however this is denied by Major SAYLE and no other corroborative evidence could be who accompanied Major SAYLE for most of the time on board, also states that no direct orders were issued. A1505 9. After further delay, due to the conditions of the beach, and the landing of the advance elements of 16 Field Ambulance the Welsh Guards commenced loading into an LCU at 1630. The attack occurred at 1710.

DISCUSSION

11. Disembarkation. Major SAYLE received instructions to disembark at FITZROY by the which were in direct conflict to the instructions given him by his Commanding Officer (paras 4 & 8).

- 12. There had been confusion over the intended destination, and upto-date information concerning the route from FITZROY to BLUFF COVE was not made available (para 8).
- 13. No direct access to higher authority to clarify instructions or receive new intelligence was available (para 8).
- 14. Major SAYLE had no previous experience of amphibious warfare; he was unaware of the delay imposed by the limitations of working the beach.

A1472

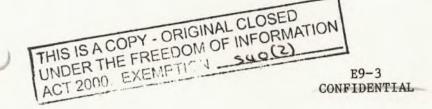
A0322

A0937 A0999 A1011 A0941 A1062

- of CTG 317.0 staff were unprepared for the arrival of SIR GALAHAD and the Welsh Guards (para 8). A plan was eventually proposed which satisfied all the people concerned; however, this only evolved after the assets had departed SIR GALAHAD for the shore and the situation was irretrievable for several hours.
- 16. The only alternative, at the time the decision was required, was to go ashore without kit and await transfer by some means to BLUFF COVE. This alternative is only attractive with hindsight with knowledge of the delay, the state of the bridge, and of the air attack; the actual events must be considered as the facts presented themselves to Major SAYLE.

CONCLUSIONS

17. In the opinion of the Board the decision by OCWG not to proceed with his cross country was to DARWIN was reasonable (para 1 and 10).



- 18. Resulting from 17. above, and the lack of helicopter resources, there was a clear necessity to move the WG by sea (para 10).
- 19. Major SAYLE correctly assumed the duties of OC Troops and carried out the duties associated with this well (para 7).
- 20. Major SAYLE was not aware on 8 Jun that FITZROY Bridge was passable to infantrymen (para 8).
- 21. The situation as seen by Major SAYLE at 081205 is very relevant in that his last orders were:
 - a. To land at BLUFF COVE;
 - to allow no separation of his men or equipment;

and that he knew his route from FITZROY by land would entail a 15 mile march. Taking into account that he also believed the landing craft would return relatively quickly then the Board consider his actions to have been justified (paras 4,8,11,14,15,16).

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BOARD OF INQUIRY LOSS OF SIR TRISTRAM & SIR GALAHAD ANNEX E10 DATED 23 SEPT 82

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A0638

OFF LOAD OF RFA SIR GALAHAD AT FITZROY, 8 JUNE 1982

- 1. RFA SIR GALAHAD arrived off FITZROY SETTLEMENT at 081115 Jun approximately with 2 Coys The Welsh Guards, 16 Field Ambulance Unit, and 4 Fire Units of Rapier embarked, with associated equipments and one SEAKING Helo.
- 2. The Amphibious Beach Unit and the representative of 5 Brigade's Forward Brigade Maintenance Area (BMA) 2 PARA, were ignorant of any plans to offload SIR GALAHAD at FITZROY.

was embarked in SIR TRISTRAM but had not been warned of the arrival of this ship, nor of the nature of her cargo. At the time of arrival however he had just read the signal instructing SIR GALAHAD to sail with the Welsh Guards and 16 Field Ambulance. The signal was in SIR TRISTRAM's signal file.

Because of the lack of warning, no preparation had been made for the timely off-load of the new arrival. Indeed 1 asset, LCU F4, had been despatched earlier that morning at 080400 to collect A1677 A1678 equipment for the 5 Brigade BMA on the premise that adequate assets would remain at FITZROY to offload SIR TRISTRAM. The LCUs were at believed this time under the Tacon of 5 Brigade and 5 Brigade to be in charge of the offload. It has been indicated by A0707 A0723 witnesses that adequate time and means were available by which to inform 5 Brigade's Forward BMA (see Annexes E8 & E11). HF communica-A1650 tions were established at this time.

- 4. High water occurred at 1107 (see Annex E14); the beach therefore was not workable with Mechanical Handling Equipment until 1315 (see Annex E7 para 6). Both the LCU and Mexeflote were loaded with ammunition ready for the beach to be reworked. There was room on these assets to accommodate at least 100 men, without their A0644 support equipment, although this would have necessitated sitting on ammunition pallets.
- 5. Offloading the Rapier Units commenced without delay using the embarked SEAKING.
- went across to SIR GALAHAD at 1200 within an hour of her arrival to investigate her requirements for off-loading. On arrival advised the OC Troops, Welsh Guards (Major SAYLE) to get his Troops on board the partially loaded assets to take them ashore at FITZROY. The advice was rejected because the Welsh Guards expected to be landed at BLUFF COVE, and had received specific instructions not to be separated from their kit. (See Annex E9). Advice from the forward BMA was then A1450 requested via the VHF link with the

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arguments.

7.	A	plan	was	evolve whic	d by	disc	cussioned to:	n between	the
	a	. u	nload	the a	sset	s of	their	current	load;

b.	use	the	Mexeflote	to	land	the	Ambulance	Unit	and	its
vehic	cles;									

c.	use	the	LCU	to	ferry	the	Welsh	Guards	to	BLUFF	COVE	in	2	A0644
trip	s.													A1450

A1131

A1680

A1131

A1463

The Mexeflote and LCUs proceeded inshore at 1230.

was most eager

to get his men ashore and set up his unit. He believed his unit
and function to warrant the highest priority amongst those present.

The time taken to land the advance party was also short compared
with the delay imposed by taking Welsh Guards round to BLUFF COVE.

Conflicting evidence was received by the Board on the ensuing

a.	claims that app	roval was g	iven by 5	Brigade
BMA to change the	e priorities in i	his favour and the first	and land a asset to	return
	is claim is deni		E 6 7 15 17	1000

b.	also claims	that	t an amicable	agreement had
been reached bety	ween himself	and	Major SAYLE.	This does not
agree with the e				

the obvious vulnerability of the LSLs) no special measures were	was a delay of some $2\frac{1}{2}$ hours during which time both ashore being unloaded. Although the need for some the unload was appreciated by the men ashore (because of
taken to accelerate the offload. The embarked troops were unaware Alo	vulnerability of the LSLs) no special measures were celerate the offload. The embarked troops were unaware on for the delay. The LCU returned to the ship at A0735

o. As a result of this delay, tension between the various elements competing for landing assets increased. A confrontation took place publically on the stern gate when the LCU eventually arrived.	
stated that the original plan was modified with agreement from 5 Brigade For'd HQ and that he was to go ashore with a small contingent of the Field Ambulance. This altercation ended	A0645 A1451 A1131
when Major SAYLE as OC Troops.	A1441 A1097/8

10. As	esult of this argument the advance elements of 16 Field	
Ambulance undertook	embarked in the LCU for passage ashore. to are use possible helicopter transport for the Welsh	A1 131 A1 132
Guards.		

Guarus.		
11. When the Field Ambulance	elements had disembarked at 1530 th to the jetty in FITZROY to collect	ne A1452

fuel and rations. This was known to be in short supply at BLUFF COVE and the opportunity to take the stores as well as troops influenced the original concept of the unloading plan. This caused a further delay in the eventual embarkation of the Welsh Guards. The LCU arrived back at SIR GALAHAD at 1610.

A0645

12. During his return to SIR GALAHAD, the coxswain of the LCU A0823/4 experienced failure of his hydraulic ramp lowering equipment. The A1452 standby pump had gone defective some time earlier in SAN CARLOS. A1494 This fault meant that the ramp could be lowered by gravity once only and could not be subsequently closed. When this information reached SIR GALAHAD arrangements were made to revise the offload plan and use the No 2 cargo hatch, just for'd of the Bridge superstructure to load equipment over the side. This meant repositioning the stores from the stern trunking in the Tank Deck to A1453 below the hatch. Personal equipment in the 'Bergens' was removed for loading over the side. Meanwhile the Coxswain was trying to effect a repair to the hydraulic pump, and ship's officers were trying to find a new seal.

A1453 A0825

The first net full of Bergens was loaded into the LCU by crane at about 1640. The men were mustering on the shade deck, port side and commenced to step over the rails of SIR GALAHAD onto the bows of the LCU. Ammunition was being assembled beneath the hatch ready for loading. Major SAYLE detailed a gunner to man his machine gun to give the LCU some protection. The attack was launched by 4 Skyhawk aircraft at approximately 17102.

A1455

DISCUSSION

- 14. The lack of advanced warning to those responsible for the offload indicates a failure in the Command and Control organisation of both CTG 317.1.2 and CTG 317.0.
 - 5 Brigade Main HQ at DARWIN were aware that SIR GALAHAD was due at FITZROY on the night of 7/8 June. No information (para 2). reached
 - as the TACON of the LCU had been chopped to 5 Brigade, CTG 317.0 believed 5 Brigade to be responsible for the offload. A0157
 - the ABU had no direct communications with CTG 317.0 A0709 although messages could be passed via SIR TRISTRAM. This was not done although under ATP 36 Art 150 the ABU remains under the control of the Naval Force at all time.
 - of CTG 317.0s staff was in SIR TRISTRAM and read the night intention signal. He had no formal responsibility in this position and his presence was fortuitous in that he had navigated 2 LCUs into BLUFF COVE on the night before (Annex 1E para 11).

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- 15. The lack of information led to the assets being depleted by sending LCU F4 to GOOSE GREEN, and to the existing assets being loaded in preparation for the re-opening of the beach for working (para 3).
- 16. There was a general lack of assets available at the beach to unload ships in the shortest time under exposed conditions.
 17. There was a lack of appreciation on the beach of the

responsibilities for unloading the vessel; believed

to have overall responsibility, while considered it was his responsibility to direct the positioning of the stores about the BMA after unloading. This failing does not appear to have caused delay or contention.

- 18. No particular sense of urgency accompanied the unloading of the Welsh Guards or 16 Field Ambulance. This was partially engendered from the lack of air attack in preceding days. However, given the severe limitation of assets, and the state of the tide and beach little more could have been done with the exception of para 19 (paras 2 & 8).
- 19. The Board has investigated the possibility of landing the Welsh Guards on the Mexeflote and believe that the troops could have been landed within 1 hour of arrival. This would have meant leaving the equipment onboard until later. The option was not taken by the Welsh Guards because:
 - a. misunderstanding over destination (Annex E8);
 - contradiction in instructions concerning equipment (Annex E9 para 4);
 - c. lack of awareness of time delay likely to ensue (Annex E9 para 14):
 - d. stale intelligence over the state of the bridge (Annex E9 para 12).
- 20. Major SAYLE as OC Troops was placed in an invidious position by the conduct of The latter's disregard for the authority of OC Troops added to the tension and confusion onboard and undermined the control of offload exercised by the officers ashore (para 9 & 10).
- 21. The decisions made by were based on sound argument and in considering the subsequent events in hindsight, were most fortuitous.
- 22. The Board considered the implication of the hydraulic failure in the LCU. The failure can be attributed to working conditions and lack of opportunity to repair the redundant hydraulic pump. The implication of the failure is that:

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- a. the stern gate was closed;
- b. cargo hatch No 2 was opened;
- c. slower loading of the troops.

It is thought possible that if a normal stern load had occurred I Coy could have left the ship at the time of the raid and therefore be exposed at sea during the passage to BLUFF COVE. The change in disposition of troops, equipment, and venting conditions within the ship cannot be assessed with any confidence with respect to the resultant casualties which would have occurred in the event of an attack (para 12, 13). It is considered that no alternative response to the defect was possible; the lowering of the ramp could well have rendered the LCU unusable for SIR TRISTRAM's later offload, and made the subsequent recovery of assets extremely difficult.

CONCLUSIONS

23. It is concluded that:

- a. There was no one major failure at FITZROY which led to the WELSH GUARDS being on board SIR GALAHAD when the attack occurred. The factors listed in b-g below all contributed to a confused situation.
- b. The weakness in Command and Control from 5 Brigade significantly affected the time for offloading the Welsh Guards, and thereby affected the casualties suffered. (para 14)
- c. The inability of CTG 317.0 to communicate with the Beach Master compounded this failure if it is accepted that ATP 36 is strictly applied, although no acknowledgement to this document has been given throughout the Inquiry. (para 14)
- d. The decision not to offload the Welsh Guards is accepted as reasonable in view of the knowledge available at the time (Annex E9 Conclusion 5).
- e. The lack of a clear understanding of the responsibilities of those ashore controlling the offload had no effect on the situation in the event. (para 17)
- f. The limited assets and the conditions of the beach rather than a lack of urgency caused the relatively slow offload. (paras 15, 16 and 17)
- g. The defect on the LCU ramp equipment had some influence on the proceedings but its overall significance cannot be assessed. The response to this defect was satisfactory. (para 22)

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RECOMMENDATIONS

24. In future joint operations of this nature much more attention must be paid to the clear definition of support responsibilities both within Task Groups, and between Task Groups.

25. The failure of relevant information reaching 5 Brigade's BMA at FITZROY should be represented to the Army for further investigation.

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BOARD OF INQUIRY LOSS OF SIR TRISTRAM & SIR GALAHAD ANNEX E11 DATED 23 SEPT 82

AIR ATTACK NARRATIVE

- 1. At about 1710 on 8 Jun RFA's SIR GALAHAD and SIR TRISTRAM were attacked by four Argentine aircraft believed to be A4 Skyhawks. Both ships were at anchor in Fitzroy Creek. SIR GALAHAD being about 300 metres offshore and SIR TRISTRAM about 600 metres to the North West of her (see Appendix 1). Both ships were pointing North but were swinging about their anchors from the effects of wind and tide, and at the time of the attack both were facing North West.
- 2. It was a clear sunny afternoon with $\frac{2}{8}$ cloud cover. The LCU Foxtrot 1 was alongside Sir Galahad embarking troops of Prince of Wales Company, 1st Bn Welsh Guards, from the port shade deck. Their front-line stores were being loaded into the LCU from the tank deck by the after crane. The mexiflote was just completing its offload of ammunition at the beach.
- 3. Warning of the air attack at SAN CARLOS was received by the Officer of the Watch of SIR TRISTRAM but not by his counterpart on SIR GALAHAD. Troops manning the Rapier batteries ashore heard aircraft flying up Bluff Cove valley a few minutes before the attack but were unable to see the aircraft.

T0700 G0589

A1333-4

- On SIR TRISTRAM the ship's defence teams were scanning the sky over the port side of the ship. Having heard that attacking aircraft had just approached SAN CARLOS from the South they presumed that aircraft might also attack Fitzroy from the South. In fact the four Skyhawks approached from the opposite direction. It is thought that they overflew BLUFF COVE, rounded North East Point and flew due West along PORT PLEASANT at about 500 feet above sea level (see App: 1). They were hidden from view from the ships by the high tussock grass of PLEASANT ISLAND. Sweeping round the Eastern tip of PLEASANT ISLAND they dropped to an altitude of about one hundred feet, the leader being slightly higher. They flew in line ahead at an estimated 400 knots. As the first aircraft approached SIR GALAHAD's beam it began to bank to port and it released four bombs while banking over the bridge superstructure of SIR GALAHAD (see App 2). The leader continued to bank, passed over the flight deck of SIR TRISTRAM and then climbed away to the South. Because the aircraft was banking when it released its bombs they tended to diverge. Two landed in the water between the ships off SIR TRISTRAM's starboard bow. Two passed over the focs'le of SIR TRISTRAM and hit the water off her port bow. One of these ricocheted on the water and exploded on the land mass called PLEASANT POINT, South West of the ships. The three bombs that landed in the water
- 5. The second aircraft followed about 200 metres behind the leader, and the third was 100 metres behind it. These aircraft did not bank until they had overflown both ships. They approached the starboard beam of SIR GALAHAD in level flight at about 100 feet altitude.

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failed to explode.

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They both released their bombs (4) simultaneously, the second while passing over SIR GALAHAD midships. The four bombs from this aircraft remained in a tight cluster and travelled towards the stern of SIR TRISTRAM as the aircraft followed the flight path of the leader and climbed away to the South. Two of the bombs penetrated the stern of Sir Tristram, one fell in the water of her starboard quarter, while the fourth is thought to have exploded in the water underneath the transom. Of the two bombs that entered the ship one passed across the tank deck, entered No 25 Port Ballast Tank where partial detonation occurred. The second bomb also passed through 25 Stbd Ballast Tank into the sea without exploding (Annex F3).

Damage Report -Mr BURT STS

Damage Report Mr BURT STS

6. The three aircraft released a clutch of four bombs little more than 100 metres from the starboard beam of SIR GALAHAD. Three of these bombs entered the after accommodation areas on the starboard side of the ship at poop and upper deck level. One transitted the ship and made an exit on the port side of the poop deck in the region of the stewards' mess. The other two failed to explode but major fires accompanied by thick black smoke developed almost immediately. The fate of the fourth bomb is unknown. After making its attack the third aircraft overflew the two ships banked to starboard and climbed away to the North. The Blowpipe gunner on the flight deck of SIR TRISTRAM attempted to engage this aircraft as it flew into the distance, but he was knocked off his feet by the slipstream of the fourth Skyhawk.

T3614

7. It is believed that the last aircraft attacked the ships with cannon fire only. It flew lower than the first three but trailed them by about 300 metres. No bombs were seen to detach from it, but the Blowpipe gunners on SIR TRISTRAM observed cannon fire strafe their position on the flight deck. Evidence of cannon damage on the screen of the Second Engineer's cabin on SIR GALAHAD is visible on still pictures taken from video film of the ship shortly after the attack. The fourth aircraft climbed and banked to starboard after flying over the flight deck of SIR TRISTRAM and followed the third to the South.

T3744

8. It is considered that the weapons used in the attack were 500 pound bombs and cannon. There is no evidence to suggest that rockets, incendiary bombs or napalm were deployed.

T3616

The basis for this narrative is the testimony of who saw the whole attack from a position ashore 300 metres from SIR GALAHAD.

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E11-2 RESTRICTED this happened the very proficient and able remaining SWO became overloaded.

A0313

The Flag Captain also acts as Chief of Staff (COS) but in view of the frequency of air attacks and being involved in both day and night operations he was not as fully committed in this Staff aspect of his job as much as either he or COMAW would have liked.

A0166

STAFF TRAINING

The Board were somewhat surprised at the lack of previous amphibious training by the Staff. COMAW and involved in the Spring amphibious exercise just preceding CORPORATE A0007 as had the GSO1 and G2(AW). However neither COMAW or had done A0187 should have done the AWPC before taking up their appointments. it even if taking up the appointment of would require a close knowledge of amphibious operations if he was The new G2(AW) did the AWPC in Dec 81. A0591 to act as

STAFF FATIGUE

CTG 317.0 staff undoubtedly became fatigued even by the time 9. of the SAN CARLOS landings. The effects were very variable, some individuals suffering more than others. Although there is no evidence of major errors of judgement or ill-considered decisions occuring as a result of fatigue, performance did deteriorate generally and some officers were obliged to assume an extra burden to relieve their colleagues. Fatigue was often unnoticed by some Staff Officers and became manifest only as reduced mental activity in processing the data constantly arising from a fast moving situation. This became particularly apparent when newly arrived officers impressed with their relative speed and clarity of thought.

A0168

A0314 A0495/6

A0354

A0170 A0495

DISCUSSION

10. With regard to staff composition, the Board believe that with one exception the staff worked remarkably well. To consider the short notice most of them received of the job, and that very few of them had any amphibious training, the result was very creditable. In their questioning the Board felt that one of the less satisfactory A0356 aspects was that many of the staff 'did their own thing' and not being totally aware or practised in the whole amphibious scene were not able to work into the horizontal matrix of the staff and look out for each other more. This would lead to added strain and fatigue for some.

11. A further difficulty arose with respect to who had had no previous amphibious training (para 5) and who had to try and catch up on his knowledge as well as conduct the staff during the passage to the TEZ. By the time the landings in SAN CARLOS were complete he was "absolutely exhausted" and of little further use. This meant for part of the time additional work for COS, and as COS for most the time.

A0166

A0166

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- was also involved in the decision to send SIR GALAHAD to FITZROY in the night 7/8 June based on SIR GALAHAD's signal stating that she intended to remain at SAN CARLOS overnight. (Annex E2 paras 34 and 35q). On that occasion he was the most Senior Staff Officer involved in the decision making process and firstly does not seem to have grasped the full import of what was going on and secondly made an error of judgement in not advising the Duty Staff Officer to call the Commodore.
- 13. When interviewing the Board were unimpressed by his responses to questions which were for the most part superficial and were of little use; his memory of events appeared vague and confused.
- 14. The Board consider that COMAW himself was very much aware of the difficulties within his staff and, together with COS, made constant and continuing efforts to ensure the smooth continuity of operations.
- 15. Training. The more that we have withdrawn from amphibious operations in the past years the greater has become the lack of expertise in general by warfare officers. To have served at SUEZ for example an officer must now be at least 44 years of age. Keeping the art alive and keeping a reasonable nucleus of officers trained, and with experience, is an essential for the future.
- 16. Fatigue. With the exception of a very minor part in any of the events we have covered. Staff officers were certainly tired and at times, very tired, but we have only identified one occasion when this had a significant effect.
- 17. General. The Board wish to record that they believe that CTG 317.0 staff did a first class job under very difficult and fast moving conditions. They didn't always get it right nor did they always liaise to the degree that many outsiders might have liked, but such people rarely understand the difficulties of a staff.

CONCLUSIONS

18. It is concluded that:

a. The cohesiveness of the staff was reduced by the speed at which it was expanded and the lack of experience of working together before operations started.

(para 10)

b. Once operations become fast and furious staff officers are naturally kept very busy in their own particular field; cross fertilisation of ideas or plans become more difficult.

(para 10)

c. There was a lack of amphibious training prior to officers taking up their appointments. Those officers appointed to the staff at short notice only had a limited knowledge of amphibious operations for the most part.

(para 15)

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E13-3

ESTRICTED

d. Stress and fatigue affected the performance of
to the extent that by half way through
CORPORATE he was exhausted and of little use to the staff
thereafter. The degree of competence of this officer is open
to question and additionally the Board consider that he made
two errors of judgement during the night 7/8 June in that:

(para 11-13)

- (i) He did not instruct the Duty Staff Officer to inform CTG 317.0 of SIR GALAHAD's signal DTG 080015.
- (ii) He did not verify the content of SIR GALAHAD's signal himself not the adequacy of the draft reply.
- e. The justification for placing in a (para difficult and unprepared position is questionable. 5)
- f. COMAW's Staff did well overall to compete with a very wide (para 17) and demanding range of tasks.

RECOMMENDATIONS

- 19. It is recommended that:
 - a. Officers appointed to amphibious warfare appintments should undertake the appropriate courses before joining.
 - b. The future requirement for officers generally to be trained in AW be established.
 - c. COMAW be invited to comment further on the performance of

CARGO AND PERSONNEL

7. No craft were alongside at the time of the attack. Unloading of cargo had been progressing since the morning of 7 Jun and approximately 102 tons of ammunition remained on board in the tank deck, some of which had been streamed into the after trunk ready for loading into the next craft to arrive. Breakdown of ammunition was as follows:

81 mm mortar		tons
0.5 in machine gun rounds	4	tons
Rapier missiles	8	tons
.762mm rounds	20	tons
Pyrotechnics	20	tons
105mm artillery rounds	30	tons

In addition there were 200 Jerricans of kerosene and 200 of diesel fuel stowed on the tank deck.

8. Personnel were spread throughout the ship carrying out routine tasks consistent with defence stations, that being the state of readiness in force.

DISCUSSION

9. Shortly before the actual attack the OOW heard on the AAWC net that an air raid was taking place at SAN CARLOS. He heard that a ship had been hit and a second wave of aircraft was expected in SAN CARLOS. As these warnings were not addressed specifically to TRISTRAM and made no mention of FITZROY or BLUFF COVE he took no action. By chance the NCO in charge of the Blowpipe detachment happened to be on the bridge and was told of the raid at SAN CARLOS, on his own initiative he alerted the air defence teams but almost immediately afterwards the attack took place.

10. The conflicting testimony of the is disturbing but it is felt that it may have been a misunderstanding in terminology, whereas the Command and were positive about the main engines being on immediate notice. The actual organisation was the same as ten minutes notice in peacetime.

CONCLUSION

11. It is concluded that the confusion over callsigns and the lack of knowledge of the workings of tactical circuits contributed greatly to the OOW ignoring the information he heard on the AAWC net.

However the Board feel that it was extremely naive of to believe that an air attack going on only 35 miles away

11 house as bearing on his own ship's safety. It is the Board's

could have no bearing on his own ship's safety. It is the Board's opinion that despite the apparent conflicting testimony the Main Engines were on immediate notice and SIR TRISTRAM was in state of readiness consistent with the defence state in force at the time.

.....

Para 6

BOARD OF INQUIRY LOSS OF SIR TRISTRAM & SIR GALAHAD ANNEX F3 dated 23 Sep 82

ATTACK BY ARGENTINE AIRCRAFT ON SIR TRISTRAM AT FITZROY

ATTACK NARRATIVE

- 1. At approximately 1710 on 8 June 82, RFA SIR TRISTRAM was attacked by Argentine jet aircraft while lying at anchor off FITZROY CREEK. SIR GALAHAD was anchored about three cables to the East, and both ships were facing North about three hundred metres from shore. It was a clear, bright afternoon with 2/8 cloud cover.
- 2. Four aircraft, believed to be A4 Skyhawks took part in the attack. They approached SIR TRISTRAM and SIR GALAHAD from the East, flying in line ahead down PORT PLEASANT at about one hundred feet above sea-level. There is some variation in the accounts of the attack given by witnesses, but it is probable that the most objective statements came from an observer standing on shore only three hundred metres from SIR GALAHAD.

T3614-20 T3705-44 T3650-91 T3786-800 T3146-160 T0702-29 A1697-1737

- 3. The leading aircraft released four bombs as it passed over the midships of SIR GALAHAD, and flew level over the flight deck of SIR TRISTRAM before climbing and banking to port. The bombs missed SIR TRISTRAM but straddled her bows. Two fell in the water off the starboard bow, one off the port bow, and the fourth bounced on the water beyond the port bow and landed on PLEASANT POINT where it exploded.
- The second aircraft, about 200 metres behind the first, released four bombs a few metres from the starboard side of SIR GALAHAD. It followed the same flight path over SIR TRISTRAM before banking to Two of its bombs struck the starboard quarter of SIR TRISTRAM; one entered the ship at deck level of the starboard aft machinery starter room forward of the chain locker (see plate 1/3), pierced the deck and entered number 25 starboard tank. The second bomb entered the stern door starboard chain locker near the vertical stern door compression bar (see plate 5/2); passed through the tank deck bulkhead plating of the chain locker at deck level (plate 1/1) passed across the tank deck and entered 25 port tank through the port tank deck capstan stool (plate 1/2). In view of the limited extent of damage sustained it is likely that partial detonation took place. The third and fourth bombs missed the ship but the third exploded under the transom in way of 25 and 26 tanks and caused holing of the ship's bottom plating. The combined effect of one partial detonation in 25 tank together with complete detonation below the transom caused damage to the steering gear compartment, tank deck bulkhead and accommodation structure; a fire did not develop in the steering gear compartment. It is not known what happened to the bomb in 25 tank starboard.

5. The third aircraft attacked SIR GALAHAD and was flying in very close proximity to the second. The fourth was about 150 metres behind and followed the same flight path as the others but did not release any bombs. It did however strafe the flight deck of SIR TRISTRAM with cannon fire. The Blowpipe detachment attempted

Appendix II

Appendix III

)) Appendix) II

T3690 T3744 T3620-2 T3614

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C. D. M. D.	
unsuccessfully to engage the third aircraft. The G.P.M.G gunners located on the bridge wings and monkey island fired at the aircraft but the Bofors guns remained silent.	T0727 T3163
first realised the ship was under attack when he heard an aircraft pass overhead as he walked onto the starboard bridge wing. He looked up and saw the underbelly of the first aircraft, with a second aircraft visible	
passing over SIR GALAHAD and releasing its bombs. He ran onto the bridge, flung himself onto the deck and rang the alarm bells. As	T0702
he did so he felt the ship shudder violently. Other witnesses reported two separate thumps a few seconds apart, each followed by a lateral and vertical shuddering of the ship. The noise came from the stern of the vessel, but there are no reports of sufficient noise or blast to suggest an explosion. The vertical whip of the ship lifted men in the bows off their feet, and in one case threw a sailor from the vehicle deck onto the foc'sle. A heavy lifting frame was also thrown up onto the foc'sle while the hatch cover forward of number one hatch was lifted clear of the coaming and landed askew.	T0166 T0429 T0620 T3875 T3201 T0426
7. Within five seconds of the bombs striking, the Captain arrived on the bridge. He was joined by the who received a situation report and handover from then left the bridge to move to his emergency station in the troops' recreation room. He shut fire doors behind him and noticed minor damage to those by the Purser's office and at the bottom of the stairs by the Military Office which he attributed to vibration. He also noted a smell of cordite in the air, and in the troops' recreation room there was asbestos dust and fragments of formica on the deck, but no structural damage.	T0732-3 T0735
8. On the bridge the Captain's initial reaction was one of horror at the spectacle of SIR GALAHAD which was already burning furiously. Without waiting for a damage report from the ordered two lifeboats to be launched to help to rescue men from SIR GALAHAD.	T0179 T0182
had made his way to the troops' cafeteria, his emergency station. On arriving there he found that no sailors had yet mustered, he was alone. He heard a pipe that the ship had been hit starboard side aft, and without reporting his movements to the bridge he set off for the starboard accommodation alleyway to search for personnel and damage.	T0429
10. assumed responsibility for receiving and collating information coming to the bridge, and he made the pipe	m0(22
about the attack on the ship. In fact there was little information coming to the bridge and whose task it was to record all reports in a log, made no entries until after the lifeboats had	T0633 T0301
been sent to SIR GALAHAD, between three and five minutes after the attack. There were no reports from fire parties and no closing-up reports from any departments except the hospital. It seems that	T2374 T2379 T2378

this was the only entry in the log within the first ten to fifteen minutes after the attack.

200	11. In view of the absence of information on the bridge left to go to the MCR. On the way he passed through the	1
R	tank deck where he noted explosive fumes but no damage. In the MCR	T0305
	he was informed by that the	T1479
	evaporator and fridge machinery controls were displaced and that	
	the after end of the tank deck was buckled and the bulkhead cracked.	T0309
	He was also given a report of a possible unexploded bomb. He	
	returned to the bridge with this information.	
	12. On the bridge at this time, about ten minutes after the attack,	
	was the Captain,	T2901
g	passed messages between the	T3507
	bridge and the radio room, but there were no other senior ship's	
	officers present. The Captain had detailed	
8	to leave the bridge and	
8	launch two of the lifeboats, and they did so between three and five	
	minutes after the attack. took charge of Number	T0635
	Three lifeboat with a capacity for 112 persons, while	
8	Royal Corps of Transport volunteered to take Number	T0637
8	Four, a 104 person boat. This left only two lifeboats, each with a	T3936
	capacity for 50 persons remaining on SIR TRISTRAM.	
	13. In the MCR the officers on watch at the time of the attack	
	were They	T1581
	heard a loud noise follwed by vibration, and the junior watchkeeper	
	started the spray curtain pumps. He then left the engine room and	T1588
	proceeded to his emergency station on the tank deck.	T2054
B	who reported that the fire	
100	main pumps had been stopped by the shock and that fire main pressure	
	had disappeared. He re-started the pumps again and fire main	
	pressure was restored. were joined by	T1438
	lin the MCR.	
	noted two earths on the warning panel and removed these by	
	isolating the fridge fans and pulling the galley breaker. On his	T2 26 9
	way through the engine room to the MCR noticed that the	
	domestic fridge compressors had been displaced and that there was a	Louisia
	furrow in the bulkhead behind them. He reported at the MCR and	T2166
	then received a request from the tank deck firefighting party for	
	sets of breathing apparatus (BA) to be brought up from the MCR. On	
	reaching the tank deck with the BA he found a moderately dense	
	white smoke and he was asked to clear this by re-starting the tank	
	deck fans in reverse. He also noted that the door between the port	
	main engine room and the overhaul space on the port side of the	m0100
	tank deck was buckled. Having re-started the tank deck fans he	T2192
	returned to the MCR from where he started to walk around the engine	
	room to inspect for damage. He shut down the main boiler and saw	
	that the feed pipe to the evaporators was damaged and was spraying	
	salt water, so he shut off the salt water supply. He received	
	instructions to leave the engine room in order to start the engine	
	of number three lifeboat, and he then joined	m2100
	in helping to rescue survivors from SIR GALAHAD.	T2198

10

	had left the MCR to assess the damage sustained to the ship and to receive reports from the engine room fire parties who had mustered on the tank deck. He found that the stern trunking of the tank deck was filled with smoke and dust, and that debris, paint chippings and pallets of ammunition were scattered over the deck. Walking aft he found that the watertight door to the fridge space and steering gear compartment was badly buckled. None of the Chinese sailors had mustered to man the engine room fire parties which now consisted only of officers. returned to the MCR to report these facts to the bridge, and there he was informed by that some Chinese were crouching, bewildered and confused between the generators, or were lying on the engine room deck plating. They were ordered to get up and man	T1450 T1463
	room they never complied with the latter part of the order.	T1463
	15. About nine minutes after the attack received a damage report from one of the engine room fire party.	
of	had penetrated aft in the tank deck wearing BA and had seen	T1795
B	a wortical split in the Arcus Room and Capstan Starters Room, and	T1978
	boles in the port and starboard sides of the stern trunking at deck	T1802
	Tevel. Metal around the port side hole was splayed out suggesting	T1816
	it was an exit hole. appeared briefly and was given a situation report by before returning to the bridge. Communications between the bridge and the MCR appear to have been	T1465
	poor with little flow of information in either direction.	T1605
	16. At this time there was a meeting of deck and engineer officers on the tank deck.	lana.
	The three deck officers had	0
	met earlier in the troops' cafeteria and had each taken BA sets and proceeded to inspect the ship for damage, with acting as BA controller. The Chinese members of the fire party had made no attempt to don firesuits even when instructed to do so, and they appeared to be dazed and bewildered. A muster had revealed that two sailors were missing, one of whom was the Bosun. had remained in the cafeteria with the Chinese, while the BA team had made their way aft.	T0751
	had proceeded from the poop deck into the Petty Officers' accommodation flat on the starboard side, leaving on the poop deck with the BA control board. had seen no signs of damage but there was a fine white dust and debris on the deck. He had then noticed the	
	body of a Chinese sailor lying by the starboard side of the winch. had been summoned and had pronounced the man dead. He had sustained a major head injury and had probably	T1271
	been thrown against the winch when the ship was bombed.	T2579
	18. In the starboard accommodation alleyway,	m0/26
V	had found chaos and devastation. Deckneads	T0436
	wore damaged and the partitions between cabins had been flattened.	T0446
	There was no way down to the fridge flat as the entrance door was	T0447

blocked. Two holes in the ship's side could be seen from the PO's accommodation, but there was no sign of fire, and no more casualties had been seen. At this stage had attributed the damage to the passage of an unexploded bomb, having been given descriptions of the havoc wrought by one in SIR LANCELOT. He had then proceeded with to the troops' cafeteria to make a report to the bridge, and thence to the tank deck to meet the engine room fire party.	T0448
19. In the tank deck there was dense acrid smoke, black forward and grey aft, and it was necessary to wear BA. It was stated by that the fridge flat was wrecked and two holes in	
the ship's starboard side were clearly visible. The deck in the stern trunking was domed upwards and the bulkhead aft of the fridge	T0426
door was bellied inwards. Although there were no visible signs of fire, the tank deck over the steering flat felt warm suggesting	T1490
there might be a fire in this compartment. The fridge spaces could	T0467
not be reached from the tank deck because the door between the two	T1504
areas was buckled and immovable. The steering flat was thus	T1491
inaccessible. 20. then discussed the	
then discussed the situation in the presence of the other officers on the tank deck. It was felt that the ship had been hit twice, but nobody had heard an explosion, and only one exit hole had been found on the port	
side. There was some evidence of damage and possible fire in the	
steering flat, but access to this compartment was impossible. At	T0467
this stage, some twenty minutes after the attack, the consensus of	T1506
opinion was that an unexploded bomb was in the steering flat, and	T0467
that all personnel should be moved forward. decided not to start the tank deck spray curtain in the absence of a definite fire	T1506
in the tank deck or steering flat for fear of wetting the ammunition there, but thought that the tank deck fire hoses had been run out.	T1507
	T1508
In opinion the after tank deck spray valves in the PO's alleyway had been destroyed as he had been unable to find	T1490
them. He was also of the opinion that the fire main was inoperative,	T0481
having been told so by This was in fact	T0486-7
incorrect.	T1470
21. Between them agreed that there was	
considerable danger of the bomb in the steering flat detonating;	T0478
only considered there to be a fire in this	T1506
compartment. There was also the added danger of the ammunition scattered about the tank deck igniting or detonating. They decided	T1508
to move all personnel and BA forward to relative safety and there	11500
to reappraise the situation. The plan was to return later to deal with any fire that might be found.	T0499
22. returned to the troops' cafeteria while	
proceeded to the MCR to organize the evacuation forward. He	m1500
also shut down two of the diesel generators, leaving one to supply power for fire-fighting. He isolated the emergency generator to	T1509
prevent it cutting in automatically and depleting its fuel supply	T1515
in the event of main generator failure.	22323

moved to the bridge to make a report and recommendations to the Captain. On the way he entered the troop's cafeteria and instructed to move all personnel forward and to muster them on the vehicle deck near the foc'sle. As the Chinese moved onto the vehicle deck made a pipe from the bridge to the effect that the air raid warning had reverted from red to yellow on completion of the attack. This pipe was misinterpreted by the ship's company who anticipated a second air attack. The evacuation forward was temporarily halted as the Chinese ran back into the troop's cafeteria to take cover.	T3571 T0797 T1506 T0797
24. On the bridge found the Captain, and two Radio Officers. He reported to the Captain the extent of the damage and the possibility of an unexploded bomb in the steering flat. He advised the Captain to move personnel forward, although he had in fact already initiated this move himself. His advice was duly accepted and a pipe was made. At this stage the Captain	T0503
described to the Board that "I don't recall exactly what reports came in or what reports reached me at this stage, in fact my mind is really a blank as to what exactly came through to me at this	T0193
stage". He went on to say that he spent a lot of time "looking in horror at GALAHAD". He felt fully controlled in himself but that	T0194
"everything that happened on each occasion, as it happened, was new, completely new to me". He felt that this might have influenced	T0197
or inhibited his reactions. received	T0197
one sitrep from the MCR through the Captain about 5 minutes after the attack but thereafter there was a lack of information coming to	T0290
the Bridge so he left and went down to the MCR to try and find out what was happening; he then returned to the Bridge but did not express his opinion as to whether there had been an explosion or not. Furthermore, he gave no advice to the Captain as to whether	T0301 T0302
the ship should be abandoned or not, nor did he take any further part in subsequent events.	T0321 T0507
25. A repeat muster on the vehicle deck revealed that the Bosun was missing, the only other loss being the dead sailor on the poop deck. It was noticed that smoke was issuing from the small forward hatch, the cover of which had been dislodged during the attack. While liferafts were being prepared this smoke became denser and blacker. Initially had thought that this was due to venting of the tank deck smoke he had encountered earlier, but	
as it became denser he worried that there might be a fire forward. He knew that 36 rapier missiles and stocks of diesel and kerosene had been stored in the forward end of the tank deck. A team of RCT troops led by had earlier inserted a hose through this hatch and had played water onto the tank deck below.	T0513
descended to the tank deck but could see no evidence	T3932
of a fire, only thick black smoke. He decided to start the forward curtain spray but this had only a minor effect on curbing the smoke.	T1534
By this time the Captain, in consultation with	T0516
had taken the decision to abandon ship. He had concluded that preservation of life was paramount, investigation of the situation	T0208
in the after end of the ship being of secondary importance. He gave the order to abandon ship from the foc'sle, but some of the Chinese crew were manning the life-rafts already at this stage.	T0211

26. The evacuation from the ship proceeded smoothly and in an orderly fashion. Although many of the Chinese were dazed and shaken there was no panic. The ship was abandoned approximately forty	T0217 T0519 T1191
minutes after the attack.	

7. On their journey ashore those in the life-rafts were able to ee a hole in the starboard quarter of SIR TRISTRAM near the raterline. Flickering flames were observed in the ship through his hole from which some fine smoke was emanating. These flames and in fact been seen by officers manning the boats going across to SIR GALAHAD nearly thirty minutes before. During this time the flames and smoke had intensified.

28. Approximately ninety minutes after the first attack about four enemy aircraft passed over the two ships and the Fitzroy area, but no weapons were seen to be released by them. However, at the time of the second raid the after end of SIR TRISTRAM was seen to be burning furiously. Until this time the intention of the Captain had been to return to SIR TRISTRAM when the bomb had been defused, Trickly and the system of the fire from shore he abandoned this	T1912 A1738-9 T0227 T2794-9 T2009 T1909 T2201 T0227
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DISCUSSION

- 29. The most controversial aspect of this episode was the Captain's decision to abandon ship, since if the basic elements of fire fighting and damage control had been applied, then the damage incurred would have been little more than was sustained within the first few minutes of attack; as it was, fire developed to a small degree about 10-15 minutes after the attack but did not reach significant proportions for more than an hour.
- 30. Before considering this however, the Board had to examine the Captain's motives and thinking in sending away all the Deck Officers on his Bridge to assist in lifesaving at SIR GALAHAD. Although he knew his own ship to have been hit, Captain GREEN was astounded, horrified and mesmerised by what he saw on board SIR GALAHAD to the extent that he considered he must provide immediate assistance. He did not have a full damage report on his own ship when he sent away the deck officers but he considered that his ship was nowhere near as badly damaged and that he could do without them. There were RCT personnel he might have sent instead but they were not immediately available and time was all important if substantial assistant was to be made to SIR GALAHAD.
- 31. Once the two Deck Officers left the Bridge, the only officers (Incident Board Operator) and a Radio remaining were the Officer; both of these have little or no training in Damage Control and the latter was busy between the Bridge and Radio Office. when the Captain realised there was a dearth of information concerning the damage to his own ship, there was no one of experience remaining who could provide essential assistance, the Captain was thus left in a somewhat isolated position without the means of trained personnel immediately to hand to assist him. The consequence of this was that he had largely lost control of the situation from the Bridge.

T2901

T0640

T0976 T1912

T1198 T0640 T0976 T0988

T0194

para 24

T3507

T2901

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32. as the Ship's Damage Control	т0301
Officer, had also found there was a dearth of information reaching the Bridge and so he left with the intention of obtaining a full sitrep for the Captain and himself. This took time, and when he	T0321
returned to the Bridge, the Captain had just agreed recommendation to evacuate all personnel forward. between decks	Para 23/2
since he had been unable to go aft without a breathing apparatus and so had gone instead to the MCR for his information. The one thing did notice however was the smell of cordite which he identified from his previous experience in Armaments as coming from an explosion. If, on returning to the Bridge, he had told the Captain of his opinion that a bomb had actually exploded on board, then the course of events might have been very different and a more thorough examination of the ship instigated.	T0301 T0302
33. The Board considered therefore that once the Captain had taken the decision to send away his two Deck Officers then a train of events was set in motion which led to incomplete, or only partially correct information reaching the Captain. From this, the Board	Para 31
concluded that the Captain made an error of judgement in sending away his two Deck Officers prematurely.	
34. Turning back to the decision to abandon ship, the Board had to consider the situation as Captain GREEN understood it to be and upon which he based his decision to abandon ship:	т0501
a. There was a report of an unexploded bomb in the Steering Compartment.	
b. There was the report of a fire in the Steering Compartment.	T0198
c. There was no means of access to the Steering Compartment and thus no means of verification or counter attack.	T0202
d. Palletised ammunition above the Steering Compartment could be exploded either by the UXB or the fire.	
e. There was a further danger from kerosene and diesel fuel stowed on the Tank Deck.	Para 24
35. Captain GREEN considered that since the fire was inaccessible there was little more that could be done to prevent a further	
explosion aft and which might possibly spread rapidly through the ship; he also clearly considered here the precedents set by SIR	Para 34
LANCELOT and SIR GALAHAD when they were struck by the need to preserve	T0208
life and this view had been most graphically re-inforced by what he had seen in SIR GALAHAD. There is evidence that whilst he was on	T0664
the Bridge awaiting damage reports, his mind was numbed to a certain extent by the events which had taken place on his own ship and to a horrifying degree on SIR GALAHAD. Although he does not seem to have	T0227
given very serious consideration to leaving a fire attack group behind, he intended to return to the ship when it was safe to do so.	T0227 T0499

38.

36. The Board did investigate the Para 35 T0195-7 However, the behaviour of Captain GREEN before T0193 and after the attack was described by T2658 stated absolutely normal and rational, while

37. In considering the decision Captain GREEN took on the foc'sle to abandon ship, the Board considered that Captain GREEN placed too great an emphasis on the safety of life alone rather than the safety of life together with the safety of a ship with an operational task. That his mind was overbalanced in one direction by the events is indisputable but the Board also considered that he should have given much greater weight to the consideration of leaving a fire attack party behind to maintain a continuous patrol and watch over the ship; had he done so, the Board believes that the fire damage to SIR TRISTRAM could have been far less, if not negligible.

that he was fully aware of the situation around him.

However, the Board also had to take into account Captain GREEN's qualifications as a Merchant Navy officer where safety of life is paramount. Additionally, as an RFA Officer his training and experience did not give him the same priorities and full understanding of his task in war when compared with an RN Officer.

It is considered that the conflagration which eventually engulfed and destroyed the superstructure started as a small localised fire in the starboard aft machinery room, possibly due to ignition of hydraulic fluid from the Arkas pump. This fire, apparent to those making the journey from SIR TRISTRAM to SIR GALAHAD, between 5 and 10 minutes after the attack, should have been found and dealt with by fire parties. In fact a survey of SIR TRISTRAM on the day after the attack revealed: "that throughout the ship there was only one hose run which was on the tank deck. There was no evidence anywhere else in the ship of attempts at fire-fighting with hoses or portable equipment, as they were all still in their correct stowages".

T0640 T0976

T0538

Appendix IV

40.

T0507

T0321

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F3-9 CONFIDENTIAL

11 concerned with the lack of febolts reaching the	T0301 T0321
had been unwell for a day before the accack	T1551
with symptons of 'FLU', and he was not feeling well on the morning of the attack. He had also been receiving treatment for TINNITUS from the Medical Officer for the previous three weeks, the drugs prescribed might have led to mild drowsiness, particularly if taken in conjunction with alcohol. However, he had been instructed to take the medication at night and it is unlikely to have impaired his judgement on the afternoon of the attack.	T2620
42. It is the opinion of the Board that the medical factors outlined in para 41 are insufficient to have affected his performance after the attack. The Board further consider that made an error of judgement in not volunteering the information he had gleaned below decks, and not	
giving the Command the benefit of his specialist knowledge.	
43. The testimony given by the was assessed by the Board and certain shortcomings became apparent. He stated that when he inspected the POs accommodation on the starboard side	T0448
the could see two holes in the ships side	
through the deck. Not only was this observation not corroborated by but a subsequent survey showed that what he was describing	T1112-3
was impossible to observe. Furthermore, he described that he was	Appendix II
testimony state that the door itom	T0458
the tank deck to the fridge spaces was welded shut from the blast and there was no way of gaining access to this compartment. Their	T1138
observations were further supported by the subsequent damage survey	T1499
was invited to return to the Board in an attempt to	
explain these discrepancies. Although confronted with the facts he was unable to offer an explanation and unwilling to modify his previous testimony.	Т4127
45. testimony contained some inaccuracies and errors which called into question his reliability and competence as a witness (Paras 43/44). The evidence is that he drew incorrect	
conclusions from what he stated that he had seen and that in informing the Captain there was a fire burning, he was in error.	T0508
This information was based solely on the fact that there was smoke present on the tank deck, and that the actual deck above the steering	T0198
flat in the way of the doming felt warm to touch. No other officer on board at this time considered the presence of fire. The Board therefore believe made an error of judgement at this point and that his SITREP to the Captain was not totally correct. The	T0501
had to decide between complete evacuation	T0198
aft or leaving a few personnel to monitor events in that part of the ship, in choosing the former he made another error. Whereas the Board believe that it was a prudent measure to move non essential personnel to the forward end of the ship, it was unfortunate that	T0501

did not advise Captain GREEN to retain fire parties on board at the time of the abandonment to prevent spread of fire and subsequent damage to SIR TRISTRAM.	T0508
46. The Board has grave misgivings about the performance of the Chinese crew after the attack. With some notable exceptions they became apathetic and sat around looking dazed and bewildered. They	T0209 T0750
were slow to muster to their emergency stations and in several cases disobeyed direct orders to don firesuits or man fire attack groups. There was however no panic although there is evidence that they made their way to the life-rafts before the Captain actually	T0753 T1463 T0211
gave the order to abandon ship.	

CONCLUSION

- 47. It is concluded that:
 - a. The precise damage attributed to individual weapons cannot be stated with confidence. The damage was caused by 3 \times 5001b bombs:-
 - (i) one bomb entered 25 Tank Stbd and passed through without detonation.
 - (ii) one bomb passed across the Tank Deck entered 25 Tank port where partial detonation occurred blowing out a large plate on the port quarter and causing damage to the for'd bulkhead.
 - (iii) one bomb exploded under 25 and 26 Tanks rupturing the ships hull. It is believed this bomb also contributed to the combined effects of the other 2 bombs.
 - b. Fire damage to RFA SIR TRISTRAM could have been avoided had basic damage control and fire procedures been followed (Para 28)
 - c. The over-riding consideration in the minds of the Captain and Officers was that they had an unexploded bomb on board (para 28) which might explode at any minute.

d. (para 30)

e. The Captain acted entirely on the information given to him by and he acted solely on this advice.

carried out a reasonable search aft and discussed his findings with the 2nd Engineer before he reported to the Captain but the assessment he gave the Captain differed in that he stated there was a fire aft when there was no proper evidence to support this.

(para 45)

(para 32)

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made an error of judgement in his assessment that there was a fire burning aft.	(para	45)
h. The decision to move the Ships Company forward was correct in the circumstances but a fire party should have remained to patrol the aft part regardless of whether a UXB was present or not.	(para and 45	
j. The decision to abandon ship was premature; the Captain might not be faulted for evacuating unnecessary personnel to shore in case of further hazard but he should still have left a party on board to fight fires or deal with other consequencies.	(para 29, 30	
k. The Captain at one time intended to return to the ship at a safer stage but this never happened;	(para	29)
1.		
	(para	33)
	(para	38)
m. made an error of judgement in that he did not volunteer information he had gleaned below decks, and not giving the Command the benefit of his specialist	(para	42)
knowledge.		
	(para	36)
n. made an error of judgement in informing the Captain that there was a fire in the steering flat, to	(para	

RECOMMENDATIONS

41. It is recommended that:

- a. The Commander in Chief consider what action, if any, be taken in respect of the alleged errors of judgement by of the Captain, of RFA SIR TRISTRAM
- b. Further consideration be given to the advisability of manning RFA vessels in forward operational areas with Chinese crews.

READINESS STATE

4. <u>Damage Control</u> . It became apparent to the Captain on sailing ASCENSION IS that the peacetime Damage Control organisation in force would not cope with a warlike environment where other factors such as Air defence, weapon co-ordination and action states have to be considered. Daily Heads of Department meetings were instituted, an officer was appointed as Ship Air Defence Officer, and discussion took place. Advice was sought from the embarked Force and HM Ships in company and a modified ACTION/DC organisation was evolved. It is the opinion of the Board that the new organisation was well thought out and achieved a high degree of readiness.	G0216 G0279 G0572 G0283 G0210
5. Machinery. All the machinery was in good order and serviceable. At action stations additional generator capacity was provided. During the hours of daylight Main Engines were on immediate notice and in Bridge control, and the fire main was pressurised. Even though only one senior Engineer Officer survived the attack it is considered that the machinery and the Engineering department were at a high degree of readiness.	G0226 G0227 G0230
6. Medical. The first aid organisation was generally unsatisfactory. At the outbreak of hostilities it consisted of two teams comprising the Medical Officer and the Purser, each with Chinese stretcher bearers who were virtually untrained in first aid.	G2988 G1524
arrival of considerably strengthened the operational efficiency of the medical department, although he did not receive clear directives and was left to organise first aid parties on his own initiative. On the passage south from ASCENSION IS a Medical Squadron was embarked, and	G3001 G3002
during this time casualty evacuation procedures were exercised. However, the Squadron left the ship at SAN CARLOS, and the ships first aid organisation reverted to its former inadequate state. This fact was well demonstrated when five casualties were sustained when the ship was hit by a UXB at SAN CARLOS. On this occasion the casualties were evacuated to the ships hospital by the LMA and RCT personnel in the absence of the official first aid party. Despite	G3009
this lesson the first aid organisation was not modified,	G1530
	G1541
Morale aboard SIR GALAHAD was good throughout the campaign, and there was no evidence of stress-induced anxiety sufficient to impair operational efficiency. Neither was fatigue a significant problem, and there were no cases of excessive alcohol consumption.	G1662

TRAINING

- 7. The modified Action/Damage control organisation was tested under exercise conditions on the way south to SAN CARLOS. The frequency of safety routines and drills was increased, gun functioning trials and weapon co-ordination and control were carried out. G2185 With the exception of the medical shortcomings it is considered that the state of training of the ships company was as high as could be achieved in the timescale allowed and that SIR GALAHAD could cope adequately with most threats. This was borne out by the fact that on being hit by a UXB in SAN CARLOS the ship dealt with the incident in a competent manner.
- 8. One area of training that did give the Board cause for concern is the lack of tactical knowledge

 This was obvious when questioning individual especially on Air Defence Policy and the implementation of such policies. While all were quite clear where Air Defence information namely Air Raid Warnings would come from whilst in close company with HM Ships, in any other situation the responsibilities, capabilities and methods of communication became a very grey area.

 G0190

 G0591

G0485

9. Officers of the watch tended to rely too heavily on the Naval Tactical Rating, who whilst being the acknowledged specialists in the translation of coded signals this does not absolve the 00W from having a basic working knowledge of Tactics and the Tactical Publications.

CONCLUSION

10. It is concluded that whereas there were shortcomings in certain areas, Captain ROBERTS by his policy of involvement of others in the formulation of new plans and organisations, and the ready flow of information that existed via the daily Head of Department meetings produced a well led ships company that acted and thought of them-

RECOMMENDATIONS

11. It is recommended that:

- a. A Damage control organisation that includes an action stations state should be laid down, and this should be included and exercised during the Basic Operational Sea Training carried out by the Flag Officer Sea Training at PORTLAND.
- b. When on exercises Royal Fleet Auxiliaries should go to the action states as dictated by the tactical situation.
- c. The Captain of any RFA should undergo a tactical course at the Maritime Tactical School HMS DRYAD and that designated Captains of LSLs should have a basic knowledge of AW.

BOARD OF INQUIRY LOSS OF SIR TRISTRAM & SIR GALAHAD ANNEX G3 DATED 23 SEPT 82

ATTACK BY ARGENTINE AIRCRAFT ON RFA SIR GALAHAD AT FITZROY

ATTACK NARRATIVE

- At approximately 1710 on the 8 Jun 1982 RFA SIR GALAHAD was anchored in PORT PLEASANT SOUND 4 cables south east of the entrance to FITZROY CREEK and 3 cables east of SIR TRISTRAM. The day was G0487 G0735 fine and clear with an estimated 3 cloud cover. At this time the ship was attacked by four Argentine Skyhawks in a rough line astern formation, from evidence gathered the third aircraft released bombs three of which struck the ships side on A1709 the starboard quarter and penetrated the hull. The fourth aircraft was not seen to release any weapons but carried out a strafing run, one burst struck the bulkhead in the way of the Engineers Office. G2966 On the Bridge the OOW saw an aircraft approaching from stbd at very low level and immediately piped action stations. Two aircraft G0598 passed over the ship and the Captain arrived on the bridge, at this moment the ship shuddered and thumps were felt, almost immediately G0608 the Bridge started to fill with black smoke. G0231 when he heard an aircraft/broadcast pipe and made his way out of the Office, the next thing this officer remembers is coming to on the Upper Poop deck outside with injuries to the right arm, subsequently a G0233 piece of metal was removed from the wound. was standing by the forward end of No 2 Ramp G0388 hatch when he observed an aircraft coming from the starboard side, he saw weapons detach and one bomb appeared to go down into the tank deck, this was not to prove correct. He immediately made his way to the upper poop deck port side and opened the door adjacent to the Chief Officer's office. The inner door was smashed and G0405 black smoke poured out. All personnel who were in the Officers port alleyway remark on G1426 hearing either the sound of aircraft passing close overhead followed by thumps and a shuddering of the ship. All state that thick black G3098 acrid smoke engulfed this accommodation almost immediately; elapsed G0518 time from attack to smoke appearing varied from between instantaneously
- 7. In the galley preparation for the evening meal was in progress, and a great number of catering staff were present; most personnel in a line with the galley extension suffered severe flash burns.

to two minutes.

was in the duty mess; on	
nearing action stations made his way to his cabin. He was just short of his door on the starboard side of the Officers accommodation,	
approaching from aft when something passed in front of him causing him to be thrown back down the alleyway. He suffered flash burns	G1052
to his face. That something happened in this area is substantiated who was in his cabin at the time of the attack and had been alerted by the sound of an aircraft	G1068
passing overhead. He felt blast and was thrown across his cabin,	G1151
there was a hole in his bathroom bulkhead through which he could see flames in the Juniors cabin. Smoke started to fill his cabin and	G1161
the alleyway 2-3 minutes after the attack.	G1172
on hearing the pipe for action stations made his way to his station. On reaching the foot of the accommoda-	
tion ladder outside the military office was just about to enter the troops recreation space when a projectile passed approximately six feet in front of him. The path of this projectile was from the	G0850
ships side inboard through the engine casing; almost simultaneously	G0854
there was an explosion followed by a blinding flash, seconds later	G0856
the whole area was engulfed in thick black smoke.	G0862
was in the crew's bathroom stbd side at the upper deck level. He heard two aircraft overfly, the ship then shuddered and there was a thud, no explosion was heard. He attempted to go	G2644
forward but was prevented by a switch panel arcing. On moving aft he noticed entry points on the ship's side where weapons had penetrated then passed through an Engine Room rating's cabin across the alleyway through the ratings toilet and into the tank deck. Through the	G2652 G2657
entry points into the tank deck fire could be seen, thick black smoke was coming up the alleyway from aft.	G2661
was in A5 dormitory when action stations was sounded. He collected his gear and was at the door when the	
starboard after door to the tank deck was blown off and flames shot out. At this time the lights went out.	G2751
12. On the tank deck the PRINCE OF WALES COY of the Welsh Guards	A1453
were preparing to file out to embark in LCU F1, 9 PLATOON 3RD COT were loading nets with BERGENS and assisting the MORTAR PLATOON to move weapons and ammunition from the stern trunk under the square	A1494
where through the open hatch he noticed a cylindrical object spinning through the air passing over the hatch. He immediately gave the order "Take Cover" and dived to the forward side of a pile of	A1513
Immediately there was an explosion in the vicinity of the stern trunk and a very hot blast passed over the tops of their heads, none of these personnel were injured.	
or ruese bersonner were rularea.	

was on the tank deck, heard the order "Take Cover" and did so on the forward side of a Landrover. He heard a 'loud thud rather than a bang and then a sort of increasing burning sound and it seemed as if the temperature had gone up 50 degrees'. He then looked up and immediately suffered flash burns to face and hands. The tank deck rapidly filled with black choking smoke.	
of the weapons striking, but almost immediately the emergency lighting came on. This in the main was ineffective as it was rapidly	G1463 G1934 G1465
out of the after accommodation and engine room exhausts, fire could be seen in more than one place aft. Although only slight smoke was coming out of No 2 hold, the fire on the Tank Deck was firmly established and gaining in intensity; small arms ammunition was	G0174
beginning to explode on the tank deck. There was no reply from the	G0168
cafeteria, he heard someone inside shouting for help. He entered the cafeteria which was full of thick smoke and encountered wreckage. He only managed to get a short distance into this compartment before he was forced by the smoke to withdraw. He searched for a breathing apparatus in vain, the person inside was still calling for help, and with complete disregard for his own personal safety re-entered	G0530 G0536
the cafeteria, found a soldier who was injured and badly burnt and carried him to safety.	
after sighting the initial flash from the tank deck, took charge of soldiers who were appearing from the tank deck, led them forward and up to the shade deck. then on his own initiative went below, entered the tank deck by the forward starboard	G2761
door. He directed confused soldiers to safety and then made his way to the after end of the tank deck and led some more soldiers out of	G2764
the starboard aft access. The state of the tank deck at this time	G2770
was a small fire port side midships possibly caused by small arms	G2768
and Bergens. There was an intense fierce fire in the stern trunk and the space was filling with smoke. It is estimated that between 8-10 minutes had elapsed. Having led the soldiers from the after end of the tank deck to safety he assisted in getting liferafts	G2774
the same route as before. The smoke by this time was very dense, he ran the length of the compartment, found more injured soldiers and evacuated them through the after starboard door. The fire in	G2782
the stern trunk by this time had grown in intensity and the heat	G2795
was unbearable. This was approximately 15 minutes after the attack.	G2783

had been standing by No 2 ramp hatch at the time of the attack. He took cover until all aircraft had passed and made his way aft where he found outside the port entrance to the cafeteria lobby. This rating had a head	G3258 G3271
injury thought to have been caused by striking the door frame as the blast threw him out on deck. took the injured and left him in the vicinity of No 4 lifeboat which was being prepared for launching. He then assisted in launching the liferafts that	G3300
were on the flight deck, at this time ammunition for the GPMGs on the monkey island was cooking off and exploding. He went back down to the upper poop deck, where a Chinese rating told him that there were people in the stern trunk banging on the door which leads into	G3302
the access by the Bonded store. and the Chinese rating went via the poop deck down two decks through smoke and darkness and reached the door into the stern trunk. They succeeded in knocking off the clips and led 3 or 4 soldiers to safety.	G3306

19. By this time the abandonment of GALAHAD was well underway, 16th Field Ambulance medics were treating the injured and was organising that injured personnel were winched into helicopters and the uninjured to climb down into the liferafts and SIR TRISTRAM's lifeboat which had arrived. The LCU Fl which was alongside to port had already loaded a great many of the burns casualties and other personnel made their way ashore picking up liferafts on the way. No 4 lifeboat was launched, this was the only one accessible due to smoke and flames from the funnel area.

20. At approximately 1750 all known live survivors had been evacuated from SIR GALAHAD and Captain ROBERTS left his ship for the GO254 final time.

KNOWN WEAPON DAMAGE

21. There are 3 weapon entry points on the starboard aft side approximately 460 mm in diameter. These holes are consistent with the passage of a standard 500 lb bomb through a ship's side plating.

22. Weapon (1) entered the ship's side between frames 13/14 on the upper deck level approximately 6'6" above that deck, passed through an ER rating's cabin, across the passageway through both bulkheads of the ER ratings lavatory and into stern trunk.

23. Weapon (2) entered ship's side between frames 15/16 on the upper deck level approximately 5' above that deck and followed same route as weapon (1) in para 22. Both weapon (1) and (2) were on a descending trajectory and dropped 2'6" to 3' from entry point at ship's side to the point of passage through the bulkhead into the stern trunk.

24. Weapon (3) entered the ship's side at frame 20 in the way of the military office almost at deck level. It was deflected forward through the bulkhead of the troops recreation space, across the after inboard corner and penetrated the engine casing.

G2657

G2660

G2657

See photos

page G3-8

See photo page G3-8 G0852

25. The screen bulkhead of the Engineers Office/Second Engineers cabin is pierced by a line of holes consistent in size with 30 mm cannon.	See photo page G3-11
26. One exit hole in port side at approximately frame 28. Hole was of irregular shape roughly 18" x 2' with jagged edges protruding	G1868 G1967
out from ship's side. There is some confusion as to the exact height of the hole but it must be assumed that the GALAHADs officers who observed it would have a better knowledge of the ship. From this premise it was concluded to be at Upper Deck level exiting through a Steward's cabin.	G3327
OTHER KNOWN DAMAGE	
27. Junior Engineer cabin 150 upper poop deck. Flash/structural damage/Fire.	G1073 G1161
	G1206
28. Engineers Office area upper poop deck. Structural damage/	G1192
metal fragments.	G3236
This damage consistent with cannon associated effects.	
29. Poop deck in way of Warrant Officers lavatory port side. Structural damage/Blast/Injuries.	G2138 G3350
30. Troops cafeteria. Flash/Structural damage/casualties/Fire.	G0530 G0781
31. Upper deck forward door to Steward's alleyway damaged and impassable. Fire visible beyond door.	G0785
32. Military Officers accommodation, blast internally causing	G1587
Wardroom door and starboard after door to open violently. One	A1193
casualty and later fire.	G2808
33. Galley area, due to numerous flash burns that were suffered by	G3180
Chinese and other personnel in this vicinity, and possible fatality	G1469
ofon stairway leading to Purser's office cross alleyway, severe flash occurred in this area.	G1010
SMOKE	
The state of the s	

34. As testified Head of the Fire Research Station, BOREHAM WOOD from detailed study of video tape of incident, there appear to be three distinct and separate types of smoke:

a. Thick black smoke consistent with burning Diesel fuel issuing from Engine Room exhaust and Funnel area.

See

Appendix I

- b. Dark greyish smoke from after end of poop consistent with burning material normally expected within accommodation.
- c. Lightish grey smoke issuing from No 2 ramp hatch consistent with burning ammunition and stores in the tank deck.

FACTORS TO BE CONSIDERED

- 35. Identified weapon entry points are 3 \times 500 lb bombs. Cannon penetration of bulkhead in way of Engineers Office.
- 36. Expert testimony has concluded that none of the bombs detonated S as damage and casualties sustained were not of sufficient magnitude. A

See Appendix II

37. SIR GALAHAD herself had been struck prior to this attack by an UXB as had another ship of the same class. No two UXBs behaved in the same way. The path they traced through compartments within the ships was completely unpredictable. In neither ship had UXBs caused a resulting fire.

G0205

See

38. There was instant black smoke which spread rapidly throughout the accommodation and an intense fire within the funnel. Expert opinion is that diesel fuel was the most likely source of the above phenomena. The only quantity of diesel fuel high up in the ship is the 500 gallon header tank for the generators in the port side of the Engine room between frames 25/27 at poop deck level, directly adjacent to the galley extension.

Appendix I

39. An instant fireball/intense fire front sweeping down the stern trunk forward into the tank deck.

A1513

G0244

- 40. No medical evidence of personnel suffering from ear or lung damage consistent with blast associated with detonation, this supports para 36.
- 41. Nothing within the stores on the tank deck at the time was likely A1437 to have caused the intense Fire front, either by sympathetic detonation or ignition in the timescale involved.
- 42. Numerous small fires and areas of damage were caused throughout the ship with no apparent weapon penetration.

DISCUSSION

- 43. It is almost certain that there were two major sources of fire and smoke production.
- 44. The thick black smoke and intense fire in the funnel was probably caused by weapon (3) in its passage through the ship, rupturing the 500 gallon diesel header tank and spraying its contents in all directions within the engine room. The dispersed fuel wss immediately ignited either by heat generated by the kinetic energy of the bomb or by some other igniter in the vicinity, eg generator or boiler uptakes. The finely dispersed ignited diesel fuel would produce a flash and a fire front as the gases expanded and attempted to escape to atmosphere. If it is assumed that weapon (3) did breach this tank, its path would have had to take it through the bulkheads of the galley extension, thus creating a ready made exit for the

para 33

ignited gases to vent through creating a flash and fire front both forward and aft along the galley extension. This would explain the high number of flash burns to personnel in the galley area and indeed the troops cafeteria.

see plan Annex G6

45. The other major fire and area of casualties was the tank deck. Supported by expert testimony it is the Board's opinion that either or both bomb (1) and (2) during their passage through the ship and into the stern trunk had their casings pierced and a condition known as deflagration occurred.

Appendix II

46. Deflagration is entirely different to detonation in that it is the rapid burning of the explosive, that leads to the evolution of gas at much lower overpressures than those caused by detonation. The typical effects of deflagration are the rapid production of gas, some of which is incompletely burnt. This means that the gases expand in all directions carrying forward a flame front or fireball and hot unburnt gases away from the epicentre. Where unburnt gases meet a plentiful oxygen supply, reignition occurs forming fireballs along the routes of the escaping gas. The movement of the gas with an associated movement of air in front of it, plus the movement caused by convexion around the fireball creates an apparent wave of hot air to travel through the ship. After the initial propagation of the fireball, the main source of heat is exhausted leaving isolated fires. The temperature of the air space then drops, with a consequential decrease in volume of air/gas contained, therefore large volumes of air are drawn into the ship. As fires gain a hold, air is drawn into the ship to feed oxygen to the fire. This forced movement of large volumes of air would be a major contributor to the fast appearance of smoke throughout the ship.

Appendix II

47. The production of a wave of hot air in deflagration rather than the blast effect of detonation explains the large number of witnesses who described a shock wave passing them but who suffered no ear/lung damage or indeed the lack of material destruction on a large scale. It would further explain isolated fires started in other areas of the ship. The intense flame front would almost certainly have ignited stores stowed on the tank deck and thus the cooking off of the various ammunition that occurred later.

para 40

48. It is considered that the damage that was reported in the area of the Engineers office is commensurate with HE cannon damage and could explain the one injured and two fatalities in this vicinity.

para 28 Appendix II

49. The damage reported in the Troops cafeteria and WO toilet is commensurate with smaller weapons ie cannon although no weapon entry points can be identified to substantiate this.

para 29, 30

50. The board can offer no reasonable explanation as to what caused the damage to the Junior Engineers cabin 150 on the upper poop deck, unless it was a by product of the deflagration of the bomb.

para 27 Appendix II

COMMAND AND LAND FORCES TRANSCRIPTS

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