

PREM 19 / 1689

42985

Confidential filing

Future lightweight Torpedo - Stingray

Development of Heavyweight Torpedo

Development of Torpedos.

DEFENCE

July 1979

Referred to	Date	Referred to	Date	Referred to	Date	Referred to	Date
23.7.79							
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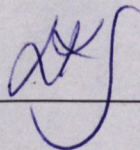
Attached shld be
the Defense Committee
3rd Report on
the Sting Ray Lightweight
Torpedos r.

Published Papers

The following published paper(s) enclosed on this file have been removed and destroyed. Copies may be found elsewhere in The National Archives.

House of Commons Paper 218
Third Report from the Defence Committee
Session 1980-81
The String Ray Lightweight Torpedo
Together with the Minutes of Proceedings of the Committee
relating to the Report; and part of the Minutes of Evidence taken
on 10 and 17 March
Published by HMSO , *23 June 1981*

Signed



Date

26/09/2014

PREM Records Team

PERSONAL

FILE
DA



10 DOWNING STREET
LONDON SW1A 2AA

From the Private Secretary

23 December 1986

The Prime Minister has asked me to thank you for sending her a copy of the letter from the C-in-C Fleet about the TIGERFISH torpedo and to say that she is delighted for GEC.

(Charles Powell)

The Lord Weinstock

PERSONAL

DA

Personal

Prime Minister (2)

THE GENERAL ELECTRIC COMPANY, p.l.c.

1 STANHOPE GATE · LONDON W1A 1EH

01-493 8484

CDP

22 December, 1986

Dear Margaret,

The C-in-C Fleet has said I
may send you a copy of a letter he wrote
me last week. I'm sure you will want to
see it in view of the interest you took in
torpedoes.

Seasonal greetings to you both,
and a happy, and peaceful, New Year.

Excellent - delighted
for G.B.C.
Amal

PERSONAL and PRIVATE
From: ADMIRAL SIR NICHOLAS HUNT, KCB, LVO



COMMANDER-IN-CHIEF FLEET
NORTHWOOD, MIDDLESEX
HA6 3HP

Telephone: Northwood 26161 Ext. 488

C.24

The Lord Weinstock
Managing Director General Electric Co Ltd
7 Grosvenor Square
London W1

15 December 1986

Dear Lord Weinstock,

I was briefed this morning, by Dick Heaslip and the Submariners, on the 1986 achievements of the new TIGERFISH torpedo.

The technology inject that has made it into the MOD 2 - you might almost have chosen a new name - has been wholly successful. In an unprecedented number of 108 firings from operational submarines this year the success rate has risen dramatically, to twice the earlier MOD 1 levels against other submarines and to three times against surface ships.

The very tight programme of converting the submarine fleet to the new weapon, and of converting the torpedos themselves for MOD 1 to MOD 2, is on time despite the difficulties encountered; so your producers have done as well as your designers and trials teams.

Torpedos - really underwater guided missiles - are at the leading edge of military technology. I thought I should tell you how pleased the Fleet is with the TIGERFISH MOD 2 and ask you to pass on our congratulations to Marconi Underwater Systems Limited.

*Yours sincerely,
Nicholas Hunt*

PERSONAL and PRIVATE



MINISTRY OF DEFENCE

MAIN BUILDING WHITEHALL LONDON SW1A 2HB

Telephone 01-~~930 7022~~ 218 2111/3

MO 26/3V

3rd January 1986

Dear Charles,

CDP
241

TORPEDO ORDERS

I understand that you asked for some briefing on the main production order for Sting Ray advanced lightweight torpedoes that was made today by Mr Lamont.

/ I attach a copy of the press release which we have issued
/ Answer material prepared in response to questions on the order
itself, and on the recent Report by the Public Accounts
Committee which was characterised in the press as being critical
of our torpedo procurement policy. Please let me know if the
Prime Minister would like any further background information.

Yours ever,
Denis

(D BRENNAN)
Private Secretary

Charles Powell Esq
No 10 Downing Street



MINISTRY OF DEFENCE

ROYAL NAVY NEWS RELEASE

Issued by: Public Relations (Royal Navy), Ministry of Defence, Main Building, Whitehall, London SW1A 2HB. 01-218 3257/8.

1/86

3rd January 1986

SUBMARINE AND WEAPON ORDERS VALUED AT NEARLY £1,000 MILLION PLACED BY MINISTRY OF DEFENCE

The Minister of State for Defence Procurement, Mr Norman Lamont, today announced three orders for submarine and weapons with a total value approaching £1,000 million.

Commenting on the orders, Mr Lamont said: "These three major orders, together with others to be placed later this year, show the Government's commitment to providing the Armed Forces with the most modern equipment to see service through into the early years of the 21st century."

Three diesel-electric submarines of the Upholder class have been ordered from Cammell Laird Shipbuilders of Birkenhead, a subsidiary of Vickers Shipbuilding & Engineering Ltd. The order follows a competitive tendering exercise. The total value of the contract, including the weapons, will be approximately £300 million.

A seventh Trafalgar class nuclear-powered Fleet submarine, to be called HMS Triumph, has been ordered from Vickers Shipbuilding & Engineering Ltd of Barrow in Furness. The value of this order, including weapons and associated equipment, is in excess of £200 million.

A contract for the manufacture of more than 2,000 Sting Ray advanced lightweight torpedoes has been placed with Marconi Underwater Systems Ltd. This contract is worth around £400 million.

NOTE TO EDITOR Further details on the contracts are attached.

ORDER FOR THREE DIESEL-ELECTRIC SUBMARINES

Mr Norman Lamont, the Minister of State for Defence Procurement, has announced that orders for three diesel-electric submarines of the Upholder class have been placed with Cammell Laird Shipbuilders of Birkenhead, a subsidiary of Vickers Shipbuilding & Engineering Ltd.

The order, for the second, third and fourth vessels in the class, follows a competitive tendering exercise. Work on the second vessel in the class will begin this month; the third and fourth will follow over the next three years.

The three submarines, including weapons, will cost approximately £300 million.

The Upholder class submarines are intended primarily for operations on the Continental shelf, although they also have a full ocean-going capability. They can undertake tasks such as minelaying and patrols in constricted waters unsuited for the operation of nuclear-powered boats. Like nuclear submarines they have the capability to detect and destroy enemy submarines and surface ships.

HMS Upholder, the first of class, is now under construction at the Vickers yard at Barrow in Furness. Cammell Laird is now a Vickers Group subsidiary and it is likely that the majority of work on the three new submarines will be undertaken at Birkenhead, with the remainder at Barrow.

Commenting on the order Mr Norman Lamont, the Minister of State for Defence Procurement said: "The order has been won by Cammell Laird in the light of strong competition from two other yards. Although we are aware of the importance of the order for local employment of this decision, each of the shipyards that tendered is in high unemployment areas and the winning bid is the most competitive. To have split the order would have resulted in substantial extra cost.

"The overall cost will be some £20 million below the figure which my Department was expecting to have to pay for these submarines - about one half due to competition and one half to batch ordering. It is a clear example of the success we are having

with the Government's new policies for Defence procurement. We have therefore decided to award the contract to Cammell Laird as the cheapest solution from the Defence point of view and to take advantage of the benefits of competition.

"The Government has also decided, subject to the negotiation of satisfactory terms and conditions, to place orders with Scott Lithgow for a range mooring vessel later this year followed by two lighters. Scott Lithgow will also be invited to bid for refit work and to compete for steel work for Trident submarines as a sub-contract from Vickers Shipbuilding and Engineering Ltd."

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NUCLEAR-POWERED FLEET SUBMARINE

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The value of this order, including weapons and other equipment, is in excess of £200 million.

The submarine, to be called HMS Triumph, will be the 19th Fleet submarine to enter service with the Royal Navy; it is planned that she will join the Fleet in the early 1990s.

Commenting on the order, Mr Lamont said: "Trafalgar class submarines are probably the most potent anti-submarine weapons in service today. Their ability to operate quietly at great depths enables them to hunt, and if necessary destroy, enemy submarines and surface ships."

As with previous nuclear submarines, Messrs Rolls Royce and Associates will have special responsibility for design and manufacture of the nuclear reactor plant equipment.

The first three Trafalgar class vessels - HM submarines Trafalgar, Turbulent and Tireless - are in service with the Royal Navy. HMS Torbay was launched in March 1985 and two more submarines (HMS Trenchant and HMS Talent) are under construction at the Vickers yard at Barrow in Furness.

MAIN PRODUCTION ORDER FOR STING RAY
ADVANCED LIGHTWEIGHT TORPEDOES

Mr Norman Lamont, the Minister of State for Defence Procurement, today announced that an order had been placed with Marconi Underwater Systems Ltd for the manufacture of more than 2,000 Sting Ray advanced lightweight torpedoes.

The contract is worth approximately £400 million and delivery will extend over several years. Marconi has accepted that payment will be made by the Ministry on delivery of complete and tested torpedoes.

This order was foreseen in the Treasury Minute (Command 9696) replying to the Report of the Public Accounts Committee (28th Report 84/85) on the torpedo programme.

Sting Ray, designed to replace Mk 44 and Mk 46 torpedoes, is the first of a new generation of software-controlled "intelligent" torpedoes.

Mr Lamont said: "Sting Ray is the most advanced torpedo in the world. It has been designed to counter the threat posed by the latest Soviet submarines with the higher speeds and improved capabilities of the 1980s and 1990s."

Sting Ray is extremely robust and is capable of being launched from fixed-wing aircraft, helicopters and surface ships. By virtue of its speed, manoeuvrability and deep-diving capability, as well as its ability to operate in shallow water, the torpedo can engage a wide range of targets.

Sting Ray entered service with the Royal Navy and the Royal Air Force in September 1983; it has already been bought by Egypt and Thailand. Overseas sales prospects are good and negotiations are currently underway with a number of other countries.

1/86
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The three submarines, including weapons, will cost approximately £300 million.

The Upholder class submarines are intended primarily for operations on the Continental shelf, although they also have a full ocean-going capability. They can undertake tasks such as minelaying and patrols in constricted waters unsuited for the operation of nuclear-powered boats. Like nuclear submarines they have the capability to detect and destroy enemy submarines and surface ships.

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CONFIDENTIAL UNTIL RELEASED

SSKs 02-04

Q1. Was the order the result of competition?

A1. Yes. Other yards invited to tender were Scott Lithgow and Yarrow Shipbuilders.

Q2. What was the degree of difference between the bids?

A2. This is commercial in confidence information. Vickers/Cammell Laird were however clear winners.

Q3. Scott Lithgow's possible claim that insufficient data was made available by the MOD as a basis for tendering?

A3. Three rounds of tendering were involved. Scott Lithgow's objections were made at a very late stage and only after the 3rd round. We are content that a reasonable basis for tendering was applied.

Q4. What is the value of the order?

A4. Precise costs are commercial in confidence. A rough estimate of the total value of an SSK is £100m at today's prices.

Q5. How many more SSKs will be ordered?

A5. It is not our practice to reveal the planned size of our classes.

Q6. General characteristics?

A6. The new boats are as yet unnamed. General statistics of the Type 2400 are as follows:

Length: 70 metres
Pressure hull diameter: 7.5 metres
Submerged displacement: 2,400 tonnes
Diving depth: in excess of 200 metres
Max speed: about 20 knots
Complement: 44
Torpedo tubes: 6, with reloads.

Q7. Other MOD work at Cammell Laird?

A7. Type 22-13 frigate (HMS Campbeltown) was ordered from Cammell Laird in January 1985

Q8. Employment considerations?

A8. We are, of course, mindful of employment considerations, but each of the shipyards that tendered are in high unemployment areas. The order has been placed on the basis of price.

CONFIDENTIAL UNTIL RELEASED

CONFIDENTIAL UNTIL RELEASED

Q9. Where will the work be carried out?

A9. Construction of 02 will commence at Birkenhead with some of the work to be carried out at Barrow (such as specialist steel work).

AH1/SSK

CONFIDENTIAL UNTIL RELEASED

SUPPLEMENTARY QUESTIONS AND ANSWERS ON SCOTT LITHGOW ASPECT

Q10. What are the costs involved?
(Scott Lithgow and Yarrows
were the other bidders).

A10. Precise costs are commercially
confidential but as I said
Cammell Laird was the clear winner
and we are pleased with this
example of the success of the
Government's policy on
competitive procurement.

Q11. Will this mean that the Scott
Lithgow yard will have to
close?

A11. This is a matter for Trafalgar
House. Scott Lithgow will
continue to be invited to
tender for other MOD new
construction and refit work
(they are among those firms
at present invited to tender
for the refit of RFA REGENT)
and we very much hope that
they will be sufficiently
competitive to be able to win
future orders. They will also
have the opportunity to bid for
submarine steelwork sub-contracted
from -

Q12. Scott Lithgow has complained
that the competition was
unfair?

A12. This is not the case.

The matter was looked into
in considerable detail and,
in fact, the information pack
provided with the invitation
to tender conformed to the
typical package used to support
tenders for early follow-on
warship orders.

Some 800 drawings were provided
with the package, sufficient for
tendering purposes although some
12,000 working engineering
drawings were not part of the
package. Scott Lithgow were,
however, fully aware of the
conditions of tendering and only
made this complaint after the
third round of tendering and
after "best and final" offers
had been submitted.

It could, however, be agreed that
the lead shipbuilder has an
advantage over the prospective
follow-on shipyards due to the
design expertise it has built
up in developing the first of
class vessel.

Q13. Is work being placed with Cammell Laird to assist in their privatisation?

A13. No, Cammell Laird was the clear winner in a competitive exercise.

Q14. What is the value of the work being placed with SL?

A14. This remains to be negotiated, but is likely to be in the region of £10 M (round figures).

OTHER NAVAL ORDERS

DD/FFE

Destroyers / Frigates

During 1985 we have ordered the last two Type 22 Frigates (13 and 14- HMSs CAMPBELTOWN and CHEATHAM) and we have also accepted into service the last three Type 42 Destroyers (HMSs EDINBURGH, GLOUCESTER and YORK). Type 22s 07 to 12 are in various stages of construction (07,08 and 11 at YSL, 09 and 10 at SHS). 07 is due to be accepted towards the end of next month.

C.L.
S.H.

TYPE 23

The Type 23 is to form the backbone of the programme for the replacement of the Navy's Destroyers and Frigates. We have invited tenders for the first follow-on vessels of this class. Subject to agreement on price and other contract terms, we intend to order 23-02 from Swan Hunters. Competitive tenders have been invited for 23-03 and 23-04 with the option included for a larger batch. No decisions have yet been taken on the timing and number of ships to be ordered.

The first of class, HMS NORFOLK, was ordered from Yarrow Shipbuilders in October 1984. Launch is planned for 1987 with acceptance taking place some two years later.

MCMVs

Following competition orders were placed with Vosper Thornycroft in June this year for MCMVs 12 and 13. We do not expect to order any more MCMVs. (One other MCMV is currently under construction at VT, due to be accepted next month)

BRME

HMS SANDOWN the first of class was ordered from Vosper Thornycroft in August this year. Follow-on orders are not expected for some time. [It is normal to have a gap between the First of Class and follow-on vessels to enable the design to be sufficiently developed].

AOR

Tenders have been received for the design and build of the first two "one-stop" Auxiliary Oiler Replenishment Vessels and are currently being evaluated. Two

shipyards have tendered for the design and build package whilst one has tendered for 02 only, to one of the other shipyard's design. No decisions have yet been made on the size and timing of orders.

SSKs

The order for the first of class, HMS UPHOLDER, was placed with Vickers Shipbuilding at Barrow in November 1983.

SSNs

The order for SSN19, the seventh SSN of the TRAFALGAR Class is the last SSN to be ordered until the TRIDENT build programme is well underway. SSNs 16 to 18 are currently in various stages of construction at Vickers Barrow.

SSBNs

We hope to be able to place the order for SSBN-05, the first TRIDENT boat, in the near future. (Supplementary Qs and As on SSBN 05 contract attached)

OPVIII

I have nothing to add to the statement made by my Rt Hon Friend [the previous Minister DP] on 13 June. OPVIII was considered but did not secure a place in the programme and we have no plans to proceed any further with this proposal.

(Attached)

Why other work for SL?

Subject to satisfactory terms and conditions, the placing of other work with SL will be authorised because of wider and relevant factors.

Floating Docks

Scott Lithgow declined to tender for the refit of Floating Dock 59 (AFD 59) and this contract was let in November. AFD 60 (ie Rosyth) has an annual maintenance each August at a cost of about £350K and Scott Lithgow will be invited to tender for this work. (Scott Lithgow also declined to tender for this work in 1985).

EXTRACTS FROM 'HANSARD'

12 JUNE - 4 of 8

Mr. Beattie: No, that offshore patrol vessel is a subject that the Royal Navy is examining. It has been having conversations with industry. It may or may not wish to make a bid for the work to pay for it. At the moment, no such cash provision has been made available. In any case, the appraisal of such a project would have to go through the capital evaluation processes of the Ministry of Defence. That has not happened, and there is no way in which I have approved that the programme shall proceed. But it is perfectly healthy and reasonable that individual parts of the Ministry of Defence should have dialogue with industry about what possibilities may exist.

13 JUNE - Minister (DP)

My hon. Friend the Member for Aberdeen, South (Mr. Malone) raised the subject of the OPV 3 in yesterday's debate. When firms were invited to submit their ideas for an enhanced OPV-type vessel within a cost bracket of £25 million to £25 million it was made clear that this was without any commitment by the Ministry of Defence to proceed. We have looked at the proposals put forward, and those by two firms — Hill Russell and Vosper Thornycroft — are judged to have the potential for providing a vessel of the type specified which would offer good value for money. We think it right to tell the hon. the results of the evaluation, and this is now being done. It remains the case, however, that the OPV 3 has not secured a place in the forward defence programme when set against competing priorities for the Royal Navy and for the other services.

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CONFIDENTIAL UNTIL RELEASED

SSN: HMS TRIUMPH

Q AND A BRIEF

- Q1. Was the order the result of competition?
- A1. No. Vickers is the only UK yard with the current capability of building SSNs. They are also involved with the design of our SSNs and SSBNs. Vickers, however, will be seeking competitive bids for certain equipments and material.
- Q2. Will any other yard be developed to permit SSN construction?
- A2. That is a matter for the shipbuilding industry.
- Q3. What is the value of the order?
- A3. Precise costs are commercially confidential. A rough estimate of the total value of an SSN is of the order of £200m at today's prices.
- Q4. How many more SSNs will be ordered?
- A4. It is not our practice to reveal the planned size of our classes, but further SSN orders are not envisaged until the SSBN programme is well underway.
- Q5. Have VSEL been invited to tender for any more SSNs?
- A5. Not at present, but negotiations are in progress for the contract for the first Trident SSBN.
- Q6. What are SSN 19s' general characteristics?
- A6. Similar to the other submarines of the Trafalgar class. Displacement is over 5,000 tonnes, length is 85 metres and the complement will be around 100. They carry Tigerfish and Sub-Harpoon and will carry Spearfish weapons.

/ Q7. ...

CONFIDENTIAL UNTIL RELEASED

CONFIDENTIAL UNTIL RELEASED

Q7.
Characteristics of particular note (propulsion, sonar, etc.)?

A7.
Propulsion will be through geared steam turbines powered from a nuclear reactor. The submarine will be equipped with a modern air purification system which will enable her to undertake long patrols without needing to surface.

Q8.
How long will she be able to stay submerged?

A8.
It is not our practise to reveal planned endurance. You will be aware, however, of patrols in excess of 100 days having been performed by our SSNs.

Q9.
Will the building of SSN19 be affected by the TRIDENT programme?

A9.
No.

Q10.
Will / Has the TRIDENT programme be / been affected by the build programme of SSN19?

A10.
The two build programmes are inevitably interrelated, and have been designed to reflect this.

Q11.
How will the privatisation of VSEL affect the build programme?

A11.
We are confident that the privatisation of VSEL will have no adverse affect on the MoD's submarine orders.

Q12.
What about the recent adverse comments by the PAC on productivity at VSEL?

A12.
Significant improvements in manhours over previous SSN contracts have been negotiated which take account of expected improvements in productivity, experience gained from building earlier "Trafalgar" SSNs and the benefits expected to be derived from the new Submarine Facilities Project (SFP). The MoD continues to insist on improvements wherever this is possible.

CONFIDENTIAL UNTIL RELEASED

CONFIDENTIAL UNTIL RELEASED

Q13. Other MOD work at VSEL?

A13. SSN 15 was accepted from the shipbuilder on 30th October 1985. Three other SSNs (16 to 18) are currently under construction. The first of the UPHOLDER class SSK submarine (diesel powered) is also under construction at Barrow. (Cammell Laird became part of the Vickers Group earlier this year). Vickers/Cammell Laird are one of the firms that have been invited to take part in the competition for Type 23 O3 and O4. With MOD assistance, Vickers/Cammell Laird are actively pursuing prospects for the sale of SSKs overseas (eg Canada).

CONFIDENTIAL UNTIL RELEASED

SUPPLEMENTARY Q AND A# ON SSEE 05 CONTRACT

YOU SAID THAT THE ORDER FOR THE FIRST TRIDENT SUBMARINE WOULD BE PLACED BY THE END OF 1985. WHY THE DELAY?

Tender negotiations are still taking place and it is hoped that these will be concluded in the near future. It is not yet possible to be precise about the order date.

WHAT ARE THE DIFFICULTIES?

In line with normal practice, the specific nature of the contract negotiations is confidential between the Department and VSEL.

DOES THIS MEAN THAT THE BUILD WILL BE DELAYED?

No, the submarine detailed design and early production are progressing satisfactorily under long lead funding arrangements.

MAIN PRODUCTION ORDER FOR STING RAY
ADVANCED LIGHTWEIGHT TORPEDOES

Mr Norman Lamont, the Minister of State for Defence Procurement, today announced that an order had been placed with Marconi Underwater Systems Ltd for the manufacture of more than 2,000 Sting Ray advanced lightweight torpedoes.

The contract is worth approximately £400 million and delivery will extend over several years. Marconi has accepted that payment will be made by the Ministry on delivery of complete and tested torpedoes.

This order was foreseen in the Treasury Minute (Command 9696) replying to the Report of the Public Accounts Committee (28th Report 84/85) on the torpedo programme.

Sting Ray, designed to replace Mk 44 and Mk 46 torpedoes, is the first of a new generation of software-controlled "intelligent" torpedoes.

Mr Lamont said: "Sting Ray is the most advanced torpedo in the world. It has been designed to counter the threat posed by the latest Soviet submarines with the higher speeds and improved capabilities of the 1980s and 1990s."

Sting Ray is extremely robust and is capable of being launched from fixed-wing aircraft, helicopters and surface ships. By virtue of its speed, manoeuvrability and deep-diving capability, as well as its ability to operate in shallow water, the torpedo can engage a wide range of targets.

Sting Ray entered service with the Royal Navy and the Royal Air Force in September 1983; it has already been bought by Egypt and Thailand. Overseas sales prospects are good and negotiations are currently underway with a number of other countries.

RESTRICTED (until Press Release is issued)

COMMERCIAL IN CONFIDENCE

STINGRAY

1st and 25

DLU + 604 torpedoes.

Q1. Why such a large order?

A1. In order to obtain best value for money and the lowest possible UPC.

Q2. Is this the total MOD requirement for Stingray?

A2. For reasons of security, it is not the practice to reveal the precise numbers of torpedoes planned for the Royal Navy.

Q3. Competition?

a. at prime contractor level?

A3. Marconi Underwater Systems Limited are the Design Authority for Stingray and competition at prime contractor level for this production order proved impracticable because of the high level of design expertise needed to support the prime contractor's tasks of weapon assembly, integration and test. However, these activities represent only 10% of the total contract value.

b. at sub-contractor level?

By far the greater part of the value of the contract is for bought-out components. Most of these components will be purchased as a result of competitions conducted by Marconi. MOD monitor the conduct of the competitions.

Q4. Type of contract?

A4. The contract is fixed price.

Q5. Why the special comment on payment arrangements?

A5. Previous contracts of this type have involved payments on a progress basis, which does not always generate a significant financial incentive to deliver completed weapons of satisfactory quality. The main production element of the Stingray contract does not therefore provide for any payments except for weapons which have been completed and tested.

RESTRICTED (until Press Release is issued)

COMMERCIAL IN CONFIDENCE

LOOSE MINUTE

D/SSC/DRP (WE) /900430

2 January 1986

~~MINISTER (DP)?~~

Copy to:

A/Sec CofN

CPR

DRP (WE)

DRP (W)

DPO(N) (Mr Hill)

STINGRAY MPO ANNOUNCEMENT, MINISTER(DP) PRESS CONFERENCE

3 JANUARY 1986

In response to Minister(DP)'s request this morning I attach supplementary Q&A material on the PAC Report on the Torpedo Programme and the Treasury Minute.

J. R. Hughes

J R HUGHES
DRP (WE) Sec
BB 406 230 BB

Q1. When was the PAC Report published?

A1. 12 September 1985.

Q2. And the Government's response?

A2. This was published on 18 December in the form of a Treasury Minute - Cmmd 9696.

Q3. PAC complained that poor value for money has been obtained in the past from torpedo programmes?

A3. Position has now improved - Sting Ray entered service in 1983; Spearfish development is subject to the discipline of a fixed price contract; and Tigerfish reliability has improved - the whole system is under control of a single MOD authority and a single contractor, MUSL.

Q4. Resources allocated to Tigerfish and Spearfish being kept under close review?

A4. Yes. The production programme for Spearfish will be subject to adjustment to ensure funding for Tigerfish is curtailed at as early a date as practicable.

Q5. PAC expressed concern that management of the torpedo programme is still not settled; and MOD do not yet have adequate cost information.

A5. Under the Tigerfish Consolidation Programme, MUSL act as prime contractor for the Tigerfish weapon system. This arrangement is being examined to see whether a similar arrangement should be introduced for Spearfish (which is already managed for all systems aspects by a single MOD project team). Decisions have yet to be taken.

It would not be possible to introduce full weapon system management for Sting Ray because there are already prime contractors for the separate aircraft, helicopters and ship launch platforms.

ADP has been introduced within MOD to improve financial management and extensive use is made of ADP in monitoring progress on the projects.

Q6. PAC stated that in the past the contractor appeared not to have suffered any financial penalties. Is value for money now being obtained for torpedo procurement?

A6. The statement by the Committee that in the past the contractors appeared not to have suffered any financial penalties relates to the 1970s.

The joint Sting Ray and Spearfish development contract of 1981 is fixed price and thus provides incentives to the contractor to perform efficiently. The Tigerfish consolidation programme contract of 1984 is also fixed price and provides

for bonuses related to achievement of measured performance improvements. The Sting Ray production contract just placed is similarly fixed price. The main production element of the contract provides for interim payments only on satisfactory inspection of fully tested torpedoes.

Q7. PAC complained about lack of progress on international collaboration and overseas sales?

The Treasury Minute stresses that MOD are making every effort to support MUSL with efforts to secure export orders for torpedoes. Two Sting Ray sales contracts - to Egypt and Thailand - were secured in the first year of the torpedo's in-service life - a significant achievement.

MOD are engaged, in discussions with the UK's European/NATO partners with a view to harmonising future requirements and so paving the way for joint development programmes. We are also working closely alongside MUSL and other UK companies to ensure a consistent approach.

Q8. Was not the timing of the PAC Report - in the middle of the RN Equipment Exhibition - most unfortunate?

A8. Certainly, the report cannot have helped prospects for overseas sales but I am not responsible for the contents or timing of PAC reports - nor the way the Press handle them!

LOOSE MINUTE

D/RP(N) 1/16/2 (1/86)

2 January 1986

DPO(N)

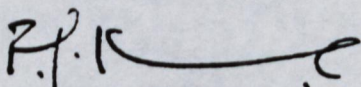
Copy to:

PS/Secretary of State
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DN Plans

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Head of RP(Army)
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DPR(N)

DESMOND WETTERN DAILY TELEGRAPH ARTICLE 2 JANUARY 1986

I attach, as requested, defensive Question and Answer material for use in dealing with enquiries which may be prompted by Desmond Wettern's article in today's Daily Telegraph (copy attached for copy addressees). It has been prepared in conjunction with Head of NMT. We should not, of course, be drawn into any speculative discussion on future policy yet to be considered, let alone decided upon, by Ministers.



F J KENWORTHY
HEAD OF RP(N)
MB4391 7818MB

Is it true that considerable reductions in the Navy's operational strength can be expected in 1986?

What about the manpower problems portrayed in Wetter's article?

Current size of DD/FF force?

Are there likely to be some reductions in 1986?

Is money tight?

(Wetter's article refers to need to preserve available funds for new construction)

No. Suggestions that naval manpower shortages or budgetary difficulties will lead to significant reductions in the operational fleet are pure speculation. It remains the Government's policy, as indicated in the Statement on the Defence Estimates 1985, to maintain an escort force level of about 50.

(Draw on material at Annex)

Details of the strength of the Fleet are given annually in Statements on the Defence Estimates as at 1 April each year. The size of the DD/FF force on 1 April 1985 was 53.

The detailed composition of the fleet varies from year to year as will be clear from successive Statements on the Defence Estimates. It is not our practice to give detailed forecasts of future strengths but, as I have indicated, suggestions of major changes in 1986 are speculation.

Obviously the defence programme as a whole has to be tautly managed, but there is no question of investment in future capability being achieved simply at the expense of current capability. Our aim in resource allocation is to preserve a sensible balance between the two.

ANNEX

Overall the Royal Navy is some 300 officers - or 3% - short of its requirement. There are specific shortages in certain categories of junior seamen officers such as Principal Warfare Officers, Observers and Submariners. These shortages are naturally of concern to the Navy Board but they are not such as to call into question the RN's ability to carry out its operational task. Measures are being taken or are being studied to ease the shortages which stem, as the article states, mainly from reductions in recruiting post Cmnd 8288 and from poor retention in the late 1970s. Recruitment has improved recently but, because of the lengths of training and the subsequent time needed in gaining appropriate experience improvements will take some time to work through. Priority is therefore being given to measures to improve the retention of trained officers.

2. Whilst some shore posts are filled by WRNS or civilians, we fully recognise the need to ensure that adequate opportunities exist for employment ashore of seamen officers and other seagoing personnel. The further erosion of such opportunities is to be avoided wherever possible. However, we must also take into account the need to deploy our resources to meet the requirements of the Service efficiently, consistent with maintaining the requirements of an all volunteer service.

POLISH EMIGRÉ'S TRIUMPH

By TONY FAIRCHILD

There can be few companies in the boating industry more British than Henri-Lloyd, whose chief, Mr Henri Strzelecki, a Polish emigré, was appointed an MBE in the New Year Honours.

The company's motto is: "Export is the lifeline for Britain."

Mr Strzelecki came to Britain in 1946, with barely a word of English, as a Polish soldier after serving with the 8th Army.

He began work as an unskilled labourer in a wire factory in Wakefield and at one stage went to work on a bicycle before founding Henri-Lloyd, world leader in foul-weather clothing for yachtsmen.

The company has four factories employing 300 staff in Lancashire, and had a turnover last year of £4,500,000, 60 per cent of which was for export.

Boat Show return

With the exception of shoes, every item manufactured by the company is 100 per cent British from the raw materials to the finished products.

Mr Henri, as he is known in the boating trade, and now 60, has returned to the London International Boat Show at Earl's Court for the 25th time.

The show, presented by the Ship and Boat Builders' National Federation and the DAILY EXPRESS, is open from 10 a.m. to 8 p.m. on weekdays and from 10 a.m. to 7 p.m. on Saturdays and Sundays, and continues until Sunday week.



PICTURE: PAUL ARMIGER

offering a helping hand to 14-year-old Christine Parker, after she had ... in his £8,000 mini submarine at the Boat Show, Earl's Court, yesterday. Mr ... years building the craft in the back of his home in Sidbury, Devon.

Navy's operational strength likely to be reduced

By DESMOND WETTERN Naval Correspondent

CONSIDERABLE reductions are expected in the Navy's operational strength during the forthcoming year by officers in the Fleet.

This is because of growing shortage of manpower, particularly junior officers.

Coupled with this is the need to preserve available funds for the Type 23 Frigate and Upholder Class conventional submarine building programme.

The lack of junior officers, mainly of lieutenant rank, in the Seamen Branch is now so acute that the operational effectiveness of probably at least a third of the 51 destroyers and frigates in full commission is being adversely affected.

The most modern destroyers and frigates, and those on the Falklands and Arabian Sea Patrols, in effect the Navy's "First 11," have their full complement of Seaman Officers, and some older ships have only half the number they are supposed to have.

Financial levels

Among some junior officers there is the feeling that senior officers are reluctant to tell the politicians that the Navy, with its present manpower and financial levels, cannot meet the commitments it now faces.

"Particularly, as the larger ships are not being so hard-hit by the lack of officers, consequently senior officers are less well aware of the problems to be found in smaller and older frigates," one experienced Seaman Lieutenant in a missile destroyer with its full officer complement said.

The officer shortage is due partly to cutbacks in recruiting over the past four years as part of the 10,000 reduction ordered in the Navy's manpower under the 1981 Defence Review, which has brought down the annual officer recruiting average from around 650 to 400.

Consequently, in the 1986-87 financial year starting in April, it is likely that the recruiting target will be raised to 600 officers, although few of these will be fully trained until the 1990s.

But the lack of junior officers, aggravated by the post-Falklands decision to retain eight more

destroyers and frigates in full Commission for watch-keeping duties at sea, has created a vicious circle, as it has meant more duties and more time spent at sea, to a point where the 1985-86 figures, due out in the spring, are expected to show a sharp rise in the number of officers quitting.

The number of officers marrying earlier in their careers is increasing year by year, and some wives inevitably make adverse comparisons between Naval service, which for a seaman officer means 14 years of almost continuous service in sea-going ships on completing his training, and that of his civilian equivalents in more settled occupations.

In an attempt to get more seaman officers to sea, cuts have been made in time spent ashore on courses, to a dangerous level, some senior officers maintain.

Yet many frigates today have only half the numbers of watch-keeping and welfare officers who take charge of a ship's operations room or nerve-centre, that would be required in a war or area of high risk.

Short supply

What few shore jobs that were available for junior officers have now mostly been taken over by civilians or Wren officers.

"Whilst young watch-keeping officers are in short supply at sea, it must be difficult to persuade a young married man to 'stay put' when he can see perhaps his one-and-only shore job for a number of years filled by a Wren," Lt. Cmdr Michael Crutchley, a former junior seaman officer, points out in the 1986 edition of his "BRITISH WARSHIPS AND AUXILIARIES".

He also points out that increasing time spent in sea-going ships is affecting the retention of ratings as well, and "in peacetime, training for war is vital—but so is a young man's morale—the cries of 'there's no fun left' are again being heard from many an officer and rating. There was a similar situation in the Navy in the 1960s, when it faced heavy commitments in the Middle and Far East.

"British Warships and Auxiliaries 1986-87" by Mike Crutchley, Maritime Books, Littleport (1985).

rises vich



MINISTRY OF DEFENCE WHITEHALL LONDON SW1A 2HB

TELEPHONE 01-218 9000

DIRECT DIALING 01-218

MO 26/3

29th November 1985

*Print Minister
You will recall that
Lord Weinstock spoke
to you about this.
CDP
29/11*

CDP to see

De Arnold

COMMITTEE OF PUBLIC ACCOUNTS - TORPEDO REPORT

Thank you for your letter of 31st October.

can request if required

I sympathise with you over the timing of the PAC report on the torpedo programme and the way in which the press comment concentrated solely on criticisms of past performance rather than picking up the more positive comments in the report. The comment on the report cannot have helped the prospects for export sales and collaboration, falling as it did in the middle of the week of the RN Equipment Exhibition. You will understand, of course, that I am not responsible for the contents or timing of PAC reports nor the way the press handle them. I have been a victim of the system myself on more than one occasion!

I cannot believe that the omission of MUSL's name from the MOD news release about the recent successful test firing of STING RAY in any way aggravated this damage. The release was

Lord Weinstock



intended to emphasise the enhancement to the capability of the RN and RAF and it seems to me a very full and positive statement. The British defence press certainly need no reminding of who manufactures STING RAY; and there was nothing to prevent MUSL from capitalising on this successful firing with their own publicity.

In his evidence to the PAC, the Chief of Defence Procurement had rightly to adopt a balanced approach reflecting his responsibilities as Accounting Officer and the reality that the history of the torpedo programme is not an entirely happy one - from your point of view or ours. But Peter Levene, and all of us here, have and will continue to give full support to the massive torpedo programme which is of crucial importance to us both. The MOD has supported fully and promoted both export sales and collaboration. Indeed, as an example, I raised the matter directly on my recent visit to Singapore. We shall continue to do everything possible to support your export efforts.

yes am

Michael Heseltine



10 DOWNING STREET

From the Private Secretary

1 November 1985

Many thanks for your note of 31 October.

I will ensure that the Prime Minister sees a copy of your letter to the Secretary of State for Defence as soon as possible.

(Caroline Ryder)

The Lord Weinstock

JJA

personal

THE GENERAL ELECTRIC COMPANY, plc.
1 STANHOPE GATE · LONDON W1A 1EH
01-493 8484

Pine Linster (K)

CDP

1/xi

31 October, 1985

I will raise this
with M-4 when he
returns
Dear Caroline,

may I again apologise to you
to make sure that the P.M. sees the enclosed copy
letter to the S. of S. for defence. It does not
say so categorically, but the fact is that
the torpedo programme is being delayed, its
costs are being unnecessarily pushed up, and
currently, support and collaboration prospects are
being seriously damaged. It is all very
frustrating.

Yours sincerely,
Arnold Brownstock

*With
Lord Weinstock's
Compliments*

31st October, 1985

Dear Michael,

COMMITTEE OF PUBLIC ACCOUNTS - TORPEDO REPORT

The misleading and factually incorrect Public Accounts report, together with the continuing reverberations of hostile press comment arising from it, are having a serious adverse impact on the export opportunities for torpedoes. Furthermore, the prospects for international collaboration have been reduced, and, at the best, the UK bargaining position has been weakened.

The damage has been aggravated by the incomprehensible omission of Marconi's name from the recent announcement of the successful firing of STING RAY, notwithstanding our request that it should be included.

The Managing Director of Marconi Underwater Systems Limited is writing to CDP to seek his help in putting the record straight. I hope this will be forthcoming in full measure, since in giving evidence

/.....

before the Public Accounts Committee, CDP's defence of the Department and its supplier was hardly robust. He certainly did not make the most of what has been achieved, or the success of the programme since Marconi took control of it.

The recovery of the situation seems to me so important in vindication of HMG's decision in favour of the UK torpedo programme, as well as to the prospects for exports which constituted an important part of its justification, that I feel it right to ask for your assistance. I am also copying this letter to the Prime Minister, since from the beginning she has taken a direct personal interest and has regularly pressed us to achieve more exports of torpedoes.

Lord Weinstock

The Rt. Hon. Michael Heseltine, MP,
Secretary of State,
Ministry of Defence,
Whitehall,
LONDON, SW1A 2HB.

010 .

GJW

X ref
please

GJW Government Relations
64 Clapham Road London SW9
Telephone 01 582 3119

21st September 1983

John Coles, Esq.
Private Secretary
10 Downing Street
London
SW1

M 23/9
h.a.

Dear Mr Coles,

I quite understand that it was not possible to meet before the Prime Minister's visit to the United States and I am sorry I was not able to speak to you last week.

However, I thought it might be useful to let you have a brief paper on the way Marconi see the Two-way Street and offset policies working at the moment. A similar note was provided for the Defence Secretary of State's visit to the United States last week. Hopefully, we can get together and talk about this in either October or November, but obviously not until the Conference season is behind us.

Yours sincerely
Wilf Weeks

Wilf Weeks

ANDREW GIFFORD · JENNY JEGER · WILF WEEKS

In association with Thevenot, Murray & Scheer
Washington DC Telephone 331 8788

MARCONI

THE AMERICAN SCENE

Trident Offsets

1. All Marconi experience is that the street is very much one way. Noises are often made that we will be given work if competitive, but obstacles include:
 - U. S. Services concern about foreign companies competing for critical components in high priority programmes. Often we cannot even get a second servicing.
 - The procurement rules being weighted against proprietary equipments in requiring the surrender of full design rights.
 - The need to comply with the Buy American Act.
 - Often having to bid against U.S. companies who already have the jigging, tooling and instrumentation.
2. A further obstacle in bidding for U.S. programmes is security clearance. On classified work or in any competition involving advanced technology DoD staff can classify any item as NO-FORN (No-Foreign) without explanation. An appeal can be lodged, but the time taken to pursue an appeal renders the action pointless. By comparison, U.S. firms, regardless of ownership or location, can enter almost any U.K. competition on application to the U.K. Ministry concerned.
3. We doubt if there is much in practice to be done about all this. Officials in Washington may make favourable noises about offsets and the Two-way Street, but at the end of the day it is the individual U.S. Services and the powerful service and industrial lobbies in Congress who most influence the decision.
4. We think it important to continue to emphasise the one-wayness of the Street, but most success is likely to come from companies fighting through their individual projects and from Government support as appropriate on a case by case basis for those projects.

Current Projects

5. We are currently working on the following projects:

a) ICS3 - Naval Communications: one system is under evaluation and there is a funded programme for a system to meet future requirements.

b) Ship De-gaussing System: there is a possibility of quite good sales as the U.S. have no comparable system.

c) HARM: we are keen to be allowed to bid for the U.S. HARM homing head and are working closely with the U.S. Navy Office in London on this. Substantial production would be in the U.S.

6. Stingray Torpedo

Prospects of selling this weapon to the U.S. Navy are very small. This is partly because the U.S. Navy do not wish to be dependent upon a foreign supplier for such an important weapon and any acceptance by them of Stingray might put their ALWT programme at risk. But it is also partly because of strained relations with Marconi following the various torpedo battles. As a result, we are currently playing this very gently. Militarily, however, it seems nonsense for the U.S. Navy to have to wait the six or seven years until the ALWT comes into service when Stingray is the only torpedo that can currently meet the threat. It would at least seem sensible for them to validate the torpedo in their own vehicles so that it could be used in an emergency.

7. ZEUS - Electronic Warfare Equipment

ZEUS has already been chosen by the RAF for the GR5 Harrier. U.S. Industry is a major supplier as a sub-contractor, contributing some 40% of the hardware. It would be sensible for Zeus also to be used on the U.S. Navy's AV8B Harrier programme. If selected, we will then cooperate with U.S. industry in exporting a down-graded version to third world countries.

The competition is the U.S. ASPJ (Airborn Self-Protection Jammer) which we understand is both late and very expensive.

8. Purchases by Marconi in the U.S.

Components for most of Marconi's advanced systems are purchased in the U.S. Last year this amounted to almost \$8m; in the current year procurement is running at a level almost double (\$3.7m in the first three months) and is still rising. This is such an important area of business that we have set up a special procurement office in the U.S.

TRIDENT II (D5) - U.K. INDUSTRIAL PARTICIPATION

Following a presentation to members of ECIF in London on 16th November, 1982, by Mr. R. D. Heiser, Manager, U.K. Industrial Participation (Trident), Marconi Electronics Division Ltd. (MEDL) put together a comprehensive dossier of its factories and manufacturing capabilities for submission to the Sub-Systems Prime Contractors in the USA. Copies of the dossier were delivered personally to the Prime Contractors and subsequently individual presentations were made at their factories on MEDL activities. By the middle of this year we had confirmation that we were fully approved potential suppliers to all seven Prime Contractors and their Sub-Contractors.

Our understanding from discussions with the Prime Contractors is that the basic design philosophy for Trident II must be the same in all systems as used in Trident I, except where new equipment is essential to meet the Trident II specification. This means that, for the majority of the equipment, it will be an exact copy of Trident I equipment - including the Component suppliers. Our only chance to be considered as a vendor for repeat equipment, either to the Sub-Systems Contractors or to their Sub-Contractors, is if one or more of the existing vendors fail.

Where new equipment needs designing for Trident II, MEDL, in theory, has the same chance of supplying as any USA based company. In practice, difficulties arise from the limited scope referred to in the above paragraph and also from MIL SPECS requirements which specify that MIL SPEC devices must be manufactured in the USA. It is understood that these requirements have been repudiated by the American Navy's OSD for components emanating from countries with reciprocal procurement MOU's. However, there appear to be some delays before U.S. Contractors become aware of this as the enclosed copy letter from Rockwell International demonstrates. This letter was replied to in the manner recommended by the Ministry of Defence, requesting Rockwell International to refer to OSD, but to date no reply has been received.

MEDL have now received one or two tentative enquiries or Semiconductor components. All MEDL products offered against those enquiries will meet full MIL SPEC requirements but of course are not U.S. made. MEDL have a U.S. Sales Manager located in the USA who has already made a number of visits and will maintain contact with the various Contractor and Sub-Contractors. At the present time our best hopes are with Interstate Electronics
GE Ordnance System
Lockheed
Subcontractors to Sperry
for a wide range of components subject to our being able to overcome the apparent procedural difficulties.

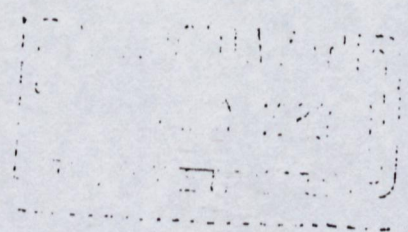
2/28/83-

FAX TO S. R. McLAUGHLIN

Autonetics Marine Systems Division
Defense Electronics Operations
3370 Miraloma Avenue
P.O. Box 4921
Anaheim, California 92803



Rockwell
International



February 17, 1983

In reply refer to 83DE0615736

Circuit Technology
160 Smith Street
Farmingdale, New York 11735

Attention: Mr. R. E. Warren

Reference: Meeting at Rockwell International
February 8, 1983

Dear Mr. Warren:

At the reference meeting, you had requested copies of Rockwell International's integrated circuit (IC) specifications. In reviewing your request, it was pointed out by Strategic Systems Project Office that, per MIL-M-3851OE, all microcircuits shall be manufactured, assembled and tested within the United States and its territories. Since this spec is invoked on Rockwell International, there can be no procurement from the U.K. Therefore, your request for the specifications cannot be granted.

Mr. R. Heiser of the Ministry of Defence is presently reviewing U.K.'s position as a subcontractor for IC/Jan type components. In the event the present policy changes and at the direction of SSPO, Rockwell will reevaluate your request at that time.

Very truly yours,

E. T. Haberski

E. T. Haberski
Program Administrator
Strategic Navigation Programs
Navigation and Control Systems

ETH:mg *jc*

cc: SP2015 - Strategic Systems Project Office, Washington, D.C.
Mr. R. Heiser, Ministry of Defence, Whitehall, London
Commander R. G. Lacher, Ministry of Defence, Whitehall, London

bc Ingham
Duguid

ds

10 DOWNING STREET

From the Private Secretary

17 December 1981

Heavyweight Torpedo

The Prime Minister is grateful for your Secretary of State's minute of 15 December about the completion of the contracts with GEC/Marconi for the purchase of the heavyweight torpedo.

The Prime Minister has commented "excellent". She is content, subject to the views of her colleagues, for your Secretary of State to complete the contracts and to make an announcement as he proposes.

I am copying this letter to the Private Secretaries to the other members of OD and to David Wright (Cabinet Office).

M. G. SCHOLAR

David Omand, Esq.,
Ministry of Defence.

CONFIDENTIAL
COMMERCIAL IN CONFIDENCE



Prime Minister

(1)

MO 26/3

PRIME MINISTER

L. S. M. M. M.

Content, subject to the
views of colleagues?

MCS 15/12

HEAVYWEIGHT TORPEDO

At OD(81)4th Meeting on 8th September, the Committee agreed that, subject to satisfactory financial and contractual arrangements, the heavyweight torpedo under development for the Royal Navy by MARCONI Space and Defence Systems should be purchased. The new torpedo is vital to the future ability of the Royal Navy to deal with the massive and increasingly sophisticated Soviet submarine threat. I obtained the agreement of my colleagues to continue negotiations with GEC/MARCONI with the object of removing the extra cost of the British torpedo, compared with its US competitor in the early years.

2. I am glad to report that, after some tough bargaining, we have struck a deal with Marconi on the cash flow arising from the combined fixed-price contract for STING RAY and the heavyweight torpedo which will totally remove the difference in expenditure with the US torpedo over the period up to 1986/87, which had been assessed at £55m. This will be achieved without affecting the fixed price offer or planned in-service dates of either STING RAY or the new heavyweight torpedo. We have also reached satisfactory agreement with the Company on all other major aspects of the contract, including the division of profit on overseas sales.

3. I, therefore, propose to authorise the completion of the contracts with GEC/MARCONI and to make an announcement later this week.

4. I am copying this minute to other OD colleagues and to Robert Armstrong.

Ministry of Defence
15th December 1981

SN



Defence

hr

10 DOWNING STREET

THE PRIME MINISTER

16 September 1981

Dear Mr. French,

I am most grateful to you and Mr. Bolton for your letter of 9 September. The choice of your company to produce the new heavyweight torpedo, assuming the present discussions go well, is indeed intended as a gesture of confidence in Marconi and in the future. Remembering how very impressed I was by everything I saw during my visit to Neston, I am sure that our confidence will be shown to have been well founded.

I send my very best wishes to you and all your colleagues.

Kind regards,

Yours sincerely

Margaret Thatcher

R.A. French, Esq.

ds



10 DOWNING STREET

THE PRIME MINISTER

*We might write a
more generous reply
to your very
nice letter -
relating to my
wid. r
say it had*

Dear Mr. French,

I am most grateful to you and Mr. Bolton for your letter of 9 September. The choice of your company to produce the new heavyweight torpedo, assuming the present discussions are completed successfully, is indeed intended as a gesture of confidence in Marconi and in the future. I am sure that our confidence will be shown to have been well founded.

*very
impressed
we were*

Every good wish to you all.

Yours sincerely

Margaret Thatcher

R.A. French, Esq.

~~I am so pleased that
you are still a~~

R14

Michael A.

Marconi Space & Defence Systems Limited

A Management company for The Marconi Company Limited

A GEC-Marconi Electronics Company

Reference

CHESTER HIGH ROAD
NESTON
SOUTH WIRRAL L64 3UE
Telex: 629701
Telephone: 051-336 7000

9th September, 1981

The Rt Hon Margaret Thatcher M.P.,
Prime Minister,
10 Downing Street,
London.

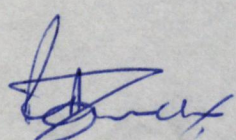
Dear Prime Minister,

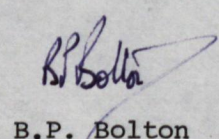
On behalf of the staff of Marconi Defence Systems Neston, may we take this opportunity of formally thanking you for the decision made on Tuesday, 8th September, which resulted in the contract for the new heavyweight torpedo being awarded to our company, albeit with certain conditions yet to be met.

As the elected representatives of the present workforce, we regard this as an act of faith on the part of H.M. Government, coming at a crucial time for us and the country in general.

You have created, we believe, the climate and the future for this area and the help to restore the dignity and confidence which the world recession has done so much to damage in the last twelve months.

Yours sincerely,


R.A. French


B.P. Bolton

On behalf of the Marconi Neston Staff Councillors



Registered at London No. 964491 Registered Office: Marconi House, New Street, Chelmsford, Essex CM1 1PL

Holding Company: The General Electric Company Limited of England

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shown in your dialling instructions

Telegram

for enquiries dial the number
shown in your dialling instructions

T

889113 PO SW G
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THE RIGHT HONOURABLE MARGARET THATCHER
10 DOWNING STREET
LONDON

THERE SEEM FEW ADVANTAGES IN BUYING AMERICAN HEAVY TORPEDO
AND GREAT DEAL TO GO FOR WITH BRITISH RELIABLE MARCONI GEC
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Ref: B06271

PRIME MINISTERThe Heavyweight Torpedo
(OD(81) 41)

BACKGROUND

The Secretary of State for Defence is seeking guidance - not at this stage a firm decision - on the choice of heavyweight torpedo for the Royal Navy.

2. The heavyweight torpedo is launched from submarines against both surface ships and other submarines. With the defence review decision to emphasise the submarine as the main weapon platform against Soviet submarines, an effective heavy torpedo is essential. It is quite different from the lightweight torpedo, which is designed to be launched from aircraft and surface ships. But there are some significant similarities between the heavyweight torpedo problem we now face and the lightweight torpedo issue resolved by OD after two difficult meetings in July and October 1979. You will recall that we then rejected a cheaper American alternative in favour of STINGRAY, a British designed lightweight torpedo manufactured by Marconi Space and Defence Systems (MSDS), part of Lord Weinstock's GEC Group. Much play was made with STINGRAY's export potential; and the Chiefs of Staff, in insisting that only the costlier alternative met their operational requirements, formally accepted that they would thereby be leaving less money in the defence budget for other important purposes.
3. The present dilemma over the heavyweight torpedo also features a British model manufactures by MSDS versus a cheaper American alternative (£570 million as against £700 million over 12-15 years). But this time either would meet the (Royal Navy's) operational requirements. The case against buying American is purely industrial and political; and Mr Nott is therefore seeking to establish that, if we buy British, new money should be provided, over and above the defence budget as currently agreed, to cover the extra £100 million involved (the net extra cost falls from £130 million to £100 million because the cost of STINGRAY will rise if the MSDS heavyweight torpedo is not purchased).



4. An important difference between STINGRAY and the present case is that, while the former had a strikingly unhappy history of escalating cost, Lord Weinstock is on this occasion offering (subject to a normal inflation clause) a fixed price contract for development and initial production - though not of course for main production.

5. It was at one time hoped that a deal could be struck with the Americans that they should buy STINGRAY if we bought their heavyweight torpedo (ADCAP). The annex to Mr Nott's paper reports our failure to secure any such undertaking. But the Financial Times of 3rd September reported the possibility of a deal with the Americans whereby we would buy ADCAP on the understanding that they would conclude one of the purchases of British equipment, such as the RAPIER missile for the Rapid Deployment Force, now under discussion; and the manufacturers of ADCAP have offered to offset 35 per cent of the dollar costs by purchases from British industry.

6. The Chancellor of the Exchequer will of course be briefed to oppose any increase in the defence budget for the British torpedo. But even if it is not increased, he is likely to argue for the American alternative, since a premium of £100 million to buy British is not justified on economic or industrial grounds: on the assumption that the defence budget is not to be increased, the consequences of buying the British torpedo would be to reduce purchases of other British defence equipment.

7. It would be a dangerous precedent to provide extra funds for the defence budget to meet the extra cost of buying British. There is no logical basis for managing a block budget such as defence in this way, ~~nor would it be easy to defend politically~~. It is for the Defence Secretary to make his own judgements about what he can get away with politically and to live with the financial consequences. Mr Nott may have put in his plea for extra funds for internal Ministry of Defence reasons, since ADCAP represents the best value for limited defence funds and the Navy in particular would not want to give up other cherished projects to fund the premium for the British torpedo; and he may therefore not be too surprised if he is shouted down by his colleagues. Nor ought he to be too seriously put out if his colleagues



suggest that he should buy British, essentially on employment grounds, but find the money himself. You will note from Appendix 4 to Mr Nott's paper that much of the extra cost of the British torpedo would fall in the years after 1990; and that though there are excesses in the years up to 1986, the annual extra cost even in these difficult early years is never more than £20 million - a very small fraction of a defence budget of over £12 billion a year. Mr Nott and his colleagues are also aware that the decisions on the future of the defence budget earlier this summer not only pre-empted this autumn's Public Expenditure exercise but were also pretty generous in current circumstances.

(Not yet!) 8. The Secretary of State for Industry, the Secretary of State for Employment and the Chief Secretary have been invited, but the Lord Chancellor is unable to be present as he is visiting Belfast.

HANDLING

9. You will wish to ask the Defence Secretary to introduce this paper. If he does not do so unprompted, you might ask him to comment on the overseas sales prospects of the British heavyweight torpedo and on the possibility of striking a bargain with the Americans on the lines mentioned by the Financial Times (paragraph 5 above).

10. You should then ask the Chancellor of the Exchequer and the Chief Secretary to comment; and the Secretaries of State for Industry and Employment to speak on the industrial and employment considerations. You might also invite the Foreign and Commonwealth Secretary to comment on any implications for the Alliance and on the possibility of persuading the Americans to make offsetting purchases from Britain; and you will want the Chancellor of the Duchy's views on the attitude of Parliament.

CONCLUSIONS

11. Since Mr Nott is not asking for a firm decision, but intends to put forward a recommendation after the Party Conference, the discussion need only be summed up in a way which gives him a general political steer. There is likely to be a broad consensus that there can be no question of increasing the defence budget to meet the extra cost of buying the British torpedo. The Committee might then invite the Defence Secretary to consider and report on



- i. the implications for the rest of the defence programme of a decision to buy the British torpedo - in particular, how would he deal with the extra cost in the years up to 1986, and what are the least unacceptable ways of reducing the cash flow problems?
- ii. the possibility of using a purchase of the American torpedo as a lever to secure an American purchase of British defence equipment, or of otherwise increasing 'offset' for British industry.

At the same time Mr Nott should be invited, in the light of i. and ii. and of the Committee's views generally on the industrial and political considerations, to put forward his firm recommendation on the choice of heavyweight torpedo for discussion by the Committee before the end of October.

4th September 1981

R L WADE-GERY

c Sir Robert Armstrong o/r

PRIME MINISTER

Min. Stephens. arranged. Defence
cl. 3.17.
I have explained the position to Lord Weinstock who is not quite relaxed. He is being forward to the dinner. Can you arrange it. M.T. J.M.

Lord Weinstock sent the attached letter round by hand this afternoon. You were due to dine with him and Mr. Woodrow Wyatt on Friday, but you had asked Caroline Stephens to postpone the occasion, though Lord Weinstock does not know this.

I have spoken to Mr. Nott's Office, and they say that a decision on the heavyweight torpedo is not likely to be taken before the early autumn at the earliest. There is no question of a choice having been made secretly between the American weapon and the GEC torpedo - if that is indeed what Lord Weinstock thinks. But it is possible that, against an eventual decision by Ministers to buy the American torpedo, MOD officials have begun to prepare a draft Memorandum of Understanding and have shown this entirely informally and without commitment to the Americans. It would take some little time to check this possibility. But what is certain is that Mr. Nott has not seen a draft MOU, nor did he discuss the heavyweight torpedo when he saw Mr. Weinberger in Washington recently (though he did press the virtues of Sting Ray on the Americans).

I think that this means that I can safely ring Lord Weinstock and tell him that there must be some misunderstanding, and that no decision has been taken on the torpedo, and will not be taken for some time to come. There would therefore be no question of him and you being in a false position if you met for quite other purposes. Would you like me to do this (warning him that Friday's engagement is being postponed anyway for other reasons)?

Yes please
M.T.

30 June, 1981.

M.T. Perhaps we had better carry out this engagement - unless he would like it postponed until the position is clearer.

THE GENERAL ELECTRIC COMPANY LIMITED

1 STANHOPE GATE · LONDON W1A 1EH

01-493 8484

30 June, 1981

Dear Margaret,

I have just heard by telephone from the United States that, following John Nolt's visit, a memorandum of understanding is being prepared by which your government will agree to buy the American heavy weight torpedo instead of our 7525.

This immensely important contract has become the focus of issues of such significance to my Company, and in my sincere belief to the nation, that I could not possibly accept such a decision with equanimity.

I did not think that our projected talk on Friday evening was meant to be about matters directly concerning my business. Rather I hoped we could talk about general questions, and that I might have been able to contribute something useful to you in the consideration of your policies for the next year or two.

In all the circumstances, I don't

THE GENERAL ELECTRIC COMPANY LIMITED
15, ABchurch Lane, LONDON, W.14

See how such a conversation can take
place just at the moment without
putting us both in a false position.

Yours sincerely,

Arnold

Rev. Hon. Margaret Thatcher, M.P.

THE GENERAL ELECTRIC COMPANY LIMITED
1 STANHOPE GATE · LONDON W1A 1EH
01-493 8484

Dofenca

9th December, 1980

Dear Prime Minister, *ES 11/12* *R11/12* *MP*

Thank you for your letter of
8th December, 1980. I am very grateful to you for
agreeing to open our new factory at Neston and I
will settle the precise date without delay.

Yours sincerely,
Arnold Brown

Lord Weinstock

The Rt. Hon. Margaret Thatcher, MP,
10, Downing Street,
LONDON, S.W.1.



c. c. CW
CS

File

10 DOWNING STREET

Deference

THE PRIME MINISTER

8 December, 1980.

Dear Lord Weinstock,

Thank you for your letter of 24 November 1980 inviting me to see something of the Sting Ray programme. Of the two visits - you suggest I should like to take up your invitation to open your new factory at Neston at the end of April of next year. Perhaps your office could get in touch with Caroline Stephens here to settle the precise date of the occasion. I hope that you will be able to do this fairly soon since my diary for the spring is filling up very rapidly.

Warm regards,

Yours sincerely

Raymond Whelan

The Lord Weinstock

The General Electric Co. Ltd., 1 Stanhope Gate, W1A 1EH.

SW

CONFIDENTIAL



Defence
MINISTRY OF DEFENCE
MAIN BUILDING WHITEHALL LONDON SW1
Telephone 01-~~330 7822~~ 218 2111/3

MO 25/3/4

5th December 1980

M. S.C.

Dear Chris,

MSDS INVITATION TO THE PRIME MINISTER TO OPEN THE NEW
STINGRAY PRODUCTION FACILITY ON DEESIDE IN APRIL

with CAW
You asked me about the invitation which the Prime Minister had received from Lord Weinstock to open the new Stingray factory. I have as you suggested taken soundings in the Department and to save time perhaps the simplest thing would be to refer you to the attached note from the Private Secretary to the Chief of Defence Procurement. The conclusion is of course one which we endorse. I hope you have a highly successful visit!

James M. Bann

(B M NORBURY)

C A Whitmore Esq

CONFIDENTIAL

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CHIEF OF DEFENCE PROCUREMENT

CDP 2/1/1315

PS/Secretary of State

MSDS INVITATION TO THE PRIME MINISTER TO OPEN A NEW STINGRAY
PRODUCTION FACILITY ON DEESIDE IN APRIL

1. You asked for advice as to whether or not the Prime Minister should accept an invitation from Lord Weinstock to open in April a new MSDS factory at Neston, on the Dee Estuary, in Cheshire, which is to be used for Stingray assembly work.
2. The new factory will provide about 100,000 square feet of working space on a site of 22 acres and the capital cost is said to be between £10M-£15M. It will provide about 250 jobs locally by the end of March 1984 and 450 jobs by 1985. The factory was originally intended for microchip work and the local council (the Ellesmere Port Council) have apparently offered considerable opposition to the change of use as they would have preferred the prestige of microchip work and frown on defence work. The factory will handle the assembly of all production for under-water weapons contracts, including the Mark 24 torpedo, and the first Stingray production acceptance vehicle is due off the line at Neston on 1 April 1984.
3. There would be a precedent for the Prime Minister's opening this new factory in that Mr Callaghan when Prime Minister opened the factory at Portsmouth where Stingray components are being manufactured.
4. There are at the same time one or two potential sources of embarrassment that might be mentioned to the Prime Minister:
 - a. The defence programme is still under review in the light of further economies that may have to be made next year to compensate for any overspend this year, and Stingray, as a big lump of uncommitted production expenditure, clearly cannot be regarded as entirely invulnerable, although the project is going very well and other things being equal would certainly not be a candidate for cancellation.

/b.

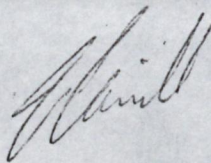
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b. A decision is due about the middle of next year (consideration by the DEPC is scheduled for May) on meeting our heavy weight torpedo requirements, when the choice will lie between the US Mark 48 torpedo and proceeding with our own heavy weight torpedo, which is at present under feasibility study by MSDS, and there is, of course, the possibility of a decision disappointing to MSDS.

c. The Public Accounts Committee have this year reported on Stingray, commenting on the considerable escalation to its cost and on the fact of its costing considerably more than its American alternative, and the project is to be the subject of further enquiry by the House of Commons Defence Committee in January, and by the PAC itself, on the basis of the Treasury minute responding to their report, in February.

5. It is unfortunate that we have to advise the Prime Minister at a time when the future of the defence equipment programme is under review. Clearly any judgment has to be on the basis of our current perception of the budgetary situation and it seems most unlikely that there is serious risk to the work to be undertaken at Neston. On balance therefore CDP does not believe that advice against accepting the invitation would be warranted.



I. HAMILL
PS/CDP

5 December 1980

CONFIDENTIAL

THE GENERAL ELECTRIC COMPANY LIMITED

1 STANHOPE GATE · LONDON W1A 1EH

01-498 8484

24th November, 1980

Dear Prime Minister,

When we last met, I mentioned the importance of the Sting Ray programme, which is three months ahead of schedule. The cost is below budget, and the trials have gone extremely well. The design of the "acceptance" weapons to be supplied to the Royal Navy was released for manufacture in September. The U.K. has now begun to build a generation of underwater guided weapons capable of adapting their tactics to counter enemy reactions during an attack. No comparable weapon exists in the western world. Our next major effort must be to sell this weapon abroad, principally to the U.S.A.

It would be of immense value to our export efforts if you could find the time to visit our Portsmouth factory and see at first hand the weapon's capabilities. I believe you would find the technology of considerable interest,

and the 4,500 people employed there would be greatly encouraged.

Sting Ray is to be assembled at a new factory at Neston in the Wirral. The first production weapon is due to leave the factory at the end of April, 1981 and we are most anxious that this occasion should be marked with a formal opening, particularly in view of its major contribution to new employment in the area. Would you do us the honour of opening the factory on that occasion ?

We will of course be very happy to make any arrangements you wish and to provide any facilities, such as air transport, which would minimise the demands on your time.

*Yours sincerely,
Lord Weinstock*

Lord Weinstock

The Rt. Hon. Margaret Thatcher, MP,
10, Downing Street,
LONDON, S.W.1.

SECRET

VLS

FILE

12

Defence.

SIR ROBERT ARMSTRONG

Torpedoes

The Prime Minister has seen and taken note of your minute to me of 10 November, and its enclosure, on this subject.

M. O'D. B. ALEXANDER

13 November 1980

KRD

SECRET

SECRET



Mr Whitmore *11/16/80* *(2)*

Prime Minister

MS

11/16/80

Ref. A03501

MR. ALEXANDER

I gather that, when Lord Weinstock saw the Prime Minister recently, there was some discussion of torpedoes.

2. Lord Weinstock is clearly very anxious lest reductions in defence expenditure should affect the Sting Ray and, more particularly, the 7525 programmes, in both of which GEC is deeply involved. Both torpedoes would be assembled at the GEC factory at Neston, near Liverpool.

3. Lord Weinstock was obviously anxious that I should be in no doubt both of the importance of torpedoes in the pursuit of Soviet nuclear missile submarines, and of the capacity both of Sting Ray and of the new 7525 to penetrate the double titanium hulls of the Alpha class submarines, and of the fact that we have a lead of several years over the United States in this technology.

4. He has sent me a copy of a brief on this subject; and I have no doubt that his hope in doing so was that I would bring it to the attention of the Prime Minister.

5. I attach a copy herewith.

RA

ROBERT ARMSTRONG

10th November, 1980

SECRET

Secret

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E Background

SECRET

There are two distinct types of modern guided torpedoes:-

1. Lightweight. (Lightweight torpedoes are about 12" diameter and 9 ft.long).

These are air-dropped and surface-launched, anti-submarine torpedoes. The air drop role limits fuel capacity and warhead size. Short endurance is acceptable because the torpedoes can be dropped close to their target. A small warhead is acceptable, provided it will penetrate a submarine's pressure hull (the surface ship role is not important.)

2. Heavyweight. (Heavyweight torpedoes are about 21" diameter and 20 ft.long).

These are submarine-launched weapons with submarines and surface ships as targets. Endurance and high speed are vital because the speed difference between the target and the launch platform in this case is low. Counter-attack and evasive manoeuvres are likely. The anti-ship role is also important and for this purpose a large blast warhead capable of breaking a ship's back is necessary. These requirements produce a very large weapon.

A programmable computer-driven guidance is essential to both types of torpedoes in the 1980s if they are even to reach their targets against modern countermeasures.

The contenders in the U.K. and U.S. are:-

1. Lightweight Torpedoes

- 1.1 U.K.Sting Ray.

In service end of 1982. The computer controlled adaptive guidance on Sting Ray has already been successful against countermeasures in trials on American ranges. The warhead is a directed charge which the MOD believes to be effective against the double titanium hulls of the improved Alpha class submarines.

Sting Ray will be assembled at the new GEC factory at Neston, near Liverpool.

- 1.2 U.S.Mk.46 (NEARTIP)

The Mk.46 (NEARTIP) is a version of the old Mk.46 with updated electronics but the guidance is little improved, it is still a pre-set non-adaptive system. The warhead is a small blast warhead ineffective against most modern submarines. This torpedo is assembled by Honeywell at Minneapolis in the U.S.A.

SECRET

SECRET

1.3 The U.S. Advanced Lightweight Torpedo (ALWT)

This is the U.S. replacement for the Mk.46 (NEARTIP). It is under competitive study and is due for service in the late 1980s. Like Sting Ray, it will have a computer controlled guidance system. We have no information on the warhead but it is expected to be a directed charge. The competitors for the development contract are Honeywell and McDonnell Douglas. The decision on which contractor should undertake development is due in 1983.

2. Heavyweight Torpedoes

2.1 Mk.24 Mod 1.

Currently in service with the Royal Navy with a non-adaptive guidance and a blast warhead. The warhead is probably ineffective against the latest submarines. This torpedo is produced by GEC, with Plessey as a major sub-contractor.

2.2 7525

The proposed U.K. replacement for the Mk.24 Mod 1. It has a computer controlled guidance system derived from Sting Ray. The warhead will be a large directed charge. It has a very high speed (probably the fastest torpedo in service anywhere) driven by a new turbine engine being developed under contract to GEC by Sundstrand in the U.S. The first versions of the torpedo are now in water. Major sub-units of the torpedo are manufactured at Portsmouth, with final assembly at Neston. The engine will be assembled at a new factory to be erected on the Neston site next to the Sting Ray factory.

2.3 U.S.Mk.48

This torpedo, in service with the U.S. Navy, has almost reached the end of its production run. Like Mk.24, its warhead is probably ineffective against the latest submarines, and it has a non-adaptive guidance system. The torpedo is produced by Gould at Cleveland in the U.S.A. (an area with severe unemployment problems).

2.4 U.S.Mk.48(ADCAP)

The (ADCAP) version of the Mk.48 will have a computer controlled adaptive guidance system, being developed by the Hughes Aircraft Company. We believe that the propulsion system will be improved to increase the speed of this weapon to a speed approaching that of 7525. We are unaware of any improvements in the warhead. This torpedo will be assembled by Gould at Cleveland, with the guidance to be produced by Hughes in Los Angeles.

SECRET

Competition for the R.N. Heavyweight Torpedo.

In order to determine the replacement for the Mk.24 Mod 1, a competition between the U.S. Mk.48 (ADCAP) and the U.K. 7525 solution was started early in 1979.

Discussion

GEC expects 7525 to win on technical performance.

The new generation of computer controlled weapons demand continuous up-dating of software programmes as the threat scenario changes, and we believe it will be important to the U.K. not to have to rely on the U.S. for its detailed tactics.

We expect the costs of the two proposals to be little different, if a "whole life" costing approach is adopted. Support costs using GEC teams and facilities already established should be substantially less than the support costs for the U.S. weapon.

The American solution will involve further costs associated with modifying the fire control system of existing R.N. submarines.

The difficulty with accepting the U.K. solution could be the financial risk associated with the engineering phase of 7525. Even though Mk.48 (ADCAP) is not further advanced, it could be assumed that the Americans are bearing the financial risk. GEC will be offering a risk-sharing contract with a development contribution recoverable only on demonstration of design success or during production. The Sting Ray incentive contract is a precedent which should provide confidence in this method of defence contracting.

A decision against 7525 would result in about 700 redundancies from the GEC team. If there is no production of 7525, Sting Ray must bear a higher proportion of the Neston overheads. The extra cost would reduce the number of Sting Ray torpedoes sold abroad and also the number which the British Government can afford to buy.

On the other hand, a decision to buy 7525 would mean employment opportunities for about 40,000 man years over the next 14 years. The Sundstrand Company will add technology with a new engine factory at Neston.

GEC would provide the increase in the 7525 engineering team from the Sting Ray development team, which will be running down in 1981.

Gould has approached GEC suggesting:-

1. That GEC should put a modified Sting Ray homing head on to the Mk.48 torpedo, thus producing a U.K. (ADCAP). This would involve further development and trials of the combination, and seems to result in a noisier and slower torpedo than the 7525. However, it might be cheaper. Gould has been asked to quote for the provision of the Mk.48 engine, fuel system and tail. The initial reply has been that for employment and prime contract reasons, Gould need to keep the assembly and test in the U.S.A. The proposal is being pursued.

SECRET

2. An alternative suggestion is that GEC should make substantial parts of the Mk.48 (ADCAP) in the U.K. This would involve the additional expense of "learning" for a new contractor with smaller production lines. The newly-developed Hughes electronics could not be produced by anyone but Hughes with any hope of success at this stage of its development. This suggestion is not being pursued as it is unlikely to be cost effective.

It is an obvious thought that if a Government-to-Government arrangement could be secured whereby the U.S. provided heavyweight torpedoes with the U.K. providing lightweight torpedoes, then an enormous export market would be opened to the U.K. worth over £2000M. The difficulties of a genuine collaboration appear to us as insuperable. American law ensures that any arrangements are temporary and will be cancelled by Congress when they believe the balance of advantage has shifted. We are trying to sell Sting Ray to the U.S. on its merits with the help of an American partner. McDonnell Douglas are currently offering assistance.

Conclusion.

GEC would like the present phase of indecision ended. We are most anxious to avoid a prolonged period of uncertainty of the sort which led to the Sting Ray delays and cost escalation.

Since the Sting Ray incentive contract was signed, we have met every milestone on time, cost and performance. We want to build on the U.K. investment in Sting Ray with 7525. We need clear decisions and we can then do the job efficiently.

5.11.80

Defence (2)



MINISTRY OF DEFENCE

MAIN BUILDING WHITEHALL LONDON SW1A 2HB

Telephone 01-218 2111/3 (Direct Dialling)

01-218 9000 (Switchboard)

Weekend Box

MO 26/3

18th March 1980

Mr. [unclear] 24/3

*In other words
Captain Moore
was right.*

*R. Whitehouse
Min
Prime Minister*

Hq.

Dear Mike,

*Paul
- 24/3*

TORPEDOES


Paul 19/3

Thank you for your letter of 21st February 1980, enclosing a copy of a paper by the Editor of Jane's Fighting Ships on Torpedoes.

The enclosed commentary has been prepared under the directions of my Secretary of State, who has asked me to forward it to you. Our comments are directed in particular to Captain Moore's review of the British record in producing heavyweight and lightweight torpedoes. We have not gone into detail on future Soviet submarine capabilities (speed, depth of dive etc) since there is a good up to date summary of the position in paragraphs 3 and 4 of the report by officials circulated under cover of OD(79)17.

*Yours sincerely,
David Omand*
(D B OMAND)

M Pattison Esq


TORPEDOES:COMMENTS BY THE MINISTRY OF DEFENCE ON CAPTAIN MOORE'S MEMORANDUMGENERAL

It is thought that much of Captain Moore's information comes from articles in the British and American press, together with material culled from US torpedo manufacturers, overlying his own experience as a former submariner. He appears out of touch with the level of technology achieved in the British torpedo industry since his retirement from the Service in 1972. His judgements of operational capability seem to involve matching current generations of weapons against a future and developing Soviet threat which has yet to be fully validated.

2. The record of torpedo development in the United Kingdom has not been good but real management improvements have been introduced progressively. The Torpedo Procurement Executive was not a committee, as Captain Moore implies, but a project team formed to manage the Mk 24 programme and it did its job without proliferating paper or meetings. The Mk 24 MOD 1 TIGERFISH heavyweight torpedo (launched from submarines) gives every indication that it will meet the operational requirements of the Royal Navy when it enters service this year. We are confident that the lightweight STING RAY torpedo (launched from ships or aircraft) will do so also.

HEAVYWEIGHT TORPEDOES

3. All weapons systems in high technology fields have some limitations. Of those alleged by Captain Moore for the TIGERFISH MOD 1, a swim-out capability (ie, where the torpedo leaves the tube under its own power) was not an operational requirement; nor do we regard it as a disadvantage to rely on energy discharge (where the torpedo is ejected from the tube under pressure). The length of guidance wire, whilst always a compromise, is adequate for the maximum effective engagement range of the torpedo.

4. For the future, feasibility studies for a successor system to TIGERFISH have been conducted in response to the changing threat, for entry into service in the late 1980's. The choice between a British or American weapon has yet to be made; indications are that both could meet the new requirement. Apart from industrial considerations, a British solution would have the advantage of being based largely on STING RAY technology thus benefiting from the considerable investment in the project.

5. STING RAY is expected to be the most effective weapon of its kind in the world when it enters service, both over the relatively shallow European continental shelf - a most important operational area for our anti-submarine forces - and in deeper waters down to its Staff Requirement depth of 760m. In deep water trials in November 1979 it achieved 900m. It is believed (from recent evidence) that the titanium-hulled "ALFA" Class, to which Captain Moore refers, can operate at faster speeds than other Soviet submarines and possibly as deep as 1000 metres. To this extent STING RAY, when it enters service (planned for 1983), might suffer some limitations in terms of a reduced speed advantage, depth and penetration against the "ALFA", but the latter is not expected to be deployed in significant numbers during the 1980s; moreover there is still much uncertainty in our knowledge of the ALFA's capabilities and likely place in Soviet operations.

6. These limitations do not invalidate our acquisition of STING RAY, the Naval Staff Requirement for which takes into account the forecast speed and depth capabilities of the vast majority of the Soviet submarine fleet in the 1980s and indeed the 1990s. STING RAY's powerful on-board computer will enable it to locate and destroy enemy submarines quickly in both deep and shallow water (with a particular emphasis on its capability in the latter). The future heavyweight torpedo (paragraph 4 above), which is intended to enter service some years after STING RAY, will be designed to achieve greater depth and speed. Improvements to STING RAY that may be required in due course could in turn include increased speed and depth (neither the sealing of the propeller shaft nor the strength of the hull inhibit the possibility of designing for greater depth), but such improvements will have to be founded on a review of a range of factors including more certain knowledge of the "Alpha" class than we now possess.

7. As for compatibility, STING RAY will be capable of employment from a full range of launch platforms on RN ships and helicopters and Royal Air Force fixed-wing aircraft. It does not use the American Mk 32 launching system as suggested by Captain Moore, although that system could be modified quite easily for firing. This question does not arise for the Types 22 or 42 (mentioned by Captain Moore), as these ships will have the British STWS 2 tube-launch system specially designed for STING RAY but also capable of firing Mk 46 weapons when required. The need for IKARA to be capable of carrying STING RAY is recognised and is under consideration.

21 February, 1980.

BF 5/3 80

The Prime Minister recently met the Editor of Jane's Fighting Ships. As a result of their conversation, Captain Moore has sent the Prime Minister the enclosed paper on Torpedoes.

U The Prime Minister would be grateful for your Secretary of State's comments on it.

M. A. PATTISON



B.M. Norbury, Esq.,
Ministry of Defence.



10 DOWNING STREET

PRIME MINISTER

The attached letter from
Captain Moore encloses a paper
on torpedoes.

Would you like us to seek
Ministry of Defence comments on
the paper?

MD

*Yes please
not*

18 February 1980

18 February 1980

I am writing on behalf of the Prime Minister to thank you for your letter of 15 February, with which you enclosed a paper on torpedoes.

I know that the Prime Minister will be most interested to see this.

M. A. PATTISON

Captain J.E. Moore, R.N.

JANE'S YEARBOOKS

The Right Hon Margaret Thatcher
No. 10 Downing Street
Whitehall
London SW1

JANE'S FIGHTING SHIPS

from the Editor
Captain John E. Moore, R.N.

Elmhurst
Rickney
Nr. Hailsham
Sussex BN27 1SF, England

Telephone 0323 763 294

PPS

Your reference

our reference

date 15 February 1980

Dear Prime Minister,

18

It was most kind of you to ask my wife and myself to Chequers and we did appreciate it very much. As my wife had returned home only a week before after a long period in hospital it gave her a great lift to visit such a glorious place in such excellent company on a beautiful, almost spring-like, day. I do thank you most sincerely.

I enclose a paper on torpedoes which I realise is more than you asked for. I felt that a recapitulation of part of that weapon's history over the last forty years might be a help to you in understanding the doubts that a number of us feel over present claims. The total failure by the British over several decades to produce a single worthwhile torpedo had a pervasive effect on the high morale so necessary in submarines and caused a marked lowering of the Royal Navy's general anti-submarine capability. The introduction of the American Mk 46 saved the day and thank goodness our abilities in this direction were never tested in war.

The torpedo armament of the navy is only one aspect of the whole in which worries over ship design, submarine design, data handling and display in this era of incredible advances in micro-processor techniques are dwarfed by concern over the ability of an over-swollen ministry to cope with modern problems. The mess of self-generated paper work resulting from inflated staffs and a massive committee structure ensures that no longer is there any possibility of the naval staff, or ministers for that matter, to have what Winston Churchill desired for his original naval support, "the time to think."

The torpedo paper is designed to allow you to consider the Stingray section as a separate entity which can be added to the longer piece to give an overall picture of the situation.

Yours sincerely

John Moore

TORPEDOES

by

CAPTAIN J. E. MOORE, R.N.

T O R P E D O E S

Introduction

During the early part of the last war we had one aim which was shared by our opposite numbers in German and American submarines - the replacement of our torpedo designers by people who could provide us with weapons which would be accurate and effective. There was nothing more frustrating than finding, after penetrating a destroyer screen and achieving a perfect firing position, that the torpedoes failed to explode, hit the bottom or, sometimes, circled round and pursued one's own submarine. In the case of the Germans considerable advances had been made by 1942 and in 1945 65% of the torpedoes used by US submarines were of the Mark 18 Type, an electric torpedo developed from a captured German G7e torpedo. British submarines were still using the Mk VIII, a development of a design produced by the R.N. Torpedo Factory in 1928, propelled by a semi-diesel engine, with the possibility of the electric driven Mk XI, although the latter was rarely encountered.

Post-War

In the immediate post-war years it became evident that the submarine could be a most potent anti-submarine weapon system if a suitable torpedo could be produced for this purpose. Sonar systems were improved but not before time. The dived speed of submarines had been dramatically increased from 8-9 knots to 16-17 and, when USS Nautilus put to sea in 1955, this figure rose to over 20 knots for virtually unlimited periods. By 1967 the Soviet navy was commissioning submarines capable of 30 knots and, in 1970, they had built the first of the "Alfa" class. This submarine clearly posed major problems and it is only in the last few years that the class

has gone into slow series production. With a titanium hull giving a diving depth of some 3,000 feet (as opposed to the more general 900-1,000 feet) the "Alfa" is apparently capable of 40 knots. No doubt this is an extremely expensive boat to build but, it has proved that modern technology is capable of providing boats which are faster and deeper diving than very nearly all Western torpedoes, whether they be launched from ships, aircraft or submarines.

Current US situation

The use of torpedoes for surface ship engagement under conventional rules was finally brought to a halt by the introduction of surface-to-surface missiles. The torpedo became, primarily, an anti-submarine weapon for surface ships, although remaining the main armament for all purposes for submarines until the introduction of missiles which could be launched when dived.

The USN introduced the Mk 37 torpedo in 1957 primarily for submarine use, a weapon which, with various modifications, could be used as a free-running weapon with its own sonar set to home on to the target or as a wire guided weapon, also with sonar homing. In 1968 work on this torpedo was put in hand to improve its speed, range and acoustic homing capability - the result was the NT-37C conversion kit now supplied to such countries as Canada, Netherlands, Norway and several others, which includes a new Otto-fuel propulsion system to replace the electric motor.

In 1960 the Mk 45 (Astor) torpedo was introduced for submarine use. With a range of about seven miles this is a high speed weapon which can carry a nuclear warhead. Five years later a second nuclear weapon was introduced into US submarines, SUBROC. This is part of a complex weapon

system designed for use in nuclear propelled submarines, the solid-fuel motor providing supersonic speed once the missile has left the water, carrying a nuclear depth-bomb to a maximum range of 30 miles.

In parallel with these developments was one initiated in November 1956. This was for an anti-submarine torpedo of high performance, its original title being EX-10. By 1968 it had been decided that it should also have an anti-ship capability and a production contract for this dual-purpose weapon was awarded to Gould in July 1971. The fifteen years of research, development and trials have produced the most efficient Western torpedo in current production. Its speed of ⁵⁵~~50~~ knots comes from a gas piston engine using Otto fuel with a pump-jet propulsor in place of the normal propellers. Wire guidance in the latest (Mod 3) version is provided through a two-way link (Telcom) which was introduced in 1977 and this provides a continual control until the torpedo's own homing equipment can take over. In the case of a wire failure the torpedo can still carry out its task which includes multiple re-attacks if the first attack is unsuccessful. With a range of about 25 miles and a diving depth of 3,000 feet this torpedo now provides US and Australian submarines with the most effective weapon available, one for which Gould have further plans for improvement. These include a reduction of the required length by two feet due to the use of modern micro-processor techniques, which could result in the provision of more fuel and, hence, greater range. In addition probable improvements of the present acquisition range (4,000 yards at 40 knots) could mean the removal of the need for wire guidance, thus providing either a shorter torpedo or a longer range weapon. These are short term advances; in the longer term the ADCAP (Advanced Capability) plans suggest a 40% increase

in horse-power to give increased speed and range as well as an increased diving depth of 4,000 feet and an enhanced shallow water capability.

Other improvement plans have been introduced for the Mk 46 torpedo, of which Mod 1, which uses Otto fuel, was introduced into service in the USN in October 1965 for aircraft and ship use. The Mod 4 version of this torpedo is to be used in the Captor mine project and Mod 5 will be the improvement of those weapons now in service by the use of another conversion kit (NEARTIP). Further in the future of the Mk 46 are plans for an increase of the horse-power to 150 h.p., increased speed, as well as an improvement of the diving depth to 4,500 feet. What is interesting is the fact that those torpedoes operating on Otto fuel engines have no problems with the propellor shaft seals because the exhaust is fed back to the after-body to pressurise that section. Other torpedoes such as the German SUT and the Italian Type 184, both electrically propelled, have yet to surmount this dilemma. The current plans for the possible replacement of the Mk 46 are centred on the Advanced Lightweight Torpedo (ALWT) design which is unlikely to be in service until the late 1980s.

The British Situation

After the Mark XI vanished without ceremony the efforts of the underwater group at Portland (now Admiralty Underwater Weapons Establishment - AUWE) were directed towards the production of a torpedo which would home onto a submarine. The first of these weapons, Pentane, achieved little success other than sinking a boat-load of senior officers in the Clyde. In 1950 the development which resulted in the Mk 20 (originally Bidda)

was begun. This was to be a dual-purpose weapon aimed against both surface ships and submarines, and the importance of the "anti-escort" role was emphasized by the provision of "short" tubes in the stern of the "Porpoise" and "Oberon" class submarines, specifically designed for the Mk 20. Regrettably two things happened - the surface homing capability proved to be inadequate and the torpedo itself was inclined to burst into flames in high ambient temperatures. The information to be set on Mk 20 was spindle set, a cumbersome and unreliable method. This was to be replaced by an umbilical cord method (Mk 22), Mk 21 having, apparently, vanished from sight. The Mk 22 concept was in the public eye for only a short time when "Grog", later to become Mk 23, appeared. This became well-known for several reasons but the primary one was that this was the R.N.'s first wire-guided torpedo. Other considerations which exercised the operators were difficulties with the wire-guidance system and the somewhat idiosyncratic behaviour of the electric batteries. In my own squadrons none of my commanding officers had any faith in the Mk 23 but were somewhat relieved to be told that it was primarily intended as a training version before the introduction of "Ongar", later to be known as Mk 24. This weapon was due to be in operation by 1964 - in fact it was such a disastrous failure that, following representations by the Flag Officer (Submarines), a 1969 Government Select Committee into MOD(N) research and development procedures was set up. The recommendations of this Committee included:

- a) The cancellation of the Mk 31 lightweight torpedo programme which had already cost £5 million and was expected to cost another £10 million. In the event the Mk 46 was purchased from the USA to bridge this gap.
- b) The transfer of Mk 24 design and production to industry.

- c) The setting up of a committee under Sir Roland Baker (DG Ships) to find out what had gone wrong and recommend preventive measures in the future.

Amongst the findings of the Baker committee was that the failures had been due largely to inadequate documentation and that the way ahead should be plotted by a new body, the Torpedo Procurement Executive (TPE). Amongst its sub-committees was one dealing with the Mk 24 and, by 1971, the whole project had been farmed out to Marconi Space and Defence Systems Ltd (a subsidiary of GEC) who were vested with contractual responsibility for all torpedo manufacture in the future. Nevertheless it would not be surprising if sub-committees on such subjects as the Mk 23 do not gather from time to time. Other results of the ensuing witch-hunt were that a number of torpedo designers moved to other spheres and future torpedo design was borne ahead on a proliferation of paper and committee meetings. By 1978 the Mod 1 Tigerfish (ex-Mk 24) was in operational service in British submarines but it has its limitations;

- a) It has no swim-out capability and requires energy discharge.
- b) The basic technology is now about ten years old, although improvements are in hand.
- c) The practice and warshot weapons are not interchangeable, the practice variety having half the range of the warshot.
- d) The cost of the silver-zinc battery (about £60,000) is very high and the battery will last for only six practice runs.
- e) The inboard wire dispenser is incompatible with any torpedo tubes or fire-control systems other than those in British submarines.
- f) It is suggested that the total length of guidance wire is less than the torpedo's range.

Whether these problems lie behind the suggested "Experimental Development Vehicle (EDV)", "UK option", "Tigerfish Up-date" - the names seem to be synonymous - I don't know but, whatever the reasons, what appears to be on the agenda is a mixture of the front end of a Stingray shackled onto a Tigerfish mid-body and one of the four back ends of the US Mk 48 Mod 0 which have been imported. It would be interesting to know if these will all fit together but one thing is certain, the Mk 48 Mod 0 with the Sunstrand turbine will not produce more than 45 knots and the argument that it is quieter than the Otto fuel motor in the later Mk 48s is therefore academic. The speed advantage over the 40 knot "Alfa" class is insufficient and there is no evidence that this is the limit of Soviet capabilities.

STINGRAY

The cancellation of the Mk 31 torpedo, recommended by the Government Select Committee in 1969, forced the United Kingdom to adopt the American Mk 46 torpedo and the Stingray has been designed as the successor to the Mark 46. The minimum target for modern anti-submarine torpedoes is the Soviet "Alfa" class submarine, capable of 40 knots and a diving depth of 3000 feet. There is no evidence to suggest that these capabilities cannot be exceeded in the next decade or two. But even with the "Alfa's" current performance calculations suggest that any counter weapon would need a considerable speed advantage, possibly 55 knots, a depth advantage, possibly 4,000 feet, and a range of some ten miles. These figures allow for evasive action by the submarine and, therefore, a re-attack capability on the part of the torpedo.

Speed

The Stingray speed is reputed to be 45 knots, which, without a lot of luck, is insufficient to deal with a 40 knot submarine. This speed is also reputed to come from an 85 hp motor. To obtain a 10 knot increase in speed, assuming these figures to be correct, the cube function of the speed increase ratio would give a power requirement of 152 hp. The upgraded Otto fuel engine currently available is 150 hp - once again the question of the radiated noise of this engine as compared to an electric motor or turbine could be raised but the objections would seem to be outweighed by the speed advantage.

Depth

The Stingray is reputed to have a depth capability of 2,500 feet, insufficient to attack a submarine at 3,000 feet. Its shallow water capability

is indeed a great advantage but any self-respecting submariner who has a deep-diving capability in his boat will use every inch of that for evasion. Therefore Stingray could be effective within the continental shelf but would be ineffective in anything over about 400 fathoms. If this depth limitation is fact it may be due to either one or both of two factors - problems with the stern gland sealing or the strength of the hull itself. The use of an Otto fuel engine would overcome the former by the use of the exhaust to pressurise the after-body and the latter might be overcome by pressurising the whole body.

Homing Head

An increase of speed might require some re-engineering of the head although this will probably become clearer when full trials have been carried out.

Compatibility

It is worth ensuring whether Stingray can be carried by Ikara, currently fitted in "Leander" class conversions. If this is not so, due to it being heavier than the Mk 46, that particular A/S weapon will require separate provision of torpedoes if the Leanders are retained beyond a 20 year hull life.

If the extra weight poses problems for Stingray's discharge from Mk 32 torpedo tubes as fitted in the Types 22 and 42 (Broadsword and Sheffield classes) then it will have to be helicopter launched. Further problems would then arise in the Type 42 if its one helicopter were unservicable when required.

Comments

These remarks on the Stingray are based on what knowledge is available, both manufacturers and MOD (N) officials being somewhat reticent. If the facts as stated are wrong the argument is naturally invalid - if Stingray can run at 55 knots at 4,000 feet over a satisfactory range then its proponents have a cast-iron case. However, after nearly forty years association with submarines, forty years in which British designers have produced only one torpedo, the Tigerfish, which has any pretensions to operational efficiency (coupled with several disadvantages), it is difficult to accept current claims, which are not dissimilar in their enthusiasm to those expressed over past failures, until those claims are backed by satisfactory trial results.



SECRET

Defence 8

PRIME MINISTER

Future Lightweight Torpedo
(OD(79) 22)

BACKGROUND

When OD discussed this on 23rd July, you concluded by saying that while the operational case for the new torpedo appeared strong, the Committee was concerned at the way its costs had risen and seemed likely to go on doing so before it came into service. You therefore asked for more cost information about the impact of the cost on the defence budget and public expenditure.

2. This additional cost information has now been produced and is agreed as between the Ministry of Defence and the Treasury. Paragraphs 3 and 4 below deal with this, while paragraph 5 deals with a much wider point which is relevant to your decision to have all the Chiefs of Staff present tomorrow.

3. The new cost information shows that, although in its earlier stages the project suffered from serious mismanagement, proper corrective action has now been taken; and that it should be possible to complete the project successfully. It describes the very big increase in the estimated cost of the development and production of this torpedo since 1973 but shows that this position now seems to have stabilised since the estimate prepared in the autumn of 1978 remains valid except for increases due to inflation and additional VAT. The paper also shows that there is a substantial contingency allowance included in the existing estimate to allow for further difficulties which might arise. Finally, there is an important footnote to Annex D of the costings paper which indicates that the American Advanced Lightweight Torpedo is showing signs of increasing significantly in cost.

4. On this the questions to probe seem to be:-

- (a) What degree of confidence does the Ministry of Defence have that they have fully identified the remaining risk areas in this project? Has not the history of other advanced technological programmes shown the likelihood of completely new problems (e. g. on the homing and guidance system) cropping up in unexpected areas at a late stage?



SECRET

- (b) Annex D to the cost information shows the financial saving of cancelling Stingray and procuring Neartip. Are the operational advantages of Stingray over the American torpedo really worth this extra outlay?
- (c) From an industrial point of view, are there likely to be sufficient overseas sales or other projects to occupy the United Kingdom industry created to manufacture Stingray once the needs of our own forces have been met?
- (d) Our annual investment in anti-submarine forces, for whom the lightweight torpedo will be one of the principle weapons, is difficult to quantify precisely; but is of the order, including running costs, of something like £400-£500 million a year. Against an outlay of this order, is it worth accepting a second best weapon in terms of operational performance?
- (e) If Stingray is cancelled, it will be the second lightweight torpedo project in succession to suffer this fate. (Mk 31 being the first). In these circumstances will we retain any indigenous industrial capacity to provide a basis for collaboration with allies or will British industry have lost too much confidence?
- (f) If we cancel Stingray and lose the associated industrial capacity, we shall become totally dependent on overseas suppliers, probably the United States, to meet our future needs in this field. In view of its operational importance to us, is this consistent with our long term interests?

5. There is however a much wider point. Whatever the level of the Defence Budget (and of course, despite Mr. Pym's undertaking to "absorb" Stingray within it, no figures for it have yet been agreed for the later PESC years), the fact remains that the extra cost of Stingray means that there is around £500 million (the cost difference between Stingray and Neartip) less to spend on something else. Is Stingray therefore a good buy as compared to e.g. more tanks or more aircraft? This is a perfectly valid question which the present Ministry of Defence organisation is not well suited to answer.



SECRET

The three old Service Departments persist to far too great an extent, successive Chiefs of the Defence Staff have failed to distance themselves from the other Chiefs of Staff in terms of taking a personal view on priorities between them, and the concept of equal misery (or relief) still prevails. I believe myself that at some stage you should encourage Mr. Pym to grasp the nettle which all his recent predecessors have avoided (i. e. a full integration of the Ministry of Defence). Clearly you will not want to do that tomorrow: but your questioning about priorities could begin to point the way.

HANDLING

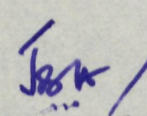
6. You will wish to ask the Secretary of State for Defence to introduce his paper. The Chancellor of the Exchequer should speak next. He is likely to continue to argue the case set out in his minute to you and OD colleagues dated 23rd July. He will suggest that the American alternative Neartip will be cheaper than Stingray; that it meets the operational requirements of the United States and other NATO navies and ought to be sufficient for our needs; that it does not share the technical risks which still exist in the Stingray programme; and that its purchase would allow us to relinquish an indigenous torpedo building capacity which simply duplicates something which exists on a larger scale in the United States.

CONCLUSION

7. The answers to the questions in paragraphs 4 and 5 above are likely to produce a difficult choice between short term financial advantages and our longer term maritime defence interests. The key to the issue is probably the readiness of the Secretary of State for Defence and the Chiefs of Staff to give the project the necessary degree of priority within the defence budget and whether they can satisfy you that this issue of priorities has been properly thought through. If so, the conclusions would be:-

- (i) that we should continue with Stingray as proposed by the Secretary of State for Defence;
- (ii) that the Committee should be informed if the project looks like running into further serious trouble;
- (iii) that prospects for collaboration and exports should be actively pursued.

18th September 1979


(John Hunt)



SECRET

Defence

5

Ref. A027

PRIME MINISTER

OD: Lightweight Torpedo

Paragraph 5(a) and (b) of my brief for this item raised some doubts about Sting Ray: but I assumed that OD were likely to give the go ahead because I had been told that the Chancellor of the Exchequer would not press his opposition to the project.

4. His minute of today makes it clear that I was misinformed. (Some members of OD may not have seen it and we shall have spare copies available for handing out if necessary). There is one point which I would like to add to those made by the Chancellor. Mr. Pym says (paragraph 7 of OD(79) 17) that he is prepared to accommodate Sting Ray "within whatever Defence budget ceilings are agreed". This is however a circular argument. The Cabinet have not yet approved the Defence budget for the later years, and once Sting Ray has been approved it will be that much harder to contain the Defence budget within what the Cabinet are likely to think would be a reasonable level.

JH

(John Hunt)

23rd July, 1979

DD

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S E C R E T



DEPARTMENT OF INDUSTRY
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TELEPHONE DIRECT LINE 01-212 3301
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Secretary of State for Industry

23 July 1979

Bryan Cartledge Esq
Private Secretary to the
Prime Minister
10 Downing Street
London SW 1

Dear Bryan

LIGHTWEIGHT TORPEDO

My Secretary of State regrets that he will not be able to attend the OD meeting on 23 July, as he is making a statement to the House on shipbuilding.

I should, therefore, like to record briefly my Secretary of State's views on the Secretary of State for Defence's Memorandum OD(79)17. He endorses the conclusion that STING RAY should proceed and believes that it is providing a major opportunity for UK industry to gain experience in the application of advanced technology systems which will be of benefit not only to the UK capability in lightweight torpedoes, but generally in the field of advanced systems analysis and the application of microprocessors.

He would also suggest, however, that the industrial implications of major defence procurement decisions need to be taken into account as early as possible in the decision-making process. In circumstances where resources are inevitably restricted, my Secretary of State feels that it is important that the relative benefits to UK industrial capability of different defence requirements are assessed in the broad context of our industrial interest and the competition position of UK firms.

I am sending copies of this letter to the Private Secretaries to the Members of OD and to Martin Vile.

*Yours sincerely
Peter Mason*

PETER MASON
Private Secretary

TOTAL COPIES 16

COPY No. 1

S E C R E T



Treasury Chambers, Parliament Street, SW1P 3AG
01-233 3000

PRIME MINISTER

FUTURE LIGHTWEIGHT TORPEDO

The Defence Secretary recommends in OD(79)17 that we should continue development and production of Stingray at a total estimated cost of £700 million at September 1977 prices (around £800 million at today's prices).

2. The alternative is to buy Neartip from the Americans at a total estimated cost of £150 - 200 million at September 1977 prices (less than £250 million at today's prices and exchange rates). The cost difference is therefore some £550 million. The operational arguments in favour of Stingray would need to be exceptionally strong before they could overcome such a compelling financial case.

3. In considering this balance, we must give adequate weight to the following factors:

- (a) The cost estimates for Stingray have grown explosively. The original development contract (approved in 1973, to be in service by 1979) was at an estimated cost of £26 million. Today's estimate of the development cost (for service in 1983) is £260 million. Even since 1977 there have been real increases of 45 per cent and 27 per cent in the costs, respectively, of development and production.



- (b) Stingray has already suffered major technical setbacks and, although £75 million has already been spent, there are still significant risk areas (warhead, propulsion and homing systems) which could lead to further time and cost overruns; Neartip however is a modification of a proven torpedo (the Mark 46) already in use in the Royal Navy;
- (c) Neartip is considered adequate to meet the US Navy's operational requirements through the 1980s and is likely to be purchased by other NATO navies. There are few signs of overseas interest in purchasing Stingray.
- (d) Neartip, while not fully meeting the Royal Navy's operational needs, will allow some improvement in capability over the present Mark 44 and 46 American torpedoes the Royal Navy operate, and could be in service in substantial numbers at least a year sooner than the earliest deliveries of Stingray.
- (e) The industrial and employment arguments in favour of Stingray are not strong. It does not seem essential to establish an indigenous torpedo building capacity to duplicate that in the US on which we and other NATO allies have relied hitherto. Cancellation of Stingray is said to give rise to "no significant employment problems".
- (f) The advanced lightweight torpedo (the planned US successor to Neartip) has better design specification than Stingray, should be available to us within five years of the time Stingray will enter service in numbers, and would enable us to avoid the expense of developing a Stingray successor (theoretically in collaboration with allies but in practice much more probably on our own).



4. If we develop Stingray to completion we shall have established an indigenous torpedo making industry, at heavy cost, which will lay claim to future orders and support, whether or not we can meet our requirements more economically from existing US sources. The additional cost of Stingray over Neartip (the bulk of which arises in the shorter term, when our public expenditure difficulties are at their most acute) adds to the substantial and growing pressure which the defence budget imposes on national resources. Purchase of Neartip would however free significant resources for alternative use. In my view the financial considerations point overwhelmingly to the cancellation of Stingray and the purchase of Neartip, and in due course the advanced lightweight torpedo, from the Americans.

5. I am sending copies of this minute to the other Members of OD and to Sir John Hunt.

(G.H.)

R/23 July 1979



SECRET

PRIME MINISTER

Future Lightweight Torpedo
(OD(79) 17)

BACKGROUND

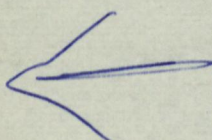
Our forces need a new lightweight torpedo (LWT) for the 1980s. Our present (American) ones are obsolescent. The Secretary of State for Defence's paper (OD(79) 17) argues that we should go on developing and produce our own LWT, Sting Ray, at an estimated total forward cost of over £700 million which he is prepared to accommodate within the Defence Budget. The Chancellor of the Exchequer is expected to argue that we should instead make do with an American option, Neartip, which is estimated to cost only £200-£250 million. The Secretary of State for Defence would not regard this as militarily adequate; and the Chancellor is not likely to press his opposition.

2. The above cost estimates are at 1979 prices. The Sting Ray figure is £800 million, less £75 million already spent. It has risen by over 30 per cent since 1977, in real terms. Our track record with torpedo development has been bad: the previous LWT project had to be cancelled before completion, and our existing heavyweight torpedo had a chequered history before coming into service. Commercial management of Sting Ray, by one of Sir A. Weinstock's Marconi companies, has been bad. But the Secretary of State for Defence believes that it will improve in the light of new arrangements, including an incentive contract, now being worked out.

3. For the 1990s we shall need a new LWT generation. If we go for Sting Ray, it could be followed by a stretched version, Barracuda, on which collaboration with the French may be possible. If we went for Neartip, we should have to buy the Advanced LWT which the Americans are just starting to develop (collaboration with the United States is not expected to be possible). The cost of these alternatives is unknown.

4. If Sting Ray was cancelled, the British torpedo industry would probably not survive. This would be an industrial and military loss. But the employment effect would not be serious.

But see his mind below. 247





SECRET

HANDLING

5. You will wish the Secretary of State for Defence to introduce his paper and the Chancellor to comment. Key points for the subsequent discussion are as follows:-

- (a) The Military Requirement. How important to us, operationally, are LWTS? Why are the Americans content with Neartip for the 1980s? Why are the French content to carry on through the 1980s with weapons we regard as obsolescent? The answers probably lie in the fact that only Sting Ray can hope to prevent Soviet submarines, in our shallow coastal waters, from cutting the sea communications on which as a far from self-sufficient island we so heavily depend.
- (b) Cost Considerations. How likely is further large cost escalation in real terms? If the cost does grow, can the Defence Budget still absorb it? Above all, is the Secretary of State for Defence satisfied that the new arrangements envisaged will prevent Sir A. Weinstock from achieving vis-a-vis the Government the heads-I-win-tails-you-lose position enjoyed by the manufacturers of Concorde?
- (c) Collaboration Prospects. How reliable are the prospects of French collaboration on LWTs for the 1990s (Barracuda)? How important are they in the general pattern of our industrial and technological relations with France? Could we not also try to interest the French in collaborating on at least the production of LWTs for the 1980s (Sting Ray)?
- (d) Export Prospects. Against the competition of the Americans, with their larger production runs, how real are our export prospects for Sting Ray or for Barracuda? Which countries do we hope to interest? How? When? If the Americans are serious about Alliance weapon standardisation, as something more than a euphemism for everyone buying from them, should we try to interest them in buying from or collaborating with us in this field where we expect to have the edge in terms of military effectiveness?

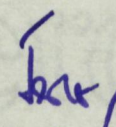


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CONCLUSION

6. Subject to the discussion you may wish to guide the Committee to conclude:-

- (i) that we should continue with Sting Ray as proposed by the Secretary of State for Defence;
- (ii) that the management and cost of the project should be much more carefully monitored than in the past;
- (iii) that prospects for collaboration and exports should be more actively pursued.


John Hunt

20th July, 1979

Grey Scale #13



A 1 2 3 4 5 6 **M** 8 9 10 11 12 13 14 15 **B** 17 18 19

