[redacted]

Commander Wooley is most anxious to delve into our collection of photographs, but I took the liberty of instructing him not to do so until you had seen the attached and indicated your desires.

F. J. F., Jr.

Office of the Executive Officer

(30449) CONFIDENTIAL

CONFIDENTIAL

CHIEF OF COMBINED OPERATIONS REPRESENTATIVE
BRITISH JOINT STAFF MISSION

1629 VERMONT AVENUE, N.W.
WASHINGTON 6, D. C.

Ref: M/1/116. 28th July, 1944.

Commander H.C.A. Woolley, R.N.,
O.S.S.

PHOTOGRAPHS OF [illegible] BEACHES

A broadcast appeal was made in England to the general public asking for photographs of the Far East. C.O.H.Q. are most anxious to know what steps are being taken to collect photographs from the mainland and if any special emphasis has been given to any particular area in the Far East. They would also like to know, if possible, if any photographs with particular reference to the coastline of Japan and neighbouring islands are in the O.S.S. collection.

I should be grateful if you would expedite this matter as it is of some urgency.

J. Sysonby.

Lt.Colonel,
for C.C.O.R.

CHIEF OF COMBINED OPERATIONS REPRESENTATIVE
BRITISH JOINT STAFF MISSION

1800 VERMONT AVENUE, N. W.
WASHINGTON 6, D. C.

[illegible] 1954

Ref: Y/3/101.

The Director,
Office of Strategic Services,
25th and E Streets, N.W.,
Washington, D.C.

The enclosed film which was taken [illegible] recent visit of the H.M.S. Glasgow to this [illegible] only to give the Chief of Combined Operations [illegible] and is [illegible]

[illegible]

[illegible], Captain, Royal Navy,
Chief of Combined Operations Representative.

Mr. Mayo

12 June 1944

Secretariat

The attached copy of letter from the British Joint Staff Mission is forwarded for your information.

Duncan C. Lee,
Major, AUS
Chief, Secretariat

Attachment:
Ltr. dated 10 June 1944

DCL:mr

BRITISH JOINT STAFF MISSION
OFFICES OF THE COMBINED CHIEFS OF STAFF
WASHINGTON

10th June, 1944.

Ref: Y/2/48.

Col. G.E.Buxton,
Acting Director,
Office of Strategic Services,
25th & E.Streets, N.W.,
Washington, D.C.

Dear Colonel Buxton,

I write to acknowledge with thanks your letter of the 7th June, and much appreciate your kind and valuable assistance in arranging that the equipment requested will be sent to the Chief of Combined Operations.

Yours sincerely,

H.D.TOLLEMACHE, Captain, Royal Navy.
Chief of Combined Operations Representative.

SECRET

7 June 1944

British Joint Staff Mission
Offices of the Combined Chiefs of Staff
Public Health Service Building
Washington, D. C.

Attention: Captain H. D. Tollemache

Gentlemen:

In compliance with your request dated 29 May 1944, action has been taken by this agency to procure the equipment covered by the list attached thereto.

It is, of course, difficult to give you any definite information at this time as to the date of delivery. However, the equipment will be assembled and delivered as soon as possible. Any questions which may come up in connection with this matter may be taken up with Mr. W. M. Mayo, Chief, Procurement and Supply Branch, Office of Strategic Services.

We beg to note your statement that it is not intended to establish this method of obtaining supplies as a standard procedure.

We are pleased to have participated in the visit of the S.E.A.C. Mission, and to have been able to exchange operational ideas with them.

Sincerely yours

SECRET

C. Edward Buxton
Acting Director

SECRET

BRITISH JOINT STAFF MISSION
OFFICES OF THE COMBINED CHIEFS OF STAFF
WASHINGTON

29th May, 1944.

Commanding General,
Office of Strategic Services,
Washington, D.C.

On behalf of the Chief of Combined Operations I would like to express our thanks and appreciation for all your kind co-operation in connection with the S.B.J. Mission, who have now completed their tour in the United States.

We think their visit has been most successful, and great interest has been shown in their demonstrations, and we are indeed grateful for the help and good offices which you have given to us and which have contributed so largely to the success of the visit.

I attach herewith a list of the equipment which, during their tour, this Mission have seen, and which we feel would be of great interest to the Chief of Combined Operations in London. We would be most grateful if you would be kind enough to arrange for the items shown on this list to be forwarded to the Chief of Combined Operations, C.O. Stores Depot, West Leon, Hants.

I would emphasise that our wish for these samples is an emergency measure, and it is not intended to establish this method of obtaining supplies as a standard procedure. We would, therefore, be very grateful if you could see your way to arranging this.

Thanking you again for your kind co-operation,

H.D.TOLLEMACHE, Captain, Royal Navy.

Chief of Combined Operations Representative.

Copy to: Payr.Cdr. H.G.A.Woolley, R.N.
Squadron Leader P.Levy

List A

	Item	Quantity	Stores Reference
1.	Shark Repellant	6	
2.	Vinol Water Bag	2	Sample 283 (Emergency Rescue Service)
3.	Styrofoam	Sample Jar--Only if bulk available	
4.	Goodyear Sole	2 pairs	Army special equipment
5.	Covers, Waterproof--Pistol	1000	P.Q.D. No. 377A
6.	Machete, U.S. True Temper	2	TT-19-1943
7.	Sleeping Bag and waterproof Cover with zipper	2	Army special equipment
8.	Boots, ski, mountain, with rubber cleated soles	2 pairs	" " "
9.	Shoe pac		" " "
10.	Boots, jungle, with insole ventilated	2 pairs	" " "
11.	Socks, cushion sole	2 pairs	" " "
12.	Sheets, Vinol, 36" or 48"	6 yds.	3/1000 gauge
13.	Sheets, Vinol, 36" or 48"	6 yds.	8/1000 gauge
14.	Tape, waterproof, pressure sensitive for use with items 13 and 14		
15.	Mirror Heliograph	2	Emergency Rescue Service
16.	Plastic Monocular	2	Major Geoffries, O.S.S., Hq., S. Building
17.	Hammock (nylong)	2	Seen at M.C.Hq., Quantico
18.	Signal Wand	2	Made by Signal Service Corp., New Jersey, 1239 Springfield Avenue
19.	Damage Control Light	2	Navy, type 25 lbs.
20.	Seven man rubber boat	1	Naval pattern made by Firestone
21.	Outboard motor platform	1	
22.	Johnson 9/10 H.P. waterproofed engine	1	

23.	U.S. Army blasting machine	2	10 Cap., Type No. 6907 No. 2 Made by Electric Co., St. Louis
24.	U.S. Army Blasting Galvonometer	2	Model No. B.G. The Lionel Corp., New York
25.	M2 Fuse Lighter	2	
26.	Firing Device MK3		Automatic Temperature Control Co., Philadelphia
27.	A.Film, Amphibious Reconnaissance Patrol	1 copy	Colored, I.T.F.--AM-4
	B. " " "	1 copy	Black & White, MN 2686 (obtainable from Distribution Unit, Room 3716, Arlington Annex, See Lt. Bernard, Washington)
	C. Film re Flying Matt ess		U.S.I. Presentation Branch, Auditorium Building, 19th and Sts.
28.	Marine Corps entrenching tool	2	
29.	Periscope (Sketching Board)	2	If not in production, 12 pamphlets
30.	Iconoscope		If not in production, 12 pamphlets
31.	Ear plugs	Sample Box	
32.	Field Photographic Folding Developing and Enlarging Kit	2	Lt. Comdr. Sol Halfrin
33.	Pamphlet, "Under Water Depth Determination"	12	
34.	Pamphlet, "Iconography"	12	
35.	Pamphlet, "Perspective thru Periscope"	12	
36.	Pamphlet, "Pilots Iconometer"	12	
37.	Fluorescent tape, 3"	1000 yards	
38.	A. Mountain Cooking Set	50	
	B. Stove, cooking, gasoline, one burner	50	1-1942 (misc.)
	C. Container, fuel, one quart	50	

39.	Prisms, trihedral, mirror	24
40.	Marine Corps wire cutters	24
41.	Matches, waterproof	4 doz. boxes
42.	Cardboard morsing card	100

Standard Products, Utah, 1943

These two items were shown the Mission by Mr. Tiecke (late of OSS) Tel, Glebe 4054.

s Form 1206

SECRET

FROM:

ROUTING AND RECORD SHEET

Accession No.

Date Rec'd SA

To	Room No.	Date Rec'd	Date Fwd'd	Officer's Initials	Comments
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

Each comment should be numbered to correspond with number in To column.
A line should be drawn across sheet under each comment.
Officer Designations should be used in To column.
Each Officer should initial (check mark insufficient) before further routing.
Action desired or action taken should be indicated in Comments column.
Routing sheet should always be returned to Registry.
For Officer Designations see separate sheet.

SECRET

FORM 5041a

Date [redacted]

To: Mr. [redacted]

Please return to the Secretariat when this document has served your purpose.

C. A. Bane

C. A. Bane

Office of the Secretariat

(5-49)

B.J.S.M./000

MCST

BRITISH JOINT STAFF MISSION
OFFICES OF THE COMBINED CHIEFS OF STAFF
WASHINGTON

17th December, 1943.

Commanding General,
Office of Strategic Services,
Washington, D.C.

With the compliments of the

Chief of Combined Operations Representative.

Copy No .13....

C.O.H.Q. BULLETIN No. W/1.

JAPANESE DEFENCE POSITIONS IN NEW GUINEA

and

SMOKE-LAYING TO SCREEN LANDINGS.

Issued by:

Combined Operations Headquarters,
1a, Richmond Terrace,
London, S.W.1.

Ref: W/[illegible]/5. December, 1943.

COMBINED OPERATIONS HEADQUARTERS.

BULLETIN No. W/1.

DISTRIBUTION LIST.

To	Copy No.
C.C.O.R.	
C.C.O.R. Washington and for distribution to following Authorities:-	1-14
Operations Division, War Department General Staff.	
G.3. War Department, General Staff.	
Commanding General, Army Ground Forces.	
Commanding General, Army Air Forces.	
Amphibious Section, Readiness Div. Office of COMINCH, U.S. Navy.	
Commanding General, Army Service Forces, War Department.	
Commandant, U.S. Marine Corps, H.Q. U.S.M.C., Arlington, Va.	
Commanding General, Command & General Staff School, Fort Leavenworth, KANSAS.	
Commander, Pacific Fleet Amphibious Force, San Diego, Cal.	
Commanding General, Officer of Strategic Services, Washington, D.C.	
Commandant, Army & Navy Combined School, New War Department, Washington, D.C.	
B.A.S.	
U.S. FORCES.	
Comdr. Atlantic Fleet Amphibious Force (to U.S.N.O. for forwarding)	15-18
Military Attache, American Embassy, Grosvenor Square.	19
H.Q. ETOUSA.	
H.Q. ETOUSA and for distribution to following:-	20-27
(G.4)	
(G.3)	
Ordnance Department	
Assault Training Centre	
Publication Division	
Chief Intelligence Division	

/ROYAL ...

To	Copy No.
ROYAL MARINE & ARMY FORMATIONS & UNITS AND TACTICAL AIR FORCE.	
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The following information has been received from G.H.Q. India.

The diagrams illustrate two Japanese positions in NEW GUINEA, centred on roads which are likely lines of enemy approach.

2. An interesting point to note is that both in the South West Pacific area and Burma the Japanese sometimes site machine gun positions in groups of two to five. In one large locality (Diagram A1) now being dug in Burma there are seven pillboxes in an area roughly 200 yards long by 100 yards wide. Some of these of course may be alternative positions.

3. This compact defended locality is 8 miles North West of the defended town of Lae and is constructed in a plantation area. Its primary task is to provide ground resistance. A strong trench and bunker system radiates from the house in the centre and it may be assumed that most of the bunkers contain gun positions. A trench system with revetments is on the East and West sides of the house. Seven machine guns are near the West trench. A.A. protection is provided by a light A.A. gun East of the house and two A.A. guns to the North.

4. A.A. defence appears to be the primary task of the position situated one mile from Lae on a plateau sloping slightly West. (See diagram B1). To protect the A.A. guns an intricate trench system has been constructed, and clearings have been cut in the plantations to give better fields of fire. The enemy have built a platform in a tree 200 yards North East of the Eastern tip of the rifle range, which serves as an observation post.

Smoke Laying for Landing.

5. Japanese plans for the use of smoke to screen the landing of troops and supplies from air attack at and near Lae, New Guinea, are revealed in enemy documents which are paraphrased below.

6. Three squads were selected for the operations under the direction of a Lieutenant. Each squad was given the task of screening a separate area. (See Diagram A2).

Personnel and Equipment.

Squad	Strength	Craft	Equipment
No. 1	1 Officer 2 N.C.Os. 20 men	3 Collapsible Boats If needed, an armoured boat will be allotted	(i) 200 floating smoke candles (ii) 10 large non-floating smoke candles (iii) 160 small non-floating smoke candles.
No.2	1 N.C.O. 15 men	3 Collapsible Boats	(i) 100 floating smoke candles (ii) 7 large non-floating candles (iii) 120 small non-floating candles
No.3	1 N.C.O.	3 Collapsible Boats	(i) 100 floating smoke candles (ii) 7 large non-floating candles. (iii) 120 small non-floating candles.

/2 ...

SECRET

In addition to the equipment shown above, 400 floating smoke candles were to be held in reserve.

Laying the Screen.

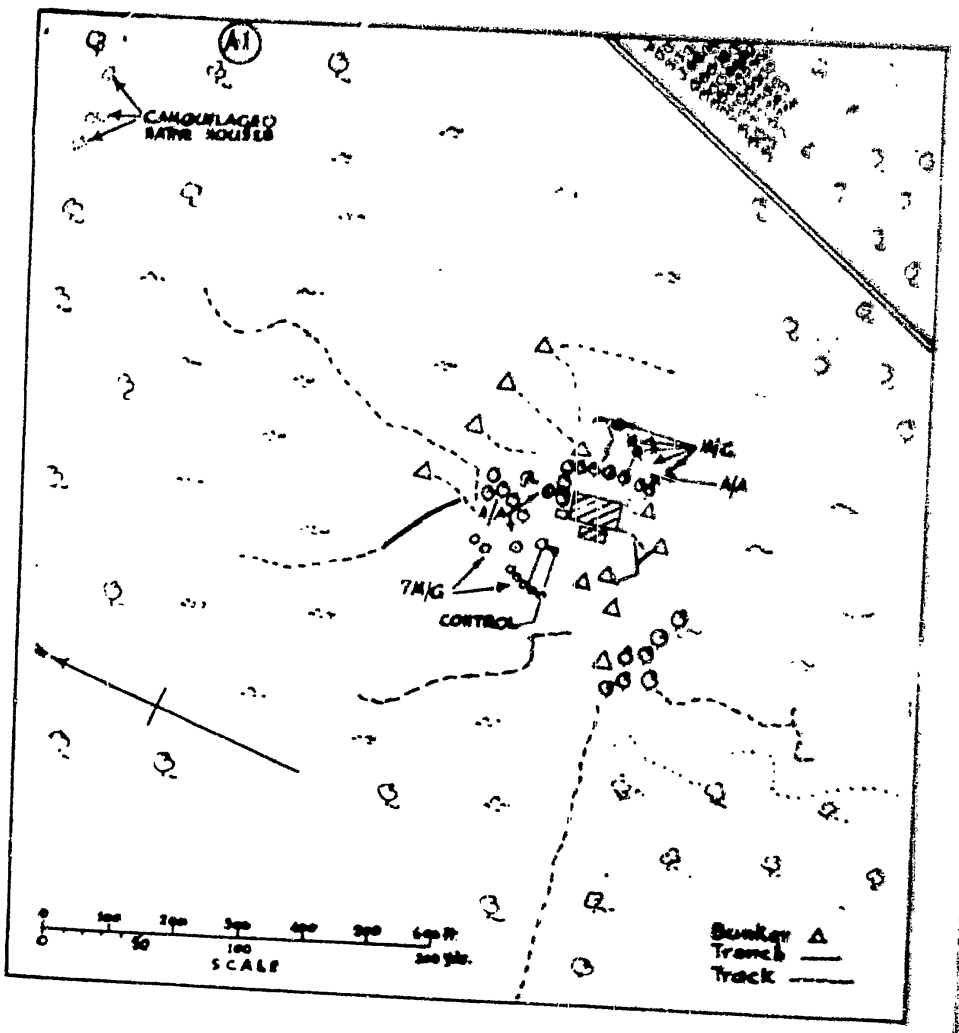
7. The signal for the commencement of the operations will be a red dragon parachute flare. All smoke candles will be lighted at the same time.

8. The main smoke operations are to be carried out by the boats over the designated water areas. Smoke operations will also be carried out over land according to circumstances. (See Diagram D.2.).

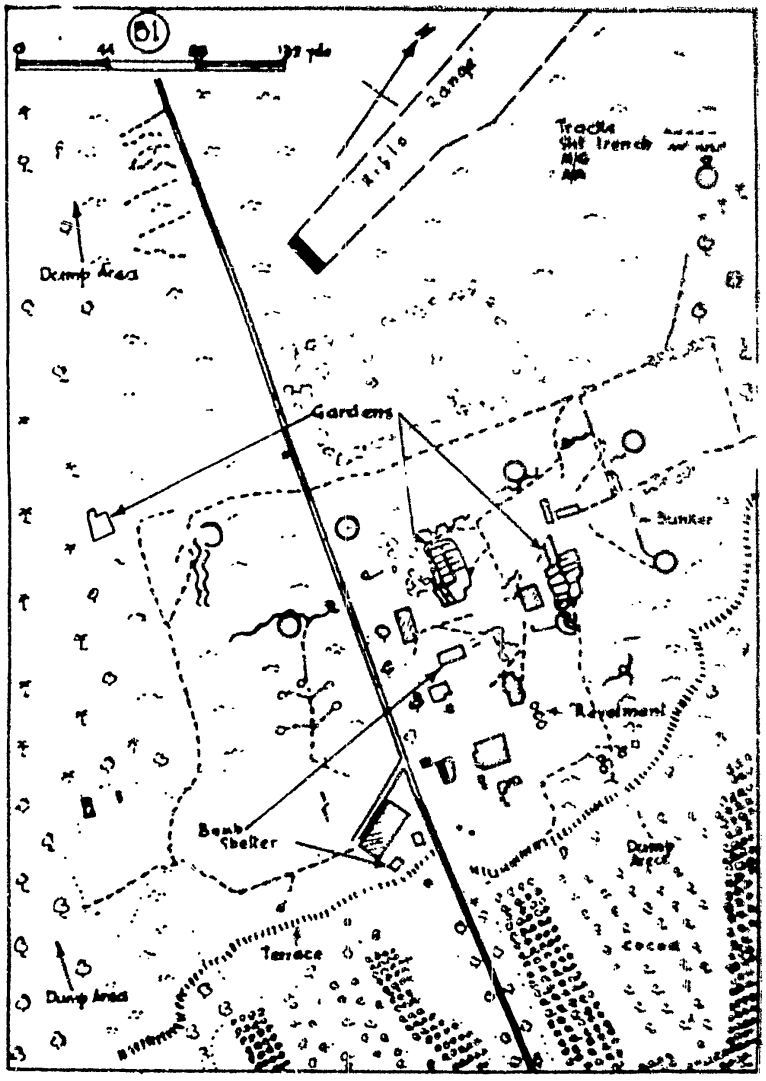
Issued by:

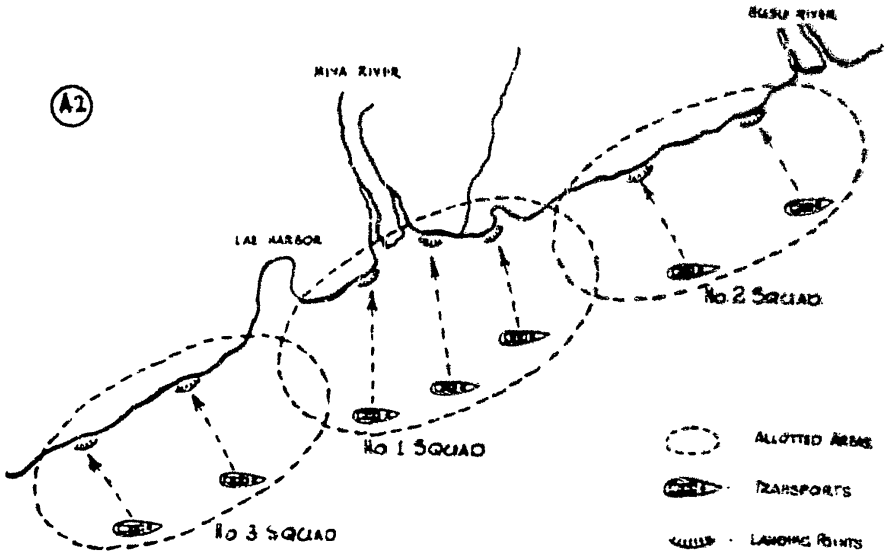
Combined Operations Headquarters,
1a, Richmond Terrace,
London, S.W.1.

Ref: 1/DRT/2A/5 November, 194-



MOST SECRET

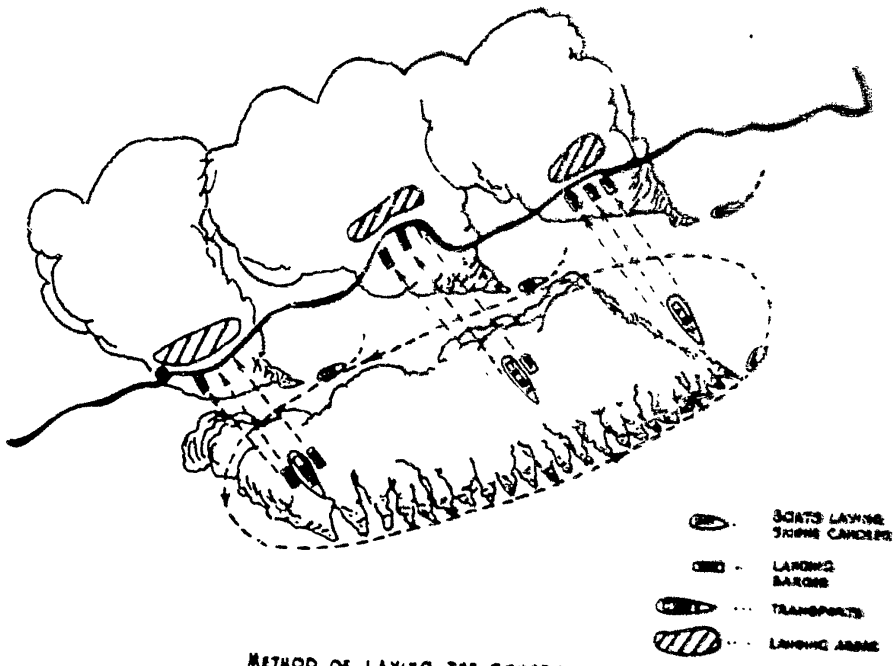




SMOKE TASKS OF THE SQUADS

MOST SECRET

(12)



METHOD OF LAYING TAR SCREEN

MOST SECRET

SECRET

Commander H. G. A. Woolley 22 December 44

The Secretariat

1944 DEC 22 PM 5 45

British Combined Operations Headquarters Monthly Information Summary.

OSS

The distribution of the C. O. Headquarters Monthly Information Summaries, as proposed in paragraph #5 of your memorandum of 19 December, seems to be perfectly proper. In those cases in which you believe that there is information of particular interest to the Director, you might wish to send the Summary initially to the Secretariat for transmittal to the Director.

C. A. Bane
Lt., USNR
Chief, Secretariat

ea

SECRET

SECRET

OFFICE OF STRATEGIC SERVICES
WASHINGTON, D. C.

December 19, 1944

From: Commander Woolley
To: Lt. Robert Thrum, Secretariat

Subject: British Combined Operations Headquarters Monthly Information Summary.

1. C. O. Headquarters Monthly Information Summaries have hitherto been sent direct by C. C. O. R., Washington, to the Deputy Director, O. S. S.

2. C. C. O. R. has decided to send any material for O. S. S. through me in the future so that I may have knowledge of the material received.

3. The Monthly Information Summary #18, together with Bulletin X/41, is enclosed.

4. It is requested that I may be informed to whom I should forward subsequent Summaries and other similar material received from C. C. O. R.

5. The Summary and Bulletin attached would appear to be of interest to:

Maritime Unit
Operational Groups
Research and Development Branch
Naval Command
Special Projects

CAB

H. G. A. Woolley

H. G. A. Woolley

CAB
To whom initially
General Magruder?
Secretariat?

SECRET

Declassified and Approved For Release 2013/09/16 : CIA-RDP13X00001R000100220001-9

SECRET

December 19, 1944

From: Commander Woolley
To: Lt. Robert Thrum,
Secretariat

Subject: British Combined Operations Headquarters Monthly Information Summary.

1. C. O. Headquarters Monthly Information Summaries have hitherto been sent direct by C. C. O. R., Washington, to the Deputy Director, O. S. S.

2. C. C. O. R. has decided to send any material for O. S. S. through me in the future so that I may have knowledge of the material received.

3. The Monthly Information Summary #10, together with Bulletin X/41, is enclosed.

4. It is requested that I may be informed to whom I should forward subsequent Summaries and other similar material received from C. C. O. R.

5. The Summary and Bulletin attached would appear to be of interest to:

Maritime Unit
Operational Groups
Research and Development Branch
Naval Command
Special Projects

R. C. A. Woolley

SECRET

BRITISH JOINT STAFF MISSION
1025, Vermont Avenue, N.W.,
Washington, D.C.

With the compliments of
Captain H.D. Tollemache, Royal Navy,
Chief of Combined Operations Representative.

13.12.44.

Please sign and return to: Captain H.D. Tollemache, R.N., C.C.O.R., Room 701, Arlington Hotel, 1025 Vermont Avenue, Washington, D.C.

Receipt of the following from C.C.O.R., Washington, is hereby acknowledged:

M.I.S. No. 18

Copy No. 336

Bulletin A/41

237

Date: _____ Sgd: _____

Copy No. 326

SECRET

COHQ

MONTHLY INFORMATION SUMMARY No. 18

RESTRICTED

COHQ

BULLETIN X/41

WATER RESISTANT CLOTHING

RESTRICTED

INFORMATION

ROUTING SLIP

TOP SECRET

SECRET

Originator [illegible]
Date [illegible] April
Addressee [illegible]
Date Rec'd [illegible] April

Subject CGHQ Bulletin V/23
MIS No. 10

To	Room No.	Date Rec'd	Date Fwd'd	Initials	Comments (Indicate action desired or taken)
MARITIME UNIT	Q	RECEIVED APR 20 1944		[illegible]	
SO	[illegible]			CK	
NAVAL COMMAND	South			[illegible]	Logged in 28 Apr. 1944 [illegible]
MRS. O'DONNELL	Adm.				[illegible] 28 [illegible] 1944

[illegible]

TOP SECRET

TOP SECRET

ROUTING SHEET

INFORMATION

Originator C.O.M.O
Date 12 April
Addressees C.I.B.
Date Rec'd 12 April

Subject Monthly Intelligence Summary, #10

To	Room No.	Date Rec'd	Date Fwd'd	Initials	Comments (Indicate action desired or reason)
					Forwarded 14 April 1954 3.45 pm C.I.B.

TOP SECRET

(30226) DIRECTOR'S OFFICE

Distribution

COPAC Monthly Information Summary No. 10 has been distributed to all on the list supplied with No. 9 and the following :-

DGAMS (Ops) War Office
Q(M) 30 Corps
HQ, Eastern Command
" Northern Command
" Scottish Command
" Southern Command
" Western Command
" Northern Ireland District
" London District
HMS ST. MATHEW
SNOL P1
SNOL P2
ASO
ASO
MP2
HQ South Eastern Command

TOP SECRET

In reply, quote :

MIS/10

Combined Operations Headquarters,
1A Richmond Terrace,
Whitehall, S.W.1.

15th March 194.

COHQ

MONTHLY INFORMATION SUMMARY

No. 10 of the COHQ Monthly Information Summary is forwarded herewith. Much of it is TOP SECRET, and special care should be taken to ensure that no unauthorised person has access to it. For distribution, see overleaf.

2. Most of the information has been issued more fully in the COHQ Bulletins to which reference is made. These have been distributed according to their contents, but any recipient of this Summary who requires a Bulletin which has not been sent to him should apply to COHQ, stating the Series letter, the number, and the title of the Bulletin.

Chief of Staff
for CHIEF OF COMBINED OPERATIONS.

Received Copy No. ..... of Monthly Information Summary No. 10.

Signature .....

Rank .....

Address .....

This is to be returned to :-

Despatch Department,
Combined Operations Headquarters,
1A Richmond Terrace,
Whitehall, LONDON, S.W.1. Date .....

Combined Chiefs

TOP SECRET

MID 311.19 12 April 1944

SUBJECT: Documents from the British Joint Staff Mission.

TO: Director, Office of Strategic Services -- THROUGH Liaison Officer with O.S.S., Capt. Madeira.

1. Enclosed her with are the following documents which have been received from Captain M.D. Tollemache, Offices of Combined Chiefs of Staff, for transmittal to you:

C.O.H.Q. Bulletin Y/23
M.I.S. No. 10

2. It is requested that the enclosed receipt from Captain Tollemache be acknowledged and returned to him direct at the address indicated.

For the A. C. of S., G-2:

FRANK E. VOYSEY,
1st Lt., Inf.,
Commonwealth Section,
Foreign Liaison Branch.

Encls: 2 documents
Rec.for ret.to Capt.Tollemache

TOP SECRET

Ref: MIS/10

[redacted] SECRET

Copy No. 294

COMBINED OPERATIONS HEADQUARTERS

MONTHLY INFORMATION SUMMARY NO. 10.

February, 1944

PART I

TACTICS, TECHNIQUE, AND EQUIPMENT.

Bren LMG Functioning after Immersion in Sea Water

Trials in the Middle East have proved that while clear salt water does NOT affect the functioning of Bren LMGs, guns which are immersed in water containing sand in suspension (as would be found on a sandy beach in rough weather) are liable to stoppages owing to :-

(a) failure to feed;

(b) failure to strike cap or to strike hard enough to detonate the cap; or

(c) failure to strike after firing a single round.

2. All stoppages were traced to sand which was too fine to be seen, but which could be felt on the mechanism.

3. Efforts are being made to find a simple method of overcoming this difficulty, but in the meantime, all possible steps must be taken to prevent guns becoming immersed.

(CR 804/44)

Training Landing Craft Crews in Boat-handling alongside large Vessels

4. Commander, Task Force 11, in a report on the occupation of Baker Island in Sept, 1943, says that on this operation it was found that, under conditions of heavy swell, considerable damage was done to craft, in particular LCM, due to the battering they received when alongside unloading ships.

5. As a result, it is recommended that all crews for landing craft be given intensive training in boat handling alongside large vessels. The fact that crews may be experienced in handling their craft in surf does not mean that they can handle their craft efficiently alongside large ships in a seaway. Training is desirable, therefore, under both these conditions.

(CR 1297/44)

TOP SECRET

COMBINED OPERATIONS HEADQUARTERS

MONTHLY INTELLIGENCE SUMMARY NO. 40.

FEBRUARY, 1944.

PART II - TRIALS AND EXERCISES.

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Signals (Bulletins V/3 and V/4)

/6. Two COHQ Bulletins on Signals have been published since the last issue of this Summary.

7. Bulletin V/3 consists of :-

(a) A diagram showing a possible organisation for command and the control of aircraft in a short-range amphibious operation.

(b) Notes with explanatory diagrams on the use of No. 19 (MP) and No. 76 sets as wireless handcart stations.

(c) Notes on the revised operational employment of Beach Signal Sections, R.Signals.

8. Bulletin V/4 comprises extracts from a report on operation SHINGLE made by the officer commanding the military HQ Ship Signal Section in HMS BULOLO.

(CR 20,148/43)

Construction of Airfields in the South Pacific Area (Bulletin T/11)

9. Describes the air support provided for the landing at Guadalcanal and the construction of airfields in the South Pacific area. Compiled from answers by Brigadier N.K.Jolly, OBE, RM, Liaison Officer with USA HQ, South Pacific Area, to a questionnaire by Director of Air, War Office.

(CT 202/44)

C.O.H.Q.
MIS No. 10.

TOP SECRET

SECTION A.

SHIP AND CRAFT.

1. Landing Barge Kitchen - (L.B.K.)

Ten Landing Barges - Vehicle, are being converted for the purpose of feeding ferry crews in beach operations. Each vessel has been planned to prepare 1,600 meals per day, on the basis of two meals per day for 800 men.

The messing equipment includes the following:-

(a) 12 3/4 range oil fired.
(b) 6 boiling coppers. (40 gallon).
(c) 4 . hot presses, each taking 1/4 dishes.
(d) A Lister 7½ K.W. Generator.
(e) 2 steam jets for cleaning utensils.
- on six of the barges.
4 . steam jets for cleaning utensils.
- on four of the barges.
(f) Special fans to the galley, mess and store rooms.

Other details of the L.B.K., include messing accommodation for 24 ratings and a cabin for one officer. The barge itself will be fitted with two engines and twin rudders and carry 7 tons of diesel oil and 10 tons of fresh water.

2. "Mulock" Ramp Extension. (Vide Appendices A. and A.1)

(M.I.S. No. 7. II, para.3.)

Preliminary details are now available of the "Mulock" ramp Extension which has been developed to decrease the slope of ramps of L.C.T. grounded on flat beaches. The development arose from the difficulties encountered in embarking and disembarking certain vehicles and artillery equipments which tended to belly at the sharp angle formed between the deck and the ramp, or otherwise fouled due to the angle between the ramp and the beach.

The extension is in three separate units, each of which can be manhandled when placing in position before lowering the ramp. The details produced in the Appendices are provisional and may be subject to minor modifications. The draughts and angles indicated are for craft fully laden, and it should be remembered that the angle of the ramp will become progressively steeper as vehicles stowed in the forward part of the hold are disembarked.

SECTION B.

SMALL BOATS.

NIL.

SECTION C.

VEHICLES - WHEELED, TRACKED AND AMPHIBIAN.

3. Waterproofing of Vehicles and Equipment. (vide appendices B.1, B.2 & B.3.)

(M.I.S. No. 6, II para. 7.)

Lists showing the position to date regarding the development of waterproofing schemes for 'A' and 'B' vehicles and Special Equipment are detailed in appendices B.1, B.2 and B.3 respectively.

4. Classification of Awkward Vehicles. (Trials)

(Bulletin in preparation, No. X/12.)

Extensive investigations are being made to ascertain what difficulties are to be encountered when disembarking certain awkward vehicles and equipments onto flat beaches from L.C.T. The investigations are being made first on the drawing board and then followed when necessary by practical tests.

A Bulletin is in preparation giving in detail particulars of those vehicles so far tested, showing the limits to the gradient on which they can be successfully disembarked from L.C.T. 3, 4 and 5. The Bulletin will include details of the minor modifications capable of being carried out by Unit personnel which are necessary to obtain the results.

5. Aids for 'B' Vehicles in Loose Sand. (Trials)

The following devices for fitting to the wheels of 'B' vehicles to assist in negotiating loose sandy surfaces have been found to be unsatisfactory in recent trials:-

(a) Bower Attachment (small spade)
(b) Bower Attachment (large spade)
(c) Opperman Attachment.
(d) Sand Attachment.
(e) Bradney Attachment.

6. Handcarts - Buoyant. (Vide appendix C.1.)

(M.I.S. No. 7, II para 10 & Bulletin X/12.

A report has been received from Canada of a prototype handcart which has been improvised from a moulded plywood recce boat for which there was no requirement.

The boat was cut in two, a new stern fitted, and mounted on an iron frame which formed the axle for two standard army bicycle wheels. The frame and wheels were designed so that they could be easily detached in order to permit the bodies to be nested for ready transport.

The weight/...

Section C (continued)

Handcarts - Buoyant. (continued)

The weight of the completed handcart is 32 lbs. and it has a carrying capacity of 214 lbs. with a freeboard of 6". Its dimensions are - length 48", beam 32" and depth 12", and its performance over rough terrain and in the water appears most satisfactory.

The report stresses that the prototype is little more than an improvisation, but could be readily developed should it meet a requirement.

(Vide Appendix C.1.)

7. Handcarts - Indian.

(MIS No. 7. II para 10 & Bulletin X/10.)

A further report on handcarts, has been received from India. The cart, hand, No. I Mk. I, which has been introduced there, was evolved primarily for Combined Operations, but is also intended for use in jungle warfare.

At present it is mounted on Jeep 'Toledo' wheels but it is intended to replace these with motor cycle wheels as and when they become available.

It is understood that there is no intention of producing Indian handcarts in this country, or that they should replace Airborne Handcarts.

(Trials)

8. Tanks - Penetration of Wire Obstacles.

(a) Object: Trials have been carried out to determine whether the standard 30-ft German wire obstacle will stop a Churchill tank.

(b) Statement:

(i) When wading: The tank crossed and recrossed the wire without difficulty. While it was running down the length of the fence, the waterproofing fabric covering the smoke generator at the rear of the tank was ripped in three places. This did not affect the performance of the tank at all. The wire was crushed during the passage of the tank, but by virtue of its inherent springiness resumed a crushed height of 2 ft.

(ii) On land: Trials on sand and turf surfaces above high water were completed without incident.

(c) Conclusions:

It was concluded that this type of wire obstacle does not constitute an obstacle to a waterproofed Churchill tank either under water or above high water mark, provided the ground is reasonably firm.

Section C (Continued)

9. Loading Special Assault Equipments into LCT (Trials)

(MIS No. 5 IV para. 7, MIS No. 9 II paras 6, 7, 8, 16 & 19 and Bulletin X/12).

(a) Object:

Loading trials have been carried out with LCT IV and V to determine their stowage capacity in respect of Special Assault Equipment.

(b) Conclusions:

(a) L.C.T. IV :-

(i) Five AVRE can invariably be stowed. Six could however be stowed provided that not more than one of them is a long vehicle, e.g. SBG Bridge, AVRE/PLOUGH etc.

(ii) Three PORPOISES can be loaded with any combination of five or six vehicles unless the leading two vehicles are CRABS, in which case the room required for the CRABS to manoeuvre would reduce the number of PORPOISES to two.

(iii) Two AVRE SLEDGES can be stowed alongside each other behind either the first or second pair of vehicles but the maximum load will be reduced to five vehicles.

(b) L.C.T. V :-

(i) Four vehicles each of 30/40 tons can be stowed with the following limitations :

Two wide vehicles cannot be stowed in front of two long devices, e.g. two CRABS in front of an SBG and a GOAT. If two long vehicles are essential, one wide vehicle can be stowed centrally forward. It has been recommended that in the Assault Wave, three vehicles only should be loaded for the sake of rapid disembarkation.

(ii) The fire buckets in the bows must be removed to allow CRABS to manoeuvre. The CRAB is always a difficult load and is prone to slip when loaded last and the craft assumes a list. The loading can be assisted by using the LCT checks to decrease the vehicle's turning radius.

(iii) PORPOISES cannot be loaded if two CRABS are to lead the disembarkation owing to the space required by the latter to manoeuvre. However, up to two PORPOISES can be loaded if all the four vehicles are short, e.g. AVRE, AVRE/FASCINE, AVRE/BULLSHORN.

(iv) No SLEDGE can be carried unless the rear vehicles are both short. When both rear vehicles are short one SLEDGE can be loaded provided the leading vehicle is stowed on the same side as the SLEDGE but askew. Failing those conditions, the addition of a SLEDGE will necessitate the removal of one vehicle.

NOTE : Further details of these equipments, giving sizes, will be published as an Addendum to Bulletin X/12.

1. Section C (continued)

10. Carriage of E550 Smoke Generator Trailer in L.C.T. (Trials)

(a) Object:-

Trials have been carried out to determine limitations in the embarkation and disembarkation of the following equipments from LCT 3, 4 and 5.

(i) G.M.C. 2½ ton 6 x 6
E550 Smoke Generator Trailer.
(ii) E550 Smoke Generator mounted on F.W.D. 4 x 4.

(b) Results.

(i) Embarkation. Both equipments can be satisfactorily embarked into L.C.T. 3, 4 and 5 [illegible] and equipped with standard "Mulock" type ramp extensions. [illegible] equipped, item (i) have required [illegible] embarkation [illegible] exactly similar to those of the standard ramp extension.

(ii) Disembarkation. These equipments constitute "awkward vehicles" and [illegible] disembarkation will be given in the bulletin referred to in Para. 4 above.

11. Disembarking Trials of Radar Equipment AA No. 3 Mk. III (Baby Maggie).

Trials were carried out of disembarking this equipment from L.C.T. 3, 4 and 5, with the following results:-

1. For all disembarkation, the [illegible] stowed in the cabin.

2. Baby Maggie:- (on 1/200 beach)

(a) Will not [illegible] off any craft/without a ramp extension

(b) Will disembark off L.C.T.3 with ramp extension, but is limited to 1 in 80 beach owing to 4'0" + 1'0" wave wading depth.

12. M.29 Light Cargo Carrier (Amphibious Version) (Vide Appendices C2 & D)

(a) Origin.

The U.S. Light Cargo Carrier M.29, previously referred to as the "Weasel", was originally designed for use in deep snow and mountainous country and was consequently made as light as possible and provided with wide tracks, with the result that a very low pressure was obtained.

For this reason, the possibility of the M.29 operating in difficult conditions of mud, marsh and swamp, were investigated and showed such promise that it was decided to produce bow and stern assemblies which could be fitted in order to make the vehicle amphibious and consequently more generally useful for terrain likely to be encountered in the Far East.

Section C (continued)

M.29 Light Cargo Carrier (Amphibious Version)
(continued)

It has since been decided that these assemblies should not be produced as additional equipment, to be used when required, but to produce a version of the M.29 fully converted as an amphibian.

It should be noted that the illustration in Appendix D shows the basic vehicle and not the amphibious version.

(b) Data.

The following data received from America gives some of the more important characteristics. Full specification and data will be contained in Bulletin X/26 'Amphibious Vehicles'.

Weight, nett	-	4,485-lbs.
Payload including crew of 2	-	1,200 tons
Gross Total	-	5,685-lbs.
Length (rudders stowed)		173½"
Length (rudders fitted)		188½"
Width	-	62"
Ground clearance	-	10½"
Petrol capacity	-	35 gallons
Petrol consumption	-	Between 0.7 & 1.7 m.p.g.
Range (average of 5 m.p.g.)	-	175 miles.
Freeboard.		
- Unladen	-	Forward - 12¾"
	-	Aft - 15"
- Laden	-	Forward - 11"
	-	Aft - 13"
Width of track	-	15" standard
Track pressure	-	2.38-lbs. per sq. in.
Propulsion in water	-	By tracks only.
Steering on land	-	Two steering levers
Steering in water	-	Twin rudders at stern operated by driver.

A towing hook aft, a power capstan forward, and a hand operated bilge pump are provided.

Note. Above figures apply to vehicles having standard 15" track. A 20" track can be fitted optionally, in which case certain of the above data varies.

(c) Performance.

(a) On land. The vehicle has a land speed of 36 m.p.h. approx. over hard surfaces. The rudders are hinged, thus decreasing the likelihood of damage to them when descending steep gradients. The vehicle's capabilities of crossing swampy and muddy ground are good, but are largely governed by the ability of the driver, as it appears that in these conditions the vehicle needs careful handling. Owing to its low ground clearance tree stumps and smaller objects should be avoided.

(b) In water. The M.29 has a speed of approximately 3¾ m.p.h. in calm inland water. Information as to the seaworthiness of this vehicle is being obtained but it can be stated definitely that surf or highly turbulent waters should not be negotiated.

SECTION R.

WEAPONS AND EXPLOSIVES.

R.A.

13. Breaching Concrete Walls by Gunfire. (Trials)

(M.I.S. No. 9 II, paras 16 & 17.)

(a) Object:

A series of trials has been carried out to determine the number of rounds required from various types of guns to effect a tank breach in a concrete wall.

(b) Statement:

(i) The walls attacked in these trials were 10 ft high to the top of the plane face in front and 11 ft 6 ins to the top of the curved crown. In rear there was a 1ft 6 ins wide fire step 4 ft below the curved top. The thickness of the walls was 9 ft above the fire step, 10 ft 6 ins immediately below and 11 ft 6 ins at the ground. The front face was inclined forward at an angle of 10 degrees to the vertical.

(ii) It was discovered that the 'plum' walls are considerably easier to break up than those made of small aggregate. Both lesser charges and less shell were required owing to the tendency of the loosened 'plums' to roll down clear of the wall.

(c) Assessment:

(i) In three cases, the number of rounds deemed necessary to effect a 'standard' breach at varying ranges has been assessed. (A 'standard' breach is 14 ft wide, 7 ft high in front and 7 ft high in rear). In each of these cases, allowance has been made for 50% additional rounds for the range, placing of rounds in an operational attack, and allowance has also been made for errors of twice the 50% zone of the gun. Assessments are as follows:-

	Range.	500 yds	1000 yds	2000 yds
*	Combination of 17 pr AP shot and 5.5 in HE shell	200 rds.	250 rds.	450 rds.
		75 rds.	75 rds.	150 rds.
	6 inch Mk. XIX C.P.B.C.	60 rds.	70 rds.	130 rds.
**	Combination of 6 pr. APC shot and 95 mm HE shell	220 rds.	300 rds.	600 rds.
		100 rds.	110rds.	230 rds.

(ii) In two other cases this assessment was not made, but the following tentative conclusions were drawn from the trials:

The 155 mm gun with its APBC M.112 B.1 shell is effective against concrete walls, but requires the addition of a proportion of HE shell. This was not found necessary in the case of the 6 inch CPBC shell, which has a capacity of 3½ per cent against the 1½ per cent of the American shell. About one HE shell to four APBC shell appears to be sufficient. Insufficient ballistic data are available to say how much firing would be necessary at various ranges to get enough hits to make a breach. On the analogy of the 6 inch Mark XIX results it appears that at short ranges, 1000 yards and under, from 30 to 40 APBC shell and 8 to 10 HE shell should be sufficient.

Section D (continued)

Breaching Concrete Walls by Artillery Fire (continued)

(iii) Combination of 17 pdr A/Tk shot and 95 mm HE shell.

1) Approximately the same number of AP shot as in *

2) Approximately the same number of 95 mm HE shell as in **

. Firing of 17 pdr A/Tk Guns immediately after Disembarkation from Landing Craft.

(MIS No. 13, Ref. 11.)

1. Object:

A trial was carried out to ascertain whether the performance of the gun is adversely affected by towing through salt water with a high sand content, with the piece in the "pulled back" position.

2. Statement:

The pieces were secured in the "pulled back" position, and the guns were waterproofed in accordance with instructions from M.E.13. Guns were towed by Gun Tractors through 2' to 3' of water with 2' waves for approximately 6 minutes. Guns were then re-waterproofed and 8 r.p.g. were fired. Guns Nos. 1 & 2 fired normally except for a slight sluggishness in run-out. No. 3 gun elevating gear was stiff because of sand in the arc and pinion. This was cured by elevating and depressing the gun. The gun fired normally. No. 4 gun fired normally.

3. Conclusions.

The firing performance of the 17 pdr A/Tk gun is not adversely affected by towing through salt water with a high sand content, with the piece in a pulled-back position, and the gun waterproofed in accordance with the method laid down.

4. Notes.

(a) It was considered that the method of waterproofing the guns was needlessly elaborate, and too much time was taken to remove waterproofing material on coming into action. War Office (M.E.13) therefore has undertaken to provide simplified waterproofing instructions for the bulk of artillery equipments. Further waterproofing and firing trials will be carried out.

(b) Alternative methods of disembarking the 17 pdr are being tried. The object of these methods is to eliminate, if possible, the pulling back of the piece and the raising of the shield.

Section D (continued)

15. American 4.5" Rocket Launchers.

(Bulletin X/16)

Bulletin X/16, which consists of "Notes" on this equipment has now been published. The two types of launchers, Type 6 and Type 8, are described and comparisons are drawn with the British 5" equivalent as to their respective tactical roles. Comprehensive data on the performance of the 4.5" launcher were not available, consequently comparisons of performance could not be made in any great detail.

R.E.

16. Passage of Underwater Obstacles.

(M.I.S. No. 9. II para 16 and Bulletin X/21).

With reference to Bulletin X/21 it should be noted that [illegible] [illegible] flexible charges [illegible] effective [illegible] underwater [illegible] [illegible].

[illegible] (1) [illegible] flexible [illegible] [illegible].

[illegible] performance of the charges [illegible] Bulletin, is [illegible] flexible [illegible].

17. Mk. II Hedgerow.

Recent trials with Mk. II Hedgerow gave a pattern [illegible] approximately 95 yds [illegible] width of 12 yds at [illegible] 370 yds [illegible] larger than anticipated, but the possibility [illegible] being investigated. The trial was [illegible] Tellermines 35 and 42 and also some Mk. V mines [illegible] 42. If the spread cannot be reduced, it appears that the performance of the Mk. II Hedgerow against Tellermines 35 and 42 must be accepted as follows:-

Tellermine 35 - 90% clearance of a lane 24-ft wide.
Tellermine 42 - 45% clearance of a lane 20-ft wide.

A considerable improvement in the clearance against Tellermines 42 might be achieved if a second L.C.A. Hedgerow followed the first and fired to superimpose its pattern on that of the first Hedgerow. Trials are being carried out to ascertain whether this is feasible.

18. "CONGER".

(M.I.S. No. 8, II para. 16.)

Trials continue with the development of this weapon, designed primarily for breaching A/Tk Minefields.

The weapon consists of a 2" canvas hose projected empty for a distance of 300 yds by means of a rocket. The hose is then filled with liquid explosive by means of compressed air. When full, the after end is cast off from the explosive container and a delay igniter is used to fire the hose.

Section D (continued)

"Conger" (continued)

(a) Performance

(i) Under the worst conditions on land the Conger is expected to give an 18' wide lane through Tellermines 42.

(ii) On beaches and in loose sand, this lane may be expected to increase in width to 30 or 40 ft.

(b) Time for operation.

During a recent trial, the time from the projection of the rocket to the firing of the hose was seven minutes. It is considered that with practice the time should not exceed five minutes.

(c) For Land use.

For use on land it has been decided to carry it in a towed carrier.

19. "Bookrest".

The term BOOKREST refers to the Conger mounted in a craft for use from the water. It is possible to mount the whole apparatus in an LCA Hedgerow in addition to the Hedgerow installation.

2. A recent trial showed a timing of 7½ minutes from the time of firing the rocket to time of detonation of the hose. This timing should be capable of being reduced with practice. The projection and the firing of the hose were successful, but the charge failed to detonate owing to a small air lock at the detonator end, caused, it is thought, by the fact that there was just insufficient explosive to fill the hose.

3. The operation of firing Bookrest appears feasible and the technical difficulties should be capable of solution without difficulty.

20. Ploughing in Sand and Underwater.
(MIS No. 9, II, para. 19 & Bulletin X/12)

A recent trial was carried out with the FARMER DECK using the Mk. III Sherman model both dry-shod on sandy beach and in varying depths of water.

Conclusions.

Conclusions reached were :

(a) Ploughs are able to operate successfully underwater against mines. Trials were actually carried out in depths of water up to 18".

(b) The speed of ploughing in sand is about 3 m.p.h.

(c) If mines are picketted there is a risk of the picket bringing the ploughs out of work due to the ploughshare pushing the picket over and then riding up the inclined plane so formed.

(d) The Sherman Chevron steel type track and engine are not powerful enough to operate ploughs under all conditions which may be encountered, owing to the smoothness of the Sherman track. (The FARMER DECK stalled when, during one test, the

Section D (continued)

Landing in Sand and Underwater (continued)

[illegible] side plate [illegible] blue [illegible] clay [illegible] on the beach. The [illegible] dug itself in [illegible] but under its own power.)

(c) In calm water, objects [illegible] do not tend to drift but rather [illegible] to be sucked [illegible] by the sand. A strong undertow, however, might be dangerous in shifting excavated mines.

SECTION E

SMOKE AND CAMOUFLAGE

Nil.

SECTION F

TRANSPORTATION AND LANDING AND BEACH EQUIPMENT.

21. Aerial Gravity Ropeway.

(M.I.S. No. 9, II, para 24.)

This equipment was [illegible] the 'FIXED [illegible] GEAR'. [illegible] modifications [illegible] GRAVITY ROPEWAY'.

The initial difficulties [illegible] over 100-ft [illegible] [illegible]

A full description [illegible] A/31.

22. Aerial Powered Ropeway.

A [illegible] U.S. type [illegible]

The object of this equipment is to [illegible] to be lifted by [illegible] wire by means of a special clip which will operate over special ropeway sheaves. The principal advantage of the ropeway is that a downhill gradient is not essential, consequently it can work over considerably longer spans than the Aerial Gravity Ropeway. Similarly, by virtue of the fact that the clips can operate over sheaves, intermediate masts may be inserted, and the ropeway extended at the shore end to any distance required.

Sketches will appear in next issue.

Section F (continued)

23. N.L. Pontoon Equipment.

(M.I.S. No. 6, II, para 1[illegible].)

Holders of Bulletin X/15 on this subject are requested to note that in addition to the [illegible] described in [illegible] bulletin further [illegible] (No 16) six or three units long, with [illegible] fittings, are now available. They are designed for constructing large assemblies such as wharfs, in brick-wall style. There is no limit to the size that can be constructed in this way.

As an example, a 7 x 60 wharf (35-ft wide and 350-ft long) can be made up of alternate strings of the 1 x 6 units, and lines 1 x 6 units with a 1 x 3 unit at each end. The units forming the strings are not coupled end to end, but [illegible] lines [illegible] in the units [illegible] by [illegible] on top. [illegible] similarly joined by means of special tools for inserting [illegible] underwater.

This type of construction [illegible] in sheltered water.

24. Sunken N.L. Causeway.

([illegible] No. 9, II, para [illegible])

[illegible] ground.

25. Rhino Ferry.

(M.I.S. No. 5. IV, para 19.)

Trials have shown that the [illegible] x 7 N.L. Tugs cannot be controlled among breakers. A new arrangement has therefore been adopted in which 2 Chrysler Sea Tractors are mounted on a 3 x 7 N.L. Tug which will remain to seaward of breakers and tow the Rhino off the beach by a long tow rope. To control the Rhino barge itself whilst beaching, the two Murray & Tregurtha outboard engines will be mounted on the quarters of the Rhino.

It has been found that the 60-ton ramp supplied cannot be handled in the event of a breakdown of the winches, and Rhinos will therefore be fitted with twin Olsen ramps constructed of timber, which have identical characteristics as regards long and low vehicles but can be manhandled in an emergency.

Section F (continued)

26. L.C. Pontoon.

The design of the L.C. Pontoon equipment is [illegible] Tank plates [illegible] corner fittings. The basic units for tanks 13' 6" x 5' 6" x 5' 6" consisting of plate [illegible] are bolted together. These units weigh 2½ [illegible] and take 100 [illegible]

Pontoon barges, wharfs, Dry Docks, etc., any size or shape, can be rapidly constructed by building units together, afloat. The maximum size safe for towing at sea is, however, 100' 6" x 30' 6". The light draught of these pontoons is 1' 2" and each unit supports 2-tons for each additional foot immersion. Full details will be issued as a Bulletin.

27. Mobile Pier.

A pier constructed of L.C. Pontoon equipment partially supported by small tracked units, is under consideration for use in waters with large tidal ranges.

It is anticipated that the pier would be [illegible] to follow the tide, by tractors, in order to land vehicles from L.C.T. or Ramp Ferry Craft.

28. Bailey Beach Bridge.

(M.I.S. No. 9. II, para 20.)

In M.I.S. No. 9 this was erroneously referred to as 'Mobile Bailey Bridge', which is kept under R.E. Stores.

During further trials of the Bailey Beach Bridge, difficulties were encountered in transferring vehicles from beached L.C.T. to the bridge on account of the movement of the L.C.T. (Trials are now in progress with a 30' wide platform at the end of the bridge from which a ramp can be lowered to the tank deck of the L.C.T. The ramp is pivoted to allow for movement of the L.C.T.)

29. Tubular Scaffolding Pier for Rapid Erection in Shallow Water.

(M.I.S. No. 3. IV. para 16.)

A Tubular Scaffolding Pier has been evolved, which can be launched from L.C.T., floated into the exact position required and then secured. Up to 300-ft can be stowed in L.C.T.(3) and the jetty is suitable for use in up to 10-ft of water for personnel only.

It would appear that this jetty may be of considerable value in landing personnel from L.C.I. in the follow up stages of operations in waters with small tidal range. Full details are being issued as a Bulletin.

Section F (continued)

30. 'Helter Skelter'.

This consists of a canvas chute (such as is used for fire escapes) to enable fully equipped troops to transfer from the decks of L.S.I. into landing craft. It has proved an extremely rapid and effective means for this purpose and a large number of these are being produced. The chute can also be used for stores.

31. D.8 Recovery Tractor - Amphibious. (Trials)

(C.I.O.N.O. 3, III, para 6.)

A standard D.8 recovery tractor fitted with a Wyster D.8. Mk. V overwound towing winch, experimentally armoured, has been tested for wading and general serviceability.

Results of trials briefly are as follows:-

(a) Wading. Trials in depths up to 3-ft of calm water were successful, but in 3-ft of water with 2 to 3-ft waves it was found that large quantities of water were shipped over the hull which could not be dealt with by the bilge pump.

(b) Direct towing. Mine craft ran at the vehicle was successfully int L.C.T.(7) and L.C.T.(5). On being disembarked from the top of beach of L.C.T.(5). On being disembarked from L.C.T.(4) the tractor waded out to the water came up to within 9" of the top of the armour. With raising extensions, however, the tractor was successfully int 5-ft of water plus 18" waves with from the top.

(c) Drawbar and Winch Line Pull. Dynamometer tests were made and the following results were recorded:-

(i) Drawbar pull, firm wet sand - 16 tons.
(ii) Winch line pull, firm wet sand - 19 tons.
(iii) Drawbar pull 3-ft of water, firm sand - 17 tons.
(iv) Winch line pull 3-ft of water firm sand - 12 tons.
(v) Drawbar pull 5-ft of water firm sand - 12 tons.
(vi) Winch line pull 5-ft of water firm sand - 22 tons. *

* Note. It is understood that this apparently high figure is achieved by carrying out towing before winching. In depths of 5-ft the former causes track spin which in turn permits the vehicle to 'dig in', thus enabling it to get a better grip for winching.

(d) Refloating of Minor Landing Craft. An L.C.A. was successfully towed across a beach with the aid of the winch rope attached to the skeg hook of the craft. An L.C.V.P. was also successfully towed, but having no skeg hook, a double tow rope was attached to the towing eyes on the bows of the craft.

(e) Vehicle Recovery. Numerous vehicles including A.E.C. Matador 4 x 4 tractor towing 3.9 Heavy A/A gun were successfully recovered across a soft sandy beach with direct pull.

As a result of this trial, several modifications have been recommended which if incorporated should improve wading performance and so provide a very useful piece of equipment for Beach Recovery Sections.

Section F (continued)

32. Pneumatic Tyred Fork Trucks. (Vide Appendix E)

A Fork Truck with pneumatic tyres for use on rough ground has been produced. The Clark Fork Truck (code 'Transport') uses standard Army 6.50-16 tyres and can lift [illegible],500-lbs at 25" from fingers upright [illegible]. By adding a counterweight to the rear, 5,000-lbs can be lifted. The maximum height of lift is 12-ft. The maximum speed is 11 [illegible]. Ground clearance 6", and the truck can turn in a 14 ft outside radius. Weight of equipment is approximately 6,500-lbs.

33 Hessian Wire Mat.

(Bulletin X/29 in preparation.)

The equipment [illegible] of which wire netting is [illegible] Track with [illegible] better performance [illegible] ([illegible]), than [illegible] Cheap [illegible] Track. [illegible] the latter are [illegible], it [illegible]. In addition it is quicker [illegible] performance.

Full details [illegible] given in the Bulletin.

34. Waterproof Suits. (Vide Appendix C.1.)

Preliminary trials [illegible] carried out of various types of waterproof suits [illegible] the water up between [illegible] L.C.I.(L) or L.C.I.(S) and the [illegible] in a dry condition.

The suit which proved most satisfactory during the trials is made of single texture Indiana, proofed with synthetic rubber. It is in one piece, and held in position by tapes at the ankle, calf, and a draw string at the neck. In addition there is a belt, just below which on either side there are special rip tabs. Footwear for use with this suit consists of shoes with rope soles embodied in the equipment.

Large scale user trials are desirable to assess the true merits of the equipment, but in the meantime a Bulletin is in preparation detailing the trials already carried out and describing the various types of suits so far tested.

SECTION G

EQUIPMENT FOR SPECIAL OPERATIONS

NIL

SECTION H

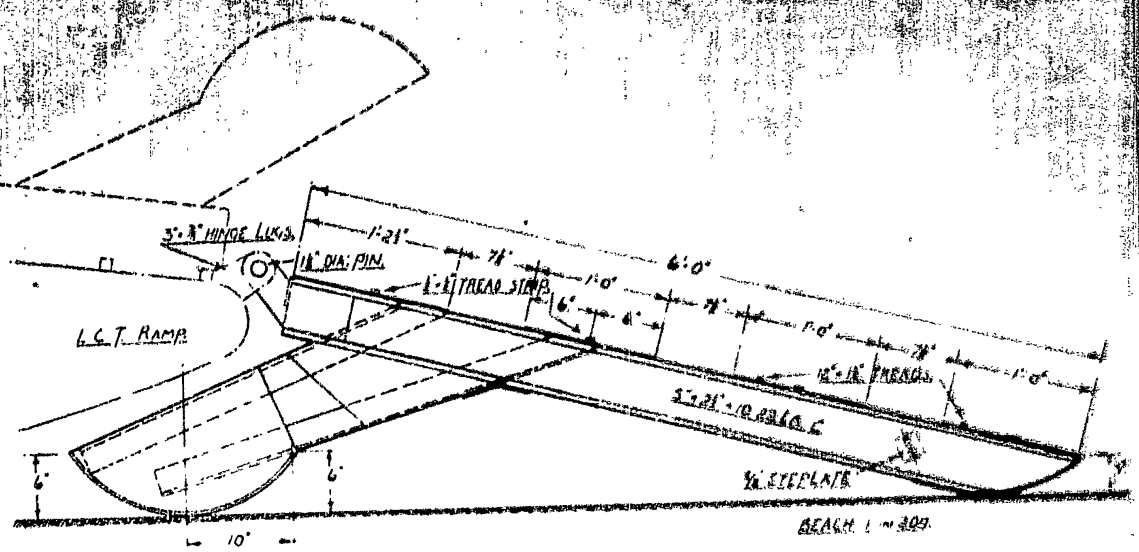
MISCELLANEOUS

36. One Man Stretcher Trolley.

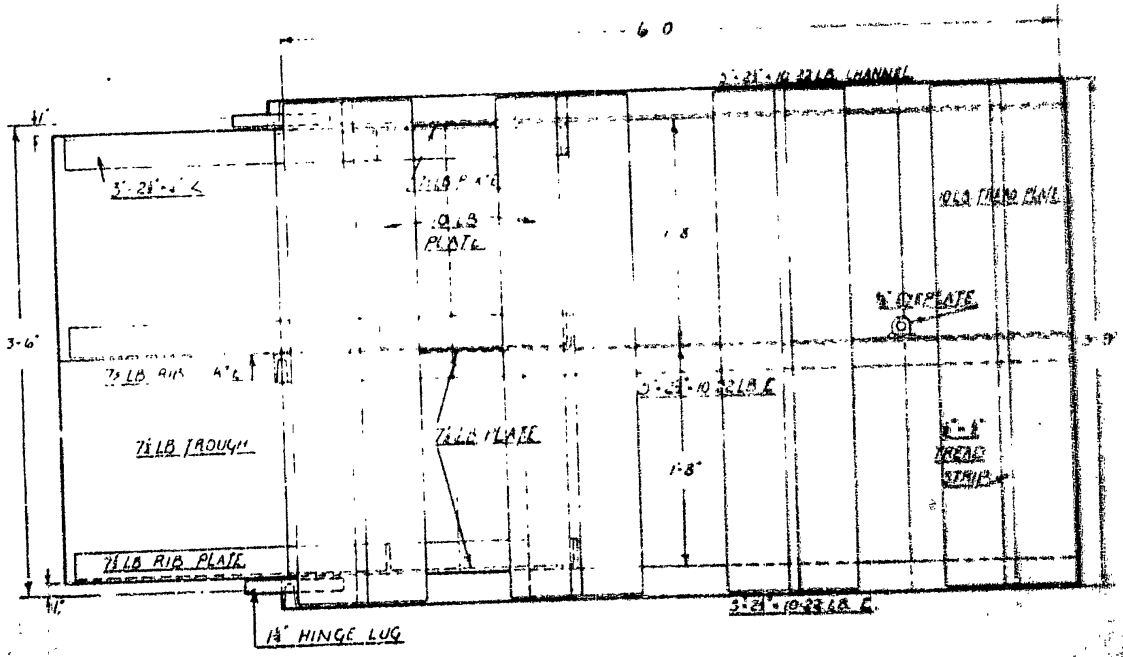
(M.I.S. No. 4, IV, para 20.)

An under carriage with two Spitfire tail wheels, which can be clipped to a stretcher, has been tried. It proved to be the best device yet discovered to enable one man to handle a stretcher casualty. Further details of this device are being incorporated in Bulletin X/22 'L.S.T.(2) Hospital Trials' which is now in preparation.

APPENDIX A



ELEVATION



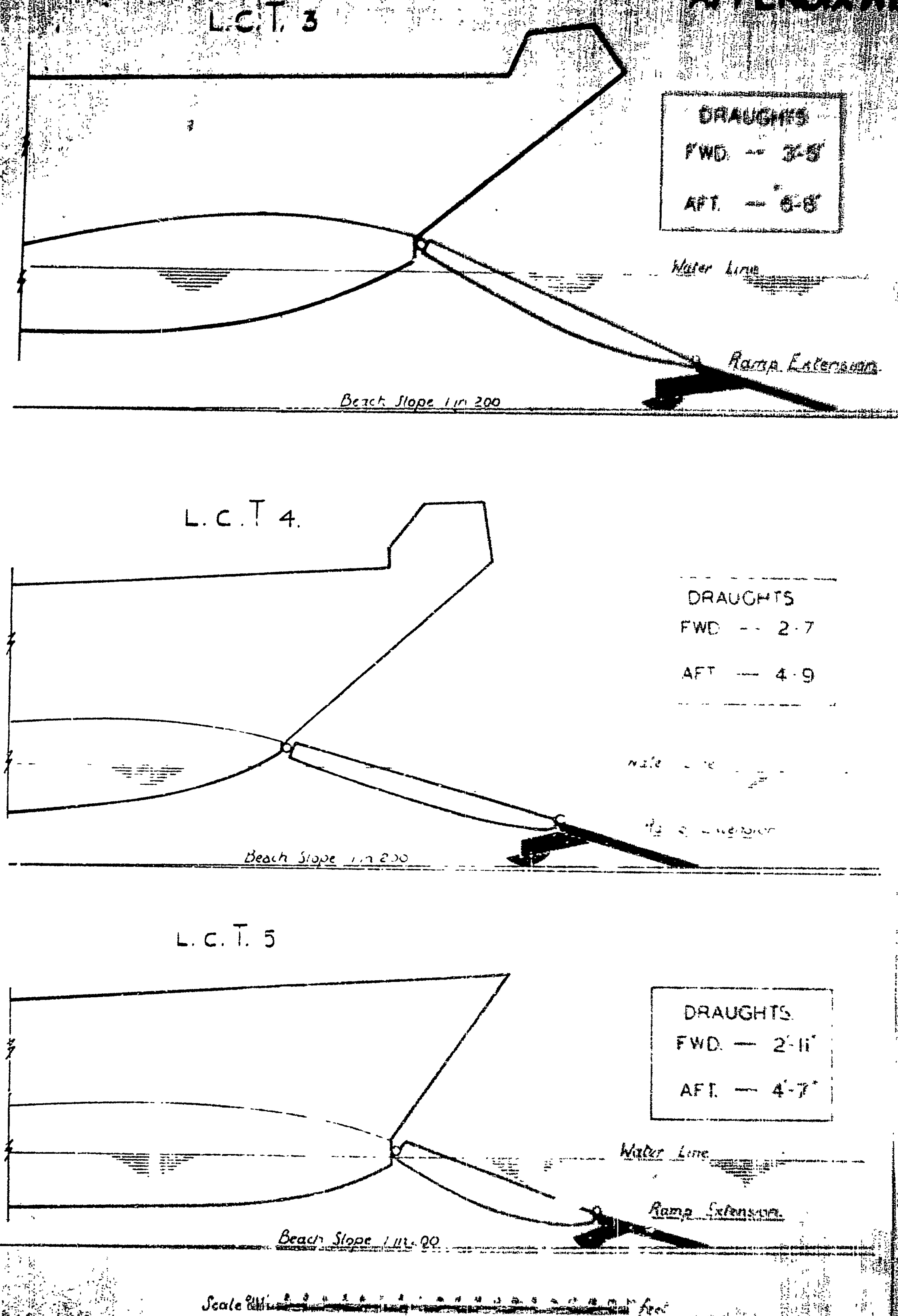
PLAN OF ONE UNIT.

NOTE: THE COMPLETE RAMP EXTENSION CONSISTS OF 3 OF THE ABOVE UNITS.

DETAIL OF MULOCK RAMP EXTENSION

L.C.T. 5

APPENDIX A.



MULOCK RAMP EXTENSIONS AS FITTED TO L.C.Ts. 3, 4 & 5.

C.O.H.Q.
MIS No. 1[illegible]

TOP SECRET

APPENDIX 'B'

POSITION TO DATE REGARDING 'A' VEHICLE WADING

a. Schemes cleared. Waterproofing manuals and wading kits available or in production.

Serial No.	Type of Vehicle.	Wading Depth	Remarks.
1.	Churchill I, II, III, & IV	6'	
2.	Churchill 3" 20-cwt.	3'	
3.	Sherman V	6'	
4.	Sherman III	6'	
5.	Cromwell/Centaur	6'	
6.	Stuart M.3 A.12	6'	
7.	Stuart M.7.A.3.	6'	
8.	Sherman II	6'	U.S. Army scheme accepted
9.	Churchill VII	6'	
10	Sherman V(C)	6'	
11	Sherman O.I.	6'	
12	105 mm. M.7	6'	
13	3", M.10	6'	
14	25 pr. A.C.	6'	
15	Crusader Gun Tower	4'	Most possible.
16	Valentine Description	3'	" "
17	Sherman Crab	6'	
18	Valentine Flail Player	3'	" "
19	A.V.R.E. with S.P.G.	6'	
20	A.V.R.E. with Petard	6'	
21	Churchill A.R.V.	6'	
22	Sherman III A.R.V.	6' long immersion.	
23	Carriers Universal 3" Mortar & A.C.V.	4'	
24	Carrier T.16	6'	
25	Carrier Lloyd	4'	Large scale trials indicate that certain modifications will have to be made to existing instructions, in order to make scheme successful.
26	Humber Armoured Car	4'	
27	Daimler Armoured Car	4'	
28	Staghound Armoured Car	4'	
29	Humber Armoured Car A/A	4'	
30	Daimler Scout Car	4'	Large scale trials indicate that certain modifications will have to be made to existing instructions, in order to make scheme successful.
31	Humber Scout Car	4'	
32	Lynx Scout Car	3'	This is the maximum depth possible.

APPENDIX B (continued)

D. Schemes not yet clear.

33	Sherman V.A.R.V.	6'	
34	Sherman III A.R.V.	6'	
35	Valentine	6'	Proceeding at low priority.
36	Grant/Lee	6'	ditto.
37	Centaur IV	6'	Requirement includes towing off craft and firing craft.
38	Challenger	6'	
39	Churchill A.V.R.E.	6'	
40	Cromwell/Centaur A.V.R.E.	6'	
41	Centaur A.A.	4'6"	Max. possible.
42	Crusader A.A. Mk. III Max.	Probably 3'	Little.

C. Schemes cancelled.

43	* Churchill I, II, III & IV	3'	
44	" to	6'	"S"
45	* Sherman V	3'	
46	"	6'	"S"
47	Sherman III	6'	"S"
48	* Matilda	3'	
49	* Crusader	3'	
50	* Valentine	3'	
51	* 25-pdr Valentine S.P.	3'	
52	* Ram II	3'	
53	Cromwell/Centaur	3'	
54	Cavalier	3'	
55	Matilda Baron	3 & 6'	
56	Crusader A.A. Mk. I	6'	
57	Fox armoured Car	4'	
59	Humber Light Reconnaissance Car	4'	Graded as 'B' Vehicle.

Note.

(a) 'S' full wading depth denotes long immersion.

(b) * Although there is no requirement for these schemes waterproofing instructions have in most cases been printed and there are a limited number of kits available.

C.O.H.Q.
MIS No. 10.

TOP SECRET

APPENDIX B.2.

"B" VEHICLES WHICH HAVE BEEN TESTED AND FOUND SATISFACTORY FOR 4 FT. WADING FOR 5 MINUTES.

A.E.C.	3-ton 4 x 4
Albion	3-ton 4 x 4 FT 11
"	3-ton 6 x 4 BY385
"	10-ton 6 x 4 CXGN
"	20-ton 6x4 - 4 CK.245
Austin	3-ton 4 x 2
"	2-ton 4 x 2 (Ambulance)
"	3-ton 4 x 4
"	3-ton 6 x 4
Bedford	15-cwt 4 x 4 MS
"	30-cwt 4 x 2 CX (Slave Battery)
"	3-ton 4 x 2 QY
"	3-ton 4 x 4 QL
"	3-ton 4 x 4 - 2 QLC Semi-Trailer
Chevrolet (Canadian)	15-cwt 4 x 4 (Slave Battery)
"	30-cwt 4 x 4
"	3-ton 4 x 4 G.S. Ford Tipper
"	F.M.T.
"	4 x 4 Light Recce
"	15-cwt 4 x 4 Ambulance (2 stretcher)
Crossley	3-ton 4 x 2
Dennis	3-ton 4 x 2 Tipper
"	6-ton 4 x 2
Diamond T	4-ton 6 x 6
"	40-ton 6 x 4 Tank Transporter
Dodge	15-cwt 4 x 4 Wireless Van
"	3-ton 4 x 2
"	3-ton 4 x 4 Breakdown
Foden	10-ton 6 x 4
"	6-ton 4 x 2
Federal	20-ton 6 x 4-2 Tank Transporter
Ford (Canadian)	15-cwt 4 x 2
"	15-cwt 4 x 4
"	30-cwt 4 x 4
"	3-ton 4 x 4
"	3-ton 4 x 4 Tractor Lt. A.A.
"	3-ton 4 x 2 Tipper
"	30-cwt 4 x 4 Ambulance (4 stretcher)
Ford (U.K.)	15-cwt 4 x 2 WOT2
"	3-ton 4 x 4 WOT6
G.W.D.	4 x 4 M.A. Tractor
G.M.C.	30-cwt 4 x 4
"	3-ton 4 x 2
"	3-ton 4 x 4
"	3-ton 6 x 6
Guy	15-cwt 4 x 2
"	4 x 4 Quad
"	15-cwt 4 x 2 Wireless
Humber	8-cwt 4 x 4 F.U. Wireless
"	8-cwt 4 x 4 Ambulance
"	8-cwt 4 x 4 Car Utility
"	4 x 4 Mk. III Lt. Recce
Karrier	3-ton 4 x 4 K6
Leyland	3-ton 6 x 4
Mack	6 x 4 LMSW Heavy Breakdown
"	18-ton 6 x 4 EXBX Tank Transporter
"	6-ton 6 x 6 Wrecker
Morris	8-cwt 4 x 4
"	4 x 4 FAT

APPENDIX E2(continued)

Morris	15-cwt 4 x 2
"	4 x 4 Bofors
"	30-cwt 6 x 4
Scammell	4 x 4 Mk. II Lt. Recce
"	20-ton 6 x 4 Breakdown
"	20-ton 6 x 4 - 8 Tank Transporters
Thornycroft	30-ton 6 x 4 - 8 " "
White	3-ton 6 x 4
"	15-cwt 4 x 4 Scout M3A1
"	Half-track M.14
" (Rustell)	18-ton 6 x 4 Model 920 Tank Transporter
Ward-La-France	20-ton 6 x 4 " 922 " "
Willys and Ford	4-ton 6 x 6 Wrecker
	5-cwt 4 x 4

TRAILERS

Scammell Fire Pump
Dennis Fire Pump
R.A.M.E. Servicing Trailer Mk. VII
10-cwt G.S. 2 Wheeled
15-cwt Water 2 Wheeled
1-ton No. 1 G.S. 2 Wheeled
R.E. 4 Wheeled
15-cwt Pole Carrier Mk. II 20 Wheeled
5-ton 4 wheeled type AMD
6 wheeled type 19 RE Ruston Lucyrus
20-ton 8 wheeled type RD " "
20-ton low loading multi wheeled type MW
40-ton model D/45 Rogers
40-ton Crane transporter No. 1 Mk. II
20-ton low loading multi wheeled SMT

C.O.X.E.
M.I. No. 10

TOP SECRET

APPENDIX D.7.

LIST OF EQUIPMENT WHICH HAVE BEEN TESTED AND FOR WHICH MAINTENANCE INSTRUCTIONS HAVE BEEN ISSUED, OR ARE IN COURSE OF PREPARATION.

Radar A.A. No. 1 Mk. II
" A.A. No. 3 " II
" A.A. No. 4 " III
Signals Equipment, wireless Sets etc., all types
Wireless Sets in A.F.Vs.
Detectors Mine Flash No. 3
Mine Stores Types S and Y
Water Fire Vehicle Lamps, including use of Crepe-tissel Sheets
Gun and Ammunition and A.A. Cant inders of all types.
Office Lorry.
Cable Lorry type K.L.
" " " I.30
15 K.V.A. Generator - Trailer (Radar)
Mobile Unit for Radar A.A. No. 4, Mark III
Projector 90 c.m.
10 K.V.A. Generator on M.E.C. Motor.
M.E. Mechanical Equipment - Tractors D.4, 6, 7 and 8
" " " " T.D. 9, 14 and 18
" " " 12 ft. Grader Caterpillar 101
" " " Marshall 2 c.yd. Dumper.
A.A. Mechanical Lorry)
Artillery Lorry)
Armament Lorry) R.E. 8 production vehicles.
Cutter Lorry)
22 K.V.A. Lighter Generator
Searchlight Lorry
Radar A.A. No. 3, Mk. III
A.A.C.R. (A.A.F. type 13)
10 K.V.A. Generator on M.E.C. Motor (G.T.V. 6 pdr. A.A. Twin)
Truck 15-cwt Canadian A.A.

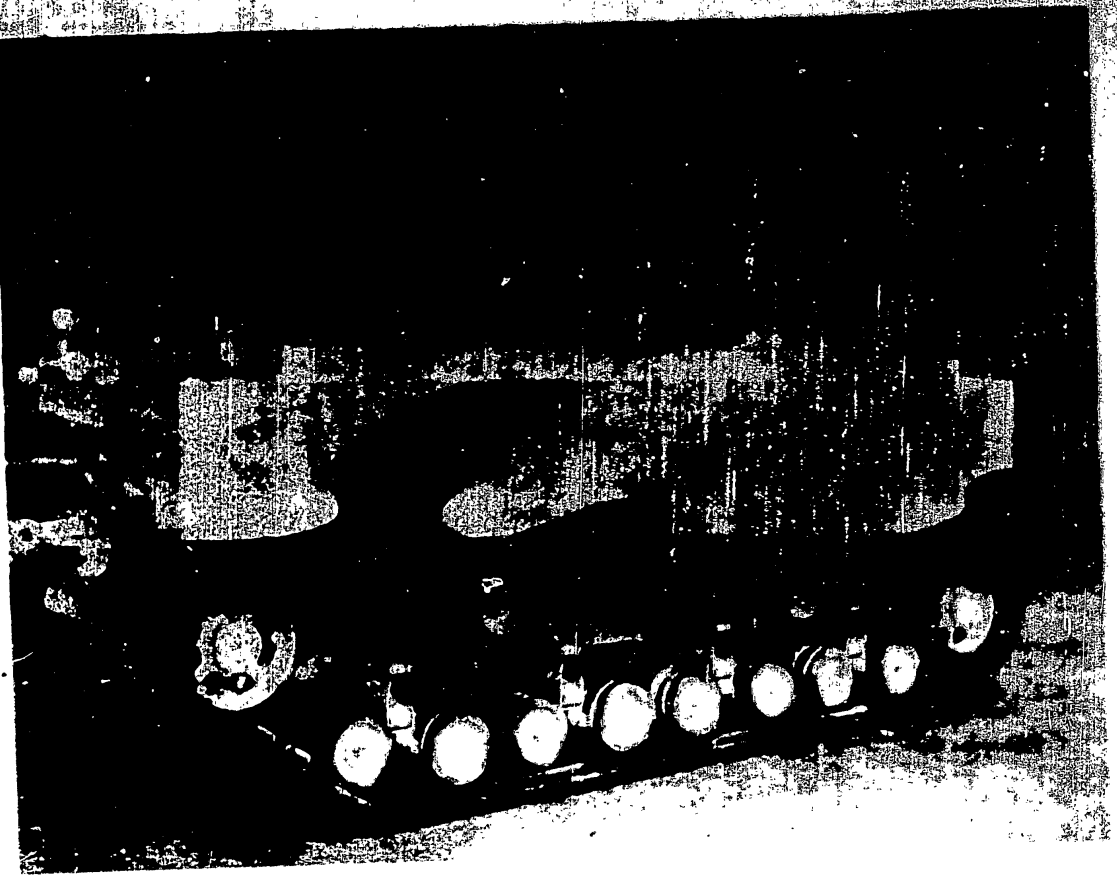
Buoyant Handcart (Prototype).

Waterproof Suit

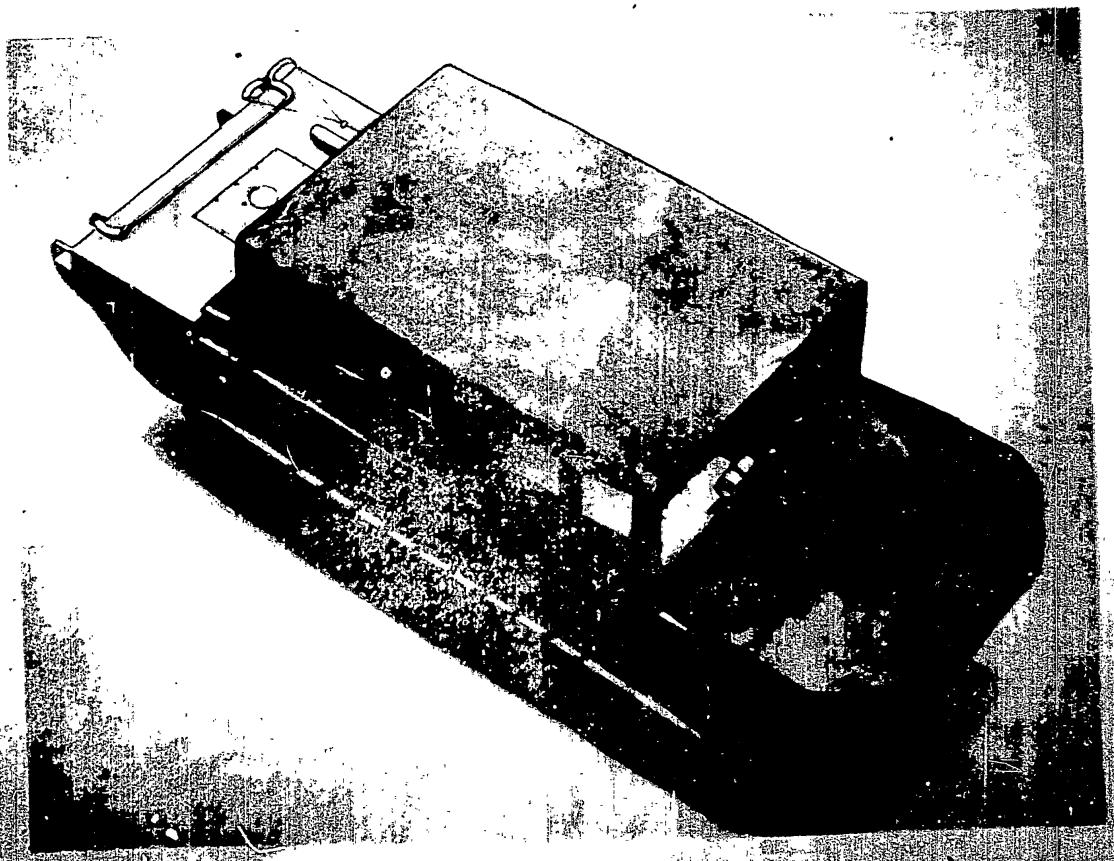
Airline Handcart

APPENDIX C

APPENDIX 'C2'



— M.29 Light Cargo Carrier. —



— M29 Light Cargo Carrier (Amphibious Version). —

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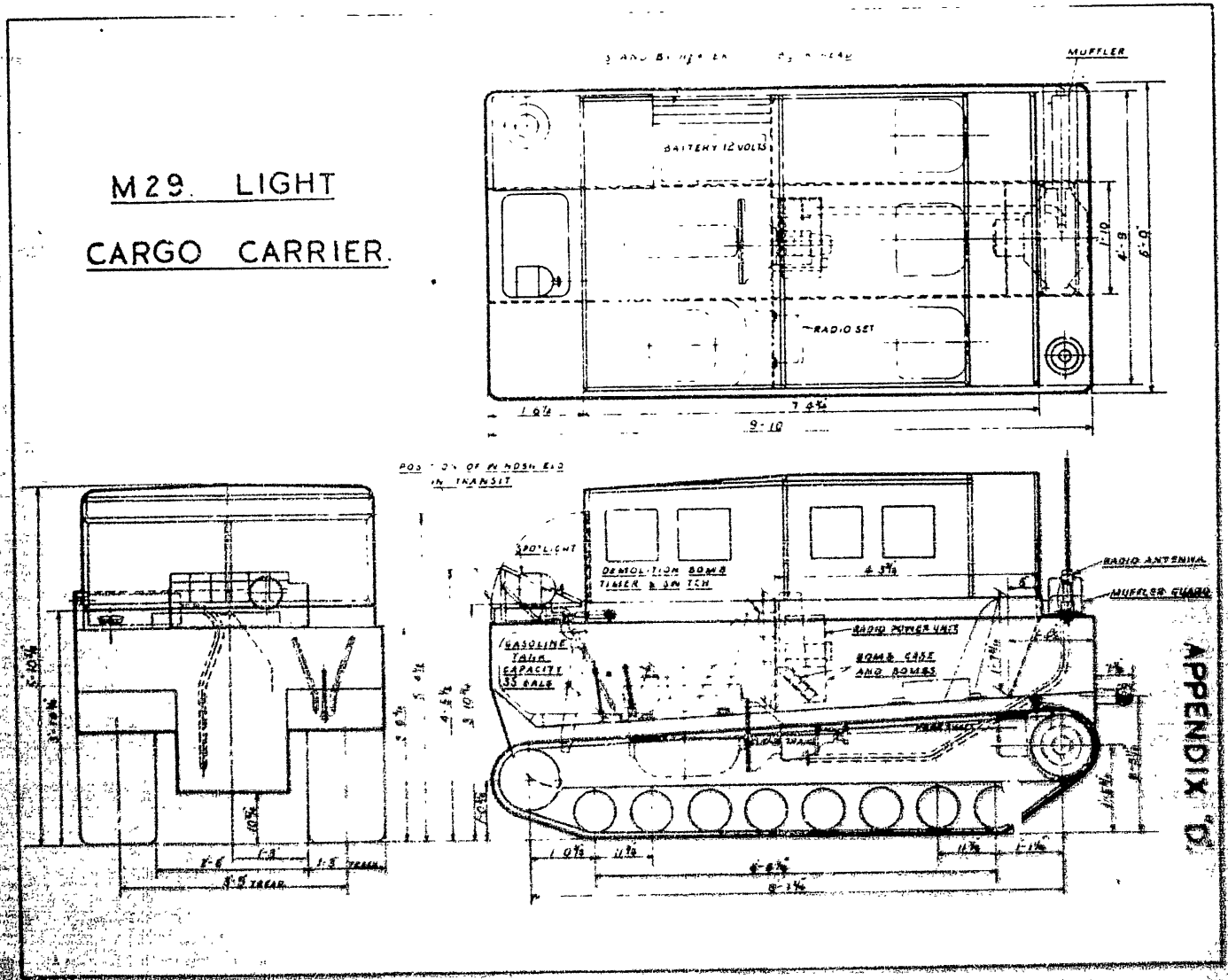
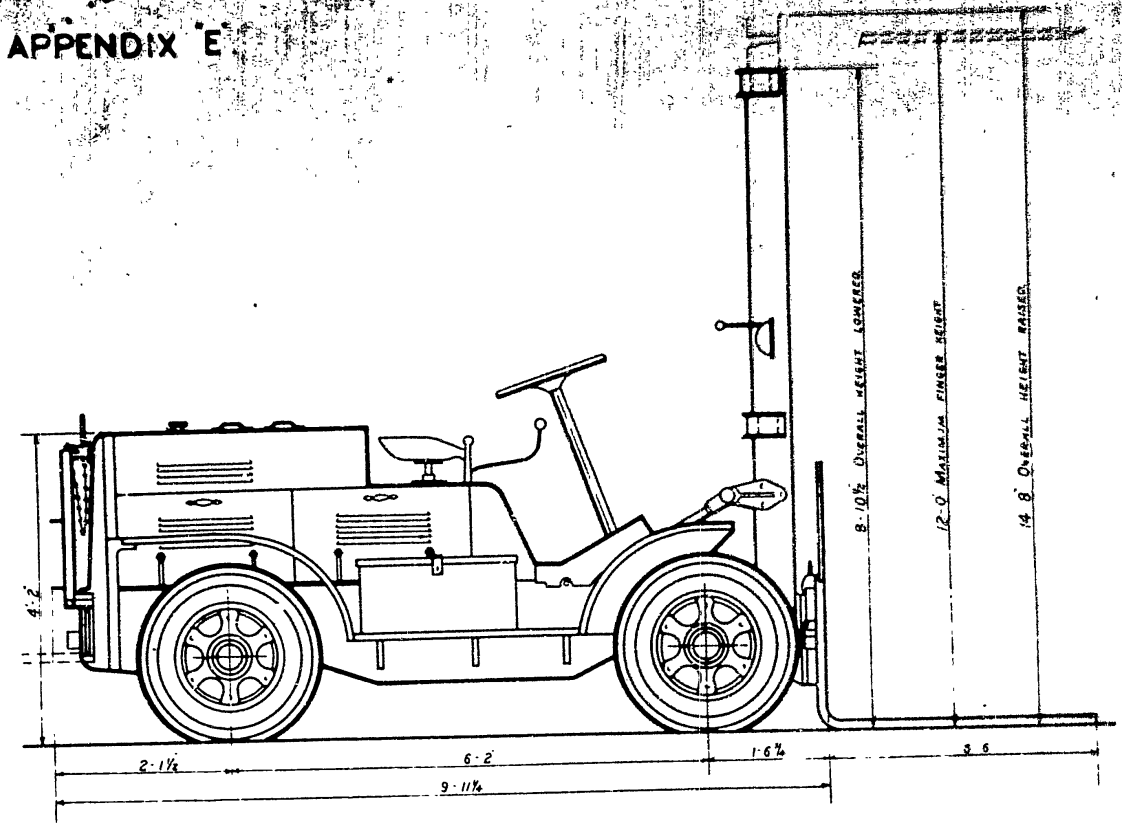
M29 LIGHT

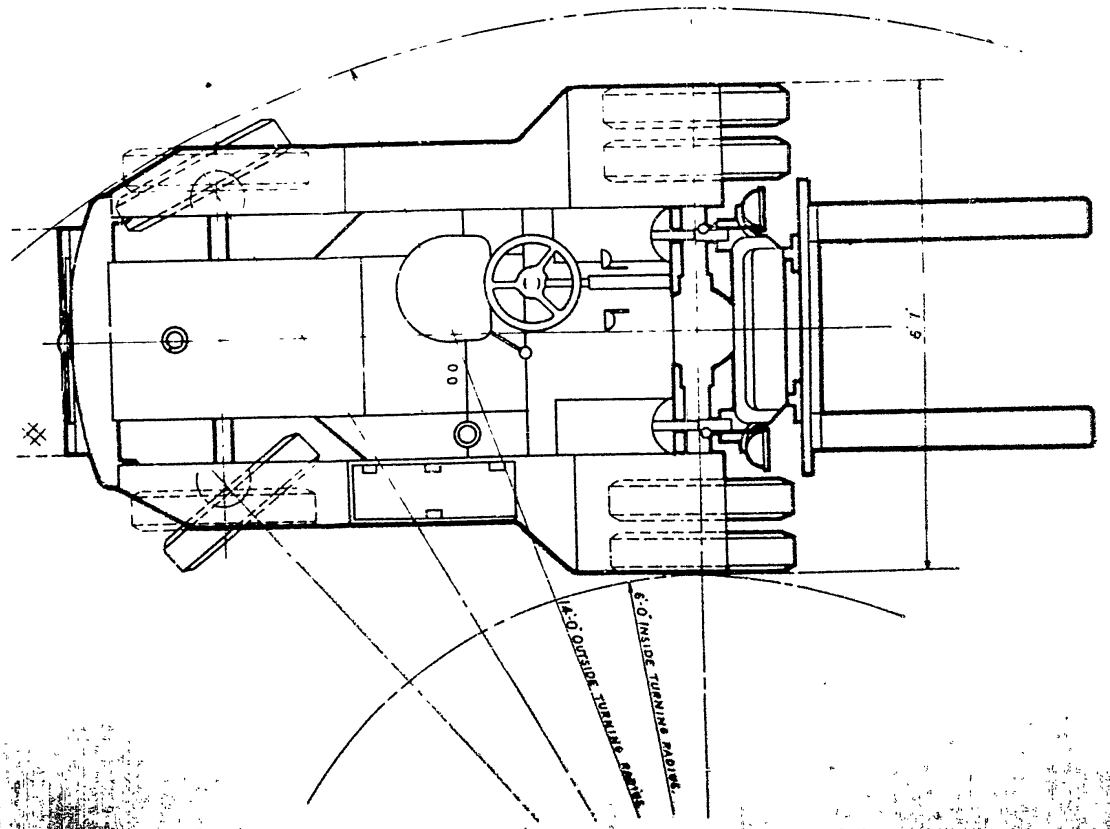
CARGO CARRIER.



APPENDIX "D"

APPENDIX E





CLARK PNEUMATIC-TYRED FORK TRUCK

TOP SECRET

ROUTING SHEET

INFORMATION

Originator C.O.M.C.A
Date 12 April
Addressee W.D.G.S.
Date Rec'd 14 Apr 44

Subject Bulletin #23

To	Room No.	Date Rec'd	Date Fwd'd	Initials	Comments (Indicate action desired or taken)
					Passed in 14 April 1944 3:45 WDD.

TOP SECRET

DIRECTOR'S OFFICE

(30225)

TOP SECRET

WAR DEPARTMENT
MILITARY INTELLIGENCE SERVICE
WASHINGTON

MID 311.19

12 April 1944

SUBJECT: Documents from the British Joint Staff Mission.

TO: Director, Office of Strategic Services — THROUGH Liaison Officer with G.S.S., Capt. Madeira.

1. Enclosed her with are the following documents which have been received from Captain M.D. Tollemache, Offices of Combined Chiefs of Staff, for transmittal to you:

C.O.H.Q. Bulletin Y/23
M.I.S. No. 10

2. It is requested that the enclosed receipt from Captain Tollemache be acknowledged and returned to him direct at the address indicated.

For the A. C. of S., G-2:

Frank E. Voysey

FRANK E. VOYSEY,
1st Lt., Inf.,
Commonwealth Section,
Foreign Liaison Branch.

Encls: 2 documents
Rec.for ret.to Capt.Tollemache

TOP SECRET

TOP SECRET

BRITISH JOINT STAFF MISSION
OFFICES OF THE COMBINED CHIEFS OF STAFF
WASHINGTON

3rd April, 1944.

Commanding General,
Office of Strategic Services,
Washington, D.C.

With the compliments

of Captain H.D.Tollemache, R.N.

Chief of Combined Operations Representative.

SECRET

Copy No. 292

CCHQ BULLETIN No. Y/23

BSO #6

EXTRACTS FROM REPORTS ON SALERNO LANDINGS

Distribution

(See back of this Sheet)

Issued from:-

Combined Operations Headquarters,
1A Richmond Terrace,
Whitehall, London, S.W.1.

March 1944.

Ref: CT. 217/44, CT.1355/43, CR. 203/44.

.....

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Combined Operations Headquarters,
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Whitehall, London, S.W.1.

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[illegible] 1
[illegible] 1

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[illegible] Div. Assault on [illegible] and SUGAR Beaches 2
Air Defence 2

[illegible] and Salvage

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[illegible] 3

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[illegible] 3

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COHQ BULLETIN NO. Y/23

EXTRACTS FROM SALERNO OPERATIONS REPORTS

SECTION A

(Report of Commodore Force N)

Planning

By superhuman efforts on the part of all concerned, and under conditions in which I hope a combined operation will never again have to be conducted, Force (N) and SNOL (Q)'s orders were ready for issue by D minus 11.

2. Intelligence. Vertical and oblique air photographs, as usual, proved indispensable, and a large circulation to leaders of assault flights and bombarding ships was welcome.

3. Supply of Charts and Navigational Publications. To overcome the difficulty of ships joining the operation subsequently not having the necessary charts, a plentiful supply of folios covering the area was carried in the headquarters Ship. Up to D plus 21, 58 copies of Folio 355 had been distributed.

4. Chartlets. Chartlets were invaluable, but the initial number ordered was inadequate. It is recommended that the supply of chartlets should be on a basis of two to each ship and craft taking part. An over-print to include :-

(a) Lowering positions
(b) The approach course
(c) Any special Navigational Aids
(d) The designation of the beaches, and
(e) The anchorage area.

5. If it is possible to obtain silhouettes of the coastline, these should be included in the chartlet.

6. Beach diagrams. These were of considerable value, but it was not found necessary to issue them below the level of the Deputy Local Naval Commanders.

7. Issue of Orders. It would be convenient, in combined United States and British operations of this nature, for the issue and distribution of orders to be according to some agreed system.

8. The United States system of issue, Annex by Annex, calls for more staff in British Headquarters Ships for distribution than is at present provided.

9. Briefing and Embarkation. Orders were voluminous, coming from three authorities (Commander-in-Chief, Mediterranean, Naval Commander, Western Task Force, and Commodore, Force N,) and, due to hurried and simultaneous production, amendments and addenda kept pouring in up to the moment of sailing. Great reliance was therefore placed on personal briefing so far as Commanding Officers of ships and craft sailing from Tripoli were concerned. This reliance was not misplaced, and, in my opinion, contributed principally to the welcome absence of mistakes or mistaken intentions "on the day".

/10.

Maintenance and Protection

10. 56th Div. Assault on Roger and Sugar Beaches. There was moderate fire from medium guns during the final stages of the initial approach and subsequently, but this was never accurate enough to be really dangerous to landing craft, and only one LCI and two LCT were hit. This spasmodic fire, however, had the salutary effect of causing the craft to unload and clear the beaches in record time. Smoke was not used in the initial stages of the assault.

11. Air Defence. At night, following HUSKY experience, reliance was placed on keeping ships in a tight cluster, and on screening the anchorage with smoke.

12. All fire from close-range tracer-firing weapons was forbidden, except at visible targets. Full liberty was given to heavy AA, with Radar control, within the Inner Artillery Zone (IAZ).

13. This worked well in spite of a moon and, often, many clusters of flares, and such bombs as were dropped in the anchorage appear to have been only "browning shots."

14. On more than one occasion "Y" intercepts reported leaders of German formations instructing their units to bomb the ships making most flak.

15. The IAZ at night was reduced to 7,000 feet in height as soon as locally-based night fighters began to operate. This was justified by results.

16. The use of seaborne GCI sets in LST was invaluable. At night, they were stationed well to seaward in positions where, as result of experience, they had least interference from land echoes.

17. Hospital Ship should arrive as early as possible on D day. The evacuation of casualties satisfactorily without one is most difficult.

18. Provisions. Some arrangement is essential in any but the shortest operation of this kind for the timely and regular supply of provisions for the smaller ships and craft that may have to remain for a considerable time in the assault area.

Repair and Salvage

19. The provision of ample shallow-water diving equipment to clear propellers and rudders is a necessity. Wires can nearly always be cleared from shafts if the tail coupling is broken and the shaft slid back a few inches, but even then underwater cutting gear is nearly always required.

20. Beach Repair Parties. While SNOL controls more than one beach, he requires an Engineering Officer on his staff to co-ordinate the work of the Repair Parties. The Staff Engineer Officer in the Headquarters ship has not the staff, nor is he in close enough touch with the beaches to be able to undertake this.

21. The loading of the Beach Repair Parties in two specially allotted LCT resulted in their arriving complete. This was a great improvement over HUSKY, where the beach repair equipment was dispersed over many craft and was never traced after its arrival at the beaches.

/22.

/22. Le Tournoau cranes once again were invaluable and proved much more suitable on rough ground than had been anticipated.

23. Spare parts and stores for landing craft were in constant demand, which could rarely be met save by cannibalising. The anchors lost and hawsers parted in the gale on D plus 18 could not have been replaced locally, had it not been for the capture of the small but well-stocked shipyard at Salerno.

24. Salvage of stranded landing craft was very successfully accomplished by securing an LCI (L) alongside at an angle of 45° on the seaward side. By going ahead on her engines, the LCI scoured out the sand from beneath the craft at the same time as the craft was being pumped out and the sand removed.

Ships and Craft

25. Ships and craft allotted to Force N were adequate for the operation, prolonged as it was, subject to the following remarks:-

(a) Inevitably, the requirements of the Military situation led to supplementary demands being made on LCT for extra lifts from one beach to another, in support of unforeseen troop movements. These were met, but only at the expense of discharge of shipping. It is recommended, for a large operation of this sort, that the allotment of LCT should be definitely generous. Had it not been for prolonged fine weather and a temporary windfall of 13 LCT from Sicily, which had later to be returned, a critical situation would have arisen.

(b) Despatch boats proved essential, 8 for the Headquarters ship (in addition to her own boats) and 4 for SNOL were the requirements. A proportion of faster boats would save much time.

(c) Mk. I LST were troublesome to beach and pontoons were always necessary for them.

(d) Mk. II LST were remarked on in detail in Captain LST's report (see pages 5 and 6). These craft had been running continuously for operation HUSKY and had little or no opportunity for maintenance or overhaul. Their fine performance, whether British or American, was one of the most outstanding features of the operation.

26. Waterboats It was found that one 2,000 ton water tanker and one 350 ton carrier were inadequate. Two small tankers should be provided so as to allow of one being used entirely to ferry between the assault area and the base, while a second small one is used in the assault area for filling up ships and shore establishments, and also for drawing water from M/T ships to top up the big tanker.

Lessons Learned

(Extracts from Commodore, Force N's 'Conclusions and Lessons Learned'. He points out that what follows is not necessarily new, but rather comments on points of interest).

27. Naval Bombardment. There was not enough space to bring into action all the artillery landed. Naval gunfire filled the gap, and

/undoubtedly

/undoubtedly saved much time and many casualties in the course of breaking down the enemy's defences and pushing through to the plain of Naples.

28. The situation on Uncle Green beach on D day, due to a pocket of enemy resistance in very close country, illustrated the difficulty of supporting our own troops with ships' gunfire, without observation, when friend and foe are closely intermingled and the positions of neither are certain.

29. Beachfinding. Extensive mining near the 100 fathom line precluded any previous beach reconnaissance in the NORTHERN Sector. For the same reason, the laying of supersonic aids for the use of marking submarines was ruled out.

30. The need for gunfire and rockets to cover the final approach of the first assault waves made the use of folboats too hazardous, nor would the time available (allowing for the moon to go down) have been sufficient for them to have been used effectively.

31. Choice of Lowering Position. The presence of mines and the impending early departure of the LSI after recovery of their craft dictated a lowering position for the British section of the NORTHERN Assault outside the 100 fathom line.

32. This was accepted, with the disadvantage of a 9 mile run-in for the assault craft, and LSI remained stopped for six hours under weigh. In less favourable weather conditions, this would have been difficult.

33. In the United States section of the assault, all assault craft were carried by the 6 davit LST, a most sensible arrangement.

Accordingly, the Task Group Commander swept the whole of his assault convoy in to a lowering position inside the line of mines and four miles from the beach, where it was possible to anchor.

34 The relative immunity of LST to serious damage from mines justified this course. As expected, this convoy became a target for rather indifferently directed gunfire from shore batteries.

35 It is considered that, in reasonable weather conditions, a spacing of four miles between lowering positions of neighbouring divisional assault convoys is not too close.

36. Army Must Take Their Equipment Ashore. It is considered that the importance of the Army taking their equipment and ammunition with them when they land should be further impressed upon them during training. On every operation in which PRINCESS ASTRID has taken part, it has been found that the Army leave large quantities (up to 50%) of equipment and ammunition on board. Much of this, including primed hand grenades, mortar bombs and demolition charges, is to be found on the Troop Decks, together with rifles, automatic weapons, webbing equipment and food in one great muddle after the troops have left. The large notices on my Troop Decks "TAKE YOUR AMMUNITION WITH YOU. YOU WILL NEED IT" have not done much to improve this situation.

/SECTION B

/SECTION B...

SECTION B

(Extracts from Report by Captain LST, Mediterranean)

Landing Ships Tank

37. Shelling from Shore and Smoke by Assault Force. Shell fire was encountered off Roger beach at times throughout Thursday, 9 Sep, evidently at long range, for several ships were straddled by shells which detonated in water very close each side. If ships kept moving, however, they ran little risk of being hit.

38. LST 319 burned smoke floats from the stern, and although the ship and beach beyond were obscured, this did not prevent the enemy battery from continuing to plaster the target.

39. LST 324 (Lieut. Commander A.J.Bell RNR) beached near this position and had shells pitching close to port side. His report says :

"Whilst on the beach I was ordered to make smoke by the beach master. (This order was later cancelled by Captain LST verbally). I found that the smoke was sucked into the tank space by the fans, and, in spite of ventilators being opened, the tank deck became almost untenable, and if this had continued it would have hindered discharge considerably, as neither NILO's or drivers of vehicles were able to see each other. As it was, it very appreciably delayed discharge and hindered other LST from beaching. I found it impossible to see the beach or beach marks at times when running in".

40. Shelling of Beaches. LST should remain on the beach for as little time as possible. This can be accomplished as follows :-

(a) LST should beach and unload tank deck and back off: Time to do this : 10 to 20 minutes.
(b) Next ship comes in and does likewise.
(c) Ships who have backed off get Upper Deck cargo down on to the tank deck, then beach again and back off when cleared.

41. There appear to be 3 distinct advantages to be gained by this method :-

(a) Guns and tanks are generally loaded on tank decks, therefore a heavy return punch is provided for the soldiers at once.
(b) Ships on the move stand less chance of being hit.
(c) Ships are on the beach for the minimum of time.

42. The disadvantage of this method is that it may produce such a stream of traffic at one time that it may produce a jam.

43. Ships Should Carry Beach Matting. Here was a case of a beach which was expected to be poor, turning out to be ideal. LST were beached in groups of 6 or 7 and as close as 60 feet apart. If each ship had carried rolls of beach mat in the bows, she could have laid her own track up to the beach lateral road.

44. BUT, there is no advantage to be gained from this unless the exit roads are good enough to handle the traffic striving to get away from the beaches. Some complained of delay through vehicles bogging in

/soft sand.

/soft sand. This can be prevented by playing ships' fire-main hoses on the beach to harden and bind the sand.

45. Use of Causeways. Little experience was gained, for very few ships unloaded by pontoon causeways. BUT it is obvious that our method of using positioning ships must be modified to counteract possible damage to ship whilst beached. A positioning ship would be reduced to a wreck if exposed to shell fire hour after hour. Therefore the method suggested by Commander A.B.Alison, RN, in his report will be used in future. This modification is as follows :-

46. Positioning ship places pontoon causeway as usual, beaching herself with an extra foot to draft than operational trim. She then fits the causeway to her own ramp and unloads herself. Twenty minutes before completion, she calls the next ship alongside. This ship secures alongside at proper distance to take causeways under her ramps and floods down. Positioning ship, being empty, backs off, leaving second ship firmly on the bottom taking over the causeway. Process repeated till all ships unloaded.

47. Draft and Speed for Beaching. The importance of ships being at proper operational draft cannot be too strongly emphasised. There was one case of a ship being so heavily loaded by the Military at Milazzo that all attempts to beach were frustrated. She was finally unloaded over an extended causeway. The Commanding Officer of LST is responsible and this must not be allowed to happen.

48. Next, it is imperative that LST beach at 8 knots or over. A good long straight run should be taken. It is no good going full speed with engines over a short distance, for the ship has not time to get her speed. All ships who took a good run at full speed ran up with a dry ramp.

49. Ships should not beach down closer than 40-50 yards apart, for there is risk that an uncontrolled sheer caused by coming over the false beach may result in damaged bow doors or worse.

50. Analysis of Unloading Times. An analysis of reports received (which are not yet complete) gives the following useful information :

6 ships of 1st Flotilla unloaded at an average of 2 hours 11 minutes.
4 ships of 3rd Flotilla unloaded at an average of 1 hour 57 minutes.
One of these ships unloaded over a pontoon causeway in 2 hours, 03 minutes.
6 ships of 8th Flotilla unloaded at an average of 2 hours 22 minutes.

51. It should be noted that later in the day times grew longer owing to traffic congestion on beaches and exits.

/SECTION C...

SECRET/U.S.

MINESWEEPING

(Extract from Report by Captain, 12th Minesweeping Flotilla).

52. Difficulties of Beachfinding. As in HUSKY, so in AVALANCHE, the Senior Officer, Fleet Minesweepers, most anxious moments were caused by his doubt as to the best course to steer from the Release or Lowering Position towards the beach. In AVALANCHE the navigational problem of reaching the correct Lowering Position was not difficult. The configuration of the land gave radar fixes; the visibility, even after moonset, allowed visual fixes; the American beachfinding aids to the NORTHWARD served as a check. These conditions, however, could not be foretold.

53. Unfortunately, the beachfinding beacons for the assault from LP 2 were not in place in time for the minesweepers to follow the seaward end of the channel which they marked, and the result, when at last they did appear in a position not exactly correct, was an alteration of course in the middle of the approach which gave a tortuous line of dans, as well as being more hazardous for the Sweeping Force.

54. It would perhaps have been better for the Sweeping Force, in this instance, to have disregarded entirely the beachfinding beacons. The Senior Officer's appreciation at the moment, however, was that since assault craft following behind would almost certainly steer for the beacons which they had been told to expect, the swept channel should, so far as possible, be made to coincide with these beacons.

55. It is submitted that no efforts can be too great if they will ensure that the swept channel from the Lowering Position to the exact desired position opposite the assault beach is accurately and punctually swept, as this may well affect the entire result of an operation.

56. The Sweeping of an Assault Beach after the First Assault Stage. Both in Operations HUSKY and AVALANCHE, it was desired to sweep an area of considerable size immediately off the beaches at first light after the assault. On both occasions, although the sweeps were started immediately the casualties and other incidents of the night's sweep permitted it, it was found impracticable even to search as much as 50% of the area desired before the impatient traffic of Landing Craft towards the beaches rendered further operations futile.

57. It was fortunate that the whole anchorage off the beaches was already clear of mines. Had it not been so disaster was inevitable, unless all traffic had been held back until a clearance had been made.

58. Since it is clear that no avoidable delay in running traffic to the beaches can be expected, no constructive suggestion can be made, and it is considered that reliance will have to be placed on an efficient intelligence service ensuring that no assault beach is chosen where mines have been laid within the 12-fathom line.

59. Dan Buoy Work. As usual, the work of laying dan buoys in this operation brought its crop of problems. Off SALERNO, mine lines were laid in water up to 135 fathoms and possible deeper.

/In NAPLES..

In NAPLES BAY, it is believed that there are mine lines laid in just under 200 fathoms.

SECTION D

REPORT ON COMMUNICATIONS.

(Extract from Report by Commodore, Force N).

60. W/T Communication. Communication throughout the assault period was very satisfactory, although congestion on all lines was acute.

61. Organisation. Two LCI(L) specially fitted with additional W/T equipment were used as Brigade Headquarters ships and carried the Local Naval Commanders for the sector. Communications in these craft functioned well, and, although delays occurred, information was received quickly by SNOL( ) and Commodore, N.

62. Seaborne GCI. The GCIs fitted in LST were used most successfully and, thanks to the calm weather, provided from the very first, a reliable source of information for the control of night fighters.

63. Radar. The radar screens of ships close inshore were generally swamped by land echoes, due to the mountainous nature of the country. Consequently, no reliance could be placed on this form of warning system. At the beginning of the operation warnings were often received through Y reports, but, owing to the indiscreet talk on VH/F by own forces, this warning was later denied. It cannot be too strongly stressed on the minds of Fighter Directing Officers and RAF personnel concerned that they must not use inter-FDO VH/F communication as if it were a scrambled telephone.

64. Liaison.

(a) British - United States communications worked well because liaison was established early in the planning, and considerable use was made of liaison parties. One RN Beach Unit Signal Officer with the necessary ratings to man Naval beach wave worked in exercises and operated in the assault with the USN beach group.

(b) In USS BISCAYNE carrying the US Task Group Commander under Commodore, Force N, the British Naval Liaison team manned Auxiliary, Bombardment Calling and Naval Beach waves, and assisted with British coding, and worked in this ship during exercise periods.

(c) In HILARY, the US Liaison team manned the Task Force Commander's circuit for communication with the Naval Commander Western Task Force, and worked the ECM.

(d) It is desirable that there should be an officer in every liaison party, as, although the British and Americans may talk the same language, the wording of signals is different and certain phrases mean different things.

(e) It is recommended that, however good the British and Americans may become in working together, liaison teams should be employed.

/65.

65. Conclusion. The basic organisation of our combined operation communications is sound. It withstood a very long period of communication without any breakdown.

SECTION E

NAVAL BOMBARDMENT IN SUPPORT OF 10 CORPS.

(Extract from Report by Commodore N).

66. Over 300 Targets. Up to D plus 19 over 300 targets were engaged by HM ships in support of the landings and subsequent advance by 10 Corps.

67. Support from First Light, D Day. Supporting destroyers and LCG engaged direct targets until the possibility of endangering own troops prevented their support. One FOT established communication at 0500. Others got through later. The following examples illustrate what occurred, and what, it is suggested, may be expected in other opposed landings :-

FOB "A" Landed at H plus 30 on the wrong beach. Beach under fire, and a certain amount of confusion. First opportunity of setting up set was at 0445. R/T interference, but got through at 0500, and shot at 0700.

FOB "B" Landed about H plus 30, established communication with attached ship and passed Sitrep shortly afterwards. At about 0700 18 M set destroyed and 19 set damaged by shell fire.

FOB "C" Landed 0500. Pinned on the beach for about 1½ hours. Moved inland and established communication about 0730.

FOB "D" Landed H plus 50. On beach all day. Exchanged strength of signals H plus 110. Got through again without difficulty at 0800 and did shoot.

FOB "E" Landed 0435. On beach just over 1 hour. Established communications about 0600.

68. All main beaches were under fire, and, owing to mines, troops had to pass through selected beach channels. Delays are inevitable under such circumstances.

69. There was an interval during which it was possible to give very little support. This occurred between the time when it was no longer possible to engage by direct fire targets near the beaches, owing to doubt as to location of own troops, and the time when FOBs were in a position to observe. Owing to the difficult terrain and heavy enemy opposition, FOBs generally took longer to get going than had been expected. Some method of usefully employing ship's gunfire in support during this period is a very definite requirement.

70. D plus 1 Day Onwards. From D plus 1 to D plus 19, daily support continued on a regular routine, with ships leaving to replenish ammunition and others arriving to replace them. Points of special interest are contained in the succeeding paragraphs.

71. LCG were found unsuitable for indirect bombardment, due to :- (a) Inferior communications
(b) Inaccurate navigation
(c) Primitive fire control system.

/72.

/72. LCG were useful for close support during the early stages of the operation, and engaged direct targets resolutely and with good effect. Even so, it is considered that the present LCG with its slow speed, clumsy manoeuvrability, lack of target indication gear and inability to fire ahead, except at the longer ranges, is not a really suitable craft for close support.

73. LCT (R) Up to the present no detailed reports have been received of the results of salvos fired by these craft during the assault. One FCB reported that at 1000 on D day Germans were seen coming out of holes in a dazed condition. How much this was due to the Rockets and how much due to other types of fire it is difficult to say, but, as it was in the area in which the rockets had landed, it may be assumed that they were largely responsible for this satisfactory state of affairs. It is considered that these craft are a most valuable addition to the support of any landing, and a full salvo of 792 rockets landing on the beach in front of assaulting troops is a most effective deterrent to any enemy in the vicinity. To be really effective they should be available in large numbers. There is, however, the danger that a salvo may fall on the wrong part of the beach, as happened in one case, and the LCA steered for the point where the pattern landed. This was unfortunate, as it fell across a river mouth, which had to be crossed by half the assaulting troops before they could join up with their unit.

74. Reference Positions and Call Signs. There were indications that the enemy was listening in to BCW and, as there were casualties to FCB parties who were probably taken prisoner with their log-books etc., the reference positions were changed on alternate days, and ship and FOB call signs changed daily. The standard "F" and "G" call signs were replaced by three letter call signs supplied by 10 Corps. It is suggested that three letter call signs and daily changes be adopted as standard practice in future operations.

75. Use of Artillery OP. On several occasions, FCBs were not in a position to spot, whereas an Artillery OP could. In such cases a FOB or BCW tentacle was informed, and made the call for fire, and the artillery observer spotted the fall of shot. These observations were then translated into naval procedure by FCB and relayed back to the firing ship. The very slight delay involved was negligible, and the firing ship was to all intents and purposes, doing an ordinary shoot with the attached FOB.

76. It is most strongly urged that in any future operation, the use of Artillery OP and Air OP should be carefully planned and practised beforehand, so that the fullest use can be made of every available means of observing ships' fire. Until these methods of obtaining observation had been evolved a number of indirect shoots were carried out without observation in order to fulfil urgent needs for ships' fire in certain areas.

77. BLOs and FOBs and Parties. The work done by these officers and their parties during the operation has been invaluable. Due to casualties amongst FOB parties, it was necessary to take BLOs away from certain ships and lay them as FOBs. It is suggested that in a future operation more FOB parties should be provided, so as to keep a reserve, and that all BLOs should have the necessary equipment on board their ships in case they have to land. The BLOs attached to Divisional and Corps HQ formed a most valuable link.

78. Effects of Naval Gunfire. Up to the present it has not been possible to get exact details of the damage inflicted on the enemy by naval gunfire. However, it can be said that cruiser and destroyer gunfire was most effective in silencing enemy field gun batteries, and dispersing concentrations of MT tanks and infantry. In general, the

/consensus

/consensus of military opinion (10 Corps) was that naval supporting fire had been of the greatest value in saving time and lives as the offensive took shape. Owing to the restricted beachhead and lack of level ground near SALERNO, it was impossible to deploy all the land artillery. Naval guns were able to add the necessary weight and volume of fire to make good this deficiency.

79. Extracts from Summary of Lessons Learned.
(Note : The paragraphs in brackets are CCO's remarks).

Given adequate air cover and A/S protection, good weather conditions and good observation, supporting fire from cruisers and destroyers is most effective.

80. During an opposed landing on terrain which is difficult for observation, a method must be devised whereby the supporting fire from ships can be fully employed until FOOs are in a position to take over observation. This might be achieved by :-

(a) More definite information about positions of own troops, enabling ships to identify and engage opportunity targets direct.

(b) Tac/R or Arty/R aircraft being made available in large numbers and trained with ships to engage opportunity targets in rear of the beach areas.

81. That only cruisers and destroyers should be initially attached to FOB for engaging opportunity targets, and that 15 inch monitors should be employed, with observation, for those specially selected pre-arranged targets most suited to their heavy guns.

82. That the present system of bombardment communications is satisfactory but that the substitution of a 22 set for the 19 set is desirable and that crystal control for spotting frequencies is absolutely essential in the 13 M set.
(These matters are being arranged. The No. 22 set or TCS (Collins 18 Q) will be fitted in vehicles).

83. That the LCR is a most effective weapon, and its use in large numbers is recommended for future opposed landings.

84. That the BCW operations in the Headquarters ship must be experienced loading Telegraphists with bombardment training.
(Bombardment training is being arranged).

85. That codewords, reference positions and call signs are likely to become compromised, and must frequently be changed during an operation.

86. It is essential that a full scale rehearsal with FOBs and supporting ships taking part should be arranged on a bombardment range.

87. Although the necessity never arose in the 10 Corps area, it is a requirement that a common system should be agreed upon with the US Navy in order that the British ships can be quickly attached to a US shore fire control party, and US ships to a British FOB.
(One possible way of meeting this is by having BLOs trained in both British and US systems in all bombarding ships).

(CT. 217/44).

/SECTION V.....

SECTION I

DIGEST OF A REPORT FROM GHQ, MEF, ON SMOKE AT SALERNO

Plan

88. The plan was for 807 and 1991 Smoke Coys to land early on D day with 46 and 56 British Divs to lay screens to cover their respective divisional beaches. The assault flight was to carry enough smoke material for a screen of one hour in the night of D day, while further further supplies were to be landed in successive flights to maintain the screen as necessary for seven days. Screening was to be against air attack and by night only.

Planned Generator Supply

89 50 tons for D day and 50 tons for D plus 1 were loaded in corps ammunition lighters due to discharge early on D day. As an insurance, 500 generators were to be carried by the operators landing from LCIs. 25 tons were due in on D plus 3, D plus 5 and D plus 7. A ship due to discharge in Salerno carried 168 tons.

Transport of Smoke Coys

90. Each company was split between 2 LCIs. Company transport was four 5-tonners and one 15-cwt.

Detailed Plan

91 A suitable smoke circuit was drawn on the map and divided into five sectors, each commanded by an officer and manned by two sections. The 56 Div beaches absorbed four of six sections, leaving two sections available for carrying smoke material, laying of telephones, etc., and free to take over 46 Div screen later. The average length of each sector was 2,000 yds.

The Landing

92 56 Div. - H hour was 0330. Due to unexpectedly stiff resistance the battle did not go according to plan, neither did the smoke scheme. On 56 Div front all of 1991 Coy were landed by 1400 hours. Three of their trucks followed and at 1630 hours 12 tons of smoke were landed. This was the total landed that night. A screen 2,500 yds long was run around the beach in use. Telephone circuits were run out with a line to GOR who were provided with red Verey lights, the alternative signal to make smoke. This screen was ready half an hour after dusk. Contrary to expectations, night raids were few; no smoke was made. A great deal more smoke was landed on D plus 1, and the planned screen prepared. It was agreed with the Navy to make smoke for any raid of over five aircraft. This was later reduced to three.

93 46 Div - Due to considerable resistance met on D day, 807 Coy did not land until D plus 1, half a.m. and half p.m. By some misadventure no smoke generators accompanied 46 Div from Biserta. A large part of the planned circuit lay in German hands. 807 Coy moved to Salerno on D plus 2 with a load of smoke provided by 1991 Coy and a screen was ready to operate evening of D plus 2.

/94...

94. On D plus 2 resistance was subdued on the 46 Div beaches but the aftermath caused such confusion and traffic jams that the screen was not ready till D plus 4. When finally established, the screen was 14,000 yds long with 500 emission points, generators covering unused parts of the beach being 30 to 40 yds apart and on the used parts 20 to 25 yds. Each sector had its own 3-ton truck and maintained its own screen with generators from the beach ammunition dumps. They were also responsible for collecting their own rations etc from Company Headquarters. Each man had two or three points of emission to maintain.

Method of Operating Screen

95. Until D plus 5 enemy night air activity was very light; no smoke was used. Warnings seldom gave more than four minutes notice; winds were light. Off-shore breezes blew till half an hour after sunset then two to three hours of nearly dead calm strengthening to a maximum of 8 mph half an hour after dawn. Due to short notice and low wind speed it was necessary that every man stood to his post all night.

Decoy Screens

96. A decoy screen ready to cover [illegible] fires was made ready but not used. On the night D plus 6 there was a raid between 2100 hours and 2200 hours. The order to make smoke was not given due to a misunderstanding. As a result of this raid, the Navy particularly asked for smoke in the event of further raids. A raid developed at 0300 hours and the Navy made smoke for the first time. The warning time was short and the Navy only 3 mins. Smoke was late on the target. Even so the Navy was pleased. During this raid fire was started in a petrol dump. This was covered by the mobile screen till daybreak. This was a great success. At 0100 hours on D plus 7, HMS HILARY blew her siren for smoke. The screen covered the beaches by the time the raid developed. It lasted half an hour and in the following morning very favourable comments were received from the beach where it had not interfered with unloading.

Use of Mobile Screen.

97. One section formed a mobile screen using a 3-ton truck and 2 tons of smoke ready to screen fires started at night. During the night a lone raider dropped bombs on one of the beach aerodromes and set fire to several aircraft. The mobile screen covered this for three and a half hours. The RAF Station Commander was most satisfied.

Effective Screens

98. On D plus 8 an urgent demand for smoke was received from HMS HILARY to cover beaches from shelling. 46 Div line source was reinforced to 60 lbs/min from 9 lbs/min and a most impressive screen stretched into and beyond Battipaglia some 7 miles away. The beaches were completely hidden from the mountains and the shelling stopped. The screen was maintained from 1630 hours until dusk. It was a great comfort to all.

(Ref: CT 1355/43)

(See also paras 109 and 117 in Section G below). /SECTION G.....

REPORT BY COHQ OBSERVER ON VISIT TO MEDITERRANEAN THEATRE IN NOVEMBER AND DECEMBER 1943

(The following extracts from the Observer's report and from others to which he had access on the spot cover a number of points of interest not mentioned in the foregoing pages).

Preventing Beach Observation

99. It is not reasonable to expect troops, even if they land on the right beach, to move and fight inland over ground they have not seen in order to deny the enemy observation of the beaches by daylight. The denial of this observation is valuable, but in most cases not absolutely essential to the success of the operation, and must, therefore, be considered a bonus.

100. Enemy infiltration was a great source of worry. This is inevitable unless every yard of the perimeter is under observation by us: even then, in order to ensure that the beach group can work unmolested by enemy ground forces, a strong mobile reserve of fire power must be held at the back of every beach.

101. Closely related to 100 above is the requirement for a defensive element in the beach area. An Inf Coy is not sufficient. A small force of all arms well equipped with carriers, anti-tank guns and automatic weapons is necessary if the beach group is to be expected to maintain a high standard of work. The drop in figures of vehicles and stores landed during the days when counter-attacks were made at Salerno is most noticeable.

Ammunition in the Assault.

102. A suggestion I heard which I consider worth trying out is the replacement of the thwarts of LCA by full ammunition boxes which are then dumped on the beach. Another suggestion was the construction of hollow box thwarts for stowing extra equipment.

Limitations of DUKWS.

103. The DUKW is undoubtedly a wonderful animal, but its limitations were demonstrated at Salerno. Here MT Store ships had to lie from 2 to 4 miles off the beaches owing to shellfire until D plus 8. Secondly the roads inland to the dumps were narrow, and the DUKW is a wide vehicle; a bogged DUKW can hold up, and did hold up traffic for an inordinate length of time.

Control of De-waterproofing areas.

104. De-waterproofing areas just behind the beach must be well policed. Drivers were inclined to rip off waterproofing material anywhere, thereby blocking the traffic and wasting salvage.

No Dumps on Stubble.

105. Dumps must never be put down until stubble has been burned. Twice ammunition dumps were bombed and set on fire.

/106.....

106. 15 cwt truck for line and carrier for rear link to higher formation should be added to G.1096 of signals.

Naval Briefing of vital importance.

107. On two craft the skippers had no maps. The skipper of the craft carrying the Beach Group Commander couldn't hear a word of the briefing, being at the back of the room. He was finally told to follow another LCI in the dark. He lost it in the first mile and still had 60 miles to go.

108. Naval fire from LST and other craft was sometimes indiscriminate. All used for other than A fire, fire must obviously be controlled.

109. The following is an extract from a letter from CC., 20 Beach Group to HQ 8 Army -

> "A smoke unit should always be included. On the Italian landing which the Group took part in, the beaches were mortared and machine-gunned most of the day. At one time an MTB put out a small amount of smoke. It was invaluable. It shielded the craft and gave confidence to the men unloading them".

110. RAF personnel are too many.

Good Ferry Service.

111. The successful build-up at Salerno was to a very great extent due to the smooth working of the ferry service. Since the cross-channel operation presents a somewhat similar movement problem, though on an immensely greater scale, I investigated the system used in AVALANCHE in some detail. The smooth working of the ferry can be attributed to :-

(a) The decision not to alter priorities after final bidding,

(b) Adequate communications from Corps HQ to the ferry ports,

(c) The adequate representation of Corps staff at those ports.

112. There was a direct wireless link between Corps HQ both afloat in HMS HILARY and ashore, and the three ferry ports, Agcuti, Milazzo and Tripoli. Each set was controlled by a Q or SD representative of Corps. Corps would allocate the empty LST to ports and the Navy would signal the number arriving. Priority serials would then be marshalled ready to embark. Corps representatives would then signal back serials embarking and ETA at the beaches. After the LST had left for the beaches, movements would confirm numbers on passage, loads and ETA.

Organisation of Ferry Termini.

113. In order to ensure the smooth working at the ferry embarkation ports, liaison posts were established by HQ 10 Corps as follows:-

/Adm.Post...

/Adm. Post - Tripoli
SD Post - Agouti
SD Post - Milazzo

114. The duties of these posts were:

(a) To ensure, in conjunction with Q.(M), that LST convoys were loaded in accordance with the priority laid down beforehand,

(b) To maintain communication with main HQ, 10 Corps and keep them informed as to dispatch of units by convoys,

(c) To implement such alterations to the priorities as ordered by the Ferry Control Committee,

(d) To act on behalf of HQ 10 Corps in giving all assistance possible to such units and detachments of the Corps coming into the area.

Ferry Control

115. With effect from D day, a Committee to control ferry priorities was established at HQ 10 Corps for the following purposes:-

(a) To decide priorities in the LCT ferry service between MT ships and beaches,

(b) To decide priorities for LST and LCT ferry service between Sicily and the mainland,

(c) To obtain latest information of the ferry service from Agouti and Tripoli,

(d) To make any alterations required in the priority of units to be ferried from Agouti and Tripoli (such alterations were only made as an operational necessity.)

116. The Ferry Control Committee met at HQ 10 Corps daily under the AQMG(M), whose duty it was to take executive action as necessary to implement priorities. The Committee consisted of representatives from G. Ops, Q and RAF. RA., RE Signals and Services were asked to send representatives if necessary, but normally any requirement was made through G or Q.

Smoke Sickness.

117. Smoke used in the beach area made personnel working on the beaches sick.

118. Although there was no sand bar at the beginning of the Operation, the continual churning up of the sea bottom by the screws of LST caused one to form. This resulted from LST not beaching boldly enough, thereby having to keep their engines going ahead during disembarkation.

/119.....

119. COMPARISON OF PLANNING FIGURES WITH RESULTS.

Shipping and Craft	Planning Figure	Result
LST	200 personnel) 50 vehicles) Assault 300 personnel) 55 vehicles) follow-up Time of discharge 4 hours allowing run-in and pulling off	Average of 55 vehicles in assaulting convoy and 65 in follow-up. This difference is due to number of DUKW's in assaulting convoy. Time of discharge correct.
LCT 3	10 vehicles or 8 Shermans.	Average 12 vehicles
LCT 4	12 vehicles or 10 Shermans	Average 15 vehicles
LCT 5	8 vehicles or 5 Shermans	Average 10 vehicles
All LCT	Unloading stores from MT store ships, 1 turn round a day with 150 tons.	1 turn round a day with average of 125 tons.
MT Ships	Discharge 100 tons per hatch per 24 hours.	Correct.

Decision Wanted.

120. If the Captain of a LCT (R) has picked up his target but sees the Infantry veering off to a wrong beach, is he to fire at his original target or to follow the LCA and give the Infantry direct support on the wrong beach? This should be decided by Force Commanders before any operation.

121. An important conclusion reached in the Mediterranean which should be noted for the Cross-channel Operation is that if LCT (R) are less than 3/4 mile apart, Radar interference becomes bad.

Airfield Construction

122. No airfields were constructed on the actual beaches. Single strips were laid in fields within 500 yards of the beach.

(The following is extracted from Reports by PMLO, 56 (LON) DIVISION (PHASE I - D DAY - D plus 19) and MLOs, 3 and 2, BEACH GROUPS

Planning

123. Owing to the constant changes in allocation of ships and craft we were actually loading vehicles into ships while still planning the stowage of vehicles on ships which would land later in the assault, and in the end the position became so bad that we had to work on a day-to-day basis in giving the details of the vehicles to be stowed on the ships to Mov and Tn., Tripoli, and the units concerned, which meant that some units had very little time to prepare for embarkation. This also entailed /my staff...

132. By 1200 on D plus 4, the air strip at ROCEN beach had been opened up and Spitfires commenced to land.

Responsibility

133. It was obvious that the MLO who is going to be made operationally 'responsible' for the beaches must be the principal adviser to the Bde Cmdr during planning, however late he may arrive, in order that he may state whether he approves or disapproves of anything which has been done on his behalf during his absence. I do not consider that sufficient importance has been attached to the briefing of the OC Fd Coy in the past, as he is also of inestimable value to the CRE Div.

Layout of Maintenance Area D plus 1

134. The whole area was a mass of vehicles and men, and dispersal was almost impossible owing to the deep ditches on either side of the roads. That we suffered no air attacks is a great tribute to the RAF.

135. One instance I note shows the unusual aspect of the situation: the Batteries of the Fd Regt were in positions some 400 yards - 600 yards behind the Ammunition Dump.

Situation in Maintenance Area 23/I

136. Our Petrol Dept was very open on our right and subject to shellfire on that account, and it is now quite apparent that until the force has established its bridgehead, dispersal of one's maintenance area is out of the question. It is essential that all one's dumps are behind one's forward troops and not mixed up with them, and this also means that in the early stages, where a quick build-up is essential to obtain a reserve, one has the advantage of having the so-often-stressed short turn round for vehicles operating to dumps, and one is free from interference by tactical road moves.

Reaction of Beach Units to E/A

137. Quite 95 per cent of the Beach Group had never been under fire before and they showed up surprisingly well. An average of 650 tons per day with a peak of 955, was kept up over the first 7 days. Air raids also stopped work at night, more, I think, because of our own barrage than from bomb danger.

Night Work not worth Cost.

138. Unless one has a large reserve of labour, night work on beaches should not be carried out except in real emergency. It exhausts one's labour too quickly, and the results shown are not worth it.

Stowage of Craft and Stores Markings.

139. With mixed loads of ammunition, one cannot sort it out correctly at night, and valuable time is wasted.

140. If each LCT spent an extra 2 hours alongside the ship and block-stowed by types, 4 hours on each craft would be saved on the beach and wastage of labour would be eliminated.

/Craft control....

Craft Control

141. It is strongly recommended that in future operations every MT and Store ship should have its own AMLO, all such AMLO's to be under the command of the Control AMLO.

Loading of LCT and Stores Priority.

142. Loading of stores from ships into LCT was generally very poor. Owing to bad stowage, many craft were on the beaches for more than 24 hours, due to the immense amount of sorting necessary. Some LCT on inspection showed a complete mountain of mixed stores, proving that cargo nets had been slipped at one end and stores dropped into the craft with no attempt at stacking. Such stores could not be moved during the hours of darkness without danger to personnel.

(Ref: CR.208/44).

SECRET

INFORMATION

ROUTING SHEET

Originator: Director's Office
Date: 23 March 1944
Addressee:
Date Rec'd:

Subject: Transmittal of Material recd from BJSM

To	Room No.	Date Rec'd	Date Fwd'd	Initials	Comments (Indicate action desired or taken)
Mr. Lovell	113 South	[redacted] [redacted] Rec'd 24 March			Seaborne container of especial M.U. interest. Obtaining nothing of great pertinence of [illegible]
Lt. Roberts	2241 Que	RECEIVED MAR 25 1944		D.R.	Lt Rayburn investigate the seaborne container ([illegible]) OK
Mrs. O'Donnell	121 Admin.				

For examination, comment and return - W.J.D.

SECRET

DIRECTOR'S OFFICE

WAR DEPARTMENT
WAR DEPARTMENT GENERAL STAFF

KDH 311.23 28 March 1944

MEMORANDUM FOR: Commanding General, Army Air Forces
A. C. of S., G-2, Army Ground Forces
A. C. of S., Operations, S.O.S.
Director, Office of Strategic Services

Subject: Transmittal of Material received from B.M.M.

1. Enclosed is Monthly Information Summary No. 9 dated 15 February 1944, which has been received from Captain E. D. Tullamache, R.N., Chief of Combined Operations Representative.

For the A. C. of S., G-2:

R. N. Gustafson

R. N. GUSTAFSON, Jr.
Major, Air Corps
Commonwealth Section
Foreign Liaison Branch

Enclosures:
M.I.S. No. 9
Receipt for return to Capt. Tullamache
Receipt for return to F.L.B. (dup).

Allied Letter

U. S. SECRET
BRITISH MOST SECRET AND SECRET

MOST SECRET

BRITISH JOINT STAFF MISSION
OFFICES OF THE COMBINED CHIEFS OF STAFF
WASHINGTON

8th March, 1944.

Commanding General,
Office of Strategic Services,
Washington, D.C.

With the compliments

of Captain H.D.Tollemache, R.N.,

Chief of Combined Operations Representative.

MOST SECRET

In reply, quote:

MIS/46434

Combined Operations Headquarters,
1A Richmond Terrace,
Whitehall, S.W.1.

15th February, 1944.

CCO

MONTHLY INFORMATION SUMMARY.

No. 9 of the COHQ Monthly Information Summary is forwarded herewith. Much of it is MOST SECRET, and special care should be taken to ensure that no unauthorised person has access to it. A new Distribution List is enclosed.

2. Most of the information has been issued more fully in the COHQ Bulletins to which reference is made. These have been distributed according to their contents, but any recipient of this Summary who requires a Bulletin which has not been sent to him should apply to COHQ, stating the Series letter, the number, and the title of the Bulletin.

3. Part II of the Summary is confined to reports on Trials and Experiments. Bulletins issued under this heading are necessarily restricted in distribution.

Chief of Staff
for CHIEF OF COMBINED OPERATIONS.

Received Copy No. .....6..... of Monthly Information Summary No. 9.

Signature .....

Rank .....

Address .....

.....

This is to be returned to :-

Despatch Department,
Combined Operations Headquarters,
1A Richmond Terrace,
Whitehall, LONDON, S.W.1. Date .....

Serial 1643/N

MOST SECRET

Copy No. 319.

COMBINED OPERATIONS HEADQUARTERS

MONTHLY INFORMATION SUMMARY NO. 9.

January 1944

PART I

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SECTION A.

MAJOR POLICY DECISIONS AFFECTING COMBINED OPERATIONS AND CHANGES OF ORGANISATION IN COMMAND.

Nothing for promulgation through this Channel.

[illegible]

[illegible]

Guides for [illegible] LCT [illegible]

[illegible] put forward in [illegible] 7 [illegible] night [illegible] and unl[illegible] all [illegible] and [illegible] operations.

2. [illegible] inch wide [illegible] to be painted [illegible] the centre [illegible] and LCT under their command.

3. [illegible] should be taken that this [illegible]. (See para. 16 [illegible]).

(CR. 67?/44).

Change of title [illegible] Observation Officer [illegible] to Forward Observer Bombardment.

4. It [illegible] the War Office and the Air Ministry, that the title of the Forward Observation Officer (Naval) (FOO Naval) should be changed to Forward Observer Bombardment (FOB).

(CR. 11559/43)

The Planning of Combined Operations (Bulletin T/[illegible]).

5. This bulletin was published for information and does not necessarily reflect the policy of this Headquarters. It is a reproduction of one of several reports which will be used as a basis for revising Combined Operations Pamphlet No. 4 (b) Planning (Army) and, read in conjunction with this pamphlet, should be of value to all recipients of the Bulletin.

6. The following comments by ISSB on Section 8 of the Bulletin are published for information -

(a) Paragraph 49 - "Bigot" procedure - (i) "Bigot" procedure is world wide; although it may be described as a code word, it is really a procedure, like "Most Secret" or "By Hand of Officer Only". It is therefore wrong to refer to "Bigot or similar code word". (ii) Similarly, if a cover code word /is used.....

/is used for a group of operations (such as "BCOM" covering "GCC" and "MAGCC") it is debatable whether this does not usurp the functions of the "Bigot" procedure.

(b) Paragraph 51 (c) - Lists of "in the know" officers have been tried when planning operations and have been found unsatisfactory. "Bigot" correspondence should be opened only by the addressee, or, in his unavoidable absence, by his second-in-command or senior staff officer.

(CT. 1369/43)

Loads and Draughts of LCT (Bulletin T/9).

7. The footnote Z to this Bulletin pointed out that the maximum vehicle load of LCT is less than maximum homogeneous cargo, and suggested that the difference was only a matter of stowage. Captain, Major Landing Craft, has been informed by the Director of Naval Construction that some reduction is required for stability, and that it is not desirable, therefore, that any planning should be based on the assumption that the difference between these two loads can be made up by the addition of stores.

8. With reference to para. 3 of this Bulletin, it should be noted that the maximum permitted vehicle load is greater than LCT(3) and LCT(4) can accommodate with the existing vehicles. Any water ballast carried must be added to the weight of the vehicle load for the purpose of determining that the load carried does not exceed the maximum permitted.

(XR. 1960/43).

Differing Draughts of Landing Craft of the Same Type when Carrying Equal Loads.

9. Figures relating to the draughts of landing craft of the same type when carrying equal loads will frequently be found to vary slightly as between one case and another, even when the weight of fuel, fresh water, stores, etc., is nominally the same in each case.

10. Such differences are due to -

(a) the fact that every ship or craft, even when built to the same specification, and in the same yard, almost always differs slightly in its dimensions from other ships or craft of the same class;

(b) the exact measurement of the weight of fuel, fresh water, stores, etc., carried in a ship or craft is difficult, and the degree of accuracy attained will almost certainly vary as between one case and another.

11. In the planning of Combined Operations, therefore, this fact should always be borne in mind, so that too much reliance is not placed on the exactness of any given set of figures for the draughts of landing craft of the same type carrying a given load.

(CH. 804/44).

/British Beach Working....

British Beach Markings.

12. Paragraph 13 (b) of Section B on page 5 of MIS No. 8, Part I, should be disregarded until further notice, as the requirement there laid down is under reconsideration.

13. This refers to the fitting to all Landing Craft of a wreck buoy, which would "watch" automatically should the craft sink.

(CR. 804/44).

/14....

SECTION C

REPORTS ON OPERATIONS

Infantry Experience with LCI(L)

(The following report conveys the impressions of an Infantry Company Commander who embarked from a LSI into a LCI in the assault on Sicily)

/14. Embarkation - With the heavy sea, the rise and fall of the LCI alongside the LSI made embarkation difficult. It was quite an ordeal for the soldier who had to jump in the darkness, apparently into space. The Commanding Officer of the LSI had endeavoured to break the fall of the soldiers by means of sail cloths laid on the deck, but in spite of this it was almost impossible to retain one's footing. This was one of the most unpleasant ordeals that the troops had to face. However, it was done without any serious casualties.

15. Damage to ramps - Owing to the bad weather, damage was done to one of the landing ramps, so that when the LCI beached it was definitely realised that one would not be in action. This did not upset the troops, because they had alternative plans in case one or other landing ramp should be out of action. But unfortunately the remaining landing ramp, when hoisted out partially on the way in, stuck, so that on beaching no working ramp was available. The one that had stuck was cut away and was for a time of use, but it soon parted from the ship and the soldiers were then reduced to climbing down the side of the LCI on ladders, which, of course, all took much time. Fortunately, there was no opposition.

16. Plea for Distinctive markings on deck - Two other points were emphasised from the soldier's point of view. One was a plea that the innumerable excrescences that exist on the deck of a LCI should be painted white to assist movement in the dark. White lines down the ramps are also asked for, and on other parts to assist in this difficult problem of getting troops quickly out during darkness. (See paras 1-3 above).

17. Ship's Stores in Alleyways - Another point is, for the same reason, that alleyways must be kept clear of the ship's stores. This seems obvious, but with the limited space on board a LCI and the extra rations and other gear that have to be carried it is not easily solved by the sailors.

(The remaining paragraphs refer to passage on board a LCI from Africa, via Malta, to Sicily.)

18. Sea-sickness - Other than about sea-sickness, there were no special comments from the officer questioned. His LCI was equipped with bunks, and the men were not very overcrowded. Initially, the weather allowed troops to sit up on deck.

19. Cooking - In one LCI, the military company used their fuel cooker in the enclosed space forward without any difficulties. In another, they were given the use of the galley, and in both cases catered for two meals each day.

/20. Briefing

/20. Briefing - In each case, briefing for troops on board LCI that touched at Malta was carried out under Company arrangements on departure from Malta.

21. Photographs - Young officers emphasised more than anything the necessity for detailed photographs down to platoon commanders. With the excellent modern photographs taken by the RAF, it is quite possible to study the ground so intensively as to be able to move over it in the dark almost with familiarity. But they complain that it is seldom sufficient photographs are available and in good time.

(Ref: CT/130/44)

Reports on Salerno Landings (Bulletin Y/23)

22. This Bulletin will be distributed to all recipients of this Summary.

(CT 217/44).

SECTION D

INFORMATION FROM ABROAD.

Nothing for promulgation through this channel.

SECTION E

COMBINED OPERATIONS PUBLICATIONS.

COHQ Bulletins

23. The following is a complete list of COHQ Bulletins distributed or in preparation, with a guide to the Monthly Information Summaries in which their contents have been described. A few copies of most of the Bulletins are still held at COHQ and will be issued on request.

24. Series T : Tactics, Equipment and Technique

	MIS No.	Part	Page
T/1 (a) Use of RHI Equipment in Landing Craft	7	1	2
(b) Necessity for a Post-Assault Hydrographic Survey	7	1	2
(c) AA Defences of Ports through a Smoke Screen	7	1	13
T/2 Airfield Construction in Sicily and Southern Italy	7	1	3
T/3 Radio, Radic and other Aids to Navigation in Combined Operations	7	1	2
T/4 Air attack of Airfields	7	1	3
T/5 Cancelled			
T/6 Australian Jungle Warfare	6	1	7
T/7 Concentrations of Observed Fire - controlled by Air OP	7	1	3
T/8 Notes on the Army Planning of a Combined Operation (Sea Voyage) (See Section B, para 5 above).	8	1	7
T/9 Loads and Draughts of LCT (See Section B, paras 7-8 above)	8	1	7
T/10 New Brigade Landing Table	8	1	7

25. Series Y : Reports on Operations

Y/1 The Planning and Assault Phases of the Sicilian Campaign	6	1	10
Y/2 Air Aspect of Combined Operations in the Pacific Theatre	6	1	11
Y/3 Report on the working of 35 Beach Group at Salerno	6	1	11
Y/4 Control of Fighters during the Sicilian Landings.	6	1	10

/ Y/5

		Vol No.	Part	Page
/ Y/5	Naval Lessons from JANTZEN (now re-numbered Z 1)	6	1	12
Y/6	Digest of Notes and Reports on Operation HUSKY	6	1	10
Y/7	Answers to US Engineers' Questionnaire on Operations in North Africa and Sicily	6	1	13
Y/8	Operations AVALANCHE and BAYTOWN	6	1	12
Y/9	Exercise PORPOISE (now re-numbered Z 2)	6	1	13
Y/10	Operations POSTERN and DIMINISH	6	1	14
Y/11	Canadian Notes on Operation HUSKY	6	1	15
Y/12	Royal Artillery Notes on various Operations	6	1	15
Y/13	Final Report on Guadalcanal	7	1	[illegible]
Y/14	Advance Notes on the Fleet Air Arm Operation at Salerno	7	1	5
Y/15	Cancelled			
Y/16	Naval Experiences gained from Exercise PIRATE (now re-numbered Z 3)	7	1	7
Y/17	Guadalcanal (Longer version of Y/13) See	7	1	6
Y/18	The Landing Operations on Attu, Aleutian Islands, 10-18 May 1943	7	1	6
Y/19	The Capture of Termoli (Operations DEVON and POLYGON)	8	1	8
Y/20	Summary of Naval Bombardment in the Mediterranean, 1943.	8	1	8
Y/21	Reports on Mediterranean Operations	8	1	8
Y/22	Extracts from 8th Army First Lessons from HUSKY	8	1	8
Y/23	Reports on Salerno Landings	9	1	5

		MIS No.	Part	Page
26.	**Series U - Organisation**			
U/1	Maintenance of Army Equipment for an Expeditionary Force when the Main Base is not in the Theatre of Operations. (formerly numbered S/3)	6	1	6
U/2	24-hr Landing Scale for a Brigade Group and a Beach Group (formerly numbered S/4)	6	1	6
U/3	System of Supply of RAC Personnel and AFV Reinforcements (formerly numbered S/11)	6	1	7
U/4	Formation of Craft Recovery Units	8	1	7
U/5	Revision of U/1 (see above)	8	1	7
27.	**Series V - Signals**			
V/1	Wireless Handcarts, Reception Station, Signal Office Lamps, Waterproofing of Signal Equipment, HQ Ship Signal Sections, etc.	7	1	2
V/2	Summary of Decisions taken on Reports on Communications and Radar during Amphibious Operations in the Mediterranean from July to September 1943, with extracts from MAC Reports.	7	1	2
28.	**Series W - Information from Abroad**			
W/1	Japanese Defence Positions in New Guinea and Smoke-Laying to Screen Landings	6	1	16
29.	**Series Z - Reports on Exercises**			
Z/1	Naval Lessons Learned and other Notes on Exercise JANTZEN (formerly numbered Y/5)	6	1	12
Z/2	Exercise PORPOISE (formerly numbered Y/9)	6	1	13
Z/3	Naval Experiences gained from Exercise PIRATE (formerly numbered Y/16)	7	1	7

/Series I

30. Series X - Trials & Experiments

		MIC No.	Part	Para
X/1	Landing of Motor Cycles	6	2	5
X/2	Report on Rogers, Jahn, Eagle and Haslar Trailers for Carriage of Beach Roadway.	7	2	4
X/3	Causeways for Mud Flats and Tidal Estuaries	6	2	7
X/4	Carriage of Beach Roadways on Inverkip Sleigh Trains	6	2	7
X/5	Rock landings - Trials to determine most suitable craft	6	2	1
X/6	Filling Craters on beaches with Mechanical Equipment	7	2	10
X/7	6-pdr A/Tk gun and 6-pdr tracked towing vehicle - embarkation and disembarkation trials	7	2	8
X/8	LCT 4 and 5 - Super Decks	7	2	1
X/9	Landing Ship Dock (LSD)	7	2	1
X/10	Handcarts	7	2	5
X/11	Service Respirator - Use of as Life-Saving Device	8	2	9
X/12	Report on some Special Devices for Overcoming Beach Obstacles	9	2	5, 8 & 9.
X/13	LCT 4 and 5 - Camouflage covers on Tank Decks	8	2	7
X/14	Trunching Snake from LCT	8	2	6
X/15	ML Pontoon Equipment	8	2	8
X/16	American 4.5" Rocket Launchers	(in preparation)		
X/17	Classification of Beaches and Use of Beach-Tester	do.		
X/18	Actuation of Anti-Tank Mines by Grounding Landing Craft	do.		
X/19	Ferrying Artillery Equipment in Amphibians.	9	2	2
X/20		(in preparation)		
X/21	Passage of Under-water Obstacles Interim report on Trials	9	2	9

/ X/22..

	MIS No.	Part	Page
/ X/22 LST 2 Hospital Trials	(in preparation)		
X/23 LST 2 Discharge of Stores	9	2	13
X/24 Seagoing Disguise for Ships and Craft	(in preparation)		
X/25 Wading Trials of Unwaterproofed 'B' Vehicles	9	2	5
X/26 Amphibians	9	2	2
X/27 Use of Garage Jacks for Manoeuvring Vehicles in LCT and LST	(in preparation)		

Training Pamphlets.

See Section F (below)

SECTION F

COMBINED TRAINING.

Training Pamphlets

31. The following is a list of Combined Operations pamphlets already issued or which it is intended to issue in the near future :-

GENERAL SERIES

Combined Operations Pamphlet No.		Issued	To be issued in near future. (Approx. date of issue).
1	General	Sep. 42	April 44 (new issue)
2	Beach Organisation and Maintenance		Mar 44
3	Air Aspect of Combined Operations within Range of Shore-based Aircraft.		Apr 44 (new issue)
4 (b)	Planning of Combined Operations (Army)(Secret)	March 43	
5	Smoke (see para 32 below)	June 43	
6 (a)	Military Communication in Combined Operations	May 43	Mar 44 (new issue)
(b)	The Beach Signal Unit	Feb 43	
(c)	Naval Communications in Combined Operations	Feb 43	
7 (a)	Support of the Assault (Secret)	Dec 43	
(b)	SP Artillery	Nov 43	
(c)	General Rules governing Naval Supporting Fire & details of Combined Operations bombardment Unit.		Mar/Apr 44
8	Assault Brigade Planning including preparation of Landing Tables	Oct 42	
9	Responsibilities for Loading & Discharge of Ships & Craft	Nov 42	
10	Abbreviations & Definitions	Jan 44	

/NAVAL SECTION

/NAVAL SERIES

Combined Operations Pamphlet No.		Issued	To be issued in near future (Approx. date of issue).
11	Landing Ships Infantry	May 43	
14 (a)	Minor Landing Craft	May 43	
(b)	Landing Craft Signal Pamphlet (other than LCT)	Aug 42	
(c)	Landing Craft Tank & Landing Craft Flak (Large)	May 43	
(d)	Major Landing Craft - Signal Pamphlet	42	
(e)	R/T Procedure Pamphlet	Nov 43	
17	RN Beach Commandos	Apr 43	
	ARMY SERIES		
31	Driving Instruction for Combined Operations		Mar 44
33	Armoured Fighting Vehicles	May 43	
34	RA	Apr 43	
35 (a)	Royal Engineers (other than Tn units)	Apr 43	Mar 44 (new issue)
(c)	RE Transportation Units	Feb 43	Apl 44 (new issue)
36	Underwater Obstacles (Secret)		Feb/Mar 44
37	Infantry	Feb 43	
38	RASC	Mar 43	
39 (a)	Medical	Jan 43	
(b)	RAMC (see para 33 below)	Sep 43	
40	RAOC	Dec 42	Apl 44 (new issue)
41 (a) & (b)	REME	Oct 42	Mar 44 (new issue)
(c)	REME - Waterproofing of Vehicles & Equipment	Oct 42	Mar 44 (new issue)
42	Training at Home Stations	Apr 43	
43	Amphibian Vehicles, Operation, control & maintenance		Mar/Apl 44

/RAF SERIES

/RAF SERIES

Combined Operations Pamphlet No.		Issued	To be issued in near future (Approx. date of issue)
51	RAF Servicing Commandos in Combined Operations		Mar 44

UN-NUMBERED SERIES

Short Pamphlet on Beach Organisation	Dec 43
Gunnery Instructions	Sep 43
Assault : Light Scales Part I - Armoured Division II - Infantry Division III - Units of a Beach Sub Area & Beach Group IV - Units of Corps Troops V - Units of Army Troops VI - Units of GHQ Troops VII - Units of L of C Troops	Dec/Jan/Feb 43-44

REVISION OF PAMPHLETS ALREADY ISSUED

Addendum to Pamphlet No. 5 - 'Smoke'.

32. The following should be added to Appendix "C" on page 20 of Combined Operations Pamphlet No. 5 - 'Smoke'.

Type	Description of weapon	Screen	Remarks	Types of aircraft on which carried
7. Bomb Smoke Aircraft 500-lb Mk.I	Light welded sheet steel bomb container -ing 270-lbs white phosphorus. Burster charge is detonated by tail fuse.	Bomb emits for 10-20 mins. depending on character of ground.	Does not function on water. Cannot be dropped from above 500-ft as it buries in soft ground or breaks up on hard ground	Originally designed for fighter bombers. Can be carried on any British or American aircraft fitted to take 500-lb bombs.

(CR 11,140/43)

Amendment to Combined Operations Pamphlet No. 39 (b) 'RAMC'

33. In Appendix "C", page 21, Specimen Order of Landing of Medical Units, delete serials 9 and 10, and substitute :

Serial		Estimate of Time	
9	CCS	Late D Day	- Light Scales
10	1 Pl MAC	Probably on D + 2	- Light Scales

(CR 804/44)

[redacted]

COMBINED OPERATIONS HEADQUARTERS

MONTHLY INFORMATION SUMMARY NO. 9.

JANUARY 1944

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SECTION "A"

SHIPS AND CRAFT

1. New L.S.I.(L).

14 or 15 American C.1 B Standard Merchant Ships are being converted to L.S.I.(L). Preliminary details are listed below:-

(a) Dimensions: Length, overall ..... 417' 9"
Beam ..... 60' 0"

(b) Displacement: Light ..... 4,285 tons.
Loaded ..... 9,750 tons.

(c) Tonnage: Gross ..... 7,080 tons.

(d) Draught: Light ... Forward - 6'3". Aft - 14'9"
Loaded .. " 20'0". " 23'0"

(e) Speed: At full power loaded - 14½ knots.

(f) Endurance: 21 days.

(g) Carrying capacity:

(i) Craft ..... 18 L.C.A. at davits.
1 L.C.M. on No. 5 hatchway.
(specially strengthened).

(ii) Vehicles .... Nil.

(iii) Personnel ... 67 officers.
1,332 men,
(in addition to complement).

(h) Armament: 1. 4" aft.
1. 12-pdr. forward.
2. 40 mm. single Bofors.
10. 20 mm. Oerlikon.

(Note: These are preliminary details. Later information may reveal small modifications in the figures quoted.)

2. U.S. Combat Personnel and Cargo Ships (APA & AKA).

Preliminary details have been received of the American fast troop and vehicle carrying ships which have been converted for use in the Far East.

(A) A.P.A. - Known as "Combat Loader".
(Design based on standard V.C.2 U.S. Merchant Ship).

(a) Dimensions: Length overall ..... 455' 0"
Beam Mld ..... 62' 0"
Depth (to main deck).. 38' 0".

(b) Range & speed: 10,000 miles at 17 knots approx.

(c) Carrying capacity:

(i) Craft ..... 24 L.C.V.(P); [illegible] L.C.M.(3).
(ii) Vehicles ... About 100.
(iii) Personnel ... 84 officers.
[illegible]
(in addition to complement).

(d) Armament: 1. 5" aft.
4. 40 mm. twin.
1. 40 mm. quad.
10. 20 mm.

(e) Derricks: 4. 4-ton.
8. 10-ton.
1. 35-ton.

(B) A.K.A. (Cargo Ship, based on standard C2 U.S. Merchant ship design)

(a) Dimensions: Length overall ..... 459'0" (approx).
Beam moulded ..... 63'0"
Depth moulded ..... 40'0"

(b) Range and Speed; 15,000 miles at 15 knots cruising.

(c) Carrying Capacity:

(i) Craft ..... 8 L.C.M.(3).
16 L.C.V.(F).

(ii) Vehicles ..... About 200.

(iii) Personnel .... 12 officers.
160 men
(In addition to complement).

(d) Armament: 1. 5" aft.
4. 40 mm. twin.
16. 20 mm.

(Note: These are preliminary details. Later information may reveal small modifications in the figures quoted.)

SECTION B
SMALL BOATS.

NIL

SECTION C
VEHICLES - WHEELED, TRACKED AND AMPHIBIAN

3. Amphibians. - (Bulletin X/26 in preparation.)

A Bulletin is shortly to be issued giving all available factual data on the DUKW, Terrapin, L.V.T.1, 2, 3, L.V.T.(A) 1 & 2, Amphibious Jeep, Water Buffalo and Argosy. This will be supplemented in due course with details of trials of new models.

4. Ferrying Artillery in Amphibians - Trials. (Bulletin X/19 nearing completion).

Comprehensive trials have been carried out of ferrying artillery equipments in the DUKW, L.V.T.2 and Argosy Freighter. Full details with photographs of these trials are being published

/in ...

in C.O.H.Q. Bulletin X/19. Details of further trials using other types of amphibians will be published in due course.

The main conclusions arrived at in respect of the DUKW and L.V.T.2 are detailed below. Details of the Argosy Freighter have been omitted from this Summary as it is now understood this model is not going into production.

A. DUKW.

(a) Capacity.

The DUKW can carry:-

(i) Two 6-pdr. A/Tk. guns, or
(ii) One Jeep plus one 6-pdr. A/Tk gun, or
(iii) Two 3.7" Howitzers, or
(iv) One 25-pdr.

The 17-pdr. A/Tk gun is not considered an operationally practicable load.

(b) Loading afloat.

Artillery equipment can be off-loaded from a ship into DUKWs in two ways:-

(i) From DUKWs alongside - all the equipments carriable can be satisfactorily loaded by ship's derricks except the 25-pdr. gun, which shows only 6" clearance on either side when being lowered into the hold.

(ii) With DUKWs embarked (over the ramp of L.S.T. or L.C.T.) In this case loading inside L.S.T.or L.C.T. requires a great deal of space, and is axiomatically only practicable in sea conditions in which the DUKW can climb over the ramp door.

Note: In so far as ferrying work is concerned, it is operationally impracticable to load artillery equipments into the DUKW whilst afloat over the lowered ramp of L.S.T.(2) or L.C.T.

(c) Loading ashore.

Loading or discharging on shore can be done either by crane (including A frame fitted to another DUKW) for all equipments carriable, or by means of the DUKW winch and track-way bridge ramps, for all except the 25-pdr. This method is described fully in Bulletin X/19.

B. L.V.T.2.

(a) Capacity.

An L.V.T.2 can carry:-

(i) Two 6-pdr. A/Tk guns, or
(ii) One Jeep and one 6-pdr. or

/(iii) ...

(iii) One 17-pdr. A/Tk gun, or
(iv) Three 3.7" Howitzers, or
(v) One 25-pdr. gun.

(b) Loading afloat.

As detailed for DUKW above, with the addition that both the 17-pdr. and 25-pdr. can be off-loaded provided the derricks are capable of dealing with the loads involved. (Approx. 3 tons.)

(c) Loading ashore.

Loading or discharging on shore can be satisfactorily dealt with by crane or by DUKW fitted with A frame.

Note: The L.V.T.2. has no winch and it is NOT possible to load or unload any of the equipment without the use of a crane or similar gear.

5. T.16 Carrier towing 6-pdr. A/Tk Gun - Disembarkation Trials from L.C.T.

(a) Object. The object of the trial was to check the possibility of launching a Carrier T.16 towing a 6-pdr. A/Tk gun Mk.III from an L.C.T. into 4-ft. of water plus 1'6" waves.

(b) Results:

(i) The carrier was sealed in accordance with 4-ft. wading instructions and was ballasted to normal operational weight.

(ii) The carrier disembarked successfully into 4-ft. plus 1'6" waves and towed the gun ashore.

(c) Conclusions:

(i) The T.16 Carrier fitted with modified raised towing bracket and side screens can wade in 4-ft. and tow the 6-pdr. gun off L.C.T.(4) and (5).

(ii) As this type of wading Carrier also floats at just over the 4-ft. mark, deeper wading than 4-ft. will cause loss of traction, and therefore loss of towing ability.

(iii) The waterproofing of the Carrier was very effective.

6. Bridge Laying Tanks. (Included in Bulletin X/12 - "Special Devices for Overcoming Beach Obstacles").

(a) A.V.R.E. and S.B.G. Bridge. This equipment consists of a 32-ft. small box girder bridge attached to an AVRE to enable it to surmount beach walls. After crossing the wall the tank retains its fighting qualities. The dimensions of the equipment are 44' x 11' overall and the weight, including tank, is 42 tons. Results of trials indicate that it is effective in its designed operational role although it presents a high silhouette and a good target for enemy artillery.

(b) Tank Assn. (A.V.R.E. Bridge Laying Churchill). This is a specially fitted Churchill tank which can lay a 32-ft. bridge over a ditch. This tank is not a fighting vehicle.

The equipment ...

The equipment tested was not in complete finalised form, but it would appear that it is effective in its operational role and can also be landed over the beaches.

(c) Crusader and Valentine Bridge Layer. These consist of non-fighting bridge laying tanks based on the Crusader and Valentine chassis. The equipments are known to be effective in their operational role and can be landed over the beaches without bridging the water gap provided the depth of water at the ramp of the craft does not exceed 3-ft.

7. Expendable Carpet on Churchill. (Included in Bulletin X/12 - "Special Devices")

This consists of a hessian roll mounted on the front of a Churchill Tank. The roll is unwound on meeting wire obstacles thus forming a carpet over which the tank can proceed without interference from the wire. The device is considered effective in a combined operational role.

8. Fascine Carrier Tank. (Included in Bulletin X/12 - "Special Devices").

This equipment consists of a tank carrying a bundle of fascines weighing 3 to 4 tons, which are dumped into an A/Tk ditch, enabling the tank to cross it. Trails have confirmed that the equipment is effective in its operational role. For rough sea passages, the Fascine Carrier frame requires to be made up of heavier members than were used for these trials.

9. Wading Depths of Unwaterproofed 'B' Vehicles - Trials. - (Bulletin X/25 in preparation).

The possibility of landing reserve vehicles without waterproofing has been under investigation. As a result of trials it has been concluded that unwaterproofed W.D. 'B' vehicles are capable of operating for a limited period in 1'6" of water, provided the waves do not exceed 9" in height. The trials indicated that to achieve this, vehicles would have to travel in the same direction as the waves and that stranding of vehicles could largely be averted by training drivers to pick the right moment between waves, when to disembark.

10. Removal of Seawater from Electrical Components. (Ref. M.I.S. No. 8, Part II, para. 6).

It has been pointed out that units in the field should not rely on supplies of methylated spirits and commercial ether being available from medical stores for removing seawater from electrical components.

Development of a "dewatering oil" for this purpose is proceeding. Preliminary results are promising and details will be issued as soon as the development is finalised.

/SECTION D ...

SECTION 2.
WEAPONS AND EQUIPMENT

R.A.C.

11. Disembarkation of 17-pdr. A/Tk.Gun - Trials - (Bulletin in preparation).

(a) Object: In view of the length of the piece, resulting in muzzle fouling, and the low ground clearance of the 17-pdr. making it a most difficult equipment to disembark from landing craft, comprehensive trials have been carried out to determine the best method of disembarking it from L.C.T.(3), (4) and (5) on to flat beaches, using the following vehicles for towing purposes:-

(i) Crusader III Tank.
(ii) Carrier M.14 half-track.
(iii) DUKW.

(b) Results and Conclusions:

(i) Fouling on the ramp occurs at the muzzle, shield and spade.
(ii) Muzzle fouling can be overcome by pulling back the piece 27" and retaining it in that position.
(iii) Shield fouling can be overcome either by raising the shield bodily 8" or by hinging it 8" from the bottom.
(iv) A metal skid attached to the underside of the spade will prevent spade fouling.
(v) In certain cases it was found necessary to introduce a towing link between the tractor and the gun.
(vi) In certain cases also, disembarkation was assisted by theinterposition of the No. 27 trailer between the tractor and the gun.

Further trials are to be carried out with the 17-pdr. and the new Crusader Tower.

12. Ram 25-pdr. S.P. - Wading Trials.

(a) "One off" Trial: A "one off" trial of the Ram 25-pdr. S.P. revealed that it could:-

(i) Disembark into 6-ft.
(ii) Remain in 4-ft. water, in average sea conditions, for up to 1 hour.
(iii) Manoeuvre up to a depth of 7-ft. in a very calm sea, and fire up to a depth of 6 ft.

No damage to gun or ammunition occurred and th existing hardware proved satisfactory, with minor modifications.

(b) Large Scale Trial.

Object: A large scale wading trials was subsequently held with the following specified requirements:-

(i) Disembark into 4'6" and move about for 1 hour at greatest practical depth to give a firm gun platform, firing all gun ammunition.

/(ii) ...

(ii) To fire S.P. on the L.C.T. loaded to operational standard, to determine the effects of blast on the surrounding equipment.
(iii) Time to remove hardware.

(c) Results and Conclusions of Large Scale Trials.

(i) An L.C.T.(4) with 4 S.P. on board put to sea for firing. This was carried out satisfactorily with little material damage from blast.
(ii) Eight vehicles underwent long immersion in depths of approx. 4-ft. with 3-ft. waves, without damage to hardware. Some water entered the tops of the vehicles from spray and splash, and some of the cartridge cases got filled with water. With waves of this size, the vehicles were unsteady as gun platforms at a greater depth than 2'6".
(iii) Subsequently firing was carried out in a depth of 6-ft. without any difficulties.
(iv) The crews of two vehicles removed hardware (except rear chute bottoms) in twelve to thirteen minutes.

13. 3.7" H.A.A. Mk.IIIA Mobile Mounting - Waterproofing trials.

(a) Object: Trials have been carried out with this equipment, fitted with M.F.S. No. 11A to test the latest method of waterproofing.

(b) Method: The gun was waterproofed in accordance with provisional instructions issued by M.E.13, War Office, and with the following additions:-

M.F.S. No.11A. Seal Warning Light with A.C.
Seal all cap securing bolts with A.C.

Rammer Power Units: Seal joints and bolts of inspection window with A.C.

Note: A.C. - Asbestos Compound.

(c) Statement:

(i) The application of waterproofing material took 35 man hours.
(ii) Quantities of material used were:-

S.A.C. ..... 25 lbs.
Bostik A.C... 1½ tins.
Oiled Cotton Fabric ..... 2'9" x 3'
Rope 15' x 2" (Guard for Traversing Rack).
Grease No.2 .. 7 lbs.

(iii) The gun was towed by A.E.C. Matador 4 x 4 Tractor from L.C.T.(4) through 4-ft. of water plus 18" waves.
(iv) The total time of immersion of the gun was 10 Minutes in 4-ft.
(v) After landing, the gun was towed for approximately six miles and was then examined.
(vi) No defects were noted.

(d) Conclusions: The method of waterproofing, modified as in (c) (v) above, is satisfactory.

R.E.

14. Launching of the "Snake" from L.C.T.
(Ref. M.I.S. No. 8 Part II, para. 13 and Bulletin X/14.)

In order to correct any misunderstanding which may have resulted from Bulletin X/14, it is pointed out that further alternative means of clearing beach minefields include:-

(a) Hedgerow.
(b) AVRE and Plough.
(c) Bangalore Torpedoes.
(d) "Petard" with air fused "Dustbins".

In addition, para. 4(b) of the Bulletin should not be read to imply that L.C.T. can always be made to beach forward - and not by the stern. Whether the craft beaches forward or aft, of course, depends on a number of factors, such as trim and beach slope.

15. A/Tk. Mines - Actuation by Landing Craft.
(Ref. M.I.S. No. 7, Part II, para. 12).

Bulletin X/18 on this subject has now been completed and circulated.

16. Breaching Concrete Walls "A". (Included in Bulletin X/12 - "Special Devices".)

(a) Ardeer Aggie. The "Ardeer Aggie" is an experimental 9.5" or 10.5" smooth bore recoilless gun which shoots a "plastic shot" charge a distance of about 300 yds. At the same time, a wad is ejected backwards. The gun is designed primarily forbreaching reinforced concrete obstacles. Trials, however, indicate that in its present state of development, the weapon is not thought to be of any value in combined operations. Further development by the War Office has been deferred.

(b) The Goat and Roller: The Goat is a frame charge attached to an AVRE which can place it against a concrete wall, retract and blow a gap in the wall. The equipment has been developed in two forms:-

(i) The Goat II, which is mounted on rollers which are designed to detonate mines ahead of the tank over which they pass.
(ii) The Goat III, which is a similar apparatus, but mounted direct on the tank and not on rollers.

Owing to the poor mechanical condition of the equipment tested, no useful conclusions as to its operational efficiency from landing craft could be made. From the point of view of land warfare, however, the Goat II and III have now been further developed with success.

(c) AVRE and Petard. This consists of a standard engineer Churchill tank mounting a 29 mm. spigot gun called a "Petard" which fires rounds known as "Flying Dustbins". These can be fused to detonate on impact (for breaching concrete walls) or with a time delay giving an airburst (for clearance of narrow belts of A/Tk. mines). The range is 20 to 80 yds. The weapon is considered as effective in its combined operational role as it is in its normal land warfare role.

/17 ...

17. **Breaching Concrete Walls "B" - Trials.**

An interim report has been issued as a result of preliminary trials of the breaching of a concrete, earth-backed sea wall. Apart from the AVRE and Petard referred to in para. 16(c) above, all charges were placed by hand. Further trials have been scheduled and a comprehensive Bulletin will be issued in due course.

Details of yet further trials involving the use of a mixture of H.E. and shot from various artillery equipments are also to be published shortly.

18. **Passage of Underwater Obstacles.** - (Bulletin X/21).

An interim report on the destruction of underwater obstacles has been prepared and is being circulated in Bulletin form.

19. **Clearance of Minefields.** - (Included in Bulletin X/12).

(a) AVRE and Plough: The Plough is an attachment to an AVRE which enables it to make a furrow in front of its tracks clear of mines. The depth of furrow is controllable and the Plough chassis can be raised when not in use. The equipment is satisfactory on a sandy beach of uniform grade.

(b) The Scorpion: The Scorpion consists of a flail mounted on a Valentine Chassis which clears mines in front of the tank by beating the ground with rotating chains. It is considered effective in its operational role.
Note: Information received since the Bulletin was issued indicates that the equipment is being replaced by the "Crab" mounted on a Sherman chassis.

(c) 2" Mortar Grapnel fired from L.C.A. This device, which has been referred to in previous M.I.S., has been designed primarily for use on land to project a Grapnel or carry out Cordtex rope from a standard infantry 2" mortar to remove or cut trip wires attached to anti-personnel mines. The weapon can effectively fulfil its normal function, but its use from L.C.A. is limited owing to its comparatively small range (80 yards). Under these circumstances, it is only of use on fairly steep-to beaches.

SECTION E.
SMOKE AND CAMOUFLAGE

20. **Small Cordite Operated Smoke Ejector.**
(Ref. M.I.S. No.4, Part II, para. 17).

Further trials of this equipment have now been completed, and as a result it has been decided that there is no requirement for it in minor landing craft, although it might have other applications.

21. **Bomb, Smoke, Aircraft, 500-lb. Mark I.**

The Bomb, Smoke, Aircraft, 500-lb. Mk.I, charged approximately 270-lbs. white phosphorus, released under average atmospheric conditions, will produce an effective screen 450 yards by 300 yards in length persisting for approximately 15 to 20 minutes.

Contd...

All aircraft having a 500-lb. bomb stowage can carry this bomb. Owing to the risk of spontaneous combustion, the 500-lb. Smoke Bomb is not practicable for use in tropical countries.

The overall length of the bomb body is approximately 3ft 5" and its maximum diameter 13.1 ins. Its terminal velocity is 1400 ft. per sec. and the maximum height for live release is 500 ft.

Combined Operations Smoke Pamphlet, Appendix 'C', is being amended accordingly.

22. Mooring of Naval Smoke Floats - Trials. - Vide Appendix "A" & "B". (Ref. M.I.S. No.4, Part IV, para. 16.)

(a) Object: Further trials have taken place to determine the best method of mooring a Mk.VI Naval Smoke Float in varying strengths of tidal stream with particular application for use in fast flowing rivers and estuaries in the Far East.

(b) Statement: The smoke float was mounted on a timber frame, shaped to "plane" on the surface of the waves. One end of the mooring wire was shackled to a ring bolt under the plane and the other to two 1¾ cwt. sinkers.

The equipment was moored in a tide of 5½ knots and the smoke float remained well above waves. Even when towed against the tide to produce a resultant of 8 or 9 knots, the float still remained above the surface.

(c) Conclusions: It is considered that this method is the most satisfactory mooring arrangement tried out so far and is recommended for occasions when it is known that tidal stream is likely to exceed 3 knots. The equipment, however, is awkward to handle and where a tide of less than 3 knots is expected, the method referred to in M.I.S. No.4, Appendix 'B', using Time Indicator Floats to give additional bucyancy, should prove equally satisfactory.

SECTION F
TRANSPORTATION & LANDING, AND BEACH EQUIPMENT

23. Trackson Swing Crane - Model C.T.9. - Vide Appendix 'C'.

Particulars of the Tr ckson Swing Crane have been received and from the pamphlets it would appear that this crane is eminently suitable for handling palletised cargo at dumps, on account ofits small size, manoeuvrability and suitability foroperating on any type of ground. It appears to be mounted on top of a model T.9 International Tractor and has a jib with ¾ slew. Slewing, luffing and hoisting are all power operated. The maximum capacity of the crane is 5,000 lbs. Safe operating loads are:-

18' jib	.....	2,000 lbs.
16' "	.....	4,000 "
12' "	.....	5,000 "

It is understood that 1,200 of these cranes have been produced for the Pacific theatre. It is further reported that the tractors are in ample supply in the U.S.A. and that the possibility of manufacturing the crane assembly elsewhere is worth considering. No trials have yet been carried out in the United Kingdom.

/24 ...

24. Ramp Telpher Span. - Vide Appendix "D".

The Telpher Span is a means for discharging cargo from a coaster on to damaged quays, etc. In this system the ship's normal winch and derrick are employed to lift a special snatch block with a ½ ton set of cargo, to a span wire or jackstay stretched between the ship's mast and a mast about 12-ft. high on shore. This wire requires a tension of under 1 ton and should have a downward slope of about 1 in 10.

The sets are hoisted on the ship's derrick and automatically snatch into the span wire. The derrick purchase is then automatically released and the sets run down the wire to the shore by gravity. The snatch blocks have to be returned separately to the ship using a light line.

A preliminary trial only of this apparatus has taken place, and a discharge rate of 18 tons per hour was obtained over a 90 ft. water gap from one hatch. Considerable damage was caused to cargo, as it struck the ground at the shore end on account of the shore mast being only 7 ft. high. It is anticipated, however, that by using a slacker span wire and a mast 12-ft. high, sets will come to rest whilst hanging in a dip of wire, so overcoming this difficulty. Trouble was also experienced in freeing set from hook, but trials to solve this problem are in hand.

25. Lighting for discharging Ships and Craft - (Bulletin in preparation).

The lighting necessary for discharging stores and vehicles in a combined operation has been investigated in respect of large M.T. and Store Ships, coasters and craft, as well as beaches and dumps. Conclusions and recommendations are as follows:-

(a) Large M.T. & Store Ships: A system of white and orange lights in all spaces, and controlled from a central point has been found most suitable. Under blacked-out conditions, the orange lights only are used.

(b) Coasters: For coasters with a generator, normal lighting in the holds has been found satisfactory provided a resistance is fitted which can be switched in during black-out conditions. For those without a generator, large long life battery operated hand lamps with 4 watt bulbs or smaller are recommended.

(c) Craft: For loading craft alongside ships, the most satisfactory system consists of a series of portable lamps worked off the ship's lighting. Each lamp hangs over the side and projects a white light into the craft below. When the craft is loaded and gets under way, a switch is operated which cuts off the downward beam and projects an orange light horizontally. The latter indicates to other craft that a berth is vacant at that particular hold. The equipment has not yet gone into production as at present it is considered to be rather a luxury, in view of the fact that it is still necessary for the craft to have their own lighting system.

It has been found impracticable to make use of the wiring systems of L.C.T. holds for various technical reasons, and accordingly L.C.T. as well as L.C.M. and L.B.V., will be provided with dry battery operated hand lamps which have a life of 50 hours. These lamps are identical with the lamps used for beach marking signs except for a blue filter.

/(a) ...

(d) Amphibians. For DUKWs, 4 small lamps placed near the corners of the hold under the coamings, and worked by the craft's own lighting, have been found satisfactory.

(e) Beaches and Dumps. Lighting for beaches and dumps has not been finalised and it is not certain to what extent a requirement exists. Lyon floodlights have been found satisfactory on beaches and deck floodlights for compact dumps. For scattered A.R.P. lighting, Category 'C' has been found preferable.

26. Crab Ferry.

Preliminary trials are to take place shortly of the Crab Ferry, which is designed to transfer vehicles from L.C.Ts. to shallow water on flat beaches. It consists of a circular steel pontoon 90 ft. in diameter operating along a cable stretching from the shore to ground moorings laid out to sea. Mounted on the pontoon is a winch to haul it to and fro along the cable, like a floating bridge.

The advantage of this ferry lies in:-

(a) Its very shallow draught (estimated at 1-ft. loaded with 8 vehicles), and

(b) Owing to its shape and small freeboard ramped landing craft can always approach it stem to tide for the purpose of discharging their vehicles over the ramp.

27. N.L. Causeway.

Trials of a causeway constructed of a large number of 2 x 30 N.L. Pontoons 176 ft. long have been initiated. It is intended to tow the pontoons into position and sink them to form a 5 ft. high causeway stretching from High Water mark to below Low Water mark.

Various methods of transferring vehicles from L.C.T. will be tried out including the use of intermediate floating pontoons to effect the junction between the L.C.T. and the causeway.

28. Mobile Bailey Bridge.

A class 18 Bailey Bridge 190-ft. long, supported by a tank one end and a tracked unit at the other, has been constructed to bridge the water gap. On preliminary trials the equipment was found capable of manoeuvring satisfactorily on a reasonable beach surface and was also able to wade to L.C.T. depth. Further trials including the use of two such equipments end to end are to be carried out.

29. Landing Motor Cycles.

Prolonged investigation of the problem of landing motor cycles from the same craft as other vehicles of the same unit have so far shown that the only practicable methods on a tidal beach are either:-

(a) carrying ashore in or on unit vehicles, or

(b) discharging into amphibians alongside L.C.T.

/In order ...

In order to expedite landing in later follow-up stages, the question of packing motor cycles in crates so that more than one may be lifted out of a ship in one set, is being investigated. However, it does not appear likely that much is to be gained where motor cycles are to be taken ashore in DUKWs.

30. Swiss Roll.

(a) Heavy Duty: The problem of towing this device has proved insuperable and development of the project has been abandoned. A number of suggestions for alternative uses have been made, but it does not appear likely that there will be a requirement.

(b) Light Duty: The problems of mooring and tensioning this device have been satisfactorily solved, but it is considered too fragile to be of value in landing M.T. Its use for landing personnel from L.C.I. dryshod is being investigated.

31. L.S.T.(2) - Discharge of Stores by DUKWs - Trials - (Bulletin X/23 in preparation).

Trials have been carried out to assess the advantages to be gained by carrying stores on the upper deck of L.S.T.(2) as against the tank deck, and to determine the best method and rate of discharge by means of amphibians.

Conclusions are summarised as follows:

(a) The advantages to be gained by this method of stowage appear so great that it is recommended that it be adopted whenever theoccasion arises.

(b) Loading into two DUKWs by means of chutes from the after hatch, and three DUKWs (by roller runways) from elevator, a peak discharge rate of 75 tons per hour can be achieved.

SECTION H
MISCELLANEOUS

32. Tides.

In connection with the landing of vehicles, it is frequently necessary to know the maximum rate of rise and fall of tide. A convenient rough and ready rule is that the maximum rate of rise and fall in feet per hour is one quarter of the tidal range. For example, with a tidal range of 28-ft., the maximum rate of rise and fall would be about 7 ft. per hour. This rule is, of course, only approximate.

33. Service Respirator - A possible use as a Life Saving Device. (Ref. M.I.S. No.8, Part II, para. 23 and Bulletin X/11.)

Attention of those contemplating using the respirator as detailed in Bulletin X/11 is drawn to the fact that such usage must be considered exceptional. No extra issues can be contemplated to replace respirators damaged by inconsiderate immersion in water. If the occasion does arise for employing this device, the respirator must be properly dried, reconstituted and tested before re-issue.

/34 ...

34. Seaborne Container. - Vide Appendix 'A'
Ref. M.I.S. No.8, March, 1943 (Old Series) Section X, para.1).

(a) Description: The Seaborne Container is cylindrical in shape, made from ¼" laminated cardboard, 4" - 8" long, 9½" in diameter and having a detachable top. It forms a component part of a 3" mortar raft, which is used by certain Combined Operations units and quantities are held in C.O. stores.

(b) Capabilities: Tests have proved the container to be quite watertight provided the top is securely held in position and a weight of 50 lbs. can be floated in it (bringing its total weight to 65 lbs. 11½ oz.). The material from which it is constructed is not strong and would be easily holed if dropped on ragged surfaces.

(c) Possible Uses: It has been suggested that this container could be used for hauling some or all of the following small stores ashore:-

(i) Small demolition stores.
(ii) Reserve of arms and ammunition.
(iii) Medical stores.
(iv) Small supplementary rations.

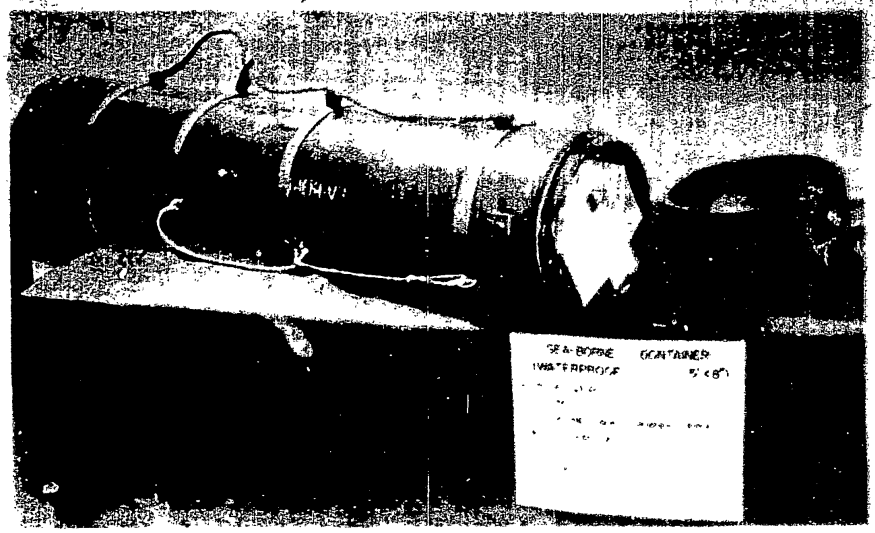
(d) Recommendations:

(i) It is felt that the initial assault troops could not afford to be encumbered with additional gear which would slow them up both while wading ashore and crossing the beach, and that this method of handling stores would be most uneconomical, and it is therefore considered that no requirement exists for this container in normal assault operations, other than as a possible method for landing urgently needed medical stores with Unit Medical Officers.

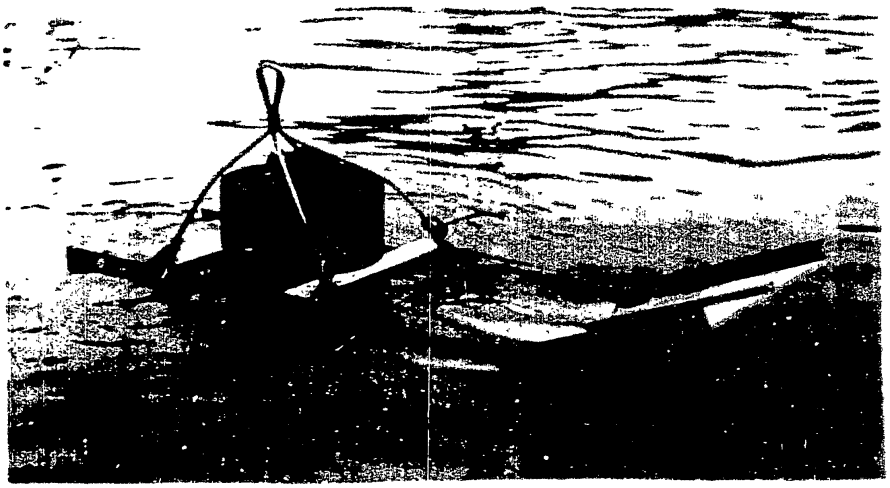
(ii) In the case of small scale raids, however, where the normal methods of landing stores, reserve ammunition, etc., will probably not be available, it is considered that there is a requirement for this container.

D.C./M.O.

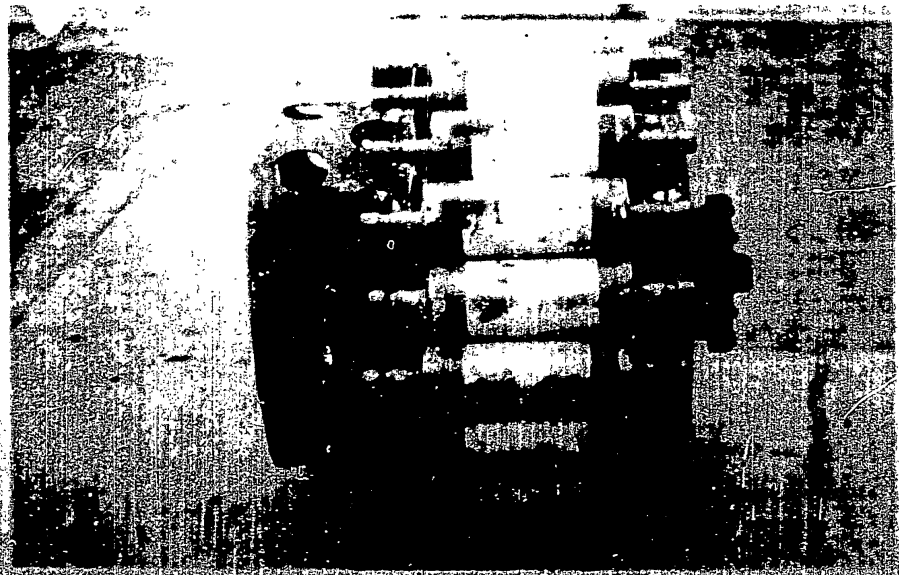
APPENDIX. A.



Sea borne Container



Mooring of Naval Smoke Float. - I.
View of Float secured to Plane



Mooring of Naval Smoke Float - II
View indicate floats attached for extra buoyancy

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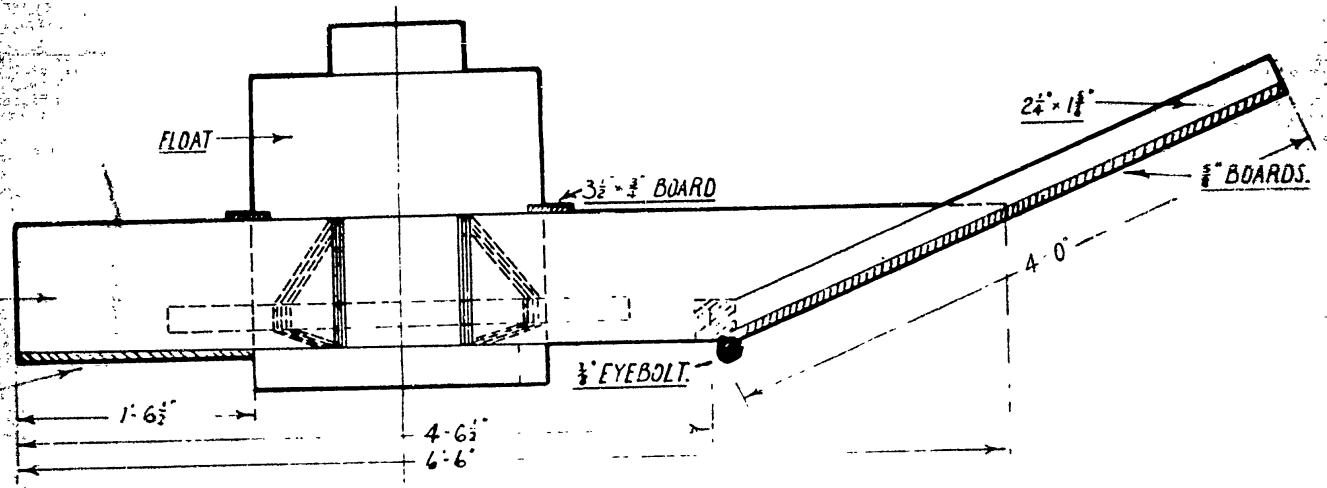
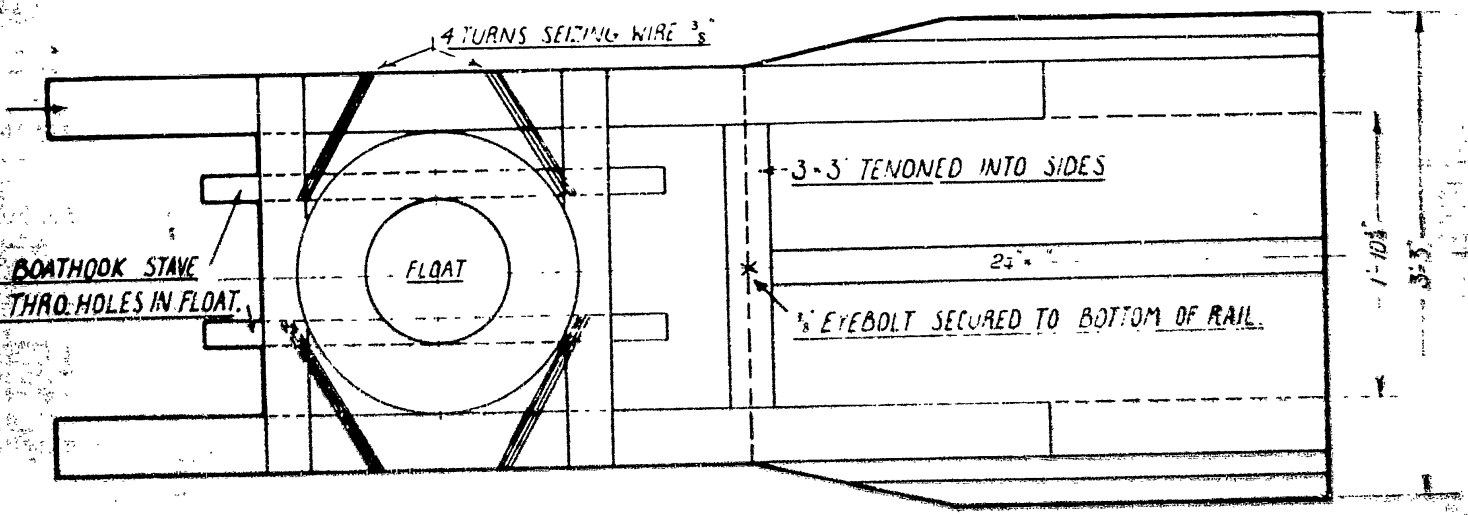


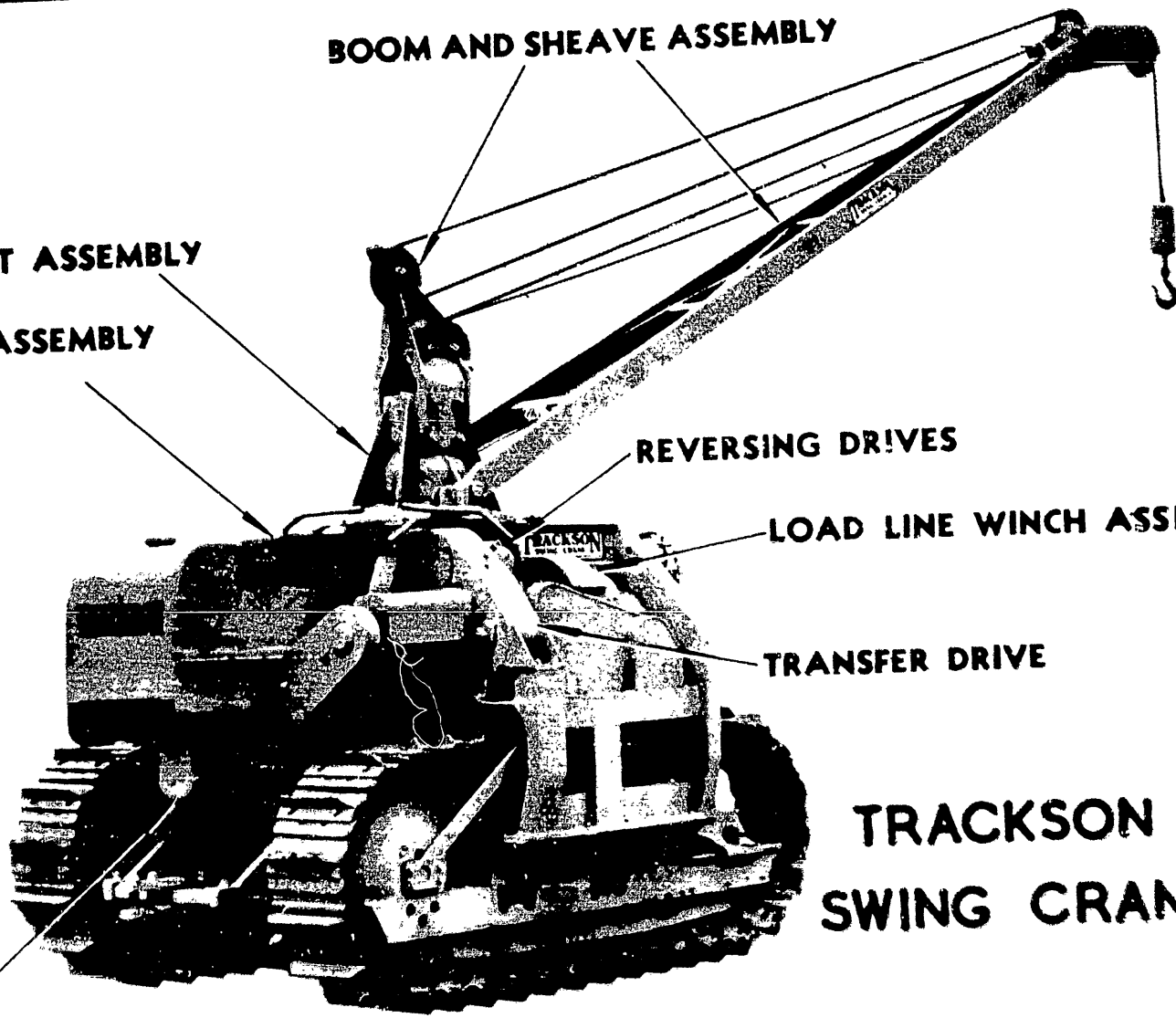
ELEVATION.



PLAN.

SMOKE FLOAT SECURED TO PLANE.

APPENDIX B



TRACKSON
SWING CRANE.

APPENDIX 'C'

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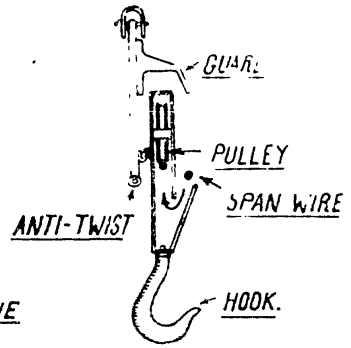
RATE OF DISCHARGE — 18 TONS PER HOUR — 10 CWT. SETS

WITH 30 CWT. STRAIN — A 10 CWT. SET SETS UP A 3¼ TON MAXIMUM STRAIN WHEN TRAVELLING

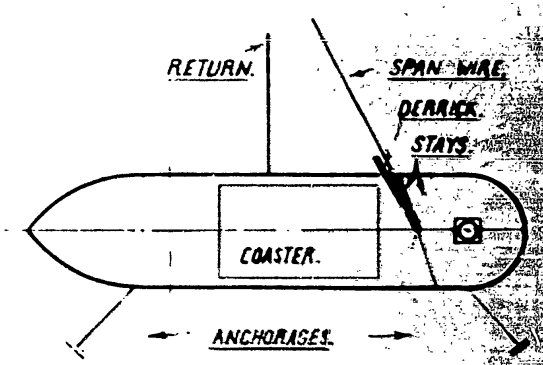
WITH 20 CWT. STRAIN — A 10 CWT. SET SETS UP A 2¾ TON MAXIMUM STRAIN WHEN TRAVELLING

CARRIERS WILL NOT TAKE ABOVE A 2" S.W.R.

N.B. SPAN WIRE MUST BE SET AT ANGLE TO SHIPS KEEL LINE TO ALLOW DERRICK TO TOUCH BACK BEFORE FOULING MAST STAY. —— SEE PLAN.



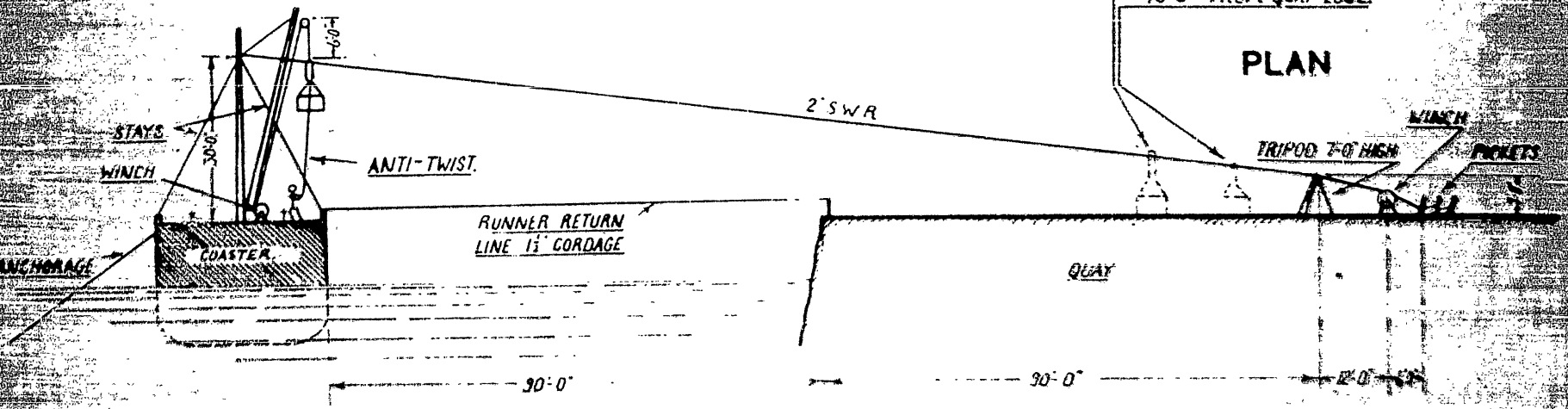
DETAIL OF SPECIAL TELPHER BLOCK



LANDING POINT WITH 1 TON STRAIN ON SPAN WIRE 60·0 FROM QUAY EDGE

DITTO WITH 30 CWT. STRAIN. 75·0" FROM QUAY EDGE.

PLAN



ARRANGEMENT

TELPHER SPAN ADAPTED TO COASTER AT DAMAGED QUAY.

APPENDIX D.

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Ref. M18/CM.558/44

15. 2. 44.

COMBINED OPERATIONS HEADQUARTERS.

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WDD 321.19 30 December 1943

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A. C. of S., G-2
A. C. of S., OPERATIONS
DIRECTOR, OFFICE OF STRATEGIC SERVICES
(COMMANDING) GENERAL, ARMY AIR FORCES

SUBJECT: Transmittal of B.J.S.M. Documents.

1. Enclosed is a copy of C.O.N.Q. Monthly Summary No. 7 dated 15 December 1943 received from the Chief of Combined Operations Representative, British Joint Staff Mission.

For the A. C. of S., G-2:

R. N. CHEATHAM, Jr.
Major, AGD Corps
Commonwealth Section
Foreign Liaison Branch

Enclosures:
Cy COHQ Information Summary
Receipt for return to BJSM
Receipt (dup) for return to FLB

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OFFICES OF THE COMBINED CHIEFS OF STAFF
WASHINGTON

29th December, 1943.

Commanding General,
Office of Strategic Services,
Washington, D.C.

With the compliments of the

Chief of Combined Operations Representative.

Combined Ops. H.Q. 32

MOST SECRET

In reply, quote: 16434.

Combined Operations Headquarters,

1A Richmond Terrace,

WHITEHALL, S.W.1.

15th December, 1943.

C.O.H.Q.

MONTHLY INFORMATION SUMMARY

No.7 of the C.O.H.Q. Monthly Information Summary is forwarded herewith. Much of it is MOST SECRET, and special care should be taken to ensure that no unauthorised person has access to it.

2. Most of the information has been issued more fully in the C.O.H.Q. Bulletins to which reference is made. These have been distributed according to their contents, but any recipient of this Summary who requires a Bulletin which has not been sent to him should apply to C.O.H.Q., stating the Series letter, the number, and the title of the Bulletin.

3. Part II of the Summary is confined to reports on Trials and Experiments. Bulletins issued under this heading are necessarily restricted in distribution.

E.L.Hollam-Lushington

Chief of Staff
for CHIEF OF COMBINED OPERATIONS.

Ref: 46434.

MOST SECRET

Copy No. 77

COMBINED OPERATIONS HEADQUARTERS

MONTHLY INFORMATION SUMMARY No.7

NOVEMBER 1943

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SECTION A.

MAJOR POLICY DECISIONS AFFECTING COMBINED OPERATIONS AND CHANGES OF ORGANISATION IN C.O. COMMAND.

Assault Warfare Committee - November.

The following items were discussed during November and recommendations made to the Executive :-

(a) New Craft for the Far East - Draft Staff Requirements LCT8, LCP(U), LCM4 and LCW.

(b) "Aquatic Hook" - Comments on DCO ME's paper on seaborne landings behind the enemy's lines.

(c) Preliminary consideration of the Role of Amphibians in Assault Operations in the Far East.

(d) Draft Staff Requirements for LST3.

(e) 4" Naval Mortar on Recoil Mounting for craft.

(f) Trials of LCC(T).

(g) Provision of wireless equipment and vehicles for special communication parties in the assault.

Re-organisation of COHQ.

2. An outline of the re-organisation of COHQ on a functional basis will be given in the next issue of this Summary.

SECTION B.

INFORMATION COVERING COMBINED OPERATIONS TECHNIQUE AND EQUIPMENT

Use of RHI Equipment in Landing Craft
(Bulletin T/1).

Officers using RHI must be able to (a) tune their sets; (b) find whether the beacon is ahead or astern; (c) home on a minimum reading of the needle; (d) home on a loading bearing. This Bulletin tells them how to do all these things.

(CT/1106/43).

Radio, Asdic & other Aids to Navigation in Combined Operations
(Bulletin T/3)

2. Describes the devices available for fixing ships, etc., from the friendly and the hostile shores, for locating and directing craft from other craft or ships, and the methods of locating buoys and beacons, including FH 830.

(CT/1163/43).

Signals Information
(Bulletins V/1 and V/2).

3. V/1 describes the new Wireless Handcart No.1 Mk II, the new Reception Station Philco RF 413 and the latest form of Lamp for indicating location of Beach Signal Stations, New War Establishments for HQ Ship Signal Sections, and Military Communication Diagrams for Amphibious Operations.

(CR/20,148/43).

4. V/2 - Summary of Decisions Taken in Reports on Communications and Radar during Amphibious operations in the Mediterranean from July to September, 1943, with extracts from M&C report.

(AOCO/2013/2/Sigs.).

Necessity for a Post-Assault Hydrographic Survey
(Bulletin T/1).

5. Experience in recent operations has shown the need for an immediate hydrographic survey of the assault beaches and approaches directly the first flight have landed. It is recommended that a Hydrographic Craft (a canopied LCP(L) fitted with Echo-Sounding and Taut Wire is most satisfactory) and a DUKW with a trained survey party should be allocated for the use of the FXHr as soon as the Naval Beach Commando has landed.

(CR/11,300/43).

6. This cancels para. 31 of Part I, M.I.S. No.6.

Present Policy in regard to responsibility of CO Personnel for the handling of Balloons during Combined Operations in Home Waters

7. NCXF has approved the following policy in regard to the responsibility of CO personnel for the handling of balloons during

Combined Operations/...

Combined Operations in Home Waters :-

(a) Kite Balloons may be carried by LCT and are the responsibility of the crews of those craft and are used for their protection and possibly for the protection of the anchorages off the enemy coast.

(b) RN Beach Commandos have no responsibility in regard to Balloons on the beaches, and, if a Balloon barrage is used on beaches it will not be a Naval responsibility.

(c) If Balloons are required by LST they will be supplied inflated and worked in a manner similar to that in merchant ships.

8. Training of CC personnel in the handling of Balloons is, therefore, being confined to those manning Major Landing Craft.
(See Section G.)

Concentration of Observed Fire - controlled by Air C.P.

9. Details of method of calling for Regimental and Divisional concentrations, pre-arranged or impromptu, controlled by Air C.P. as CRA's representatives.
(CT/1261/43).

Air Attack of Airfields
(Bulletin R/2).

10. This paper has been prepared by permission of the Air Ministry, from Air Ministry Tactical Paper C.S. 11574 of September, 1943, which bears the same title.

11. The facts contained are drawn from the experiences suffered by Allied and Axis Airfields in all the theatres of war. Certain successful methods of attack are outlined and the nature of the whole problem put on paper. General conclusions are drawn which, it is thought, will be of use to Planners of all Services.

12. The original paper, which is very long, is well worth the study of those with the time for more extensive reading.
(CR/12,244/43).

Airfield Construction in Sicily and Southern Italy
(Bulletin R/1).

13. Notes on airfield construction in Sicily and Southern Italy prepared from a report made by a RCE officer of Canadian Military Headquarters. A paragraph on oil pipe-lines and notes on airfield construction at Salerno are included.
(XR/2548/43).

Construction of Landing Strips on Beaches

14. See Section F.

Composition of anti-tank Regiments

15. (a) Reference Monthly Information Summary No. 3 July 1943 Part II Military para. 21, the following is published as an indication of the trend of opinion :-

(b) Various changes in the present organisation have been urged by Commanders abroad, and it has been agreed that the following organisation would meet the requirements of users and at the same time secure information among units that are likely to take part in operations in Europe :-

(i) Infantry Division.

Each battery to consist of two troops 17 pr wheeled and one troop 6 pr wheeled.

(ii) Armoured Division.

Two batteries each of three troops 17 pr wheeled and two batteries each of three troops 3" [illegible].

(c) This organisation has [illegible] submitted to C's-in-C and will then be put forward for final agreement. (R/11.[illegible]6/43).

Explanation of the use of LST and LCT in recent Mediterranean Operations

16. With reference to the [illegible] Mediterranean [illegible] remarks on the misuse of [illegible] in [illegible] operations [illegible] September [illegible] the following [illegible] by DCNS(…), COHQ, [illegible] No. 5, Part I, [illegible], the following are given as an Allied Force Headquarters, North Africa [illegible] explanation of the use of LCT and LST in recent operations in the Mediterranean :-

17. "The assumption that landing ships and craft were used as a substitute for MT shipping is incorrect. In the operations concerned all captured ports were continuously filled to capacity in the discharge of MT and stores ships and there was always a back-log of these ships awaiting acceptance at the ports. Port capacity was limited not only by the availability of discharging berths (a limitation which might have been overcome to some extent by the use of lighters), but also by limitations in the availability of discharging personnel.

18. "Thus, the use of LSTs was dictated by the facts that :-

(a) They did not need deep water unloading facilities.

(b) Their speed of loading and discharging was far greater than that of MT ships.

(c) They did not need trained stevedore personnel for their loading or discharge.

"They thus provided a large additional lift towards a build-up which could not have been obtained by the use of MT or stores ships.

19./...

19. "The position as regards LCT was different. Those were largely used after the initial assault as self-propelled lighters in captured ports. This is admittedly an uneconomical use of those landing craft and the requirement could have been met by the provision of tugs and lighters. The latter, however, were not available."

(CR/10,034/43.)

SECTION C.

REPORTS ON, AND LESSONS LEARNED FROM COMBINED OPERATIONS AND EXERCISES.

Advance Notes on the Fleet Air Arm Operation at Salerno (Bulletin 7/14)

This has been distributed to all recipients of this Summary. (CR/11,113/43).

Final Report on Gundalcanal (Bulletin 7/13)

2. This is a very brief abstract of the final report by the 1st U.S. Marine Divisional Commander on the Gundalcanal Operation in the summer of 1942. It was distributed to all recipients of this Summary. A more detailed extract from the report will be published in a subsequent Bulletin. (CR/11,577/43).

The Landing Operations on Attu, Aleutian Islands, 11 - 15 May 1943 (Bulletin 7/15).

3. Extracts from reports by Commander, Task Force, US Pacific Fleet, and the U.S. Navy Department, of special interest to Navy and Army Planners of operations in jungle and tundra territory. (CR/11,402/43).

The Wake Island Operation

4. COMINCH, Washington, forwards the following report by Capt. [illegible], U.S.N. (CinC, Pacific Fleet), and "Critique" or inquest on the Wake Island [illegible] by Vice-Admiral Commander H.K. Hopkins, U.S.N. :-

5. "The Commanders of the various forces and units, down to and including destroyer divisional commanders and some cruiser captains, have short addresses on the operation from their particular points of view, full discussion being allowed for criticism.

6. "Outstanding points recorded were :-

(a) Excess secrecy prevented personal contact between commanders and subordinates before sailing, which was reflected in the number of signals which had to be made subsequently.

(b) Too little time was allowed for the preparation of operation orders once the expedition had been authorised by the Commander-in-Chief.

(c) V/S signalling was slow and unreliable.

(d) The danger of the excessive use of TBS.

(e) The unreliability of VHF communication.

(a)/...

(f) The difficulty of aircraft recognition from sea and air.

(g) The doubtful value of incendiary bombs in attacks on Japanese-held islands and the good results to be expected from the new fragmentation cluster bomb.

(h) The value of fighters for machine-gunning purposes.

(j) The necessity for identification marks on carrier flight decks, to be visible from the air whether aircraft are ranged forward or aft. (Six carriers were working in conjunction during the operation).

(k) The possibility of using CHENANGO class carriers in connection with similar operations in the future. (These ships are converted fast fleet tankers which have retained large fuel capacities and have equipment for fuelling at sea. They carry sufficient aircraft for their own protection and could also provide a few spares for the first-line carriers.

(m) The need for an efficient rescue service for recovering crews of aircraft forced to alight on the sea. Submarines are of limited value for this purpose and the morale of air crews suffers in consequence."

(Information Bulletin No. I.B.35, 16/Oct/43 - C.R./12,034/43.)

Naval Experiences Gained from Exercise [illegible]
(Bulletin No. Y/14).

7. This consists of extracts from a report by the then Commodore Commanding Force J. He says: "From the naval point of view the launching of this exercise was a bigger undertaking than the raid on Dieppe. The fact that it could be undertaken with a smaller staff than was used for that operation, and within a short time of other large-scale exercises, reveals satisfactory progress in the general organisation of the Force, which has now reached a state which would enable a prolonged major operation, involving dealings with a succession of Military Commanders, to be undertaken with confidence."

(CT/1144/43).

SECTION D.

INFORMATION FROM ABROAD

This Section will usually cover all information from abroad other than British sources. It will not include reports on Operations and Exercises; these will be covered in Section C. When the information has been issued in Bulletin form, this Section will give a brief indication of the contents of the Bulletin.

2. Alter title of Section D in Appendix A to COHQ letter 46434 dated 15th October, 1943, accordingly.

3. This month, there is nothing for publication under this heading other than material covered in Sections C and F.

SECTION E.

COMBINED OPERATIONS CONFERENCES : COMMITTEES

See Section A.

SECTION F

COMBINED OPERATIONS PUBLICATIONS OTHER THAN TRAINING PAMPHLETS

Revision of Bulletin Series

To conform with the reorganisation of COHQ on a functional basis the Bulletin Series will in future be as follows :-

	Reference letter
EXERCISES, Reports on	Z
OPERATIONS, Reports on	Y
TRIALS AND EXPERIMENTS	X
INFORMATION FROM ABROAD (FROM SOURCES OTHER THAN BRITISH) (excluding Operations and Exercises, which are covered in Series Y and Z.)	W
SIGNALS	V
ORGANISATION	U
TACTICS, EQUIPMENT AND TECHNIQUE (to include PLANNING TECHNIQUE)	T

2. This revision necessitates the following changes in the reference letters of certain of the existing Bulletins :

(a) To be renumbered :

R/1 and R/2	to	T/2 and T/4 respectively
S/3 and S/4	to	U/1 and U/2 "
S/5	to	T/5
S/9	to	T/6
S/~~10~~ 11	to	U/3
Y/5	to	Z/1
Y/9	to	Z/2
~~Y/10~~	~~to~~	~~Z/3~~
~~Y/14~~	~~to~~	~~Z/4~~
Y/16	to	Z/5 3

(b) To be deleted from the Bulletin Series :

S/1, S/2, S/6, S/7, S/8, S/10, S/12 and S/13.

New Bulletins/...

New Bulletins

3. The Bulletins published during the month covered by this report are summarised in the preceding Sections to which the information contained in them relates. An index to them follows this paragraph. The numbers and titles of previous Bulletins will be found in Summary No.6 Part I, pages 18-20.

4. Series Y/: Reports on Operations & Exercises

Y/13	Extract from 1st Marine Divisional Commander's Final Report on the Guadalcanal Operations.	See Section C (above)
Y/14	Advance Notes on the Fleet Air Arm Operation at Salerno.	
Y/15	Cancelled.	
Y/16	Naval Experiences Gained from Exercise PIRATE	
Y/17	A fuller report on the Guadalcanal Operation (see Y/13 above) - in preparation.	
Y/18	The Landing Operations on ATTU, Aleutian Islands, 10-18 May, 1943.	

5. Series V/: Signals

V/1	Wireless Handcarts, Reception Station Philco HP 413, Signal Office Lamps, Waterproofing of Signal Equipment, HQ Ships Signal Sections & Military Communications Diagrams for Amphibious Operations.	See Section B (above)
V/2	Summary of Decisions Taken on Reports on Communications and Radar during amphibious operations in the Mediterranean from July to Sept. 1943, with extracts from MAC report.	

6. Series T/: Tactics, Equipment & Technique

T/1 (a) (b) (c)	Use of RHI Equipment in Landing Craft Necessity for a Post-Assault Hydrographic Survey AA Defences of Ports through a Smoke Screen (see Section G, para 2 below)	See Section B (above)
T/2	See para. 2 (a) of this Section.	
T/3	Radio, Asdic and other Aids to Navigation in Combined Operations.	
T/4	See para 2 (a) of this Section	
T/5	See 7 (below).	
T/6	See para 2(a) of this Section	

7./...

7. Series S/: Technique & Equipment, Army

S/14	Concentration of Observed Fire - controlled by Air O.P. Re-number this as Bulletin T/6	See Section B (above)

8. Series R/: Technique and Equipment, Air

R/1	Airfield Construction in Sicily and Southern Italy.	See Section B (above)
R/2	Air Attack of Airfields.	

9. Series X/: Trials & Experiments

X/6	Filling Craters on Beaches with Mechanical Equipment	see Part II

Reports on Operation HUSKY

10. Reference COHQ Bulletin Y/6, the following is published in amplification of para. 6(d) :-

> FOOs must be controlled by senior artillery Officer, but the SBLO must be kept in the picture. This can be done by sending the second in command of the troop, the Intelligence Officer Bombardment.

Construction of Landing Strips on Beaches ("Goldrush" Project)

11. A pamphlet with photographs describing test debarking of [illegible] equipment from LST has been issued by the US Navy Dept at [illegible]. Films have been made of these experiments and will shortly be available. Requests for copies of the pamphlet should be addressed to the American authorities and not to COHQ. Its reference numbers are -

(a) [illegible] ltr Op-30B-HP(SC)ND174 Serial 1238330 of September 17 1942.

(b) CinCPac Secret ltr Pac-18-aet ND1 Serial 0226W of October 21, 1942.

(c) ComAmphForLant Secret ltr FE25/A16-1 (00226) of October 24, 1942.

LCM(3) - Towing Arrangements.
(Ref. NOIC Appledore's 158/2 of the 9th November in CR.11883/43 of 9/11/43.)

12. With reference to Monthly Information Summary No. 5, paras 29 - 36 dealing with the towing spans on LCM, it should be noted that these remarks apply only to craft not fitted as ordered by AFO 2989/43.

Post-Assault Hydrographic Survey

13. Para 31 of Part I, M.I.S. No. 6 is cancelled. See para 5, Section D above.

14./

Self-Heating Soup: Correction to M.I.S. No.4

14. The statement, contained in M.I.S. No.4 (August 1943) Part II, Section B, para 11 (vi) (d), last sentence, that the War Office could not supply self-heating soup for use in Operation HUSKY is incorrect, and should be deleted. The only request for self-heating soup was in fact put by the War Office, although this demand by AFHQ was made too late for the soup to arrive in time for the Operations in Sicily.

C.O. Temporary Memoranda

15. The following were issued between 17th November and 15th December :-

No.80 Monthly Training and Progress Reports no longer required.

No.81 Urgent need to recommend seamen as AA3 candidates.

Graph of Landing on Different Slopes of Beach

16. With reference to the above in M.I.S. No.5, for September 1943, Part I - Naval, Appendix B, it is emphasised that the data which can be obtained is limited. It is pointed out that this graph was based on craft of certain draught brought about by standard load. Any alterations of loads, and, in consequence, of draughts, would have a very great effect on the depth of water at the ramp. For these reasons the graph should only be looked upon as a guide for certain standard conditions.

(XR/3027/43.)

Loading Limits of LCT in the Mediterranean

17. With reference to M.I.S. No.5, Part I, paras. 14 to 18; it is pointed out that restrictions imposed on the loading of LCT by the Commander-in-Chief, Mediterranean are only in force in his Command, and are not being imposed in other theatres.

(XR/1960/43.)

SECTION G.

COMBINED TRAINING

Amendments to Training Pamphlets

Responsibility for Handling Balloons. - In C.O. Pamphlet No.17 - "R.N. BEACH COMMANDOS", paragraph 17 is cancelled by the decision recorded in Section B, paragraph 7 (above) of this Summary.

AA Defence of Ports through a Smoke Screen

2. The following paragraph should be added to Section VI of Combined Operations Pamphlet No.5 - SMOKE -

"5. When a harbour, open anchorage or beach maintenance area is being protected from air attack by means of an area smoke screen, it is advisable that AA fire should be restricted to those guns which have flashless charges and are not firing tracer, otherwise the effect of the screen will be largely lost."

(CR/10,556/43).

LST 65

11. In spite of lack of support, LST 65 entered harbour and beached correctly with great determination and gallantry. She was under continuous and heavy shell fire during the approach, skillfully avoiding damage by zigzagging, but as the range decreased, this became ineffective and she charged home straight for her beach. She received much damage from shell fire, HE bursts, and machine-gun fire, and a few vehicles were set on fire, but she successfully discharged her cargo, after opening her damaged doors with a bulldozer, and extinguished the fires.

Suitability of Position of Landing

12. In planning this landing, insufficient consideration had been given to the effect of the high ground overlooking the beaches and approaches. It had been anticipated that the landing would be well behind the enemy's lines, and so meet at first with only limited opposition, and that by 2 hrs. after daylight the LST would have discharged and only the 2 store-carrying LCT be left on the beaches. As it turned out, the van of the German withdrawal must have been passing when the landing occurred and this accounts for the large number of guns and machine guns brought to bear.

Information of Initial Progress

13. HDMLs which led the assault in "BAYTOWN" had to be withdrawn early for other duties. In consequence, little information was obtained regarding initial progress. It is considered better that they should remain till the situation on shore is clear, because they are "in the picture" from the start and have reliable communications.

Personnel

14. From the outset of the operation, improvement in seamanship and the general air of confidence of all personnel was most noticeable. In almost every instance, craft formed up and manoeuvred well and the experience of previous operations had been of the utmost value.

15. The embarkation of the troops in the dark was carried out smoothly and expeditiously. This was mainly due to the fact that each craft carried 2 military guides who contacted their respective units in the assembly area and led them to their craft on the beaches. Each craft was clearly identified by her illuminated serial number.

(Ref: CR 12,722B/43
4462/Med/00361/R2)

/by a SNOL in LCI (L) fitted as a Headquarters Ship. Many hundreds of tons of stores were lifted and many thousands of troops were taken off from dusty roads and landed afresh and rested many miles further up the coast ready to keep the pressure up on the retreating enemy.

6. There can be no doubt that the rate of the 8th Army's advance could not have been maintained unless full use had been made of landing craft. There is, however, still the need for a careful study of this form of mutual aid. The Naval Force Commander must be kept in close touch with the Army's Commander's plan and requirements as long as the military forces remain in the vicinity of the coast.

LCA and LCM Coastal Passage

7. In "BAYTOWN" the LCA and LCM travelled 70 miles under their own power from their base to the assault beaches, and then continued to run satisfactorily for many days. These craft are not normally expected to cover such long distances, and these results were only obtained by the intensive supervision and maintenance of the repair staffs. There is no question, however, that when properly looked after, they are more reliable than had been previously realised.

Towing LCA

8. The LCA were towed 50 miles for Operation "FERDY". They had been specially fitted for towing, by means of a strop round the boat, and experience had shown that LCI (L) can each tow two empty LCA at up to 10 knots in reasonably good weather, though in a choppy sea towing is not entirely satisfactory and LCA may get strained. In this Operation there was some delay in slipping the tow and manning the LCA from the LCI (L) in the dark, owing to inexperience of some of the crews. With practice there are no difficulties.

Beach Finding

9. In future operations it is essential to decide at the planning stage whether it is necessary to land exactly at the beach decided on, in which case quite a considerable delay in finding the beach may occur, or whether it is better to land at the agreed H-hour, and accept any inaccuracy in position, which in this operation would have been less than one mile. On this occasion, when nearly all the coast provided excellent beaches, it is considered that the latter would have been the better solution, and would have been acceptable to the Army. This is an important point, especially in waters such as these where even on clear nights nothing can be distinguished against the high black background of the hills which rise from the coast.

Support Craft Must Keep Moving

10. When LCG 12 was hit, receiving structural damage which necessitated her being towed back to Messina and having all her officers killed or wounded, most of them from a HE shell which burst just over the bridge, she was almost stopped, engaging a battery. It is of vital importance that support craft should keep moving. The enemy's guns were nearly all mobile guns, and it is only when craft are stopped or at point blank range that they present a reasonable target.

/11.

/future operations where Army and Navy teams are used together, the Army teams should have no other commitments which would be likely to interfere with the operation in hand, as occurred in this instance, when the Royal Engineers landed with all the explosives, compelling the Boom Clearance Party to cease work. If the Royal Engineers had been able to remain with the party it could have continued blasting the channels probably for two days or so long as the explosive lasted.

Observations on Personnel

8. Considering the very limited time the coxswains and crews had to learn this drill, they showed great ability in handling their craft, and the crews were extremely helpful in assisting to handle the charges, which weighed some 550 lb each. The Navy and Army teams worked together in a true combined operational spirit, the Royal Engineers showing great aptitude in boat work.

(Ref: CR 11,878/43).

...

PART IV

THE ESTABLISHMENT OF THE 8th ARMY IN THE TOE OF ITALY AND ITS SUBSEQUENT ADVANCE NORTHWARDS.

(EXTRACTS from VARIOUS REPORTS on OPERATIONS "BAYTOWN", "HOOKER" and "FERDY" made to Flag Officer-in-Charge, Sicily)

In Operation "BAYTOWN" a ferry control organisation was set up on the Theresa beaches, where LST and LCT hards had been prepared. All craft returning from their beaches reported to the signal station in the centre of the area, and were detailed for the particular hard at which they were required. By this means a steady stream of traffic in the exact order of priority was maintained. During the first 2 days, some 3,500 vehicles were handled in addition to the 1,800 landed in the first lift.

Performance of LCM

2. As nearly all LST were withdrawn on D + 2 and only four to five LCT could be made available for this ferry, the great burden of the follow up was carried by LCM. These craft put up a truly remarkable performance, many of them covering as much as 100 miles per day for weeks on end, from dawn until pipe-down at 2200.

3. The fact that a serviceability of nearly 70% was maintained over such a long period is a source of great pride to the repair and maintenance staffs, who worked long hours under difficult conditions.

4. A LCM (3) will carry a maximum of 13 mules and a LCT (3) will take 80.

LCT (R) and LCT in Support of the Army

5. Small detachments of the Beach Commandos were attached to the groups of craft on each coast and each support group was commanded

/by a SNOL

PART III

EXTRACTS from REPORT on OPERATIONS CARRIED OUT BY THE BEACH CLEARANCE PARTY and ROYAL ENGINEERS DURING THE ASSAULT LANDING on "ROGER" BEACH, SICILY, 10th July, 1943.

The most suitable place for a channel having been decided, two transit poles were placed on the beach to indicate the line of the proposed channel. The first LCP (R) then came into the beach, turned round and headed out to sea on the line of the marks, paying out its charge as it went. This charge was then fired, and the second boat followed on where the first boat left off. This point was determined by the disturbed water. The third and last boats dropped their charges slightly to the left of the charges made by the first and second boats with a view to widening the channel. Rough soundings were then made with poles and it was found that a 200 feet long channel approximately 40 feet wide and about 2 feet 6 inches deep in the sand had been made. As this depth was not sufficient, the above operations were repeated on the same stretch of beach, and this resulted in the channel being deepened to the required 5 feet. The same procedure was then repeated to extend the channel seaward, and, with the exception of the first two charges, it was found unnecessary to fire twice over the same stretch to get the required depth owing to the water itself getting deeper. Due to weather and the fact that the crews had but five days' training, the operations took 5 hours. Under very favourable conditions, it is considered, the work would have been done in 1½ hours.

Details of Charge

2. Five lines 3 feet 6 inches apart by 100 feet long of 2 inch Rubberised hose filled 1 lb/ft explosive 808. Hose strengthened by single-strand wire running the whole length of hose and bound every 6 inches by short length of the same type of wire.

3. The ends of the hoses were connected by wires to 16-ft lengths of 2-inch tubular scaffolding to keep the hoses in position.

4. For firing, the five charges were coupled together by lengths of Cordtex to junction boxes consisting of dry guncotton primers waterproofed with rubber hose and sealed with cap-sealing compound.

5. The timing unit was a No. 27 detonator and safety fuse to give 1½ minutes' delay. The safety fuse was fired by percussion igniter.

Conditions during Operations

6. A fresh on shore wind blew up soon after sunrise and continued throughout the day. This caused a bad surf on the beach, which made work extremely difficult. Considerable time was lost through craft being blown in to the beach while laying charges in shallow water.

Conclusions and Suggestions

7. The LCP (R) were difficult to manage with on-shore wind prevailing and heavy surf, being high out of the water forward. Being single-screw craft, they were very difficult to turn to windward without going full speed on the engines, which was impracticable under the charge-laying conditions, their turning circle being very large. In

/future

/(f) Craft carrying stores must make certain that the beach knows the nature of their cargoes, as the Army Beach Group will have a different place for handling small cases, large cases and crane lifts. Generally, they will have to separate beaches for stores and vehicles.

32. The only safe way to prevent craft beaching in the wrong place was to intercept them before they beached, and give orders to beach according to their cargo. Almost invariably the craft that beaches without orders finds itself in the wrong place, and unable to haul off when still loaded. It then has to discharge to the disorganisation of the Military. For the purpose of control an LCP (L) is most suitable, being more seaworthy than LCA or DUKWs, which are also too slow.

33. The FBM should make his Headquarters somewhere on the beach in the centre of the sector, with the NILO, and with his Beachmasters, the MLO and the Brigade Commander on the telephone. By keeping constant R/T communication between FBM and control craft it is simple to direct every craft to the correct beach, the beach being warned by V/S (R/T in early stages) where necessary.

Quick Salvage of Craft

34. In Operation HUSKY, some 3 dozen LCM were stranded early on D day, and remained ashore several days longer than necessary, until the engine rooms of many had become flooded, and craft were out of action for some time. Had the tidal conditions been realised, many could have been got off by kedging out their own kedges and hauling off at high water. The remainder could probably have been towed off quickly had craft been detailed for this purpose.

35. It is suggested that 2 DUKWs containing one-ton trailer pumps with about 30 feet of suction hose should be available in the early stages for pumping out craft or fire-fighting afloat. Trailer pumps are usually landed later for the beach brick, but by this means they could be made useful and mobile from the start. In HUSKY, LCE were among the first craft to be stranded; DUKWs are better for laying out kedges.

Maintenance Section

36. In HUSKY, most of the LCM crews were under canvas for the first time, and no central camp or rendezvous for turning over to relief crews had been envisaged in the planning. There was no central dump for Flotilla Maintenance spares, or for kit or hammocks to be sent to when the ships were cleared. Consequently, kit spares and weapons from stranded craft could be found anywhere on 3 miles of beach, their crews might be anywhere in the same area, or much further afield after bombing. Several crews ran their LCM for some days without relief, and a number of ratings were never on any unit strength for drawing rations, and were thus forced to beg or pilfer for their existence.

37. It is suggested, therefore, that an RN Maintenance Centre should be allowed for in the initial planning. This should be close to its own strip of beach, with fuel dumps for craft. It is suggested that there should be a staff whose duty would be to cater for Naval personnel marooned by providing them with food and shelter. They should also be capable of organising sanitation, and active and passive defence of the area. In co-operation with Flotilla and Squadron Officers, they could organise the routine of relieving crews and refitting craft.

Loud Hailers

/27. Experience has shown that separate loud-hailers for Beachmaster and AMLO are essential, and particularly so at busy periods.

Identity Discs

28. It is considered that string is quite inadequate for attaching identity discs to the person and that light chains similar to those used for a bos'n's call should be supplied, but they should be lighter and shorter.

Portable ramps for LST and LCT

29. On several occasions small water gaps on stretches of soft wet sand had to be bridged before vehicles could be unloaded from LST and LCT. The provision of a fairly light portable metal ramp which could be placed in position by a travelling crane such as an RB 10 would have saved hours being wasted in laying army track or duckboards. An alternative method would be to have hinged ramps in the LST, or an additional one which could be slid down the existing ramp from inside.

Note :- See also COHQ Bulletin Y/8

(Ref: CR 12,903/43 from Admiralty docket GDO 1781/43).

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PART II - SECTION C

(EXTRACTS from REPORTS by a BEACHMASTER on LANDINGS IN SICILY AND REGGIO, and subsequently on ADVANCED MAINTENANCE BEACHES at SAFRI.)

Calling in of Craft

30. The most difficult part of a landing from the Naval Aspect was always the controlling of craft in the Sector. LCM could only be controlled when the Loud Hailer overcame the engine noises, as their V/S was definitely poor. Also LCM and Major Landing Craft were impatient to beach at the expense of Military requirements.

31. The following are set out for the guidance of all Officers and Coxswains, and if followed should ensure good co-operation.

(a) Wheeled vehicles must be landed on a roadway to prevent them from bogging down on the beach.

(b) Tracked vehicles must never be landed on a wire roadway, as the tracks ruin it.

(c) All vehicles must have their engines running before beaching, so that the engine is ready for the stiff pull over the beach.

(d) Heavy armoured vehicles cannot be put on just any beach as the exits may not be able to bear the weight of a 40 ton tank.

(e) Squadrons of armour, or batteries of artillery split between LCT must not land on different parts of the beach or they will have to use different exits, and will be unable to find their unit for some time.

/(f)

Amphibian Jeeps

22. The provision of Amphibian Jeeps (or Ducklings) for the use of Beachmasters was an innovation which was more than amply justified. Although most of their employment was on land, numerous occasions cropped up when the fact that they were able to go afloat was of the greatest value. It is recommended that in future operations one should be supplied for PHM, and one as well, if possible, for Beachmasters, but that, if not, he should be furnished with a Jeep.

Boats for use of Beachmasters

23. The supply of a small landing craft of some sort for each Beachmaster is absolutely essential for getting out to ships or landing craft anchored off the beaches, loading craft in, and sundry other duties. If possible, one LCP (S) should be supplied to each Beachmaster in addition to a 'Duckling' as there are several tasks which crop up and for which a 'Duckling' is inadequate, particularly if there is any lop on the water.

Provision of LC (N) for surveys off shore

24. This was a tremendous advantage and enabled Beachmasters to get on with and concentrate on their work on the beaches without having the extra work of carrying out off-shore surveys themselves and the anxiety of not knowing whether their beaches were going to be suitable or not for LCT and LST when they did arrive. The services of a qualified surveying officer, Lieutenant Berncastle, RN and his properly equipped craft were of inestimable value and were tremendously appreciated. (See MIS No. 7, Part I, Page 2, para.5).

Information concerning and provision of craft for ferrying officers on duty back to distant bases.

25. As in Operation HUSKY, so in AVALANCHE, Beachmasters were being continually asked, all day and every day, by all sorts of officers of all services, how they could get passages back to various bases in Sicily and North Africa for themselves, casualty lists, reels of film, or despatches. In most cases, it was impossible to help them, as, in spite of repeated efforts to obtain information or passages, these were unsuccessful. It is suggested that there should, in future operations, be an information post ashore supplied with up to date shipping information to which military authorities and bona fide individual officers requiring passages, could apply. Further, it is suggested that consideration should be given to the possibility of running a daily or every-other-day trip to bases with an LCI (L) 'Fairmile' ML or other suitable craft. Also that once an airfield is occupied and in operation, Officers requiring passages on duty back to distant bases might be able to go by air, provided the necessary arrangements had previously been made between the Royal Navy, Army and RAF.

Fire Extinguishers on Beaches

26. In two or three cases lorries, dumps of petrol, isolated tins of petrol scattered by explosions, and dumps of stores, which had been set on fire by shell fire or bombs, could not be extinguished owing to lack of suitable fire-fighting appliances. It is suggested that 'Foamene' fire extinguishers as supplied to HM Ships should be supplied, at least 6 to each beach.

/27.

LST Draughts are usually greater than expected

/16. The draughts of all LST appeared to be well above those laid down as operational draughts (4'6" - 9'6"). An average was about 5' - 10' 6". This was also the case in Operation HUSKY. One LST loaded with RAF equipment [illegible] feet aft.

Shallow Draught Tug for each Sector would be of great value

17. For towing purposes and for manoeuvring the pontoon causeways a shallow draught tug would be of assistance. A small American tug was in the vicinity on D + 1 and was used for several jobs. Otherwise the only available tugs had draughts of 14 and 16 feet, and would not approach within 2 cables of the shore.

18. Pontoon Causeways (a) Require proper ground tackle (b) Ramps are unnecessarily cumbersome (c) Why not use them as fresh water tanks ? The only ground tackle supplied was one small anchor per causeway, which was ridiculously inadequate and could not prevent the causeways broaching-to even in a slight swell. Each 175 ft. pontoon should be equipped with two anchors, i.e. four per causeway.

19. Naval Telephone required between Beaches An Army telephone line was laid between the two beaches of the sector, but a naval line should also be laid when possible. On this particular sector the ideal would have been to have 3 telephones to the 1700 yards of beach.

20. Casualty Clearing needs further organisation An LCI (L) per Sector should be detailed beforehand and if possible supplied with special gear such as a Red Cross Flag, and if possible something that can be rigged as an awning. This craft should be under the orders of the PBM.

(Ref: CR 12,903/43 from Admiralty [illegible] GDO 1781/43)

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PART II - SECTION B

SALERNO LANDINGS

(EXTRACTS from REPORT by PRINCIPAL BEACH MASTER - R.N.BEACH COMMANDO "K", SUGAR SECTOR - dated 24th September, 1943.)

Beach Lights and Signs

21. IST & ICT Beach Limit Signs The suggestion of having lamps or signs in transit at the ends of the stretch of beach on which these craft should beach is not only unnecessary but impracticable, as usually the Beach will for a considerable time be insufficiently clear of mines for the rear lamp or sign to be placed. In any case, a transit is not necessary to mark the limits of a stretch of beach and simply doubles the number of heavy iron poles which have to be carried in assault craft and in beach parties' stores. Two blue lights on one pole are adequate.

/22.

Casualty Clearing

8. This did not always run according to plan, owing to the LCI (L) previously detailed being taken for other purposes. LCI (L) proved to be best available craft for casualty clearing from the beach (See 20 below).

Naval Medical Officer on Beach

9. The Naval Medical Officer allocated to ROGER Sector was embarked in my craft and remained there throughout D day and D + 1, since this was the only available craft. Had a Despatch boat been available I would have transferred him to her. I am fully in agreement with the policy of landing a Naval MO in an early wave.

Pontoon Causeways

10. The causeways were extremely useful, and it would have been impossible to beach the BOXER class LST without them. They were, however, a continual nuisance due to lack of proper ground tackle.

Beach Organisation and Equipment

11. Control of the beach was rendered difficult by the long continuous stretch in use. Fortunately one LCI had a Jeep and the other one an amphibious Jeep. The loud hailer soon succumbed to the effects of sand and dust.

12. The PBM's LCA was equipped with the following gear, in addition to the normal operational LCA gear :-

(a) Loud Hailer (battery connected in parallel to craft batteries)
(b) R/T No. 22 Set (On Assault R/T wave)
(c) R/T No. 18 Set (On Landing Wave)
(d) Two 14 ft. sounding poles
(e) Aldis lamp (connected to Compass light fixture)
(f) Two extra Ord. Seamen (from Beach Commando) were also embarked to assist the crew.

13. A very small scale of enemy resistance succeeded in halting the assault troops at the water's edge. More mine detectors are required in the assault wave.

Vehicle Carrying Craft must carry 50 yards of Chespaling

14. A bad mistake was made in not carrying chespaling, for emergency roadway, in each vehicle landing craft. This should be part of each craft's operational equipment. The vehicle drivers on board each craft should be organised to lay the chespaling if it is required.

LST Must not use Engines more than necessary on Sandy Beaches

15. ROGER Sector was ruined for LST by the sandbanks which they themselves had created. All LST kept their engines going ahead while disembarking was proceeding, sometimes for 2 to 3 hours. This was simply to keep themselves firmly beached as the cargo lightened. This can be achieved by flooding down. Another undesirable effect of the propeller wash was to disturb the approach course of other LST beaching nearby.

/16.

PART II - SECTION A

SALERNO LANDINGS

(EXTRACTS from REPORT by PRINCIPAL BEACH MASTER, R.N. BEACH COMMANDO "M", ROGER SECTOR - dated 25th September, 1943).

The ABM at the water's edge, had no means of positively identifying Amber beach, since he was unable to see over the sand dunes at the back. However, he quite correctly called in the support wave of craft. His torch, though powerful, was visible only a short distance to seaward owing to the smoke left by the LCR and from exploding mines. The torch beam was also too directional.

Support

2. There were no Support Craft in evidence close to the beach after H + 30 minutes, although some craft shot up the enemy battery with either 0.5 or Oerlikon fire. This was a dangerous course of action to take. Our troops had been ashore for a considerable time and presumably were encircling the battery. High velocity fire against such a target was far more likely to cause casualties among our own troops than among the enemy, who were probably dug in. A similar incident occurred at Bark South in Operation HUSKY. Presumably the presence of an Army Officer in the Support craft is designed to prevent these incidents.

3. The LCA fitted to fire 3" mortars would have been most valuable for neutralising this battery, as would smoke mortars of the LCS. However, lack of liaison between the shore and the close Support Craft made this a hazardous proposition, especially in view of the inaccuracy of mortar fire in the dark.

Beach Development

4. Owing to the space limitations in the craft, there were no "made-up" mats of Summerfield available, and this slowed down the rate of laying compared to a similar task at Bark South in Operation HUSKY.

Beach Reconnaissance

5. A survey by an LCN at H + 5 hours showed that it was possible to beach LST with a maximum draught of 10 feet continuously for one mile to Southward of Tusciano River mouth. This survey proved rather optimistic as few of the LST were drawing as little as 10 feet aft. (See 16 below). However, they could beach with ease for 1200 yards south of the river mouth.

6. Unfortunately the beached LST used their propellors continuously to keep themselves on the beach while discharging. The propellor action soon made great differences in the underwater contours, the bottom being of loose sand, and eventually only isolated places remained useable by the majority of LST. (See 15 below). All other craft could beach dryshod on both Amber and Green.

Beach Defence - Balloon Barrage

7. The presence of the barrage had an excellent effect on morale and was certainly effective in keeping away low-flying raiders.

/8.

/21. BULOLO handled an average of 1230 messages a day for 3 days. The number of lines manned, including "Y" and intercepts, amounted at one time to over 40.

22. As had been anticipated, the proportion of traffic handled by V/S was considerably higher than in Operation TORCH.

Beach and Craft Signals

23. Liaison with Army Beach Signals ashore appeared poor in a few cases, though this was probably due to dispersion forced on Beach Stations by bombing and strafing of which they had considerable experience.

24. No. 46 sets were reported to have been put out of action in several cases by near-by bombs.

25. All beaches worked well on Naval Beach Wave.

26. The performance of DUKWs was one of the features of the Operation. It is recommended that their use for transporting Beach Signals be investigated.

Bombardment Communications

27. FOOs were slow in getting contact, but once communication was established, the first-class fire, and very effective shoots were carried out at ranges up to 28,000 yds. The time required to "run down fire" was 15 minutes on one day, a time which the 13 Corps was well satisfied.

28. Bombardment Calling Wave was an outstanding success. The HQ ship kept a better control than previously over the FOOs, who, for their part, were cautious to be able to get through to her when unable to contact their attached ships. The rules laid down for the use of BCW appear to work well.

29. Owing to the closeness of 13 Corps in leaving BULOLO, the control of bombardment remained with her long after the FOOs were out of W/T range. This resulted in delay and inefficiency, as FOO messages were relayed by the bombarding ships on Bombardment Calling Wave, which thus became congested.

30. From accounts so far received, the Force R/T Broadcast was well received on the Emerson sets at close ranges, and two instances were noticed where orders passed on the Force R/T Broadcast were acknowledged on BCW.

31. The FOOs made sensible use of Fleet Code, and those Airborne FOOs who did not carry it complained afterwards that they felt the need of it. To prevent the possible early compromise of a code which is widely held and used during an assault, it is proposed that in future operations a special COLEX be issued to FOOs and BLOs.

32. The provision of a crystal for the FOOs own wave is also considered desirable in future operations when this can be arranged.

33. No use was made of the FOOs signalmen, although this was a coastwise operation where the use of V/S might have been expected. It is suggested that signalmen could now be withdrawn from these parties without loss of efficiency.
(Ref. CR 11 781A/43).

Naval Supporting Fire

/13. Unobserved indirect fire which had to be used in the early stages proved more effective than had been expected in neutralising and in some cases even silencing enemy batteries that were shelling the beaches. This was no doubt partly due to the fact that these batteries were manned by Italians whose morale was low. In one case, however, the third salvo from a destroyer (ESKIMO) set fire to the cordite dump of an unseen battery and, although the guns were undamaged, nothing more was heard from it.

14. Direct and indirect bombardments of towns and large area targets by more than one ship without FOO observation were of considerable assistance to the Army, and the early capture of Melilli in particular was due to this form of support.

15. The importance of ships working with their own FOOs on their spotting frequency before the operation again received emphasis. It was very noticeable that, where a ship was given the same FOO, contact was made more quickly on subsequent days than on D day.

Evacuation of Casualties

16. Throughout this operation the hospital ships lay about 7 miles off the beaches during daylight and 15-20 miles during the night. As a result of this it was not possible to evacuate casualties after 1600 hrs. ICM evacuating casualties from beaches to Hospital ships were forced to make a round trip of 3-4 hrs., and as a result the number of cases evacuated was small.

17. If a short sea crossing (under 100 miles, is involved and casualty incidence is high, LCT and LST could be used to evacuate casualties to base Hospitals. They would require Medical Officers and Sick Berth Staffs. Specially equipped, non-operational LCT would be almost ideal for this purpose.

Water Supply

18. The need to carry water in MT ships together with some method of discharging it cannot be over-emphasised; water is just as vital as petrol and ammunition. A small water tanker should accompany the force to the assault area. This could supply the needs of all small craft and itself get topped up from larger vessels.

Communications

19. The use of an inland Military Headquarters as planning centre has many disadvantages, among which the delay to Naval Communications was one of the more serious, despite the assistance of the Commander-in-Chief, Levant, FORSCA and RNGHQ, Middle East. L/T in Egypt is congested and more than liable to interception, and Army Despatch Rider services suffer from handling delays at Message Centres.

20. After a slow start, the communications of all Services worked most satisfactorily -better than in one's most sanguine hopes - and the conception of the Headquarters Ships was again proved sound.

/21.

Sector Lights for Craft.

/7. A recommendation affecting all types of landing craft is that craft belonging to each sector should burn stern lights of a distinctive colour. There were several instances of craft attaching themselves to groups proceeding to other sectors.

Save on Smoke Floats

8. On the grounds of economy, both of cost and space, it is strongly recommended that ships should carry Army No. 24 smoke generators for burning on board, in place of Naval smoke floats. The generators are also very much easier to handle, weighing only 35 lbs. as against 150 lbs. Portfires and Bickfords fuze should be supplied with the generators. Naval smoke floats should only be used where they are required as floats.

Distinguish Our Troops

9. When the Army is advancing along the coast the forward elements should have some form of recognition signal (smoke or pyrotechnic) to indicate their position to supporting ships off shore. Several valuable opportunities of providing effective supporting fire were lost due to uncertainty of the position of our forward troops, as also were opportunities of destroying columns of transport later discovered to have been enemy.

Landing Supporting Arms on the Heels of the Infantry

10. Too much reliance is placed on the ability of the LCT to beach in the correct place and discharge their vehicles in the dark. DUKWs are considered to be the immediate answer to this problem. It is strongly recommended that each LCT should carry at least 4 of these craft; pre-loaded with anti-tank and A/A weapons. DUKWs can swim ashore and carry the guns over the beaches and in fact to any position where the Army require these weapons. By this means a proportion at least of the essential supporting arms can be landed whatever difficulties are encountered by the LCT.

Overloading of LCT

11. LCT must not be so over-loaded that vehicles drown due to the craft having beached in too deep water. The LCT available were at the last moment found to be considerably less than the planned figure. All the vehicles were, however, crammed in, and since few, if any, LCT were drawing less than 4 ft. 6 inches, many vehicles were drowned on emerging and required bulldozers to haul them clear. This caused much delay.

Training of Vehicle Drivers

12. Compared to the Americans in TORCH, the standard of driving of M/T vehicles was very poor. Many stalled their engines at the critical moment, which caused them to block the exits both from the LCT and from the beaches.

/13.

PART I

EXTRACTS FROM REPORT ON OPERATION "HUSKY" BY NAVAL COMMANDER, FORCE "A".
(See also Bulletins Y/1, Y/6, Y/10 and Y/20).

The first of many successful bombardments on the line of retreat of the enemy was carried out by UGANDA and MAURITIUS during daylight on 11th July in the Augusta vicinity. The performance of all supporting ships has been warmly appreciated by the Army, and the number of testimonials to the accuracy and effectiveness of ships' fire has been one of the features of the Operation.

2. On 12th July EXMOOR and KANARIS again entered Augusta, followed in the evening by BROCKLESBY flying the flag of NCETF, whom I accompanied. The ships were shelled by high velocity guns of 3 to 4 inch calibre and had to clear out. Uncertainty as to the whereabouts of our Army made adequate retaliation from the Cruisers and Monitor impossible. (See 9 below).

Quick Discharge of Personnel

3. The big personnel follow up convoy MWF 37 entered Syracuse at about 0945 and immediately began to discharge. So well was this done that all the 12 ships were empty and away by 1900, a notable achievement. Intermittent attacks by aircraft with bombs and torpedoes between 2145 and 2345 caused some confusion in this convoy, but no damage or casualties.

Good Use of Smoke

4. The anchorage was well covered with smoke before last light each evening, and before first light each morning. A very effective screen was produced by all available means - smoke floats in ships, smoke floats in craft, CSO smoke in destroyers and craft and funnel smoke. The fact that no ship was hit during fairly heavy attacks over a period of 7 bright moonlight nights must be attributed largely to the effectiveness of this smoke.

Siting of NOIC's H.Q.

5. At Syracuse the Military Authorities were endeavouring to establish the NOIC and Headquarters in the vicinity of the Gun Operations Room about 3 miles inland. The building was too small and the position chosen was unsatisfactory. The Naval Liaison Officer on the staff of NOIC was therefore detailed to remain at the Gun Operations Room, and Navy House was established in the Municipal Offices, a large building well situated on the waterfront.

Training Wasted

6. Force "G" was formed in January 1943, and trained together first in Scotland, and later at Suez. By early July the Force, in addition to being trained, properly commanded and administered, had attained a real esprit de corps. Discipline, etc. had improved out of all knowledge, and Officers and men were joined together in a common bond for a common purpose which even the heat and discomfort of 2 months of the Red Sea in summer did nothing to affect. But once again a force trained and tried in battle has been disbanded and scattered.

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MOST SECRET

Copy No. 81...

COHQ Bulletin No. Y/21

REPORTS ON MEDITERRANEAN OPERATIONS.

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Distribution

This Bulletin has been distributed to all recipients of COHQ Monthly Information Summary No. 8, with which it is despatched.

Issued from -

Combined Operations Headquarters,
1A Richmond Terrace,
Whitehall, LONDON, S.W.1. - January, 1944.

(Refs: CR 11,781A/43, CR 12,903/43 from Admiralty docket GDO 1781/43, CR 11,846/43, CR 11,878/43, CR 12,722B/43, 4462/Med/00361/R2.)

U. S. SECRET
BRITISH MOST SECRET AND SECRET

Combined Operations
X Bulletin

MED 311.23

31 January 1944

MEMORANDUM FOR THE DIRECTOR, OFFICE OF STRATEGIC SERVICES:

Subject: Transmittal of Material from B.J.S.M.

1. Enclosed with the compliments of Captain H. H. Tollemache, R. N., Chief of Combined Operations Representative, B.J.S.M., are copies of C.O.H.Q. Bulletins X/21 and X/22 and a copy of Monthly Information Summary.

For the Deputy for Administration, G-2:

R. H. GREATHEAD, Jr.
Major, Air Corps
Commonwealth Section
Foreign Liaison Branch

Enclosures:
2 COHQ Bulletins
Monthly Information Sum.
Receipt for return to Capt. Tollemache
Receipt for return to Foreign Liaison Br.(dup).

U. S. SECRET
BRITISH MOST SECRET AND SECRET

Lessons on Mediterranean Operations

Y/22 Extracts from Eighth Army First Lessons from "Husky"

ROUTING SHEET

INFORMATION

SECRET

Originator via Secretariat
Date 2-3-44
Addressee
Date Rec'd

Subject COHQ Bulletins Y-21 and Y-22
Monthly Info Summary

To	Room No.	Date Rec'd	Date Fwd'd	Init. as	Comments Indicate action desired or taken
Maritime Unit	Q	RECEIVED FEB 3 - 1944			
SO	Q				
Naval Command	South				
Mrs. O'Donnell	Adm.				

U. S. SECRET
BRITISH MOST SECRET AND SECRET

WAR DEPARTMENT
WAR DEPARTMENT GENERAL STAFF
MILITARY INTELLIGENCE DIVISION G-2
WASHINGTON

MID 311.19

31 January 1944

MEMORANDUM FOR THE DIRECTOR, OFFICE OF STRATEGIC SERVICES:

Subject: Transmittal of Material from B.J.S.M.

1. Enclosed with the compliments of Captain H. D. Tollemache, R. N., Chief of Combined Operations Representative, B.J.S.M., are copies of C.O.H.Q. Bulletins 1/21 and 1/22 and a copy of Monthly Information Summary.

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MOST SECRET

BRITISH JOINT STAFF MISSION
OFFICES OF THE COMBINED CHIEFS OF STAFF
WASHINGTON

27th January, 1944.

Commanding General,
Office of Strategic Services,
Washington, D.C.

With the compliments of

Captain H.D.Tollemache, R.N.,

Chief of Combined Operations Representative.

MOST SECRET

In reply, quote : 4643.

Combined Operations Headquarters,
1A Richmond Terrace,
Whitehall, S.W.1.

15th January 1943.

C.O.H.Q.

MONTHLY INFORMATION SUMMARY

No. 8 of the COHQ Monthly Information Summary is forwarded herewith. Much of it is MOST SECRET, and special care should be taken to ensure that no unauthorised person has access to it. For distribution, see overleaf.

2. Most of the information has been issued more fully in the COHQ Bulletins to which reference is made. These have been distributed according to their contents, but any recipient of this Summary who requires a Bulletin which has not been sent to him should apply to COHQ, stating the Series letter, the number, and the title of the Bulletin.

3. Part II of the Summary is confined to reports on Trials and Experiments. Bulletins issued under this heading are necessarily restricted in distribution.

Chief of Staff
for CHIEF OF COMBINED OPERATIONS

DISTRIBUTION

This Summary has been sent to all on the list supplied with No. 7, and the following :-

Section 1. D. of N.

Section 5. Chief of Naval Operations
RAF Delegation
Commander, Atlantic Fleet Amphibious Training Command, Naval Operating Base, Norfolk, Virginia.

Section 6. Commander, US Fleet Task Force 122, 15 Grosvenor Sq:.

Section 7. Operational Br., Movements Div., Transportation Corps.

Section 8. GOC, 3 Canadian Div.

Section 10. Captain, Group L 1, Force L.
Captain, Group L 2, Force L.
Captain, Group L 3.

Section 14. Royal Canadian Air Force HQ.

Section 15. HQ Raiding Forces, ME.

Section 16. Ordnance Consulting Officer for India, Harrow Schools, Common Lane, Eton.

Section 17. Major R.R. Fairbairn, c/o US Navy Unit M, Plymouth.

Received Copy No. ..... of

COHQ Monthly Information Summary No. 8.

Signature .....

Rank .....

Address.....

.....

Date ....

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COMBINED OPERATIONS HEADQUARTERS

MONTHLY INFORMATION SUMMARY No.8

December, 1943

Part I

.....oOo.....

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SECTION A

MAJOR POLICY DECISIONS AFFECTING COMBINED OPERATIONS AND CHANGES OF ORGANISATION IN C.O. COMMAND.

Assault Warfare Committee - December

The following items were discussed during December and recommendations made to the Executive :-

(a) Deception in Combined Operations.
(b) Consideration of qualitative and quantitive craft requirements for operations against Japan.
(c) Consideration of a new form of craft for use by special boat units.
(d) Recognition of aircraft and control and restriction of flying and AA gunfire in amphibious operations.

Re-Organisation of COHQ

2. In accordance with the directions of the Chiefs of Staff Committee, the organisation of COHQ has been re-modelled.

3. Under this new organisation, the Headquarters staff is divided into functional groups, each group consisting of a fused staff from all three Services. The three main groups work under the direction of a Member of the Executive, each of whom is responsible to the Chief of Combined Operations. (See 6 below).

4. The Executive comprise the three heads of the Service Staffs and the Chief of Staff. They are known as :-

		Short Title
Chief of Staff (Brigadier RE)		COS
Naval Member of Executive (Commodore, RN)	Director of Combined Operations (Naval)	DCO (N)
Military Member of Executive (Brigadier)	Director of Combined Operations (Military)	DCO (Mil)
Air Member of Executive (Air Commodore)	Director of Combined Operations (Air)	DCO (A).

In the absence of CCO, the Chief of Staff acts as his deputy and as Chairman of the Executive.

5. A broad outline of the organisation is as follows :-

/CCO

SECTION B

COMBINED OPERATIONS TACTICS, TECHNIQUE and EQUIPMENT (INCLUDING PLANNING).

British Beach Markings.

(The following British system of Beach Marking has now been adopted. Coloured cards illustrating the system are being printed and will be issued by Admiralty.)

Designation

Sectors to be referred to by the Anglo-American phonetic alphabet in order from right to left facing shoreward.

Beaches within sectors to be named by the colours "Green", "White", "Red" in that order from right to left facing shoreward.

Establishment of Sectors

2. (a) As soon as the stretch of coastline has been chosen where the landing is going to take place, it will be divided up into sectors. These sectors will cover the whole coastline, whatever its nature, beach, cliff, rock, esplanade, etc. Their limits will be geographical features which can easily be identified either from charts, maps, or air photographs. As instances will arise with very long beaches where no convenient feature can be found, a landmark just inland may have to be used.

(b) It is impossible to lay down the length of these sectors, but they should seldom exceed 3,000 yards.

Establishment of Beaches

3. Beaches within sectors will be established by Force Commanders. Where only 2 beaches in a sector are required, the White Beach will be omitted.

Description of Beaches

4. Beaches will always be referred to by the Sector and Colour. The word "Beach" is always to be included in the description.
Examples :- "FOX GREEN BEACH" "DOG WHITE BEACH".

Signs

5. Centre Mark :- Each Beach will be marked near the centre :-
(a) By day with a 9' x 9' rectangle coloured the same as the "Colour" of the beach, with a 6" white border and marked with the appropriate Sector letter in White. In the case of White beach, the sector letter will be marked in black.
(b) By night with a light of the same colour as the beach flashing the appropriate sector letter.

6. Flank Limit Marks :-
(a) By day Limit of all beaches will be marked by a White rectangle 12' x 4' placed horizontally on the left limit and vertically on the right limit. Red and Green beaches will

/also

/(b) All Landing craft to be permanently fitted with one of the buoys referred to in (a) above, which is to be so placed that it will "watch" automatically should the craft sink.

(c) Wrecked landing craft which are uncovered by the tide will be marked by the Beach Party by lashing upright to the hull a 15' pole painted with alternate green and white 1' length bands and carrying a green square flag. To exhibit a green fixed or flashing light by night.

(d) Shoals or obstructions located by Hydrographic Craft off the beach will be marked by this craft using the cross-plank buoy described in paragraph (1) above, moored with a ½-cwt. sinker.

(e) The buoys and marks referred to above must be given a wide berth, the craft passing to leeward (or downstream) where possible.

14. Port Hand Buoys A cross plank buoy with black 5' wooden upright and black pennant, exhibiting a white fixed or flashing light by night, moored with a 1½" hemp to a ½-cwt. sinker.

15. Starboard Hand Buoys A cross plank buoy with red 5' wooden upright and red and yellow diagonal square flag, exhibiting a red fixed or flashing light by night, moored with a 1½" hemp to a ½-cwt. sinker.

16 Surveying Marks Hydrographic Units may use marks, buoys and lights of any shape or colour provided they cannot be confused in any way with the marks, buoys and lights laid down in paragraphs 15, 16 and 17 above, nor with the Standard System of Beach signs and lights now agreed upon. The following marks have been agreed :-

(a) By day (i) Ashore - Yellow poles marked with white and/or yellow burgee.

(ii) Afloat - Cross plank buoy with white upright, carrying a white, yellow or blue (or any desired combination of these colours) Burgee.

(b) By night Should it be necessary for survey work to be carried out at night, the colour and use of lights will be decided by the Force Commander.

17. As a consequence of the above, Appendix "D" to Combined Operations Pamphlet No. 17, RN Beach Commandos, is cancelled and Appendices "A", "B" and "C" will be revised at an early date. See also Section G.

(CR 12,807/43)

Nomenclature of Headquarters Ships and Senior Officers

18. The following is the standard nomenclature for Headquarters ships and Senior Officers :-

Senior Naval Officers	HQ Ship or Craft	Associated Military	Remarks
(a) Assault Force Commander (Flag Officer or Commodore)	Assault Force HQ ship (LSH).	Assault Divisional Commander	

/(b)

/23. For Special Trials, eg, when testing the suitability of a craft for landing in rough sea or swell, the actual estimated height and length of the sea or swell should be given and also the depth of water. When possible, the height and length should be measured by the "SMD" recorder, and air photographs taken for comparison with reconnaissance photographs.

(CR 11,844/43)

The Planning of Combined Operations (Bulletin T/8)

24. This report from the Middle East summarises the results of experience gained in that theatre to July 1943 in the planning of an amphibious operation entailing a sea voyage, as distinct from a cross-channel operation. This, in certain respects, involves considerations different from those discussed in Combined Operations Pamphlet No. 4 (which is now being revised), and the Bulletin takes into consideration differences of procedure which are bound to arise when planning is carried out in a Command overseas.

(CR 10,426/43)

Loads and Draughts of LCT (Bulletin T/9)

25. Gives necessary data to prevent overloading of any type of LCT. The information is being issued also as a Training & Technical Instruction for Major Landing Craft. Restrictions imposed on the loading of these craft in the Mediterranean Command were reported in MIS No. 5, Part I, paras. 14-18.

(XR 1,960/43).

New Brigade Landing Table (Bulletin T/10)

26. Specimens of the Table now being used in UK, with instructions for its preparation. It has been agreed by War Office (Q(M)6), 21 Army Group and COHQ. (CT 941/43)

Craft Recovery Units (Bulletin U/4)

27. Outline of organisation being set up by the Admiralty to deal with the recovery of craft on the beaches during a seaborne landing.

(CT 1,358/43).

Maintenance of Army Equipment for an Expeditionary Force when the Main Base is not in the Theatre of Operations (Bulletin U/5)

28. This is a revision of Bulletin S/3 (later reclassified as U/1). See MIS No. 6, Part I, page 6, para. 20.

(CR 9,295/43)

Making Smoke in LCT (R)

29. See Part II

/SECTION C

SECTION D

INFORMATION FROM ABROAD

Japanese Landing Operations

The following extracts are from a captured Japanese file of Landing Operations Data belonging to 10th IND ENGRS REGT. prepared by Allied Translator & Interpreter Section, South West Pacific Area :-

Selection of Landing Point

2. In landing on the enemy coast where breakers are anticipated, there will be cases where, from the standpoint of tactics, the actual surf and terrain are found different upon landing. For such cases, two or three places can be selected for landing points.

3. For example, in the landing made on 10 December at Aparri, on the north coast of Luzon Island, there were no large breakers at place No. 1, where they were expected, and the landing was therefore made here the first day. Towards night the surf became rough, so, although far from the objective, anchorage was changed and the landing was carried out effectively at place No. 3, where the surf was not heavy.

4. In landing on coasts which have rock-strewn and reefy waters, try to land in a valley or in a bay near a river mouth. This is because there generally are many rocks where there is high land along the coast and reefs are not likely to be present in fresh water. Consequently shores where fresh water runs into the sea will generally have openings.

Reconnaissance

5. Reconnaissance of coasts with special characteristics must be continued even after the first-wave landing. This is especially true if the first-wave landing takes place at high water, since with low water a change of route or landing point will become unavoidable.

6. Where the enemy is in strong position, a thorough reconnaissance of the direct front is difficult. Yet do not be satisfied with simply looking for a route by which the boats can enter. Study the condition of the rolling waves, where they break, discover where the gaps are - then advance.

7. Water routes marked with flags or smoke signals would only result in revealing the plan; consequently, the first landing, if conditions necessitate, will be carried out with no markers. Carry out thorough reconnaissance for the second and later boats and indicate safe routes.

Selection of Time for Landing

8. It is necessary that full advantage be taken of high water on coasts having rocks and coral reefs. Along wooded coasts it is generally better to take advantage of low water.

/used until feet touch bottom. It is best to sling the rifle over the shoulder. Likewise, in landing at night, it is a good idea to have the leading soldier of each 4 or 5 men in a Butai hold a guide pole horizontally. This may be used to measure depths while advancing.

(b) It is possible to unload horses with protective knee bands and straw shoes.

Measures to increase Efficiency in Loading and Unloading

19. Several points of landing should be selected.

20. The transport ship's anchorage must be near the shore.

Unloading of light armoured car and gun carriage, 105 mm howitzer

21. It is possible to debark light armoured cars and 105 mm. howitzers without special preparations. The depth limit for the light armoured car is about 50 cm; for the 105 mm howitzers, about 80 cm.

22. When the coral reefs are not particularly rough and the breaking waves are less than 30 cm. it is possible to debark, selecting a suitable landing spot and preparing simple passages. Cut down the sharp points of the coral reefs with sledge hammers and fill the rough spots with sand bags and straw bales or straw mats.

AA Measures

23. Boats which are not being used should immediately be hidden in the shade along the water's edge or camouflaged with materials similar to the surroundings.

Anti-Submarine Measures

24. The transport ship must, in accordance with plans, anchor very close to the landing point, so that it can run aground quickly if so required in case of an emergency. Select background so ship won't stand out against sky.

Landing Equipment

25. Appended at A, B, C and D are drawings copied from the file, of various items of improvised landing equipment.

(Ref./320/1 - NID 08563/43)

SECTION E

COMBINED OPERATIONS CONFERENCES AND COMMITTEES

See Section A.

/SECTION F

/ X/11	A possible Use of the Service Respirator as a Life-saving device.	
X/12	Notes on Special Devices for Overcoming Beach Obstacles	
X/13	LCT IV and V - Camouflage Covers to Tank Decks	See PART II
X/14	Launching of "Snake" from LCT	
X/15	NL Pontoon Equipment	
X/16	Notes on American 4.5 Rocket-launchers for operation in the Far East.	
X/17	MC Beach Tester.	

Re-numbering of Bulletins

6. In MIS No. 7 Part 1, page 10, para. 6, penultimate line should read "T/5 See para. 2 (a) of this Section". On page 11, para. 7, third line should read "Re-number this as Bulletin T/7".

CO Temporary Memoranda

7. The following were issued between 16th December 1943 and 12th January 1944. :-

No. 82 US Training Films "Abandon Ship" and "Celestial Navigation Part 9 : The Sextant", of interest to CO Naval Training Establishments. Apply according to AFO 4251/43.

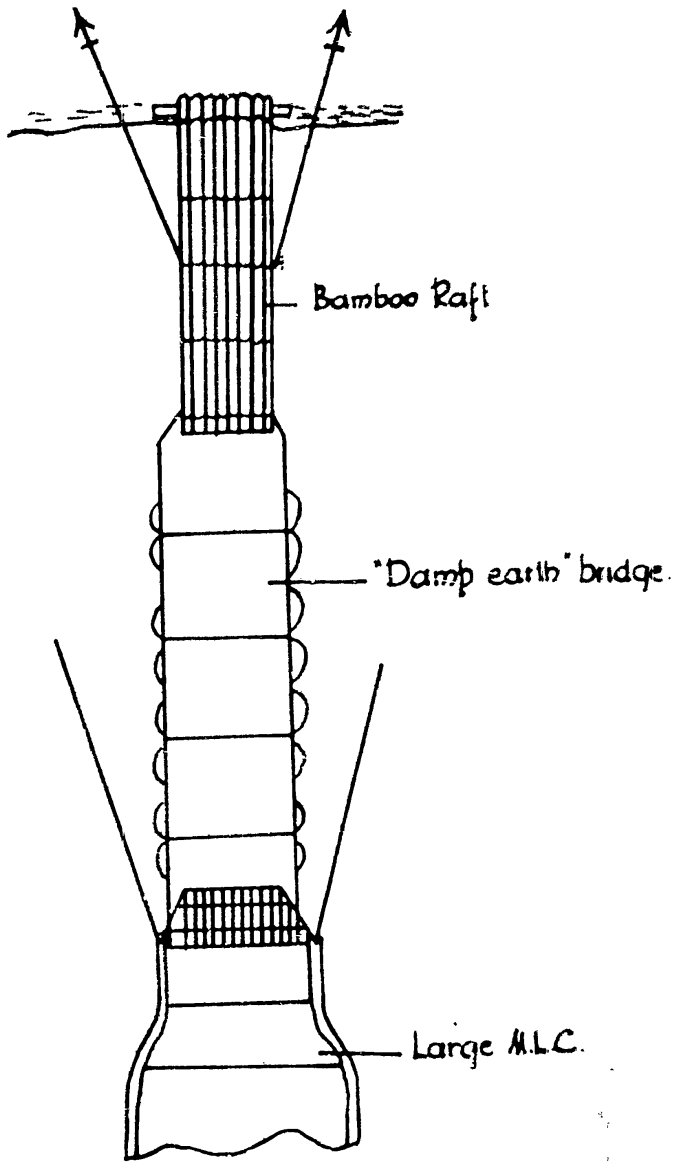
No. 83 Details of courses in Radio Aids to Navigation in HMS NORTHNEY.

/SECTION G

APPENDIX 'A'

DRAWING No. 1.

Simple landing pier using "damp earth" bridge and bamboo raft.



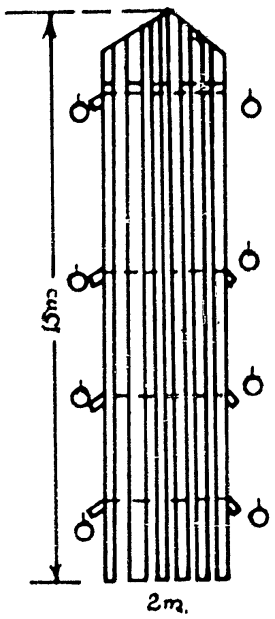
(E.N. Exact tracing from document.)

APPENDIX 'B'

DRAWING Nº 2

Type of bamboo raft transported aboard ship to be carried by M.L.C

Personnel, M G, iA and amn will be loaded on the raft.

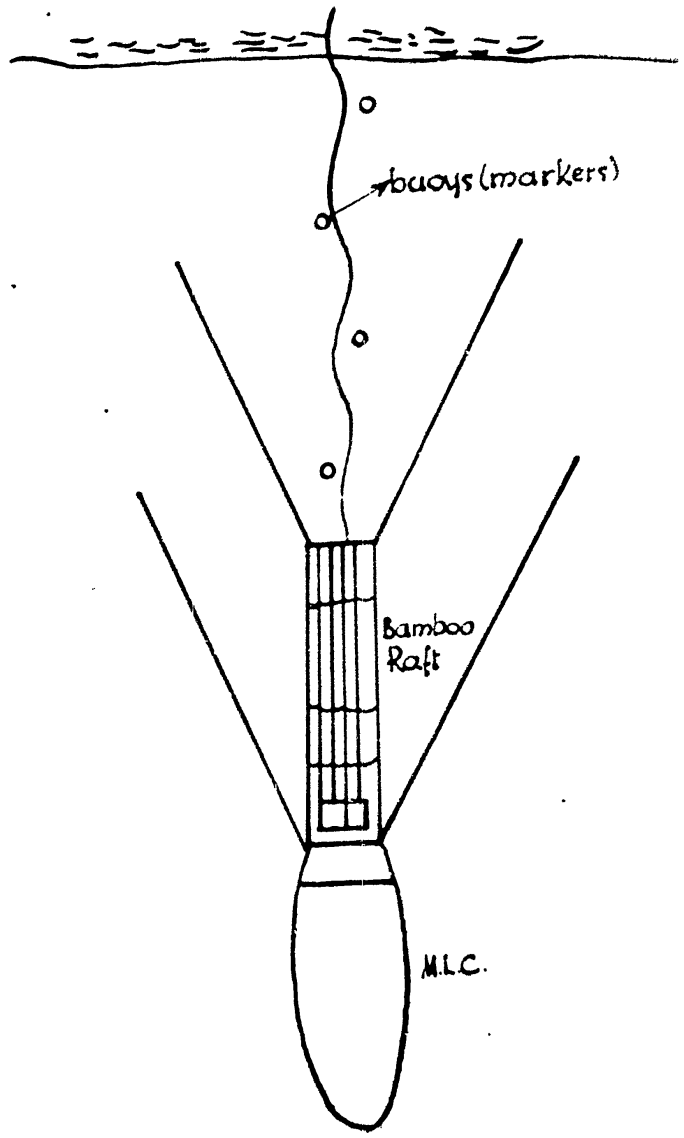


(E.N Exact tracing from original document)

APPENDIX 'C'

DRAWING Nº 3.

Materials used for crossing rocky or reef-bound waters



F.N. (Exact tracing from original document.)

APPENDIX D

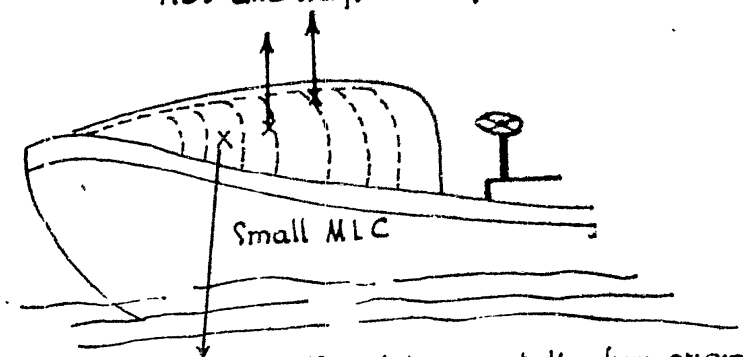
DRAWING Nº 6

Improvised boats gear for use in choppy seas.

PLAN A

This plan is suitable if light weight and ease of removing and setting up is desired.

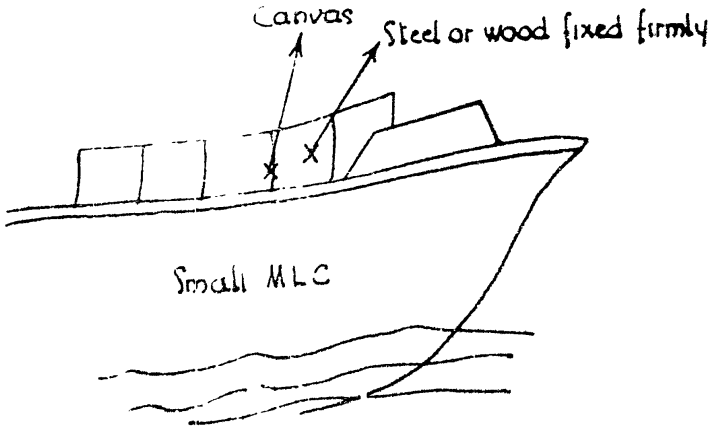
ribs and stays made from bamboo or thin iron.



(Exact tracing taken from original document)

PLAN B

In considering flooding, this plan is inferior to Plan A, against very tough seas



(E.N Exact tracing from original document)

SECRET

COHQ BULLETIN NO. X/22

EXTRACTS FROM
EIGHTH ARMY FIRST LESSONS FROM "HUSKY"

(This report is published for information and does not necessarily reflect the policy of Combined Operations Headquarters).

DISTRIBUTION: All recipients of COHQ MI3 No.3.

Issued from:-

Combined Operations Headquarters,
1A, Richmond Terrace,
Whitehall, LONDON, S.W.1.

(Ref: CT 1322/43 10 January 44)

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FIRST LESSONS FROM HUSKY

SECTION 1 - G(OPS)

Communications

1 Allowance must be made for a Tactical Corps Headquarters in the Headquarters Ship. Army cannot deal direct with Divisions in Headquarters Ships but must deal through a Corps Tactical Headquarters, which should be located with adequate accommodation and signals in the Headquarters Ship.

2 As early as possible an advanced echelon of Corps Headquarters should be landed, with good signals communications. This should eliminate the communications bottleneck of the Headquarters Ship.

SECTION 2 - SD

Order of Battle

3 It is essential that [illegible] accurate information regarding sailing of units from the [illegible] arrival in the theatre of operations.

Organisation of Ferry Control *

4 In a seaborne operation, the personnel, vehicles and stores which are brought in after the initial [illegible] it will [illegible] be carried on [illegible] and craft ferries from [illegible] ports. These ferries will determine the build-up of the [illegible] and must therefore be controlled by the General Staff.

5 There has been a tendency, however, for the General Staff to attempt too close a control of the movements of the craft in Ferry Service. This means that the General Staff were carrying out the duties of Movement Control, and even [illegible] of the RN, whereas the General Staff should confine their efforts to deciding the priorities in which units are to be [illegible] forward and issuing the necessary 'G' warning and movement orders. Having obtained the priorities from 'G', Q(Mov) should make the necessary arrangements with the RN [illegible] to give effect to them.

6 As a result of the detailed control attempted by the General Staff there was a tendency to break up the [illegible] etc. [illegible] in which craft normally operate. This resulted in increasing inefficiency and eventually almost chaos.

Working of Ferry Control

7 At Ferry Control HQ. During the first few days of the operation there must be a daily Ferry Control meeting at Army HQ to decide any changes of priorities and rate of clearance from various ports during the next few days. These meetings should be run initially by G (Ops) and attended by representatives from SD, Q, Mov & Tn, RAF, the GSO I Ferry Control and a representative of the Naval authority controlling the movements of landing craft. When the operational situation permits, the running of this daily meeting should be handed over to GSO 1 Ferry Control.

Planning Staff for Ferry Control

8 The following Planning Staff work is required in connection with Ferry Control.

(a) Estimated build-up rate for each port, detailing the physical limitations such as berthing, waterproofing etc.

* Ferry Control in this paper refers to the shore to shore service and not the ship to shore service.

..../(b)

Bomblines

11 The provision by EIGHTH ARMY of a progressive series of forecast bomblines for use on D day, if all communications failed, proved of value and appears essential in an operation of this nature if direct support is available at an early stage.

Throughout the operation EIGHTH ARMY forwarded bomblines which were consistent and appeared to reflect faithfully the movements of forward troops. The definition of the bombline as the predicted line of forward troops for the next two hours is now well understood by both the Army and the Air Forces; it should be adhered to, any temptation to offer 'fancy' bomblines such as the forwarding of two bomblines, one an estimate of troop positions and the other a 'safe' line.

Landmarks and Recognition

12 There were few reports of the use of landmarks or the use of smoke for recognition of troops or indication of targets. Past experience indicates that the lack of initiative by ground troops in these matters would persist.

Air Liaison Officers

13 The provision of Air Liaison Officers to P3c groups (Fighters of Strategic Air Forces) which [illegible] yet tactically would have had to considerably [illegible] would be able to provide them on similar [illegible] in the future.

SECTION 4 - GSI

Air Photographs

14 It has been a well [illegible] with army that the unit which takes [illegible] while their delivery. Only by so doing can delays be eliminated. [illegible] was not allowed during the planning period, with the result that the next day's sorties could not be planned in terms of those just received, and it was often uncertain whether or not asked for had in fact been taken.

Administrative Planning

15 An AA(X) officer should be appointed to deal with the detailed administrative planning in connection with the move of GSI and Kendrew units.

Security

16 Security during the planning period should be dealt with by a special GII I(B). It was found that he was fully occupied.

SECTION 5 - AFV

Provision of reserve tanks

17 It is necessary to ensure that a supply of reserve tanks fully crewed are immediately available to replace sinkings.

...../Provision

(c) If Brick anti-aircraft gives a good account of itself in the early stages the enemy will show reluctance to bomb that particular beach.

(d) Anti-aircraft Brigadiers with their skeleton staff should be landed early to give them a chance of taking over their area. It is best to keep Brigades to a certain type of defence such as airfields or ports, and not to mix them up. This action will ensure that the anti-aircraft of Bricks is properly co-ordinated for area defence as soon as this is possible, and this anti-aircraft will probably assist considerably the defence of early airfields.

Self-propelled artillery

23 Self-propelled artillery is of the greatest value in the early stages of landing.

Bombardment Liaison Officers and Naval Forward Observation Officers

24 The allocation of these should be made as early as possible by the Assault Support Committee. The machinery for carrying the agreed plan into action is provided by the Senior Bombardment Liaison Officer, who works with the Royal Navy. The Naval Observation Officers should land dismounted with W/T sets, but it is essential that each Forward Observation Officer party should have a Jeep in the early stages, in which there should be a line layer set for communications over land lines once inland. It is useless attempting to rely on units to mount the Forward Observation Officers.

SECTION 7 - LANDING

Army Troops

25 Army troops units or areas early in the assault will be placed under command of the Corps, Division or Force with which they are landing.

Bridging

26 Divisions must land with their bridging equipment on wheels. If landed as RE Stores, equipment is almost valueless, owing to lack of transport at the beach-head and time taken to assort equipment. If bridging equipment is not eventually required it can be off-loaded and the lorries used for other purposes.

SECTION 8 - SURVEY

Initial Planning Stage

27 The main survey tasks are:-

(a) Production of up-to-date maps including Defence Overprints.
(b) Collection, examination, publications and distribution of trigonometrical data.
(c) Provision of survey troops for work in the operational area.

Air Photographs

28 Early provision of air photographs over areas of which maps are known to be out of date, and in which trigonometrical data is insufficient will be of immense value.

Unless obtained well in advance, this information cannot be incorporated on maps other than "Defence Overprint" sheets of particular small areas, nor can trigonometrical data be supplemented in time.

.../Map Production

moved without notifying the beach. For loading, the ships must come as close to the beach as possible. Constant communications between the Hospital Ship and the beach is essential.

36 Evacuation by craft can never be successful and it is important that each Hospital Ship be equipped with twelve water ambulances. The evacuation of patients then is entirely in Medical hands, as it should be, and it will then be as foolproof as is possible to make it.

37 Hospital Ships must sail as required by Medical authorities, subject only to Naval operational control, and some simpler way of calling them than the present ponderous method via Q(M) and Sea Transport to the Commander-in-Chief Mediterranean is imperative.

Returns

38 On the beach, the Brick Senior Medical Officer requires a larger staff in order to compile correctly the casualty returns. One Serjeant and two Corporal Clerks should be allotted to his staff. This would permit free movement of the Senior Medical Officer.

Burial

39 There was much confusion over the question of burial. This is not of course a Medical responsibility, except for cases dying in Medical units. In the planning stage the responsibility for the burial of dead on the beaches must be [illegible].

Rations

40 Brick Medical [illegible] must have adequate rations for the maximum number of casualties expected, as they have no means of replenishing their stocks before the following delivery.

SECTION 11 - ORDNANCE STORES

Layout of beach and roadhead areas

41 The importance of pre-knowledge of tonnages to be catered for and the allotment of suitable areas, which must always be capable of expansion, cannot be over-emphasised. Tonnage particulars, though previously circulated, did not always reach the formation or unit concerned, and even when they did, were in some cases ignored.

42 Nearly all sites require considerable road-making, clearance of obstruction and widening of entrances and exits. This must be done early and be reckoned as a necessary commitment.

43 Adequate signs must be prepared beforehand and correctly posted. Chalked boards soon lose their value in dust. Signs must be capable of being read on either side as units coming in to collect require to know locations just as much as drivers delivering stores from the beaches.

Adequacy of Landing Reserves

44 It is too early yet to make any comments on the adequacy or otherwise of the Landing Reserves which are supposed to cover one month's requirements. Generally speaking, tyres and tubes would appear to be on too low a scale. No Vickers Machine Gun spares were scaled by Middle East, though there are many more important spares for these than the rifle components which were included.

/[illegible]

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In reply, quote : 4634

Combined Operations Headquarters,
1A Richmond Terrace,
WHITEHALL, S.W.1.

20th January, 1944.

C.O.H.Q. MONTHLY INFORMATION SUMMARY
No. 8 - PART II

Herewith PART II of Monthly Information Summary No. 8, PART I of which was dispatched yesterday.

(sgd.) H. R. CARSON,
S/Lt., R.N.V.R.
Editor, Monthly Information Summary.
for CHIEF OF COMBINED OPERATIONS

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COHQ Monthly Information Summary No.8 Part II

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COMBINED OPERATIONS HEADQUARTERS

MONTHLY INFORMATION SUMMARY NO. 8

DECEMBER 1943

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/Cont ...

SECTION A - SHIPS AND CRAFT

1. Landing Ship Dock (L.S.D.) - Bulletin X/9.

Bulletin X/9, summarising reports of trials of the L.S.D., both in this country and in the U.S.A., has now been completed and is being distributed.

2. L.S.T. - Carriage and Launching of L.C.M.(3) - Trials.

Preliminary trials recently took place to determine whether L.C.M.(3) could be carried on the top deck of L.S.T. and launched over the side by means of listing the ship. A mock-up deck and "slipway" with the requisite list were erected on a dock wall and an L.C.M.(3) launched satisfactorily.

3. L.C.T.(VI) - (Vide Appendix 'D' and 'E'.)

A Bulletin will be issued on the L.C.T.(VI) as soon as trials have been carried out in this country and more detailed information is available. The following outlines the description and purpose of the craft:-

(a) Description: The L.C.T.(VI), which is now in general production in the U.S.A., embodies one basic difference from former types in that the tank deck runs the full length of the craft, providing access for vehicles over the stern as well as egress over the bow ramp. Apart from this, however, the craft is similar in size and performance to the L.C.T.(V), but compares unfavourably in that the shape of the deck, while similar in superficial area is far less convenient for the manoeuvring of large vehicles, particularly tanks.

(b) Use as Ferry: The stern access is not intended for embarking, or disembarking vehicles on to a beach. It is designed to link with the ramp of an L.S.T. so that when the craft is operating as a ferry, vehicles can be taken on in the order and direction they are to be discharged. By this means it is intended to eliminate the problem of reversing vehicles on to the craft or endeavouring to turn them once embarked, thus facilitating and speeding up the process of unloading. Preliminary trials of this feature, in the U.S.A., confirm that it is satisfactory but some extra fittings are required, full particulars of which, however, have not yet reached the U.K.

(c) Use as bridges: From the early design stages it has been visualised that a number of craft might be linked together to form a continuous bridge from ship to shore. No trials have yet been carried out to determine the feasability of this function, but indications are that it would be quite practicable if craft were secured to moorings to keep them in line.

(d) Trials with Super Deck: A third function of the craft, that of a straight forward transport for vehicles, has been further developed and trials have taken place in the

/U.S.A. ...

This method is more effective than attempting to bake components, as if this is not carefully carried out damage will be done to insulation. Furthermore, the salt deposit still remains so that when the air is damp, fresh absorption of water by the salt occurs, and electrical breakdown is repeated.

A unit in the field will be able to get small quantities of methylated spirits and commercial ether, either by local purchase if at home stations, or from medical stores.

7. Waterproofing 'A' and 'B' Vehicles.

(a) 'A' Vehicles.

A list of 'A' Vehicle wading projects is given at Appendix "A" showing:-

(i) Depth of wading required.
(ii) Position to date.

(b) 'B' Vehicles.

In view of the change of wading depths specification from 3' to 3'9" for European theatres and 4' for the Far East, plus 1'6" wave in each case, all 'B' vehicles are being re-waded. The time for which they must be capable of wading is six minutes in the case of the assault force and two minutes for follow up and build up formations. The D.M.E. has grouped this depth requirement into a general one of 4-ft., and Appendix "B" shows those vehicles so far tested and found capable of this increased depth. New cards headed "A.C. Card 2nd Edition" and to be included in series numbered 51-100 are in course of preparation.

8. Slipping of Rubber Tracked Tanks.

A tendency to slip when descending the ramp of L.C.T.(3) grounded aft on a flat beach, was observed during "one-off" wading trials of the Sherman V, fitted with rubber tracks. Investigations were accordingly initiated to assess the possibilities of such slipping being experienced in operations and to determine whether the development of some anti-slipping devices for fitment to the ramps was warranted.

Trials with Sherman tanks at various wading establishments were closely observed and special disembarkation trials with Sherman Tanks, fitted with both chevron and block type rubber tracks were carried out from L.C.T.(3). The latter trials were under static conditions, but with the ramp being continually watered and greased to simulate a 6' wade. In the static trials no slipping was encountered. In the other trials observed, one or two minor cases of slipping occurred but not to such a degree as to cause trouble. Although in two instances tanks "fell" from the top of the ramp, this was not the result of slipping but was due to the very steep angle of the ramp at the time.

From the results of these investigations it is concluded that provided normal care is taken in disembarkation,

/there should ...

(iii) 12-strand Cordtex ropes will actuate pull mechanisms when fired up to 24" above trip wires tensioned in the normal manner.

(c) Conclusions: From the above, it was considered that:-

(i) In view of the weight, bulk, effectiveness and projection difficulties, 2-strand Cordtex ropes are the most satisfactory charges.

(ii) Projected 2-strand Cordtex rope charges can only be relied on to operate trip wires when the latter are tensioned. If trip wires are laid loosely on the ground and untensioned, contact is unlikely to be sufficient to guarantee cutting them, nor will the ignitors be actuated by pulling.

11. Non-metallic Bangalore Torpedo. - Trials.

(a) Object: Trials have recently been carried out with 2" bakelised cardboard tubes filled with '808' to see if it can clear a passage for infantry in wire obstacles of the standard British and German types without endangering the lives of troops on the flanks to the same extent as the normal metallic bangalore torpedoes.

(b) Results and Conclusions: The following conclusions were reached:-

(i) The 2" bakelised cardboard tubes will not stand up to any rough handling.

(ii) In no instance will they cut a clear gap through the wire.

The conclusion in (ii) confirms a recent theoretical analysis of the cutting effect of Bangalore torpedoes which shows that most of the effect is due to fragmentation of the metallic case and only a very small proportion due to blast.

12. Demolition of Pinnacle Rocks Underwater and Beach Boulders. - Trials.

(a) Object: Experiments have been carried out to find the best way of demolishing rock pinnacles under water. As only one type of rock was attacked (a fine crystalline basalt which split along its bed planes), the results must be treated with considerable caution.

(b) Charges: The following charges were tried under about 4-ft. head of water:-

(i) Standard General Wade charges.
(ii) General Wade cavity waterproofed.
(iii) Standard 5-lb. Beehive.
(iv) 5-lb. Beehive cavity waterproofed.
(v) Plastic charges of 808, 851 and P.E.2.

/(c) ...

The trials revealed no appreciable difference between the two, although the phosphorus built up quicker and was slightly more persistent than the C.S.A. Owing to supply difficulties, however, the C.S.A. ismore easily obtainable than phosphorus.

The best results obtained were from a salvo of 20 rounds of C.S.A., which produced a screen 300 yards wide, 100 feet high and persisted for about 4 minutes.

SECTION F - TRANSPORT AND LANDING OF BEACH EQUIPMENT

19. N.L. Pontoon Equipment. - Bulletin X/15.

A Bulletin on the U.S. Naval Lighterage Equipment has been prepared describing briefly the components, method of assembly and its uses.

20. Embarkation of L.A.A. Artillery in L.C.M.(3). - Trials.

A trial was recently carried out to determine whether a 40 mm Bofors L.A.A. Gun on Mk.II Platform towed by a Canadian Ford 3-ton 4 x 4 Gun tractor could be satisfactorily loaded into L.C.M.(3).

In order to fit the equipment in, it was necessary to remove front wheels of the gun, elevate the piece 16° and back the tractor until it touched the front jacking pillar. In this position, with rear wheels of gun touching the back of the hold, there was 6" clearance between front of tractor and the ramp door closed. Minimum clearance between tractor and craft side 8" either side.

Under the circumstances, it was concluded that the Equipment was NOT an operationally practicable load for L.C.M.(3). Loading overside from parent ship into L.C.M.(3) afloat is entirely out of the question.

21. Radar A.A. No. 2 Mk.II - Waterproofing and Disembarkation from L.C.T.

A practicable method of waterproofing has been devised to enable this equipment to wade to a depth of 4-ft. with 18" surf. The method of waterproofing consists essentially of covering the bottom and lower sides of the Trailer with Admiralty Cloth D, which is cemented to the sides of the cabin. The doors and various crevices are sealed with "pressure plastic". This work takes three men at least two days, and requires special training.

During disembarkation it was found that the rear step and the rear jack-screw both fouled the ramp of the craft. A modification in the shape of a simple modification is being sought. [illegible] will be held of disembarking from L.C.T.(5) [illegible]

22. Waterborne Supply Carrier - Appendix 'D'

Development is taking place in the U.S.A. of two forms of Waterborne Supply Carriers which may have application for specific operations:-

(a) Rigid Type: Of the rigid types, the one showing the most promise is constructed of plywood, shaped, and fitted with a large hatch opening held in place by draw bolts. The gasketing material is a mastic seam composition applied each time the hatch is closed. The container has the following weights:-

Complete empty container	150 lbs.
Recommended load	450 lbs.
Maximum capacity load	1,000 lbs.

(b) Pneumatic Type: The 5-man reconnaissance boat fitted with a shrouding for watertightness and provided with lifting straps h s so far proved the most satisfactory pneumatic type of supply carrier during trials. The complete unit weighs 110 lbs., and has a carrying capacity not to exceed 1,000 lbs. The deflated size of the unit is 18" x 18" x 30".

The rigid type can be packed and stored in the hold of a ship, at the port of embarkation, and when finally brought to its destination it can be carried up the beach. On the other hand, the pneumatic type cannot be packed for use until shortly before the operation is started. It does not lend itself to carrying by manpower on the beach, but has the advantage of conserving the maximum of shipping space.

It is understood that development is continuing but designs have not been finalised.

SECTION G - EQUIPMENT FOR SPECIAL OPERATIONS

NIL

SECTION H - MISCELLANEOUS

23. Service Respirator - A possible use as Life Saving Device - Bulletin X/11.

A suggestion has been submitted for the possible use of the Service Respirator as a life-saving device involving the detachment of the canister and substitution of a cork float. By this means it was claimed that with the end of the connecting tube being supported on the surface of the water to ensure a constant supply of air, an indifferent swimmer wearing a respirator could remain in the water for a considerable period. [illegible] needed in the development of the float to incorporate a [illegible] water from entering the tube and the system [illegible] necessary.

APPENDIX 'A'

LEGEND

A - Project not commenced.
B - Single vehicle tests completed - draft waterproofing instructions compiled.
C - Large scale trials completed. Instructional manuals not yet available.
D - Waterproofing instructional manuals completed.
E - Project cancelled.

S (After wading depth) - Special requirement to enable tanks to remain and fire ball down in the maximum depth of water for a maximum period.

----oooo0oooo----

(a) TANKS

Type	Depth	
Churchill, I.II, III and IV	3 ft.	E
"	6 ft.	D
"	6ft. S.	B
Churchill 3" 20 cwt.	3 ft.	D
Cromwell/Centaur.	3 ft.	E
"	6 ft.	C
Crusader	3 ft.	D
Grant/Lee	6 ft.	B
Matilda 345	3 ft.	D
"	6 ft.	E
Ram 2.	3 ft.	D
"	6 ft.	D
Sherman II M4A1	6 ft.	A
Sherman III M4A2	3 ft.	E
"	6 ft.	D
"	6 ft. S.	C
Sherman V M4A4	3-ft.	E
"	6 ft	D
"	6 ft. S.	C
Stewart Valentine 2345 and 9	4'6"	S
"	3 ft.	D
"	6 ft.	A

(b) TANKS OP, CDL and AA.

Sherman OP	6 ft.	C
Grant/Lee CDL	6 ft.	A
Churchill CDL	3 ft.	D
"	6 ft.	C
Matilda CDL	3 ft.	D
Crusader AA Mk.I.	3 ft.	B
"	6 ft.	A
Crusader AA Mk.II	3 ft.	B
"	6 ft.	A

/(c) SP ARTILLERY ...

APPENDIX 'E'

'B' VEHICLES WHICH HAVE BEEN TESTED AND FOUND SATISFACTORY FOR 4-FT. WADING FOR 6 MINUTES.

Tractor H.A. 4 x 4 A.E.C. Matador.
Lorry 3-ton 4 x 2 Austin K.3.
Lorry 3-ton 4 x 4 Anti-Tank Portee Austin.
Ambulance 2-ton 4 x 2 Austin K.2.
Truck 15-cwt. 4 x 2 G.S. Bedford (including water and fitted wireless.)

Lorry 3-ton 4 x 2 G.S. Bedford OY.
Lorry 3-ton 4 x 4 G.S. Bedford Q.L.
Lorry 30-cwt. 4 x 2 Slave Battery Bedford OX.
Lorry 3-ton 4 x 2 G.S. Commor Q.4.
Lorry 3-ton 4 x 2 Chevrolet.
Lorry 6-ton 4 x 2 Dennis.
Tank Transporter 20-ton 6 x 4 - 4 Federal.
Lorry 3-ton 4 x 4 Canadian Ford.
Truck 15-cwt 4 x 2 Ford WOT2.
Lorry 3-ton 4 x 4 Ford WOT6.
Lorry 15-cwt. 4 x 2 Guy W.H.
Car Light Recce 4 x 4 Humber Mark III.
Car Heavy Utility 4 x 4 Humber.
B/D 3-ton 6 x 4 Leyland.
* Heavy B/D 15 cwt 6 x 4 Mack.
Truck 15-cwt 4 x 2 Morris Compressor.
Tractor F/A 4 x 4 Morris Quad C8.
Lorry 30-cwt 6 x 4 Morris C.D.
Car Light Recce 4 x 4 Morris Mk.II.
Heavy B/D 6 x 4 Scammell.
* Lorry 3-ton 6 x 4 Thornycroft FBL
Truck Personnel 15-cwt 4 x 4 White A3A1
Truck 15-cwt Half Track White M14.
Truck 5-cwt 4 x 4 Whilys Jeep.

* Suitable for 2 minutes wading only.

'B' VEHICLE TRAILERS, ETC.

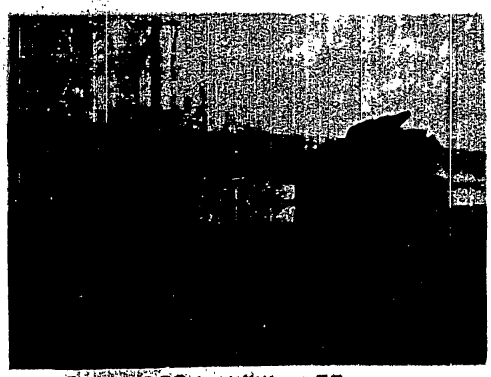
Generating Set Lister 15 K.V.A.
Fire Pump Scammell.
Fire Pump Dennis.

APPENDIX 'C'

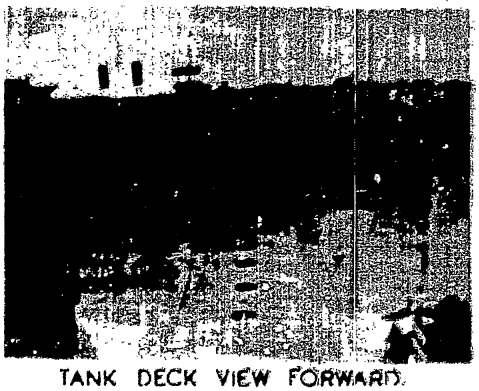
LIST OF EQUIPMENTS WHICH HAVE BEEN TESTED AND FOR WHICH WATERPROOFING INSTRUCTIONS HAVE BEEN PREPARED, OR ARE IN COURSE OF PREPARATION.

1. Radar A.A. No. 1 Mk. I
2. Radar A.A. No. 3 Mk. II.
3. Radar A.A. No. 4 Mk. II
4. Signals Equipment, Projector Sets, etc., all types.
5. Wireless sets in A.F.Vs.
6. Detectors Mine Polish, No. I.
7. Bins Store Types S and Y
8. Waterproofing valuable Tools including use of Crepe-Sisal sheets.
9. Guns and ammunition and Ammn. Containers, all types.

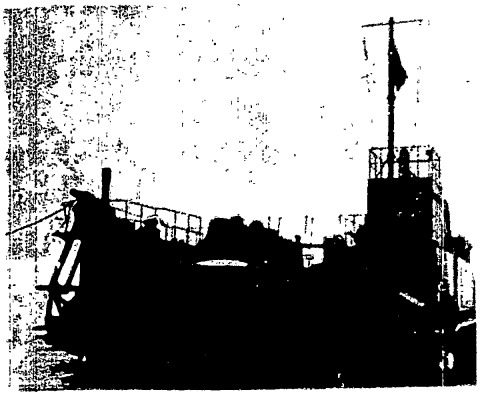
APPENDIX "D"



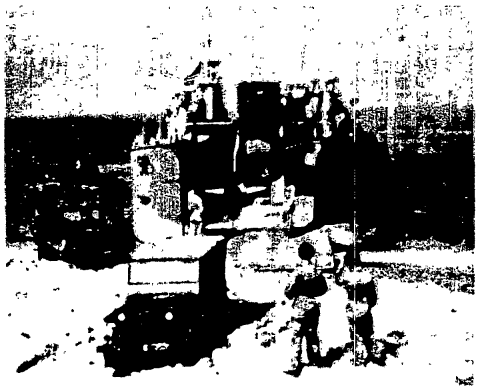
TANK DECK VIEW AFT.



TANK DECK VIEW FORWARD.

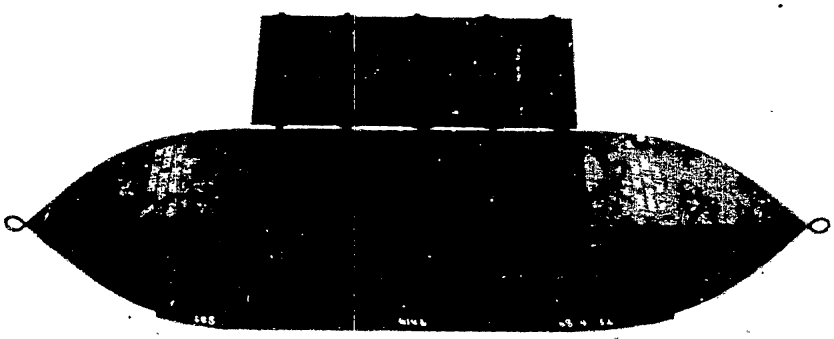


STERN VIEW.

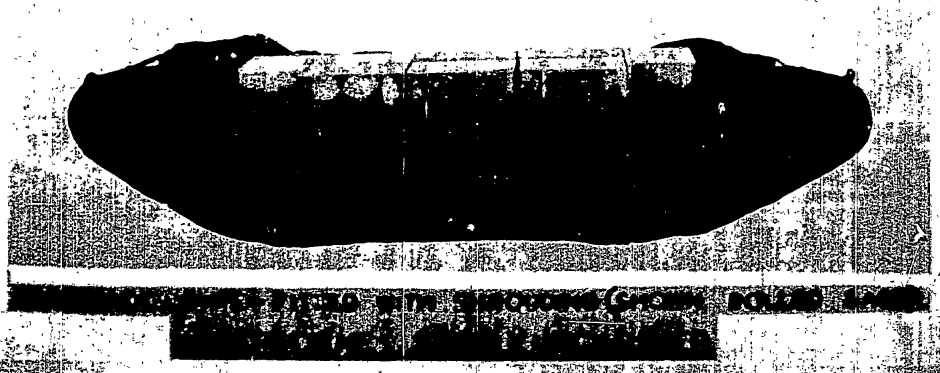


FITTED WITH UPPER DECK.

L. C. T. VI.

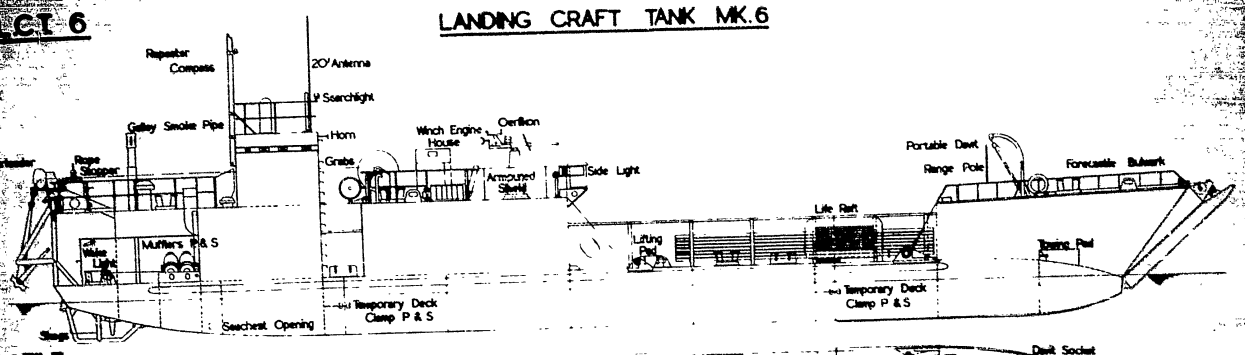


RIGID TYPE PLYWOOD SUPPLY CARRIER.

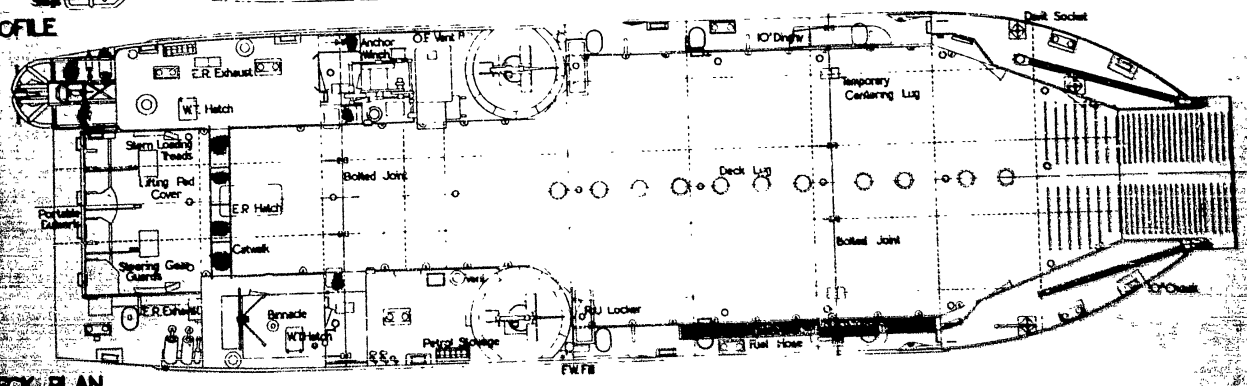


LCT 6

LANDING CRAFT TANK MK.6



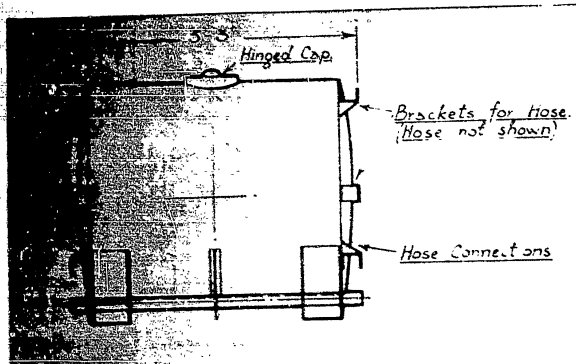
PROFILE



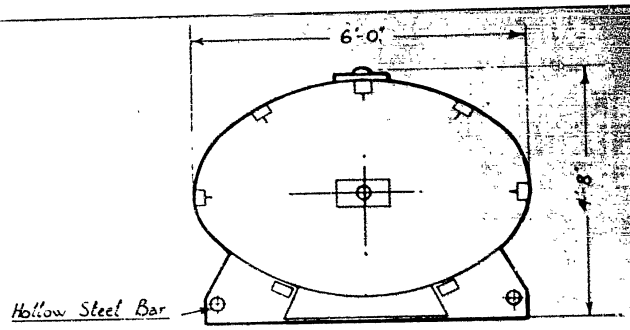
DECK PLAN

APPENDIX 'E'

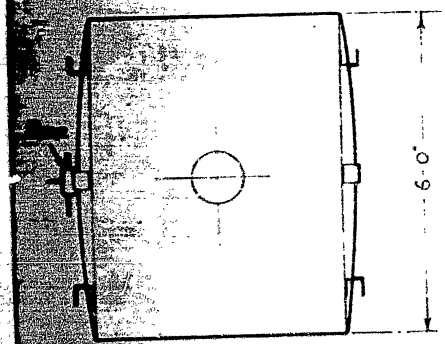
APPENDIX "F"



SIDE ELEVATION



END ELEVATION.



PLAN

ON ROLLER RUNWAY
PREPARATORY TO LAUNCHING FROM L.C.T.v

ABOUT TO BE TOWED ACROSS BEACH BY DUKW.

620 GALLON BULK PETROL CONTAINER.

COHQ X/11 A Possible Use of the Service Respirator as a Life-Saving Device
COHQ Y/17 Lessons Learned from the Guadalcanal Operation
COHQ Y/19 The Capture of Termoli

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For the Deputy for Administration, G-2:

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R. N. GREATHEAD, Jr.
Major, Air Corps
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BRITISH JOINT STAFF MISSION
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WASHINGTON

19th January, 1944.

Commanding General,
Office of Strategic Services,
Washington, D.C.

With the compliments of

Captain H.D.Tollemache, R.N.,

Chief of Combined Operations Representative.

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C.O.H.Q. BULLETIN NO. X/11.

A POSSIBLE USE OF THE SERVICE RESPIRATOR
AS A LIFE-SAVING DEVICE.

---oooooOooooo---

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Captain Gp. S.3.
Captain Gp. L.1.

/Cont....

A POSSIBLE USE OF THE SERVICE RESPIRATOR AS A LIFE SAVING DEVICE.

SECTION I.

1. Object of Trials.

A report was received from the Mediterranean stating that the standard Service Respirator with the long tube attachment as issued to Naval and A.A. personnel, could, with suitable modifications, be used as a life saving device. This modification consisted of detaching the tube from the container and bringing it up through a cork float. The general arrangement is shown in Diagram 1. It was claimed that this simple device was of great value to indifferent and non-swimmers, and enabled them to stay afloat for some considerable time. The U.S. Army respirator could also be used for this purpose.

Tests were accordingly carried out in this Country to verify this or otherwise.

2. Summary of Results Obtained.

(i) In its simple form as illustrated in Diagram 1, the apparatus appears to be of little use.

(ii) A modified form has been tested which is satisfactory. This is shown in Diagram 2.

3. Recommendations.

(a) Should it be desired to make use of this device, it is recommended that further modifications be carried out as follows :-

(i) The nozzle should be designed to incorporate a simple water trap.

(ii) If the [illegible] be used in abandoning ship [illegible]

(iii) Alternatively, incorporation of the standard inlet valve and seating in the open end of the tube might prove effective and prevent inhaling spent air.

(b) Owing to the buoyancy of the tube and of the float there is some danger, during the initial plunge, of the face-piece being torn off the wearer. A drill must be evolved to prevent this. It is suggested that gripping the hose under the armpit (like bagpipes) and clasping the float to the chest until the wearer floats to the surface might effect this. If the wearer takes a deep breath before closing the stop, the air enclosed in the apparatus and his own lungs should last sufficient time for him to reach the surface without undue discomfort. This also would keep his lungs free from water and enable normal breathing to be resumed immediately the stop-tap is o[illegible]

SECTION II.

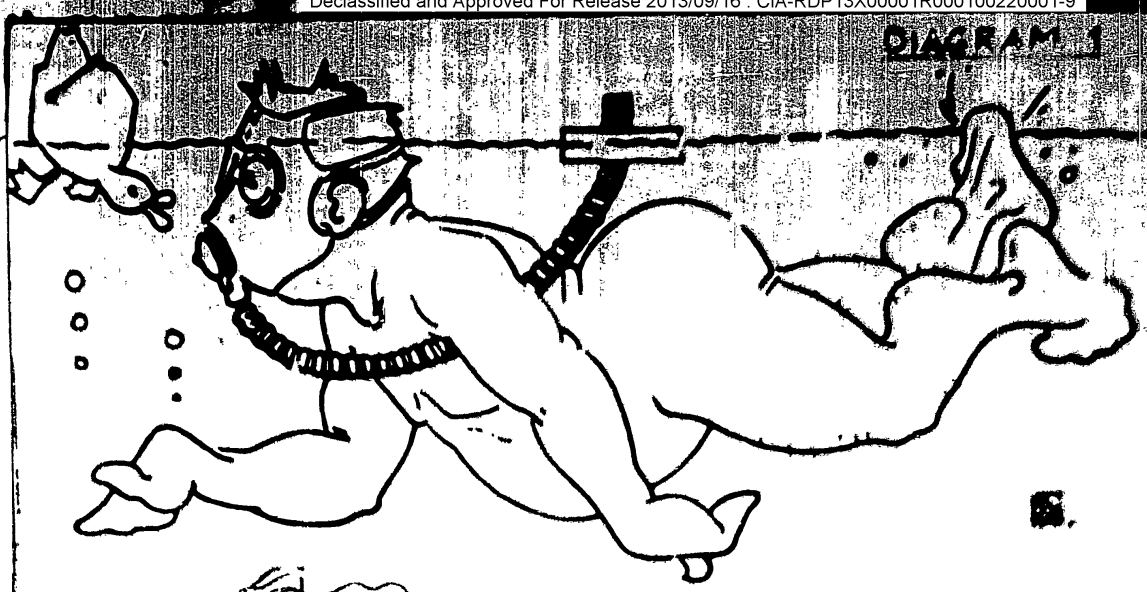
Detailed report on trials carried out.

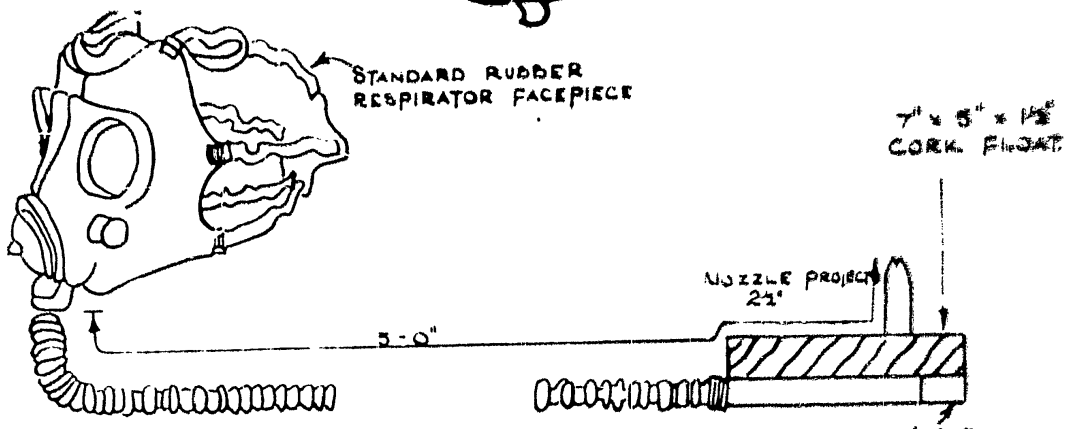
1. Apparatus.

Two sets of apparatus were constructed consisting of a standard facepiece and harness, flexible tube connector and a metal nozzle carried on a cork float 7" x 5" x 1½". In one set the combined flexible connector and nozzle had an overall length of 3'. In the second, the overall length was 4'.

2. Buoyancy/.....

DIAGRAM 1





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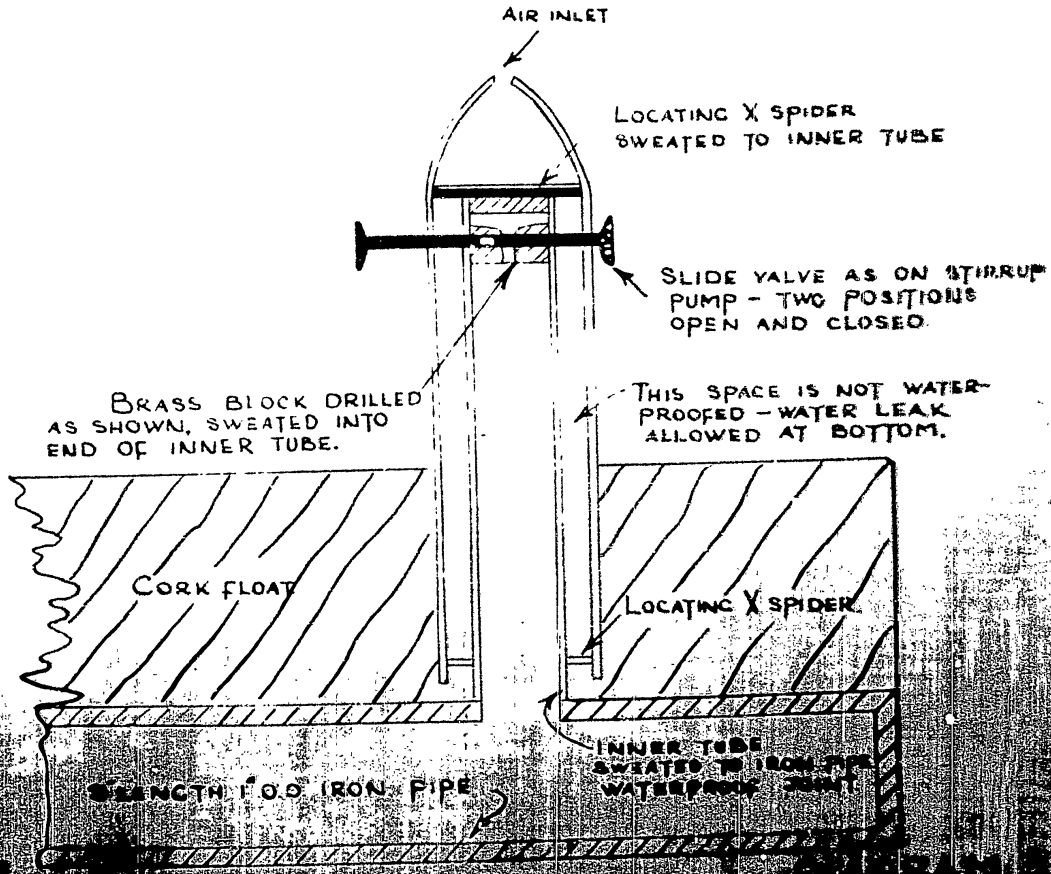

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C.O.H.Q. BULLETIN No. Y/17

LESSONS LEARNED FROM THE GUADALCANAL OPERATION 1942.

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Whitehall, LONDON. S.W.1.

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SECTION I - TRANSPORTATION AND LANDING OF BEACH EQUIPMENT.

16. L.C.T. - Guides for Night Loading and Unloading.

(To be subject of a Bulletin)

In order to assist drivers of A.T. and A.F.V. (and in particular Churchills equipped for 6-ft. wading) operating from L.C.T. at night, various systems have been tried, to mark out the narrow entrance at the ramp. These included marking the centre line of approach with reflector studs, white and luminous paint, flexible tank wireless aerials, lead weighted canvas strips, and also by means of a system of low powered diffused lighting.

Although the diffused lighting system appeared most satisfactory, this has not been recommended, primarily on account of the very considerable alterations and additions entailed. The alternative recommendations consist of:-

(a) The painting of a 6" wide white strip down the centre of the tank space of all craft.

(b) The provision to all craft of two canvas strips 6" wide and 50-ft. in length, made up of three layers of canvas sewn together, painted white and weighted with lead strips every 3"; to assist tanks whose driving position is off the centre line.

17. L.S.T., Discharge of Stores.

Considerable operational experience has been obtained on discharge of stores from L.S.T. by means of D.U.K.Ws. when the stores are stowed in the lower deck. By this means it is possible to load 2 D.U.K.Ws. at a time.

Trials are about to take place of discharge of stores from the upper deck of the L.S.T., the tank deck being left clear for vehicles. It is hoped that by using the lift and chutes from the after hatch to be able to load 4 D.U.K.Ws. simultaneously inside the tank deck, thereby doubling the rate of discharge.

18. Telecommunications Equipment Servicing Car.

It is essential that this vehicle, a Humber 4 x 2 shooting brake, be landed dryshod. Any attempt at sealing the body is considered impracticable as flotation would cause wheel spin, in addition to which it would be impossible to waterproof the electrical equipment itself.

Trial landings have been carried out by towing the car ashore on top of a 5-ton Eagle (Snow Plough) Trailer, which can be towed by any suitable waterproofed Tractor or Prime Mover.

/In a .....

Common Problems.

13. Co-operation. Essential teamwork between transport and landing team commanders can be obtained only by operational practice. Each ship presents an individual problem due to variations in structure and boats but, given opportunity, the landing team will adapt itself readily to the ship. For example at Wellington it was possible to embark 2nd Bn, 5th Marines in USS Neville which had embarked the same battalion for training on the Atlantic Coast on previous occasions. Embarkation, shake down and subsequent operations proceeded with the utmost order and despatch. Other battalions assigned to strange ships required twice the Neville's period for embarkation and loading and throughout the operation never acquired the Neville's smoothness and teamwork. The only difference was familiarity with the ship.

14. Transport Training. Transports as well as Marines require training and practice in the actual functions of embarkation, ship to shore movement and the landing of supplies. This cannot be gained in administrative carrying operations. For example, in the Melbourne area, HMAS Manoora was assigned this division as a training transport. She repeated a series of elementary landing exercises seven times in ten weeks each time embarking a different landing team of the division. Strange to her work, she required 21 hours to put ashore the landing team supplies on the first exercise. The time was reduced steadily with each successive attempt until on the final exercise she landed the same quantity of supply in 6 hours. Improvement in embarkation and boat operations was equally remarkable.

Supply.

15. The supply problem requires training and planning by the landing force, the transport force and the amphibious force commander. Independent efforts will lead only to misunderstanding. The matter is of vital importance and it is unfortunate that there has arisen such a confusion of thought with respect to it on the part of those who have had only limited connection with the actual conduct of training and operations. The great problem is of course the quantity of supply to be taken; this cannot be fixed and absolute but must be determined by a careful balance of factors entering into each specific operation.

16. Supply Training. The quantity of supply which can be landed and dispersed within a given period of time and employing a given amount of labour can be doubled or trebled if transport crews and shore parties are trained in their duties.

17. This division embarked for the Guadalcanal operation only those supplies utterly necessary to live and to fight. Baggage, bedding, seabags, extra clothing, tentage and camp equipment were entirely eliminated. Post exchange supplies were limited to soap, cigarettes and razor blades. Ammunition was reduced from 20 units to ten, rations from 90 to 60 days. No sacrifice was spared which would increase the initial combat efficiency and landing rate of the division yet solely by reason of the shortage of shipping space much valuable equipment had to be left behind.

18. In future operations the division will continue this policy of reduction and carry it still farther as experience teaches us to distinguish between the essential and non-essential. But it must be pointed out that troops cannot be expected to exist indefinitely on short rations and utterly devoid of the necessities of life and some provision for the minimum comfort and standards of decency.

19. In planning future operations we must decide at the outset: Shall the landing force be self sustaining as initially embarked or shall it carry only a bare minimum to be supplemented later? This is a basic decision for the amphibious force; but one in which the landing force is also vitally

concerned...

SECTION B

LESSONS LEARNED AND CONCLUSIONS

Always Practise Landings

22. Battalions should be practised in landing operations at every opportunity without regard to state of training.

23. Reinforced regimental landings are necessary to provide training in shore party operations and as a test of the sufficiency of standing procedure with respect to supply debarkation. Battalion landings do not provide adequate training in supply and shore party operations.

Transport and Support.

24. The regimental combat team should be embarked in a transport division of 4 APAs[M] and one AKA[M]. If a large APA[M] is available for the regimental headquarters group it may be possible to dispense with the AKA[M].

25. The division requires a support group of 2 APAs[M] and 3 AKAs[M] to embark supporting units.

26. A division headquarters ship is likewise required to embark command elements of the landing force and amphibious force. Ample communication facilities for this ship are most essential.

Six Weeks at least for Planning.

27. A minimum planning period of six weeks should precede embarkation for combat. A much longer period would be desirable.

28. It is essential to employ amphibious patrols to secure information of enemy forces and to verify information obtained from photographic reconnaissance. This division now has a force of amphibious scouts trained for this purpose.

29. Use of persons possessing a detailed familiarity with the area of operations as guides and terrain advisers is of the utmost importance. The services of those who participated in this operation in such capacities were of great value.

30. Maps and photographs must be provided and reproduced in quantity sufficient for wide distribution.

31. Upon embarkation the attack force should conduct a series of complete and thorough rehearsals of the intended landing.

Weed-out of Incapable Officers.

32. Before entering combat all officers who do not appear to possess the requisite ability should be relieved of command. It is better to enter combat with a limited shortage of officers than to be faced with the necessity of relieving the incapable in the presence of the enemy.

33. A comparison of the several landings leads to the inescapable conclusion that landings should not be attempted in the face of organised resistance if, by any combination of march or manoeuvre, it is possible to land unopposed and undetected at a point within striking distance of the objective.

34. The organisation for landing, the technique of ship-to-shore movement, landing craft and special landing equipment developed in the war

Shortage of Maps and Photographs.

45. The lack of adequate maps and photographs was a distinct handicap which continued throughout the entire period of our occupation of Guadalcanal.

A recommended future procedure :-

(a) Designation of an aerial photography unit to take photographs in accordance with exact landing force requirements.

(b) Direct liaison between landing force and designated photographic unit.

(c) Photography unit to supply negatives and six prints of every photograph taken and to furnish mosaics, including copying camera negatives, of all mosaics so provided.

(d) Landing force photolitho unit to reproduce photographs and mosaics in quantity for unit distribution.

46. The presence of a limited number of qualified interpreters to translate enemy documents and examine prisoners of war was of great value in ascertaining enemy intentions and in studying his habits of combat.

Personnel for Ship-to-Shore Movement.

47. The landing re-emphasised the vital nature of the logistical problem presented by the ship-to-shore movement of supplies.

As had been foreseen, the Pioneer Battalion proved inadequate in size to cope with the tremendous burden placed upon it. Adequate supplementary labour must be provided. It is considered that there must be available to the shore party on the landing beach additional personnel in the proportion of at least 100 men for each vessel discharging cargo across the beach.

Rations and Ammunition.

48. For this operation 60 days' supply and 10 units of fire were embarked. While these amounts represented reductions of 33 per cent of supplies and 50 per cent of ammunition as compared to the normal levels of 90 days and 20 units they nevertheless proved somewhat excessive from the point of view of immediate requirements. Only a fraction of these supplies were actually landed; that this fraction proved inadequate in no way detracts from the conclusion that amounts actually embarked were somewhat excessive.

49. In view of the foregoing, the following recommendations are submitted :-

(a) That not to exceed thirty days' supply, 10 units of fire, and 50 days' rations be embarked.

(b) That only half this material be landed initially and that the transports clear the area on D plus 1 day.

(c) That AKAs[M] carrying the remainder of the supplies be withheld from the danger area initially and that, beginning on D plus 2 day, they be committed singly or in pairs at regular intervals to permit orderly unloading and to reduce the target offered to hostile aircraft.

50. A determined low-level or dive-bombing attack on the landing beach may prove ruinous unless supplies are promptly cleared to dispersed dump areas. Likewise great attention must be paid to the rapid establishment of a strong anti-aircraft defence of the landing beach.

51. No supplies should be packed in pasteboard containers.

Protecting Supply Dumps/...

graphic assistance from rear areas.

61. All types of Marine Corps combat transportation proved highly satisfactory. The superiority of our 4-wheel drive equipment over the 2-wheel drive type of Japanese truck was most apparent.

Travel Light in the Jungle.

62. Arms and equipment, while satisfactory for landing operations, are in general too heavy for jungle operations. Troops must be taught to strip down to bare essentials and travel on light rations; patrols must be specially armed and equipped in accordance with the terrain and type of resistance to be encountered. Specific recommendations are :-

(a) Carry only 40-60 rounds per rifleman with proportionate reductions for the BAR and light machine gun.

(b) A limited system of selective or optional armament permitting the following substitutions for special occasions :-

(i) Light machine guns for heavy machine guns.
(ii) 60mm mortars for 81mm mortars.
(iii) Increased number of submachine guns and carbines, required by close terrain.
(iv) Sufficient machetes to issue one per man when required.

(c) The "C" ration is too bulky and the "D" ration unsatisfactory for extended patrols. (See footnote D). Troops must be trained to live for considerable periods on individually prepared rations of rice, bacon, raisins and coffee.

(d) This ration should be varied and supplemented by airplane drops of canned fruit and "C" ration at intervals of four or five days.

(e) Two canteens are necessary.

(f) Blankets are not required in tropics; men should carry only the shelter half or poncho.

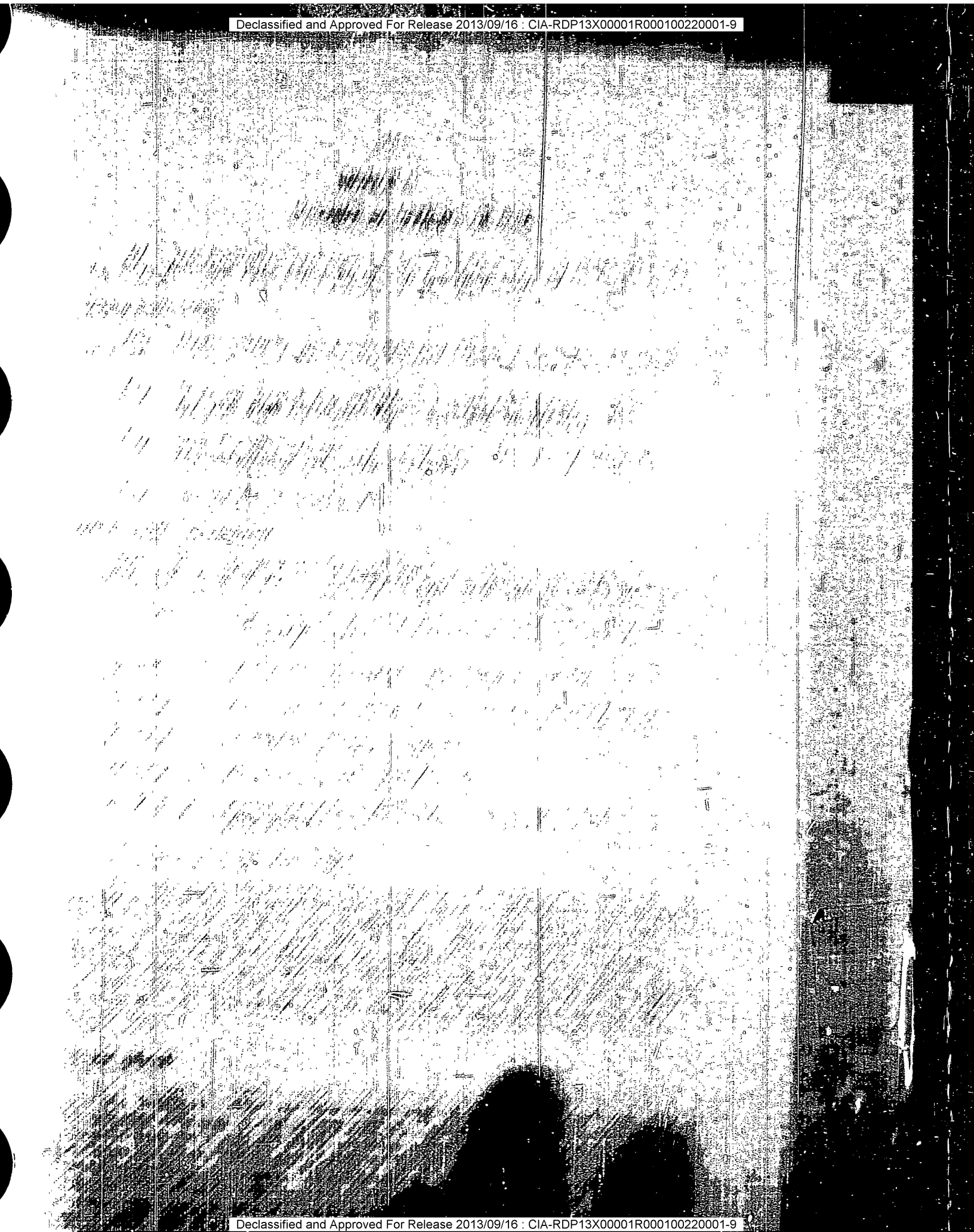
(g) Make preparations in advance for airplane drops of ammunition and medical supplies in the event of a serious action.

(h) Organise natives as carrying parties as soon as possible after landing.

The 105mm Gun.

63. Prior to the Solomons operation some doubt was entertained as to the practicability of employing 105mm artillery in jungle warfare in view of its lack of mobility. It is now considered that this weapon has a definite place in future operations in the Pacific. Since large-scale operations will almost invariably involve the seizure or defence of installations on or near the sea, ramp-boats and amphibian tractors can be employed to move artillery. In this connection, it should be noted that the coastal terrain of the Pacific islands often includes areas of flat ground permitting free movement of guns and normal prime movers. The superior effectiveness of this weapon and its desirable ballistic characteristics were clearly demonstrated on the night of 13 September. It is considered highly desirable that these advantages be retained by continuing to include this type of artillery in all large operations.

64. During the entire Guadalcanal operation the use of attached landing craft for tactical purposes was, of necessity, subordinated to their administrative employment in the unloading of supply vessels. Likewise [illegible] APDs



(d) There was a lack of M.T. in early stages - partly because a large proportion of it had had to be left in New Zealand, and partly through lack of repair facilities.

(e) The general conclusion seemed to be that the stores embarked (of which only a small part was actually landed) were too many for immediate requirements. It is recommended that less stores should be landed in initial stages and that the arrival of subsequent store carrying ships should be "staggered".

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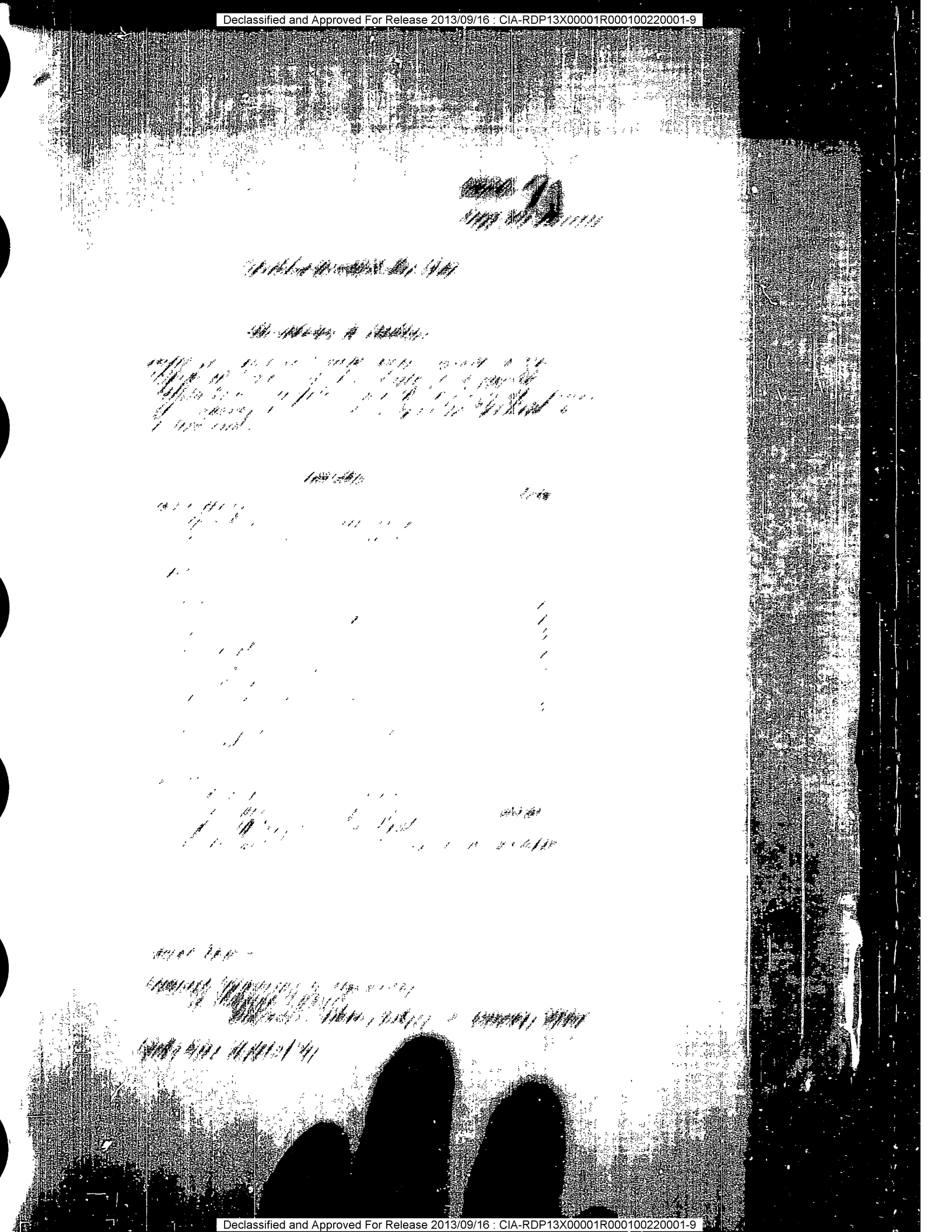

REPORT ON THE CAPTURE OF TERMOLI.

(The following is a report dated 15th October, 1943, by Lt. Cdr. F.E.W. LAMMERT, RNVR, Flotilla Officer, 22nd LCI(L) Flotilla on operations DEVON and POLYGON, which resulted in the capture of the town and port of TERMOLI, on the Italian East Coast, on 6th October.)

2. C-in-C Mediterranean, has commented : "This was an outstanding operation which turned the hingepin of the enemy line; it was boldly conceived and executed, and was an excellent example of the effective employment of sea forces."

3. Lt.Cdr. Lammert, who was SNO Assault Force, says in his covering letter : "The assault was the first occasion on which the SS Brigade, as such, has acted in concert, so that it constitutes what must be the most concentrated Commando Landing in Mediterranean operations."

4. Col. J.F. Durnford-Slater,DSO, (Acting Brigadier) signalled to SNO Assault Force : "Many thanks for faultless co-operation. Landing exactly right for time and place. In three and a half years' combined operations experience have never had better co-operation. LCA work also perfect. Please thank all tranks."

5. Appended at A and B are the Plans and Communication Orders for both operations.

REPORT

by Flotilla Officer, 22nd LCI(L) Flotilla

6. At 1130 on October 2, 1943, craft of the Assault force slipped their moorings in Manfredonia basin, took in tow their respective LCA and by 1200 column was under way at a speed of advance of 6½ knots bound for the beach 1 mile west of Termoli on the Adriatic Coast of Italy. The Naval forces comprised :-

4 LCI(L)	.....	171, 179, 181, 136.
7 LCA	.....	of the 59th Flotilla.
1 LCS	.....	38.

7. The SS Brigade was composed of No.3 Commando, No.40 RM Commando and Special Raiding Squadron. No.3 Commando and Brigade HQ with Col. J. Durnford-Slater, DSO, were embarked in LCI(L) 171, the ship carrying the Senior Naval Officer, Lt.Cdr. F.E.W. Lammert, RNVR. The SRS (Major P. Mayne, DSO) was in LCI(L) 179 and the 40 RM Commando (Col. J.C. Manners RM) was split up between LCI(L) 181 and 136.

8. Previous to the operation the 4 LCI(L) had embarked the SS Brigade at Catania on September 27 (after operating with them on the west coast of Italy), sailing at 1300 for Taranto where they arrived on September 28 at 1230. Ships were sailed by Flag Officer, Taranto, on September 29 at 0645 and arrived Bari at 1205 on September 30 (having sheltered in Brindisi outer harbour overnight). At 1300 ships sailed for Manfredonia, berthing at 1820 on same day. Nine LCA and one LCS of 59th Flotilla were carried from Catania to Brindisi by HMS "PRINCE ALBERT" and HMS "BEATRIX"; from Brindisi they were towed by 3 LCI(L) to Manfredonia arriving early on October 1.

Speed in Planning.

9. The general outline of a plan for the capture of town and port of Termoli was submitted to Senior Officer by Col. Durnford-Slater soon after/...

in spite of a nasty lop the third Commando, which was to carry out the initial assault, embarked in a swift and businesslike manner. Col. Durnford-Slater intimated that he preferred to be landed nearer to town of Termoli than further west of landing point, which had been planned for 1 mile west of town. This was passed by Senior Officer to Lieutenant Learmont together with estimated course 178 degrees and distance 1 3/4 miles. The first 4 LCA lay off with their Flotilla Officer until the other 3 LCA had come alongside to embark balance of 3 Commando.

17. At 0214 LCA hit beach, 3/4 mile west of Termoli, one minute before H hour. At 0216 the prearranged signal "G" was flashed to call in LCI(L). "G" was intended also to mark spot where LCI(L) 171 was to beach with 179 to starboard and 136 and 181 to port. Bearing of signal "G" was 178 degrees. Thus the assault had been landed in exactly the right place and at the right time. A certain pride in this achievement may be justified, especially in view of grounding and the appalling weather conditions prevailing during the last crucial hour.

18. At 0233 LCI(L) beached. It was a false beach, as had been foreseen, and two LCA were in attendance on each LCI(L). The SRS in 179 and the balance of 3rd Commando with stores in 171 got ashore dryshod in LCA, but for some reason of unit sequence the 40 RM Commando in 136 and 181 did not wish to use their attendant LCA, making a very wet landing.

Enemy Completely Surprised

19. The landing had been a complete surprise. This was later confirmed by prisoners taken. Furthermore, documents seized at the Paratroop HQ showed the Germans in four strong positions from the town of Termoli, along the lateral road, facing SE. Apparently the idea of a landing west of Termoli had never entered their calculations.

20. At 0315 LCI(L) 171 unbeached in order to carry out a reconnaissance of Termoli, while all other craft were ordered to remain anchored offshore. As we approached the town, bursts of Tommy gun fire ripped out, rapidly increasing in intensity. Opposite the port 171 came under machine gun fire from vicinity of esplanade; though there was strong temptation to return this fire with oerlikon, fire was withheld as for the most part the enemy fire was going overhead and there was danger of inflicting casualties on the Commandos working their way across town. For a quarter of an hour 171 steamed off the port, drawing the fire and tempting enemy machine gun posts to give away their positions to the Commandos. LCI(L) 171 then withdrew and anchored off till morning.

21. At 0645 LCI(L) 171 entered the Port on call from shore and Senior Officer went ashore to look over the Signal Station established by Lieutenant Hylton, RNVR, who had landed with 40 Commando. It had been felt in the planning that establishment of a Signal Station would be a useful link between ships and SS Brigade HQ; this was a new departure and during the next days proved invaluable. At 1045 news came through of an impending counter attack by the enemy and SO returned on board 171, after calling into the port 179 to take on 61 German prisoners, mainly Paratroops and Pioneer Corps. 181 and 136 were sailed for Manfredonia for balance of stores and ammunition of Brigade and to tow up the 2 LCA left behind.

22. At 1345 sounds of heavy fighting broke out beyond the town and LCI(L) and LCA were shifted to anchorage 3 miles off.

[illegible] Saves LCA

23. At 1710 LCI(L) 171 was singled out for attack by 5 FW 190, wh[illegible] [illegible] misses, deluging craft with muck and water and damaged [illegible] heads and [illegible], but caused no casualties

[illegible]/..

of landing to the final results achieved. Besides over 150 prisoners taken, heavy casualties had been inflicted on the enemy and a strongly hold position turned, placing an important lateral in our hands. A plea for additional air cover was again put forward and this was promised (and it is to be recorded this was forthcoming in great strength from the following morning onwards). During the conference reports came in of a German counter attack developing along the coast from di Montenero and SRS and 3 Commando, which had just been relieved, were required to hold coastal position. As these troops were weary, Senior Officer made a proposal that his LCI(L) should carry out a close range bombardment of di Montenero, giving the impression of a landing which might cause a diversion sufficient to relieve the pressure. The proposal was met with some enthusiasm and it was agreed that 2000 would be a suitable zero hour and forward posts and batteries were notified accordingly.

30. A brief directive was drawn up by SO for this diversionary operation, "POLYGON" (ref. Appendix [illegible]) and at 1730 a conference of Commanding Officers was held in [illegible] LCI 171. The general outline of "POLYGON" was for the 4 LCI(L) - 171, 179, 181 and 136 - to steam to seaward from Termoli to avoid detection, then turn in towards the coast to within half a mile, 5 cables this side of di Montenero, and in line ahead to steam parallel for 9 or 10 minutes firing broadsides in short rapid bursts of Oerlikons, Bren and Lewis guns into estimated position of station and village. At the same time LCI 136 was to lay a smoke screen across the target and R/T phrases were to be exchanged between ships to fake a landing [illegible]. On the cease fire, ships were to turn in [illegible] of di Montenero. On the [illegible] LCI(L) 136 would [illegible] successive 90 [illegible] to start [illegible] (no [illegible]) on the ESE tide, the smoke [illegible] which [illegible] drift past di Montenero on the ESE tide, the smoke being taken across and shorewards by the [illegible].

Diversion Distracts [illegible]

31. At 1910 [illegible] out, [illegible] set and breeze being strong [illegible] [illegible] objective until 2024. Otherwise "POLYGON" [illegible] than expected, [illegible] lights [illegible] open fire went off [illegible] planned. [illegible] guns [illegible] [illegible] for 9 minutes [illegible] ended at 2021 [illegible] the village [illegible] fire was started [illegible] [illegible] tanks [illegible] "cease fire" was [illegible] by two white incendiary tracer. At 2033 the "[illegible] fire" [illegible] smoke floats were Very lights, ships [illegible] between ships at 2040 [illegible] dropped. R/T communication [illegible] exchanged between ships at 2040 [illegible] re-arranged lines. Without incident ships anchored 5 miles SE of Termoli. It is not known whether any [illegible] was inflicted on the enemy, but SO was informed later that [illegible] that the Brigade had a quiet night.

32. At 0645, October 5, a mixed force of FW and ME 109 came in at a low level over the port obviously looking for the LCI(L). When these targets were not available they went for the LCA lying offshore. Bombs did no damage other than shake up two craft, and one FW flying about 100 feet above water was hit by the concentrated fire of the LCA so that its engine caught fire and it crashed inland, just over the cliff, this being confirmed by Army sources. This was a gallant show, in keeping with the fine aggressive spirit of the Assault Force.

33. At 1030 the LCI(L), anchored again just off Termoli, were shelled by 105 mm and were forced rapidly to shift further off. At 1105 these guns again ranged on them and they were moved to below Campomarina, about 5 miles off. However, at 1145 they were heavily shelled again, and SO moved ships to anchorage off Travatino Tower, about 10 miles away. The LCA were protected where they lay close inshore by a high cliff and they remained. This shelling was puzzling in view of known enemy dispositions of previous evening; after a time it became disturbing, as our forward batteries were no longer firing and there appeared to be a movement of enemy tanks in the valley this side of Termoli lateral. Army W/T set which we had on board was not strong enough to establish contact with H.Q.

34/...

/40. Though the situation was being rapidly consolidated there was still some fierce dive bombing, and at 1652 five FW came over, giving the gunners of 171 the chance of a splendid "kill". Three attacked some L.C.I.(L) which had just come up in connection with the "mystery ships" and for some reason fire was not opened on them. Two came for 171 but were met by accurate fire, dropped their bombs wildly and banked steeply, thereby exposing their undersides. The second of the two was repeatedly hit, caught fire and crashed in flames about 1 mile inland in the valley west of Campomarino.

All Done in Four Days.

41. By the evening of October 6 operation DEVON may be said to have ended, with Termoli firmly in our hands and the enemy pushed several miles beyond. The S.S. Brigade had been withdrawn from the line and at 2200 L.C.I.(L) 161 embarked 3 Commando for Molfetta.

42. On October 11 Senior Officer had the honour of meeting General Montgomery. At 1930 that evening L.C.I.179 embarked the SBS for Molfetta. On October 13 L.C.I.171 and 161 embarked 40 Commando for Molfetta, returned to Termoli and on October 16 came down to Barletta. 3 L.C.I. requiring repairs, the others proceeding in company under their own power. L.C.I. 38 had been repaired sufficiently to be kept afloat by pumping. Force arrived at Barletta 0503 October 17.

43. Apart from superficial damage which was repaired, Force suffered no loss, nor were there any casualties apart from minor splinter wounds.

Losses in enemy aircraft inflicted by the Force were:-

	Destroyed	Probably Destroyed	Damaged
FW 190	2	1	1
ME 210	-	-	1
	2	1	2

APPENDIX A

PLAN OF OPERATION "DEVON".

OBJECT : To make an assault landing one mile west of Termoli, capture the Town and Port and join hands with the 78th Division advancing from SE.

FORCES EMPLOYED :

Naval

4 L.C.I.(L)	...	171, 179, 181, 136.
7 L.C.A.	...	59th Flotilla (Lieutenant D.K.L. Learmont, D.S.C., R.N.)
1 L.C.S.	...	38

Military

S.S. Brigade comprising :-

H.Q. - Col. J. Durnford-Slater, D.S.O. (Act. Brigadier).
3rd Commando (Captain A. Komrower)
40th R.M. Commando (Lt.Col. J.C. Manners, R.M.)
Special Raiding Squadron (Major P. Mayne, D.S.O.)

PLAN

(a) 3 Commando to make initial assault in 6 L.C.A. with Brigade H.Q. in one L.C.A. supported by one L.C.S. on beach one mile west of Termoli.

(b) 40 Commando, S.R.S. and balance of 3 Commando with ammunition to land in 4 L.C.I. in support.

(c) 40 Commando and S.R.S. to pass through beach head with objective :-

40 Commando	I.	Town and Port of Termoli.
S.R.S.	I.	Road junction and main bridges.

METHOD

(a) S.S. Brigade to be embarked in 4 L.C.I. in Manfredonia on D - 1.

L.C.I.(L) 171 - Brigade H.Q. and 3 Commando
L.C.I.(L) 179 - S.R.S.
L.C.I.(L) 136) - 40 Commando.
L.C.I.(L) 181)

(b) L.C.I.(L) to take in tow 7 L.C.A. and one L.C.S. and proceed to Release Point to arrive at H - 75.

(c) At Release Point L.C.A. to be slipped and close L.C.I.(L) 171 to embark H.Q. and 3 Commando for assault at H hour.

(d) L.C.I.(L) to beach at H + 30 or on call.

/Sailing Orders

APPENDIX A1

COMMUNICATION ORDERS for OPERATION "DEVON".

Ships will keep loudspeaker watch on 2150 k/cs until zero minus one hours. At zero minus one hours they will shift to Force Assault and Intercommunication wave, keeping full receiving and transmitting watch.

W/T silence is not to be broken until zero hour, except in the case of emergency or unless surprise is lost. It must be emphasised that switching on of a transmitter causes oscillations and, therefore, is liable to be intercepted by enemy D/F.

L.C.I.(L) 171 will be in communication with the forward assault force on 8350 k/cs.

Force Assault and Intercommunication wave ... 8333 k/cs

	CALLSIGNS		
	W/T		R/T
171	- I 171	-	GANNET
179	- I 179	-	ICBIS
181	- I 181	-	STARLING
136	- I 136	-	SPARROW
All ships	- A JZJ	-	CONDORS.

VISUAL SIGNALLING

A good W/S watch is to be kept from the time of slipping. From H - 120 signalmen are to be constantly on the Bridge.

Care is to be taken over the brilliancy of lanterns. Blue lights only are to be used during darkness. No lights are to be shown in the direction of the enemy coast.

Any signals made by 171 will be made by "F" method and are to be passed down the line by the same method.

APPENDIX B

PLAN of DIVERSIONARY OPERATION "POLYGON"

OBJECT — To cause a diversion by bombarding Ai Montenero Station 6 3/4 miles west of Tarmoli, giving the enemy cause to believe a landing was being made behind his lines.

INTELLIGENCE — German counter moves towards Tarmoli on the St. di Montenero/Tarmoli Road about 3 to 4 miles from Tarmoli.

FORCES EMPLOYED — L.C.I.(L) 171, 179, 181 and 136.

METHOD

(a) Ships will weigh at 1710

(b) Ships will form up in line ahead at 1915

(c) Ships will arrive ½ mile this side of Ai Montenero at 2000.

(d) Force will then steer parallel to coast about ½ mile off, firing broadsides of all guns in rapid bursts on to beaches and hills behind.

(e) LCI (L) 136 will also make a smoke screen.

FIRE CONTROL

1 Red Very - "Stand by"
1 Red Very - "Fire"

1 White Very - "Stand by"
1 White Very - "Cease fire"

FAKE LANDING SIGNAL — 3 Green Very
Ships then turn in succession 90° to starboard (seaward), L.C.I.(L) 136 lights and drops 2 smoke floats to drift down on stream past Ai Montenero. R/T communication commences.

COMMUNICATION — A common Naval landing wave will be used. Senior ship will be known as "Green Leader"; the other 3 L.C.I.(L) will be known respectively as Red Assault, White Assault, Blue Assault. Communication orders and phrases are attached.

APPENDIX D1

COMMUNICATION ORDERS for DIVERSIONARY OPERATION "POLYGON".

On sailing, ships will set watch on Force Assault and Intercommunication Wave ([illegible] 333 K/cs).

2. W/T silence is to be maintained until zero hour, except in the case of emergency, or unless surprise is lost.

3. At one minute after the "[illegible] Fire" order has been given, L.C.I.(L) 171 will [illegible] to L.C.I.([illegible]) 136 –

"RED ASSAULT [illegible] DIRECTED."

L.C.I.(L) 136 will reply –

"[illegible]"

L.C.I.([illegible]) 171 will [illegible] to [illegible] –

"WHITE, [illegible] OBJECTIVE [illegible]."

L.C.I.(L) 1[illegible] will reply :–

"[illegible]"

L.C.I.(L) 171 will then [illegible] to [illegible] –

"BLUE ASSAULT [illegible] OF OBJECTIVE [illegible]."

L.C.I.([illegible]) 17[illegible] will reply –

"[illegible]"

L.C.I.([illegible]) 171 will then [illegible] to [illegible] ships –

"[illegible]".

4. On return to [illegible], [illegible] loudspeaker watch on 2150 K/cs.