

Declassified E.O. 12356 Section 3.3/NND No.

785017

ACC

10000/135/174

AI
SE

10000/135/174

AIR SEA RESCUE, TRAINING OF PERSONNEL
SEPT. 1946 - JAN. 1947

Good.
 10/13/77
 The DIRECTOR

lis.

Good 10/13/77
 Here with draft reply. The F.T.I. and myself intend making a comprehensive study of the Air Ministry notes and with the help of Stato-Magicians formulate a syllabus for the proposed course.

Paul
 10/13/77
 19/77

SIGNAL GOING OUT.

15th JANUARY 1947

TO : 85 GROUP.

for information : TELECOMMUNICATIONS CENTRE.

OPERATIONS ORDER.

SEAPLANE SQUADRON TARANTO 0067/OP // AT 09.00 HRS TOMORROW 14 FIRST SEAPLANE RS 14 TAKE OFF FOR RESCUE PRACTICE WITH SEARCH FOR NAVAL FORCES IN THE AREA OF THE TARANTO GULF // WHILE "EN ROUTE" TO OPERATIONAL AREA REQUEST SIGNAL TIME TABLE AND ESTABLISH CONTACT WITH BRINDISI RESCUE CENTRE ON 6500 Kc/s // SEARCH AREA STARTS FROM LINE JOINING GALLIPOLI AND CROTONA WITH SUCCESSIVE MOVING OF THE LINE OF SEARCH TO LINES PARALLEL TO THE SAID ROUTE AND DISTANT FROM EACH OTHER BY DOUBLE THE VISIBILITY // NAVAL FORCE TO BE FOUND IS PROBABLY MADE UP OF 3 DESTROYERS OF THE SOLDIER CLASS // AT START OF OPERATION WATCH TO BE KEPT ON 500 Kc/s // DURING THIS WATCH PASS OVER TO 6500 Kc/s FROM 00 TO 05 AND 30 TO 35 MINUTES PAST THE HOUR // ON SIGHTING, SIGNAL FIRST SIGHTER IN PLAIN LANGUAGE ON 6500 Kc/s WITHOUT REQUESTING POSITION OF UNITS SIGHTED // REMAIN ABOVE THE SQUADRON CONTINUING WATCH ON 6500 Kc/s PURPOSE RECEIVE EVENTUAL REQUEST FOR HOMING FROM OTHER AIRCRAFT // GIVE HOMING ON 360 Kc/s // DURING THIS PHASE REMAIN ON WATCH ON 6500 Kcs. CONTINUING CONTINUOUS TRANSMISSION ON 360 Kcs. // ON FINISHING HOMING OF OTHER AIRCRAFT, RS 14 TO MAKE FOR TARANTO ESTABLISHING CONTACT WITH BRINDISI RESCUE CENTRE ON 6500 Kcs. // RT CALLSIGN OF BRINDISI RESCUE CENTRE AND R D G BRINDISI I L I; R T STATION TARANTO I R G; TARANTO RADIO BEACON T B (ON 421 Kcs.); RS 14 - 51 HG; OTHER EVENTUAL AIRCRAFT 13 JG //

PERTINAS LT. COL. MAJORANI

VARIOUS NOTES:

- a) SIGHTER REPORT IN PLAIN LANGUAGE "SIGHTED SHIPS".
- b) IN THE CASE WHERE AFTER AN HOUR OF FLIGHT FROM TAKE OFF, THE SHIPS HAVE NOT BEEN SIGHTED, THE AIRCRAFT IS TO SEND SIGHTER REPORT STAYING ON THE SPOT MAKING PARALLEL COURSES IN THE DIRECTION OF TARANTO.
- c) HEIGHT DURING THE WHOLE PRACTICE MUST NOT EXCEED 300 METERS
- d) DURING THE HOMING ON 360 KCS, SO AS NOT TO LOSE CONTACT WITH BRINDISI OR THE AIRCRAFT BEING HOMED THE RS 14 REMAIN WITH TRANSMITTER ON 360 Kcs. AND RECEIVER ON CONTINUOUS WATCH ON 6500 Kcs.

TELEGRAMMA IN PARTENZA

13 GENNAIO 1947

AL COMANDO 25° GRUPPO
e p. c.AL CENTRO TELECOMUNICAZIONI
SEDE
SEDE

ORDINE DI OPERAZIONI

IDROAGGRUPPAMENTO TARANTO 00067/OF // AT ORE 0900 DI DOMANI 14
C.M. IDRO R.S. 14 DECOLLI PER ESERCITAZIONE SOCCORSO CON RICERCA
FF.NN. IN ZONA DEL GOLFO DI TARANTO // DURANTE ROTTA PER DIRIGERE IN
ZONA RICHIESTA SEGNALE ORARIO ET COLLEGAMENTO CON CENTRO SOCCORSO
BRINDISI SU 6500 Kc/s // ZONA RICERCA INIZIA DA CONGIUNGENTE GAL-
LIPOLI CROTONE CON SUCCESSIVO SPOSTAMENTO VERSO PARTE SETTENTRIONA
LE GOLFO PER ROTTE PERALLELE A DENTRA CONGIUNGENTE ET DISTANTI TRA-
DI LORO DEL DOPIO DEL RAGGIO DI VISIBILITA' // FORMAZIONE NAVALE
DA RICERCARE EST PROBABILMENTE COMPOSTA DA 3 CC.TT. TIPO SOLDATO //
AT INIZIO ESPLORAZIONE ASCOLTO CONTINUO SU 500 Kc/s // DURANTE
TALE ASCOLTO PASSARE SU 6500 Kc/s DA ZERO MINUTI A 05 PRIMI E DAI
30 PRIMI AI 35 PRIMI DI OGNI ORA // ALL'AVVISTAMENTO SEGNALE DI
SCOPERTA IN CHIARO SU 6500 Kc/s SENZA INDICARE POSIZIONE UNITA'
AVVISTATE // RIMANERE SUL CIELO DELLA FORMAZIONE CONTINUANDO
ASCOLTO SU 6500 Kc/s SCOPO RICEVERE EVENTUALE RICHIESTA EMISSIONE
NE SEGNALE RADIOGONIOMETRICI DA ALTRO AEREO // EMETTERE RICHIESTI
SEGNALE R.D.G. SU 360 Kc/s // DURANTE TALE FASE CONTINUARE ASCOL-
TO SU 6500 Kc/s RIMANENDO IN TRASMISSIONE CONTINUA SU 360 Kc/s //
EFFETTUATA CONGIUNGIMENTO R.S. 14 DIRIGA PER RIENTRARE TARANTO COL-
LEGANDOSI NUOVAMENTE CON BRINDISI CENTRO SOCCORSO SU 6500 Kc/s //
NOMINATIVI R.T. : CENTRO SOCCORSO BRINDISI E RADIOGONIOMETRO BRIN-
DISI ILI ; STAZIONE R.T. TARANTO IKG ; RADIOFARO AVVICINAMENTO
TARANTO TB (SU 421 Kc/s); R.S. 14 51 HG ; ALTRO EVENTUALE AEREO
19 JG //

TERTITAS TECOL MAJORANI

- AVVERTENZE VARIE:
- a) SEGNALE DI SCOPERTA IN CHIARO "AVVISTATE NAVI"
 - b) NEL CASO IN CUI DOPO UN'ORA DI VOLO (DAL DECOLLO)
NON FOSSERO STATE AVVISTATE LE NAVI L'AEREO
EMETTA UGUALMENTE STABILITO SEGNALE DI SCOPERTA
RIMANENDO SUL POSTO EFFETTUANDO CORSE PENBOLARI
IN DIREZIONE DI TARANTO //
 - c) QUOTA DURANTE TUTTA L'ESERCITAZIONE NON SUPERIORE
AI 300 METRI //
 - d) DURANTE L'EMISSIONE DEI SEGNALE R.D.G. SU 360 Kc/s
ALLO SCOPO DI NON PERDERE IL COLLEGAMENTO NE' CON
BRINDISI NE' CON L'AEREO RADIOGUIDATO, L'R.S. 14
RIMANGA CON IL TRASMETTITORE EMITTENTE SU 360 Kc/s
E CON IL RICEVITORE IN ASCOLTO CONTINUO SU 6500

C.M. IDRO R.S. 14 DECOLLI PER ESERCITAZIONE SOCCORSO CON RICERCA RF.NN. IN ZONA DEL GOLFO DI TARANTO // DURANTE ROTTA PER DIRIGERE IN ZONA RICHIESTA SEGNALE ORARIO ET COLLEGAMENTO CON CENTRO SOCCORSO BRINDISI SU 6500 Kc/s // ZONA RICERCA INIZIA DA CONGIUNGENTE GALI-
LIPOLI CROTONE CON SUCCESSIVO SPOSTAMENTO VERSO PARTE SETTENTRIONA-
LE GOLFO PER ROTTE PERALLELE A DETTA CONGIUNGENTE ET DISTANTI TRA-
DI LORO DEL DOPIO DEL RAGGIO DI VISIBILITA' // FORMAZIONE NAVALE
DA RICERCARE EST PROBABILMENTE COMPOSTA DA 3 CC.TT. TIPO SOLDATO //
AT INIZIO ESPLORAZIONE ASCOLTO CONTINUO SU 500 Kc/s // DURANTE
TALE ASCOLTO PASSARE SU 6500 Kc/s DA ZERO MINUTI A 05 PRIMI E DAI
30 PRIMI AI 35 PRIMI DI OGNI ORA // ALL'AVVISTAMENTO SEGNALE DI
SCOPERTA IN CHIARO SU 6500 Kc/s SENZA INDICARE POSIZIONE UNITA'
AVVISTATE // RIMANERE SUL CIELO DELLA FORMAZIONE CONTINUANDO
ASCOLTO SU 6500 Kc/s SCOPO RICEVERE EVENTUALE RICHIESTA EMISSIO-
NE SEGNALE RADIOGONIOMETRICI DA ALTRO AEREO // EMETTERE RICHIESTI
SEGNALE R.D.G. SU 360 Kc/s // DURANTE TALE FASE CONTINUARE ASCOL-
TO SU 6500 Kc/s RIMANENDO IN TRASMISSIONE CONTINUA SU 360 Kc/s //
EFFETTUATA CONGIUNGIMENTO R.S. 14 DIRIGA PER RIENTRARE TARANTO COL-
LEGANDOSI NUOVAMENTE CON BRINDISI CENTRO SOCCORSO SU 6500 Kc/s //
NOMINATIVI R.T. : CENTRO SOCCORSO BRINDISI E RADIOGONIOMETRO BRIN-
DISI ILI ; STAZIONE R.T. TARANTO IKG ; RADIOFARO AVVICINAMENTO
TARANTO TB (SU 421 Kc/s); R.S. 14 51 HG ; ALTRO EVENTUALE AEREO
19 JG //

TERTITAS TECOL MAJORANI

- AVVERTENZE VARIE: a) SEGNALE DI SCOPERTA IN CHIARO "AVVISTATE NAVI"
b) NEL CASO IN CUI DOPO UN'ORA DI VOLO (DAL DECOLLO)
NON FOSSE RO STATE AVVISTATE LE NAVI L'AEREO
EMETTA UGUALMENTE STABILITO SEGNALE DI SCOPERTA
RIMANENDO SUL POSTO EFFETTUANDO CORSE PENBOLARI
IN DIREZIONE DI TARANTO //
c) QUOTA DURANTE TUTTA L'ESERCITAZIONE NON SUPERIORE
AI 300 METRI //
d) DURANTE L'EMISSIONE DEI SEGNALE R.D.G. SU 360 Kc/s
ALLO SCOPO DI NON PERDERE IL COLLEGAMENTO NE' CON
BRINDISI NE' CON L'AEREO RADIOGUIDATO, L'R.S. 14
RIMANGA CON IL TRASMETTITORE EMITTENTE SU 360 Kc/s
E CON IL RICEVITORE IN ASCOLTO CONTINUO SU 6500
Kc/s.=

OUTGOING SIGNAL.

4th JANUARY 1947

5A(7)

TO : 32 GROUP

For information : 35 GROUP

TELECOMMUNICATIONS CENTRE.

OPERATIONAL ORDER.

SEAPLANE SQUADRON TARANTO 00072/02 /./ SEAPLANE CANT Z 506 TAKE OFF IMMEDIATELY TO JOIN AIRCRAFT RS 14 WHO IS OVER NAVAL SQUADRON DISCOVERED BY THE LATTER /./ REQUEST SIGNAL FIVE PABLE AND ESTABLISH R.T. CONTACT WITH BRINDISI RESCUE CENTRE AND WITH RS 14 (CALL SIGN 51 HG) ON 6500 Kc/s REMAINING ABOVE AIRPORT UNTIL CONTACT HAS BEEN ESTABLISHED /./ REQUEST FOR HOMING ON 360 Kc/s TO BE MADE TO 51 HG /./ REQUEST TO BE MADE ON 6500 Kc/s /./ CONTACT HAVING BEEN ESTABLISHED FOR HOMING ON RS 14 START HOMING MAINTAINING LISTENING WATCH ON 360 Kc/s LEAVING TRANSMITTER ON 6500 Kc/s FOR COMMUNICATION TO THE BRINDISI RESCUE CENTRE AND TO THE RS /./ ON JOINING RS 14, CANT Z 506 GO ABOUT 5 MILES SOUTH OF 51 HG AND FIX IT'S POSITION ASKING FOR Q T F FROM BRINDISI ON 335 Kc/s /./ MAKE THEN FOR TARANTO NAVIGATING ON TARANTO RADIO BEACON /./ R.T. CALL SIGNS : BRINDISI RESCUE CENTRE AND R D G SEA STATION I I I; R.T. RADIO STATION TARANTO I K G; TARANTO RADIO BEACON T B; (ON 421 Kc/s); RS 14 51 HG; CANT Z 506 19 38.

PERTIPAS Lt. Col. PATORANI

VARIOUS NOTES:

- a) MAXIMUM HEIGHT THROUGHOUT PRACTICE 300 METERS.
- b) WHILE HOMING 360 Kc/s - WHILE RECEIVER REMAINS ON THIS FREQUENCY THE TRANSMITTER IS TO BE ON 6500 Kc/s IN CONTACT WITH BRINDISI RESCUE CENTRE AND THE RS 14, FOR EVENTUAL TRANSMISSION OF INFORMATION OF INTEREST TO THIS CENTRE AND THE OTHER AIRCRAFT.
- c) COPY OF THE ORDER ISSUED TO 35 GROUP YESTERDAY IS APPENDED FOR INFORMATION.
- d) REQUEST FOR RADIO BEACON TO BE MADE ON 6500 Kc/s DIRECTLY TO I K G.

TRANSLATED BY Mr. P.W. BURTON.

2404

FONOGRAMMA IN PARTENZA

14 GENNAIO 1948

AL COMANDO 82° GRUPPO SEDE
 e per conoscenza:
 AL COMANDO 85° GRUPPO SEDE
 AL CENTRO TELECOMUNICAZIONI SEDE

ORDINE DI OPERAZIONE

IDRAGRUPPAMENTO TARANTO 00072/OP /./ IDRO CANT Z. 506 DECOLLI SUBITO PER PORTARSI SU CIELO FORMAZIONE NAVALI SCAPERTA DA IDRO R.S. 14 CHE TROVASI SUL LUOGO DI AVVISTAMENTO /./ RICHIESTA SEGNALE ORARIO ET COLLEGAMENTO R.T. CON CENTRO SOCCORSO BRINDISI E CON R.S. 14 (NOMINATIVO 51 HG) SU 6500 Kc/s, RIMANENDO SUL CIELO DELL'AEROPORTO FINO A CONTATTO STABILITO /./ RICHIEDERE A 51 HG EMISSIONE SEGNALI RADIOGONIOMETRICI SU 360 Kc/s /./ RICHIESTA SIA EFFETTUATA SU 6500 Kc/s /./ STABILITO IL CONTATTO RADIOGONIOMETRICO CON L'R.S. 14 DIRIGERE PER IL CONGIUNGIMENTO MANTENENDO ASCOLTO CONTINUO SU 360 Kc/s LASCIANDO IL TRASMETTITORE SU 6500 Kc/s PER EVENTUALI COMUNICAZIONI AL CENTRO SOCCORSO ED ALL'R.S. STESSO /./ EFFETTUATO CONGIUNGIMENTO CANT.Z. 506 SI ALLONTANI DA 51 HG DI CIRCA 5 MIGLIA PER SUD ET CONTROLLI PROPRIA POSIZIONE RICHIEDENDO Q.T.F. AT BRINDISI SU 333 Kc/s /./ DIRIGA QUINDI PER RIENTRARE A TARANTO NAVIGANDO PER RADIOFARO AVVICINAMENTO /./ NOMINATIVO R.T. : BRINDISI CENTRO SOCCORSO E RADIOGONIOMETRO BRINDISI ILLI ; STAZIONE R.T. TARANTO IKG ; RADIOFARO AVVICINAMENTO TARANTO IB; (SU 421 Kc/s) ; R.S. 14 51 HG ; CONT. Z. 506 19 JG /./

PERTITAS TECOL MAJORANT

AVVERTENZE VARIE : a) QUOTA DURANTE TUTTA L'ESERCITAZIONE NON SUPERIORE AI 300 METRI;

- b) DURANTE LA RICEZIONE DEI SEGNALI R.D.G. SU 360 Kc/s MENTRE IL RICEVITORE RIMARRA' TARANTO SU TALE LUNGHEZZA D'ONDA IL TRASMETTITORE SIA MANTENUTO SU 6500 Kc/s IN COLLEGAMENTO CON IL CENTRO SOCCORSO BRINDISI E CON L'R.S. 14 PER EVENTUALI TRASMISSIONI DI NOTIZIE RICUARDANTI DETTO CENTRO O L'ALTRO AEREO ;
- c) SI ALLEGA PER CONOSCENZA COPIA DELL'ORDINE DI OPERAZIONE TRASMESSO IERI ALL'85° GRUPPO /./
- d) RICHIESTA RADIOFARO AVVICINAMENTO SIA EFFETTUATA SU Kc/s 6500 DIRETTAMENTE A IKG /./

IDROAGGREGAMENTO TARANTO 0600/07 // IDRO CANTIERI 0600/07
 SUBITO PER PORTARSI SU CIELO FORMAZIONE NAVALI SCAPERTA DA IDRO
 R.S. 14 CHE TROVASI SUL LUOGO DI AVVISTAMENTO // RICHIESTA SEGNA-
 LE ORARIO ET COLLEGAMENTO R.T. CON CENTRO SOCCORSO BRINDISI E
 CON R.S. 14 (NOMINATIVO 51 HG) SU 6500 Kc/s, RIMANENDO SUL CIELO
 DELL'AEROPORTO FINO A CONTATTO STABILITO // RICHIEDERE A 51 HG
 EMISSIONE SEGNALI RADIOGONIOLETRICI SU 360 Kc/s // RICHIESTA SIA
 EFFETTUATA SU 6500 Kc/s // STABILITO IL CONTATTO RADIOGONOMETRI-
 CON CON L'R.S. 14 DIRIGERE PER IL CONGIUNGIMENTO MANTENENDO ASCOL-
 TO CONTINUO SU 360 Kc/s LASCIANDO IL TRASMETTITORE SU 6500 Kc/s
 PER EVENTUALI COMUNICAZIONI AL CENTRO SOCCORSO ED ALL'R.S. STESSO
 // EFFETTUATO CONGIUNGIMENTO CANT. Z. 506 SI ALLONTANI DA 51 HG
 DI CIRCA 5 MIGLIA PER SUD ET CONTROLLI PROPRIA POSIZIONE RICHIEDEN-
 DO Q.T.F. AT BRINDISI SU 333 Kc/s // DIRIGA QUINDI PER RIENTRARE
 A TARANTO NAVIGANDO PER RADIOFARO AVVICINAMENTO // NOMINATIVO R.T.
 : BRINDISI CENTRO SOCCORSO E RADIOGONOMETRO BRINDISI ILI ; STAZIO-
 NE R.T. TARANTO IKG ; RADIOFARO AVVICINAMENTO TARANTO TB; (SU 421
 Kc/s) ; R.S. 14 51 HG ; CONT. Z. 506 19 JG //

PERVITAS TECOL MAJORAND

- AVVERTENZE VARIE : a) QUOTA DURANTE TUTTA L'ESERCITAZIONE NON SUPE-
 RIORI AI 300 METRI;
 b) DURANTE LA RICEZIONE DEI SEGNALI R.D.G. SU
 360 Kc/s MENTRE IL RICEVITORE RIMARRA' TARATO
 SU TALE LUNGHEZZA D'ONDA IL TRASMETTITORE SIA
 MANTENUTO SU 6500 Kc/s IN COLLEGAMENTO CON IL
 CENTRO SOCCORSO BRINDISI E CON L'R.S. 14 PER
 EVENTUALI TRASMISSIONI DI NOTIZIE RIGUARDANTI
 DETTO CENTRO O L'ALTRO AEREO ;
 c) SI ALLEGA PER CONOSCENZA COPIA DELL'ORDINE DI
 OPERAZIONE TRASMESSO IDRI ALL'85° GRUPPO //
 a) RICHIESTA RADIOFARO AVVICINAMENTO SIA EFFETTUATA
 SU Kc/s 6500 DIRETTAMENTE A IKG //.

BEST COPY POSSIBLE

4A

11105017

AIR FORCE SUB COMMISSION, L.O. HOME.

H.A.C. SUBCOMMITTEE, A.H.C. (RICH) CARRER C.E.F.

UNCLASSIFIED

THIS WEEK FOUR OTHER DE REPRESENTS OUR SYSTEM ARE FOR OTHER CHARLES RICHARD
 ALL TWO OTHER WEEKS EAST OTHER RATED ONE TWO THREE ONE WEEK FOR SIX TO
 AIR FORCE SYSTEM TRAIL WITH RICHARD RICHARD AIRCRAFT TO OTHER NORTH AIRCRAFT
 ONE TWO AVAILABLE AS TRAILING DE REPRESENTS RICHARD TO ONE RICHARD RICHARD
 ONE TWO RICHARD AND FOR CHARLES ARE FIVE TWO SIX AIRCRAFT FOR AIR ONE RICHARD
 WITH TO FURTHER RICHARD ACTION ONE TWO RICHARD RICHARD RICHARD TO

APR/68/70 ✓
 ONLY FOR APR/72/70. ✓

RICHARD

A.H.C.

2402

F. RICH, F/EX.

R. CARRER, W/EX.

2063

3A

FROM :- AIR FORCES SUB COMMISSION, A.C. ROME.
TO :- ITALIAN AIR MINISTRY.
DATE :- 11th OCTOBER, 1946.
REF. :- AFSC/92/TMG.

TRAINING OF SQUADRON AIR SEA RESCUE OFFICERS.

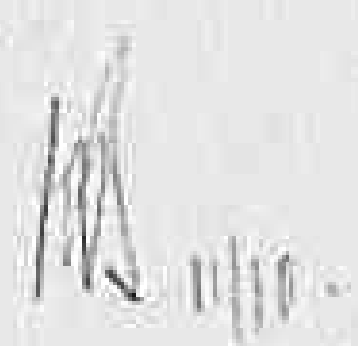
Reference is made to our letter AFSC/48/Air dated 17th August, 1946.

Air Ministry London has forwarded the Syllabus of the Survival and Rescue Training Unit and selected excerpts from this Syllabus are forwarded for your guidance.

Much of the equipment mentioned in these notes which is not in current use in the Italian Air Force is available in A.R.A.R. dumps.

It is requested that you acknowledge this letter with any relevant comments and this Sub Commission will be pleased to render any further assistance in the formation of the proposed course for instruction in this matter.


for F. REID, F/LT.
AIR VICE MARSHAL
DIRECTOR
AIR FORCES SUB COMMISSION.



 12/10.

7/10
14/10

2399

SURVIVAL & RESCUE TRAINING UNIT.

2B

SURVIVAL ON LAND AND SEA.

		hours
1st	"Castaway"	1
2nd	"Land and Live in the Jungle "	1
3rd	Survival at Sea	1
4th	Survival in the jungle	1
5th	Practical Hints - How to live in the Jungle	1
		5
3	Medical Lectures	3
		8

2401

WEEKLY TRAINING PROGRAMME - SURVIVAL AND RESCUE TRAINING UNIT

Monday	-	6 hours
Tuesday	-	6 hours
Wednesday	-	2 hours
Thursday	-	6 hours
Friday	-	6 hours
Total:	-	26 hours

The Wednesday programme is exclusive of one hour of EVT instruction under Station Arrangements.

SYLLABUS OF AIR/SEA RESCUE COURSEFOR AIR TRAFFIC CONTROL OFFICERS

<u>ORGANISATION</u>	- sources of information on aircraft in distress - responsibilities of A.T.C., Coastal Group operations rooms, Coastal, Bomber, Fighter, Transport and Flying Training Commands. Co-operation with R.N., Merchant shipping, R.N.L.I., and Coastguard service - factors influencing suitable search areas - types of search - aircraft to be employed - forms Green and Orange - control of search aircraft - completion of rescue.	(3 hours)
<u>SIGNALS</u>	- emergency and distress procedures and use of information contained therein - channels of communication - search procedure - signals aids and their limitations.	(2 hours)
<u>SAILING</u>	- sailing dinghies and lifeboats - sailing manoeuvres - what is a ditched crew most likely to do?	(2 hours)
	- practical demonstration of sailing dinghies and lifeboats.	(3 hours)
<u>FLYING</u>	- practical demonstration of searching - viewing dinghies from various altitudes and distances - demonstration pyrotechnics.	(3 hours)
<u>SEARCH TECHNIQUE</u>	- from point of view of searching aircrew - parallel track/creeping line search - scanning water - action on sighting dinghy - dropping rescue apparatus.	(2 hours)
<u>DITCHING</u>	- ditching characteristics of various types of aircraft - methods of ditching - hazards of ditching - ditching drills.	(1 hour)
<u>EQUIPMENT</u>	- dinghies, emergency packs - Lindholme Rescue Apparatus Mk. II. description and dropping technique - Supply Dropper Type "F", description and dropping technique. Airborne Lifeboat Mk. IIA, description and dropping technique.	(3 hours)
<u>PYROTECHNICS</u>	- lecture demonstration on distress pyrotechnics and flares, sea-markers, etc.	(1 hour)
<u>SURVIVAL</u>	- conditions in dinghy - likely causes of distress of survivors - rationing of water and supplies - first-aid in dinghies.	(1 hour)
Revision and spare period		(2 hours)

information contained therein - channels of communication - search procedure - signals aids and their limitations.

<u>SAILING</u>	- sailing dinghies and lifeboats - sailing manoeuvres - what is a ditched crew most likely to do?	(2 hours)
	- practical demonstration of sailing dinghies and lifeboats.	(3 hours)
<u>FLYING</u>	- practical demonstration of searching - viewing dinghies from various altitudes and distances - demonstration pyrotechnics.	(3 hours)
<u>SEARCH TECHNIQUE</u>	- from point of view of searching aircrew - parallel track/creeping line search - scanning water - action on sighting dinghy - dropping rescue apparatus.	(2 hours)
<u>DITCHING</u>	- ditching characteristics of various types of aircraft - methods of ditching - hazards of ditching - ditching drills.	(1 hour)
<u>EQUIPMENT</u>	- dinghies, emergency packs - Lindholme Rescue Apparatus Mk. II. description and dropping technique - Supply Dropper Type "F", description and dropping technique. Airborne Lifeboat Mk. IIA, description and dropping technique.	(3 hours)
<u>PYROTECHNICS</u>	- lecture demonstration on distress pyrotechnics and flares, sea-markers, etc.	(1 hour)
<u>SURVIVAL</u>	- conditions in dinghy - likely causes of distress of survivors - rationing of water and supplies - first-aid in dinghies.	(1 hour)
Revision and spare period		(2 hours)
Introductory and Concluding talks		(1½ hours)
Examination		(1½ hours)
<u>TOTAL:</u>		26 hours

2068

SURVIVAL AND RESCUE TRAINING UNIT

SCHEDULE

	A.M.	P.M.
<u>1st week</u>		
Monday - assemble		
Tuesday -		
Saturday	15 hours	9 hours
<u>2nd week</u>		
Monday -		
Saturday	18 hours	12 hours
<u>3rd week</u>		
Monday -		
Saturday	18 hours	12 hours
<u>4th week</u>		
Monday -		
Thursday	12 hours	9 hours
	<u>63 hours</u>	<u>42 hours</u>
	= 105 hours.	

EQUIPMENT

	hourly periods
1. Miscellaneous equipment and dinghies	1
2. Rigging of 'Q' type dinghies	1
3. Emergency packs	1
4. 'Lindholme' dinghy	1
5. SWISS ARMY KNIFE AND A.S.R. supply droppers	1
Safety equipment worker	1
6. Tropical kit	1
	<u>6</u>

AIRBORNE LIFEBOAT

1. Introduction to the Airborne Lifeboat and various types - its operation.	1
2. Mk. I and II Lifeboats	1
3. Mk. II Lifeboat	1
4. Equipment and immediate action	1

DITCHING

hourly
in
03s

= 11

- | | | |
|----|---|---|
| 1. | Dingy Drills | 1 |
| 2. | } Admonition in Ditching | 2 |
| 3. | | |
| 4. | Film : Model Ditching Film.
To Ditch or not to Ditch
Ditching without Wedging | 1 |
| 5. | Film : Prepare for Ditching | 1 |
| 6. | Pre ditching lecture - explain the use and operation
of the Ditching fuselage. Also to brief a volunteer
crew | 1 |
| 7. | } Practical Ditching exercises in Trainer | 2 |
| 8. | | |

= 19

SIGNALS

- | | | |
|----|---|---|
| 1. | Frequencies M., H.F., V.H.F. | 1 |
| 2. | " " emergency aorials | 1 |
| 3. | Circus. A.S.V. Film, and 'Corner' reflector | 1 |
| 4. | Walter (T. 3100) | 1 |
| 5. | S.C.R. 578 (U.S. Dingy Radio) | 1 |
| 6. | A.B.L. receiver (T. 1345) and start of distress
and emergency procedure. | 1 |
| 7. | Completion of Distress - emergency procedure
(variations in the Pacific) | 1 |
| 8. | Search procedure | 1 |
| 9. | Search | 1 |

= 28

ORGANIZATION

- | | | |
|----|--------------------------------|---|
| 1. | A.S.R. in home waters | 1 |
| 2. | Factors affecting search areas | |

of the Ditching Fuelage. Also to brief a volunteer crew

7.	} Practical Ditching exercises in Trainer	2
8.		8
		= 19

SIGNALS

1.	Frequencies M., H.F., V.H.F.	1
2.	" " emergency aerials	1
3.	Cinema. A.S.V. Film, and 'Corner' reflector	1
4.	Walter (T.3183)	1
5.	S.C.F. 578 (U.S. Ditching Radio)	1
6.	A.B.L. receiver (R. 1545) and start of distress and emergency procedure.	1
7.	Completion of Distress - emergency procedure (variation in the Pacific)	1
8.	Search procedure	1
9.	Search	1
		9
		= 28

ORGANIZATION

1.	A.S.R. in home waters	1
2.	Factors affecting search areas Duties of Flying Control officer	1
3.	A.S.R. in S.E.A.O.	1
		3
		= 31

SAILING

1. Description of sail.
2. Reefing, running, going about
3. Wearing, flogging, trim of boat
4. Handling - moderate rough weather
5. Riding a storm

Hourly
rids

= 34

= 36

SURVIVAL

1. Film: 'Oestaway'
2. Film: 'Land and live in the jungle'
3. Survival at Sea
4. Survival in the jungle
5. Practical Hints - How to live in the jungle
6. Medical Lectures

MEDICAL

1. First Aid
2. "
3. Description of kit as supplied in Airborne Lifeboats and a/c.
4. Sea Survival and Jungle Survival - Medical Hints

MAINTENANCE

1. Packs - various
2. Maintenance of C.O.2, and Dinghy Manometer Testing
3. Recharging C.O.2, and manometer tests

= 48

= 44

1. Film: 'Castaway'	1
2. Film: 'Land and Live in the Jungle'	1
3. Survival at Sea	1
4. Survival in the Jungle	1
5. Fractional Hints - How to Live in the Jungle	1
6. Medical Lectures	3
	8
	= 44

MEDICAL

1. First Aid	1
2. "	1
3. Description of Kit as supplied in Airborne Lifeboats and a/c.	1
4. Sea Survival and Jungle Survival - Medical Hints	1
	4
	= 43

MAINTENANCE

1. Packs - various	1
2. Maintenance of C.O.2, and Dingly Manometer Testing	1
3. Recharging C.O.2, and manometer tests	1
4, 5 and 6. Description of various types of operating heads, and their care and maintenance	3
	6
	= 54

Page No. 4

PRE-ENTRY TRAINING

VISIT TO U.S.I.'s and I.R.R.C.

Introductory Talk

Revision Period (All instructors available)

Examination - 3 or 4 hours

Clearance

Extra Film: Land and Live in the Desert (if required)

PRACTICAL

SAILING

Sight afternoons spent in practical sailing in airborne lifeboats and 'Q' type dinghies

NET DITCHING DRILLS

Apart from the practical ditching exercise in the Ditching Trainer (See Ditching Syllabus) two afternoons at the Swimming Bath for demonstration of basic principles of ditching, and carrying out dingy drills. Also erection and rigging of 'Q' type dinghies in the water

FLYING

Three afternoons to include :-

- (a) Practical demonstration of equipment and pyrotechnics as seen from the air.
- (b) Method, and means of carrying out air search.
- (c) Water landings.
- (d) Final search exercise and homing, in co-operation with Surface Craft.

PRACTICAL LIFEBOAT DROPS

One or two demonstration drops to be carried out during each course.

FILMS

A greater supply of films, including any of the latest training films. These amounting to a total of three hours.

hourly periods = 54

1

1

1

4

1

9

= 64

Theory

64 hours

24

6

9

3

3

45

2075

= 64

Extra Film: Land and live in the desert (if required)

PRACTICAL

Theory - 64 hours

SAILING

Eight afternoons spent in practical sailing in
airborne lifeboats and 'Q' type dinghies

2 1/2

NET DINGHY DRILLS

Spent from the practical ditching exercise in the
Ditching Trainer (see Ditching Syllabus)
Two afternoons at the Swimming Bath for demonstration
of basic principles of ditching, and carrying out
dinghy drills. Also erection and rigging of 'Q'
type dinghies in the water

6

FLYING

Three afternoons to include :-

- (a) Practical demonstration of equipment and
pyrotechnics as seen from the air.
- (b) Method, and means of carrying out air
search.
- (c) Walter Homings.
- (d) Final search exercise and homing, in co-
operation with Surface craft.

9

PRACTICAL LIFEBOAT DROPS

One or two demonstration drops to be carried out
during each course.

3

FILMS

A greater supply of films, including any of the
latest training films. These amounting to a
total of three hours.

3

45

TOTAL: 109 hours

To meet these dangers the drill must include :-

- a) Signala procedure, framed to ensure that A/C position and emergency drill be known on shore, (emphasize this in no mean way).
- b) Action before the crash to make aircraft seaworthy (e.g. Secure lower escape hatches, and doors. Operate floatation gear if fitted, jettison fuel if possible.
- c) Action to put crew into safe crash stations before the crash to prevent as much injury as possible (see note on local ditching positioner).
- d) Action to assist crew's orderly escape, with all necessary gear (e.g. Dinghy Radio, life assembly, emergency packs etc.)

2. DITCHING STATIONS.

- a) Pilot must make certain Sutton harness securely and tightly fastened.
- b) The Navigator's ditching station should either be placed at his normal action station or as near as possible to it.
- c) The same applies for the wireless operator.
- d) The rest of the crew should be placed where possible forward of the trailing edge (A/C have a habit of breaking up aft of main spar or aft of bomb bay).

* The Ideal Ditching Station is one where a man can be seated on the floor facing aft with back head and shoulders tightly pressed against a bulkhead. In positions where the head is not supported the hands must be tightly clasped behind the breast.

The next best position is one where a man can lie down full length with feet forward against a step or flap jack and knees slightly bent to withstand shock.

The human body can stand up to 10 G. if properly supported so :-

Remember your correct ditching station and method of bracing

3. Dinghy Drills are published by M.A.B. as Air Diagrams, but if owing to change of equipment, modifications are allowed to meet the particular requirements. Factors taken into account when laying down a ditching drill.

- a) Number of crew
- b) No. size, and location of seats.
- c) Information gained from previous ditching incidents of a particular type.

4. Personal Safety Precautions.

Life vests must be carefully inspected frequently for serviceability and must be worn when flying over the sea at all times making certain they are on correctly and properly and securely tied. Full or partial inflation before ditching will depend on size of unit. In any case the life vest is sufficiently buoyant to keep a man on the surface (in sea water) long enough for him to regain consciousness (if he is going to) or time for him to operate the bottle and blow it up.

Collars and ties must be removed (salt water shrinks them very quickly) All unnecessary gear and equipment should be jettisoned and other stowed securely.

5. Action prior to ditching.

Pilot should jettison bombs and petrol if possible. Empty tanks give considerable buoyancy. Lower escape hatches securely fastened. Ditching exits open prior to ditching. Other time may just in position and retard efforts to leave A/C.

BEST COPY POSSIBLE

Dittling - 1 (cont)

Things are in a state of confusion;

- 1) Non Imminent (emergency) when there is some threat to life, limb, health, property, etc.
- 2) Imminent (Distress S.O.S.) when there is a real threat to life.

According to the number of crew carried that drill will vary, but for A/C carrying more than three crew the duties of the Pilot, Navigator, and W/O will be more or less as under for a four-man crew: -

Pilot	May	3.0.0.
At Controls	At Engine	
Linger, Dingy prepare for Ditching	Acknowledge Warns W/Op as check Works out C.I.I.A.P.N.	and notified then Miss S.O.S. Turns I.T.F. to Distress. Receives C. I.I.A.P.N. and transmits
Opens bomb doors and jettison bombs CLOSES BOMB DOORS	and passes to W/Op	Continues S.O.S. and hears answer. ditching position.
Orders flotation gear if any Work out if time permits to be operated (not above 7000ft) jettison. Pass of ditching and pass	Collects Hiv equipment & Toray pistol & cartridges	3.0.0. Clears down jettison and moves to ditching station.
Security of Sutton increases Lower Flaps	Takes up Ditching position	
Warns W/Op to take up Ditching station		
Warns crew to Brace		

FIG. 1

1
 2
 3
 4
 5

100

C. D'Amato to S. Salvatore Banko Fall 2010

DITCHING - 21

crashed in an ditch - 700 feet to 1000 feet - and a pilot seat of view
in the aircraft

11. We are going to discuss here the diving of 1/8" even the pilot point of view, but it must be remembered that it is only possible to penetrate the hulls and from various swimmers and flying an environment of 1900.

the following points should be noted : -

- a) A properly executed ditching involves putting the aircraft down on the sea, holding off until all excess speed above stalling is lost (say 10% above), so that the A/O alights in the normal three-point landing attitude (allow landing for tri-cycles) travelling at the minimum possible forward speed in combination with a down-sloped sea bed or descent.

very early in the morning.

Except in the case of 1/5 which have particularly severe flares of rating on rating, all other flares should be used to only a limited extent. If anyone should be used to the best advantage to obtain the best results.

Method of Appraisal.

Method of Application.
It is generally recognized that it is far better to "soak" a sore than to "dry" it. The purpose of the treatment is to keep the sore moist and to prevent it from drying out. The treatment is applied by placing the patient in a bath of water and soap. The patient is then allowed to remain in the bath for a period of 10 to 15 minutes. The patient is then removed from the bath and the sore is dried. The patient is then allowed to remain in the bath for a period of 10 to 15 minutes. The patient is then removed from the bath and the sore is dried. The patient is then allowed to remain in the bath for a period of 10 to 15 minutes. The patient is then removed from the bath and the sore is dried.

According to the number of crew members that will vary, not for A/C carrying more than three crew the duties of the Pilot, Navigator, and W/Cp will be more or less as under for a 4-man crew :

Pilot	Navigator	W/Cp
At Controls	At Controls	At Controls
Ditching, Ditching prepare for	At Controls	At Controls
Ditching	At Controls	At Controls
Opens bomb doors and jettison	At Controls	At Controls
Orders floatation gear if any	At Controls	At Controls
to be operated (not above 1000ft)	At Controls	At Controls
Settling exit and check	At Controls	At Controls
security of Sutton harness	At Controls	At Controls
Lower flaps	At Controls	At Controls
Warms W/Cp up	At Controls	At Controls
Ditching station	At Controls	At Controls
Warms crew to Ditch	At Controls	At Controls

BRACE

BRACE

6. Demonstrate 6, 4-man crew Ditching

DITCHING - 2.

At Controls - Factors to be considered in Ditching are :

1. We are going to discuss here the ditching of A/C from the pilots point of view, but it must be remembered that it is only possible to generalize as regards the various squads and flying in conversion of Ditching.

The following points should be noted :

- a) A properly executed ditching involves putting the A/C down on the sea, holding off until all excess speed above stalling is lost (say 100 mph), so that the A/C alights in the normal three-point landing position (i.e. landing for tricycles) travelling at the minimum possible forward speed in combination with a very small rate of descent.
- Except in the case of A/C which have particularly strong flaps or wings on rails, flaps should be used to give a small amount of lift. For A/C engines should be used to the left advantage to give a small amount of lift.
- Method of approach.
- It is generally recognised that it is far better to ditch in a small or large wave crest, in order to avoid nosing into the crest, or to ditch in a trough, but pilots must use their own judgement, naturally.

The steps to be followed are as per the diagram.

There the distance between crests is greater than the length of fuselage but not greater along the crest.

Two states of sea that would be desired :-

(1)

aching - 2 (cont)

Where the distance between crests is shorter than length of A/C

(2)

Where distance between crests so great that complete deceleration can take place between one crest and the next.

The above is interesting but not of great practical use to the landplane pilot and the following suggestion is put forward and recommended by the Powers that be.

In wind speeds of up to 35 m.p.h. ditch across wind.

In wind speeds over 35 m.p.h. ditch into wind regardless as over this speed the A/C has considerable drift and may be difficult to handle.

See Naval Air Diagram.

(b) Providing the ditching is properly executed as indicated above the available evidence shows that the ensuing crash in fairly smooth water is not likely to be unduly severe in the case of most heavy aircraft. The following heavy British A/C, Lancasters, Halifaxes, Stirlings and the old Whitley and the American Fortresses, and Dakotas are all moderately good ditchers under normal conditions. They decelerate fairly rapidly, but have little inherent tendency to dive. Bomb doors, usually collapse, as do panels in the nose in large quantities of water will often pour into cabins through these apertures etc.

The Liberator is not a good ditcher as the bomb doors are weak, there is no flooring above bomb bay to breach inrush of water and the A/C is high winged. It is not unusual for large A/C to break out of the bomb cell. The A/C may float for many hours with the wings (which are main source of buoyancy when water has broken into the fuselage) awash.

On the other hand the A/C may sink quickly.

If the attitude of A/C is more or less level in the water it is likely to float for hours.

If it sticks its nose with tail well in the air it will probably sink in a matter of seconds.

Flotation times depends of course on damage resulting from crash.

2. Fighter Aircraft.

Generally the official advice given to the occupants of bad ditching single seater A/C is to abandon by parachute rather than ditch. Fighter A/C are notoriously bad ditchers and have a marked tendency to dive most viciously, the consequent result is not pleasant and few have escaped to tell the tale.

If however the pilot of a bad ditching fighter has no option but to ditch it is suggested (what suggested) that he does so by using the swerve method which is shown clearly in the film 'To Ditch or not to ditch'.

Method is as follows :- When near the surface of the sea (just about where he would normally haul back on the stick) he dips a wing into the sea and so causes a kind of grand loop on the surface. It has been done and definitely the A/C does not dive.

Multi-engined aircraft

5. In the case of multi-engined A/C, there are very real advantages in keeping the engine compartment in the water and better provided

pilot and the remaining crew that be.
 In wind speeds of up to 35 m.p.h. ditch across wind.
 In wind speeds over 35 m.p.h. ditch into wind regardless as over this speed the A/C has considerable drift and may be difficult to handle.
 See Naval Air Diagram.

(b) Providing the ditching is properly executed as indicated above the available evidence shows that the ensuing crash in fairly smooth water is not likely to be unduly severe in the case of most heavy aircraft. The following heavy British A/C, Lancasters, Halifaxes, Stirlings and the old Whitley and the American Fortresses, and Dakotas are all moderately good ditchers under normal conditions. They decelerate fairly rapidly, but have little inherent tendency to dive. Bomb doors, usually collapse, as do fuselages in the nose and the ejection of water will often pour into cabin through the gun apertures etc. The Liberator is not a good ditcher as the bomb doors are weak, there is no flooring above bomb bay to breach inrush of water and the A/C is high winged. It is not unusual for large A/C to break off the bomb cell. The A/C may float for many hours with the wings (which are main source of buoyancy when water has broken into the fuselage) afloat. On the other hand the A/C may sink quickly. If the attitude of A/C is more or less level in the water it is likely to float for hours. If it sticks its nose with tail well in the air it will probably sink in a matter of seconds. Flotation times depends of course on damage resulting from crash.

2. Fighter Aircraft.
 Generally the official advice given to the occupants of bad ditching single seater A/C is to abandon by parachute rather than ditch. Fighter A/C are notoriously bad ditchers and have a marked tendency to dive most viciously, the consequent result is not pleasant and few have escaped to tell the tale. If however the pilot of a bad ditching fighter has no option but to ditch it is suggested (expert suggested) that he does so by using the aileron method which is shown clearly in the film 'To Ditch or not to ditch'. Method is as follows: - When near the surface of the sea (just about where he would normally haul back on the stick) he dips a wing into the sea and so causes a kind of ground loop on the surface. It has been done and definitely the A/C does not dive.

Multi-engine aircraft
 In the case of multi-engine A/C, there are very real advantages in keeping the crew together. They are likely to fare better in the larger and better provided A/C singly than in single seater dinghies. Ditch in preference to bailing out. The difficulty of successful ditching at night is greatly increased by adverse bad visibility, or rough weather.

The following is a list of information on ditching in Home Waters.

1. Statistical Information.
 - (a) Weekly reports of A.S.R. Operations, Search arrangements.
 - (b) Monthly and Six monthly Summaries of Search incidents.
 - (c) Maps of Ditchings to accompany the above.
 - (d) A.S.R. Notes.

Ditching - 2 (cont)

5. Sources of Information about Ditching.
- (a) Survivors. Ditching Questionnaire L.M.O. A. 505/53 amended by L. 8/44
 - (b) Model Tests. R.A.E. for quick advanced information re speeds, flaps waves etc.
 - (c) General official advice on Ditching.
- A.P. 2095 Pilots Notes General Part. IV Note G Ditching
Part. IV Note H Sea Rescue.

6. Films
Prepare for Ditching
Ditching without Hedging
To Ditch or not to Ditch.

DITCHING - 3.

Dimensions in Crash landing on ground. choice of type of terrain etc.

1. Introduction.

When crash landing in the jungle any landing you can walk away from is a good one. As in ditching, forethought, calm, execution and adherence to a few fundamental rules will make the difference between a good and a bad crash landing.

2. Execution

The following points must be considered and dealt with.

- (a) Jettison bombs, D.C.s, fuel and cargo whenever possible in order to make the easiest landing.
- (b) Make sure that the necessary equipment is securely stowed so that it will not jockey around the A/C. Jettison all other equipment not required.
- (c) Warn crew to take up crash positions, brace etc.
- (d) **LAND WHEELS UP** unless you are sure of terrain or beach is fit for normal landing.
- (e) (i) Don't be fooled by smooth looking green openings in forested country or beaches that you don't know.
The former are usually dotted with ant-hills and the latter may be dry and soft as quicksands. **LAND WHEELS UP ON WHEEL.**
- (ii) Choose paddy fields if available - they are soft and therefore sure to be a patch nearby.
- (iii) Avoid swamps
- (iv) Avoid palm trees - they are extremely hard and won't hold you up.
- (v) Land on dense tree tops if possible - the denser the tree tops the softer the fall and the less undergrowth below to bump through.
- (vi) Bamboo thickets make a good crash landing surface. Tops will bend and give cushioning effect, but after landing you will be surrounded by dense growing vegetation.

DITCHING - 2.

Alternative in Crash landing on ground, choice of type of terrain etc.

1. Introduction.

When crash landing in the jungle any landing you can walk away from is a good one. As in ditching, parachute, calm, concentration and adherence to a few fundamental rules will make the difference between a good and a bad crash landing.

2. Execution

The following points must be considered and dealt with.

- (a) Jettison V.C.D.O.s, fuel and other heavier possible in order to make the safest landing.
- (b) Make sure that the necessary equipment is securely stowed so that it will not rocket around in A/C. Jettison all other equipment not required.
- (c) Warn crew to take up crash positions, brace etc.
- (d) LAND WHEN IS UP unless you are sure of terrain or beach is fit for normal landing.
- (e) Don't be fooled by smooth looking green openings in forested country or beaches that you don't know.

The former are usually dotted with ant-hills and the latter may be dry and soft as quicksands. LAND WHEN IS UP ON CASE.

- (ii) Choose paddy fields if available - they are soft and therefore sure to be a patch nearby.
- (iii) Avoid swamps
- (iv) Avoid palm trees - they are extremely hard and will hold you up.
- (v) Land on dense tree tops if possible - the denser the tree, tops the softer the fall and the less undergrowth below to tramp through.
- (vi) Bamboo thickets make a good crash landing surface. Tops will bend and give cushioning effect, but after landing, you will be hampered by close growing vegetation.
- (vii) If you land on a 'Water Tank' try to do so near the edge as they are inclined to be swampy.
- (viii) Maintain flying speed until touch down. To stall and drop a wing may be worse than overshoot.
- (ix) Use flaps to cut down speed. If engine is available, lower it before touch down.
- (x) Cut ignition switches just before touch down and master switch if fitted.
- (xi) If solid obstruction ahead after landing, throw a loop and get a wing in position to act as a shock absorber.

Para - 2 (cont.)

- (a) Don't attempt turns near ground.
- (b) Land as near into wind as possible and never more than 90° out of wind.
- (1) After A/C has come to rest get clear as quickly as possible with as much equipment as possible and stand by with fire extinguishes in case of fire. Give plenty of time for this to happen, at least 30 mins.
- (2) Bail out or Crash Land.
 - a. The question of whether to crash land or bail out will depend of course on conditions prevailing at time of emergency. If for instance the A/C is on fire, or the trouble is at night when it is about impossible to make a good crash landing, or the terrain is impossible etc. bail out, but make a rendezvous of some sort before jumping. Remember when bailing out to look for rip-cord and when just above ground (say 10 feet) release harness.
 - b. Retain parachute if possible as this may prove most useful.
 - c. To crash land if possible is the best course as it enables the crew to stick together and the fuselage of A/C can make a most useful billet. Also petrol and oil will be most invaluable. Do not jettison parachutes if a crash landing is decided on, as all equipment of this sort will be of great value to your comfort and ultimate survival.

DITCHING - 4.

Explanation of work carried out at K.A.I.

Following films shown :-

- 1. Model Ditchings film.
- 2. To Ditch or not to Ditch.
- 3. Ditching without Hoarding.

DITCHING - 5.

Shown Film : Prepare for Ditching.

DITCHING - 6.

RESCUE OPERATIONS.

- 1. RESCUE AIRCRAFT have four possible duties :
 - a) Search
 - b) Dropping supplies, Lifeboat etc.
 - c) Co-operation with surface craft to complete rescue.
 - d) Complete rescue by amphibious or flying boat, in suitable weather.
- 2. CONTROLLING AUTHORITY decides area to be searched by adding (with suitable allowances for error) :
 - a) Probable area of ditching.
 - b) Probable effect of tidal stream or ocean current.
 - c) Probable effect of wind.

Bele out or Crash Land.

3. The question of whether to crash land or bele out will depend of course on conditions prevailing at time of emergency. If for instance the A/C is on fire, or the trouble is at night when it is about impossible to make a good crash landing, or the terrain is impossible etc. bele out, but make a rendezvous of some sort before jumping. Remember when beleing out to look for rip-cord and when just above ground (say 10 feet) release harness.

Retain parachute if possible as this may prove most useful.

To crash land if possible is the best course as if or blier the crew to stick together and the fuselage of A/C can make a most useful billet. Also petrol and oil will be most invaluable. Do not jettison parachutes if a crash landing is decided on, as all equipment of this sort will be of great value to your comfort and ultimate survival.

DITCHING - 4.

Explanation of work carried out at R.A.F.

following films shown :

1. Model Ditchings film.
2. M. Ditch or not to Ditch.
3. Ditching without Hodgins.

DITCHING - 5.

Shoran Film ' Prepare for Ditching. '

DITCHING - 6.

RESCUE OPERATIONS.

1. RESCUE AIRCRAFT have four possible duties :

- a) Search
- b) Dropping supplies, lifeboat etc.,
- c) Co-operation with surface or air search and rescue.
- d) Complete rescue by amphibian or flying boat, in suitable weather.

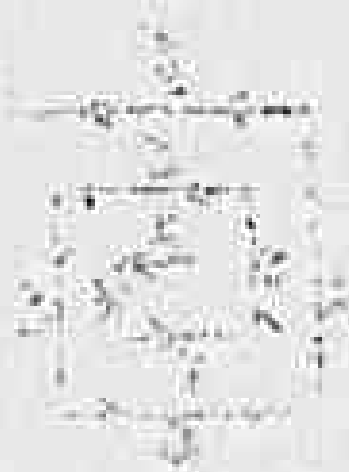
2. CONTROLLING AUTHORITY decides area to be searched by adding (with suitable allowances for error) :

- a) Probable area of ditching.
- b) Probable effect of tidal stream or ocean current,
- c) Probable effect of wind.

3. SEARCH - GENERAL PRINCIPLES: To give the maximum assistance to the control ling authority the aircrew engaged on search must search the highest possible efficiency of flying, navigation, and scanning (Look-out). The searchers may get no assistance from the distressed airmen and A.M.C.O. 45/46 says down that "it should be taken at not more than 2000 yards at 800 ft. It is normal practice to use about half these values in planning rescues in accessible areas.

Ditching - 6. (cont)

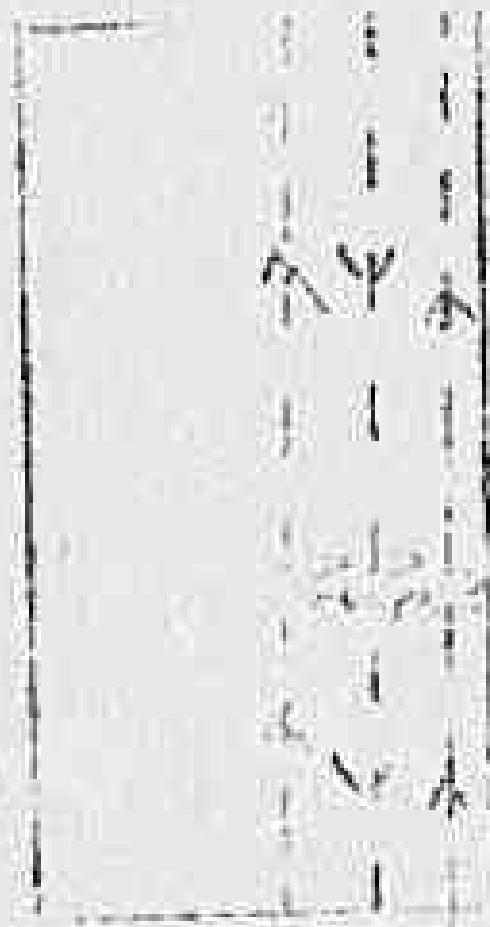
4. TYPE OF SEARCH: a) Square Search. Owing to low value for V, this search is not normally suitable for search for dinghies.



V=
Commence into wind from centre 1st
two legs of 2 V in length increasing
by 2 V after each two legs until
area covered.

b) Creeping-line Search. Usually the best search for aircraft flying singly. But the navigational task is so difficult that 100% efficiency of search cannot usually be approached; and there are frequently other strong reasons for not employing aircraft singly.

2 V between legs or tracks until
area covered.

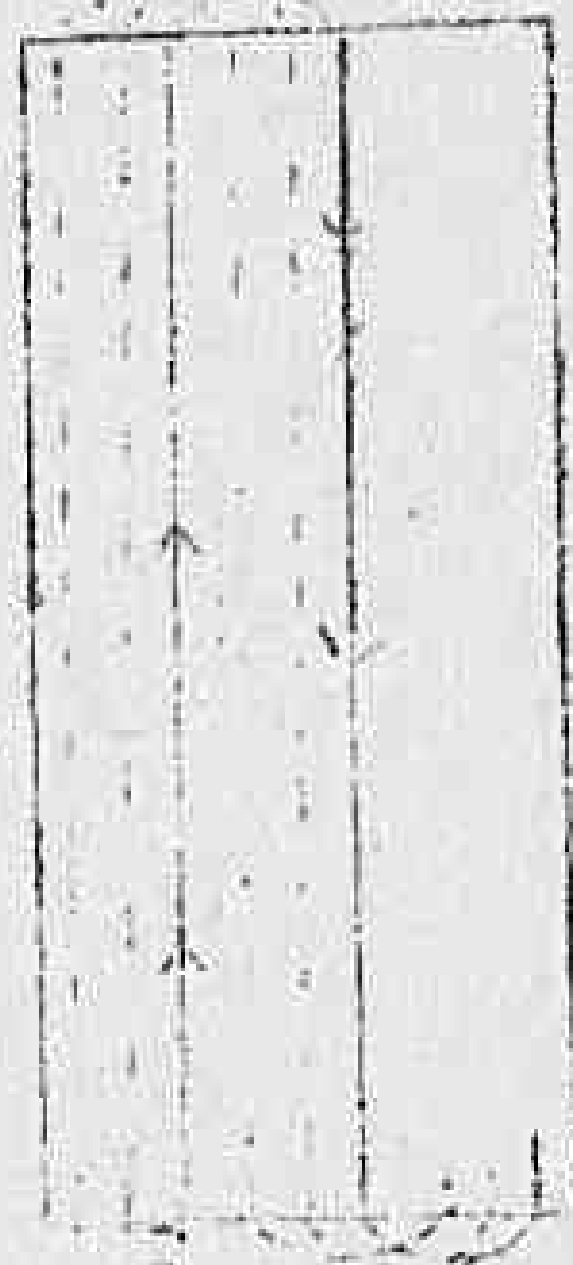


c) Parallel Track Search. Suitable for a long narrow area. Navigational task is simpler than that of Creeping-line Search, but considerable training together will be essential to avoid misunderstanding between the several crews if many aircraft are to be employed.

Formation of A/C used with
a leader to carry out main
navigation and usually a
P.L.E. job.



d) Combination of Creeping-line & Parallel Track Searches.
Normal search employed by aircraft of C.O. I/S.R. Squad usually with two, three or four aircraft.

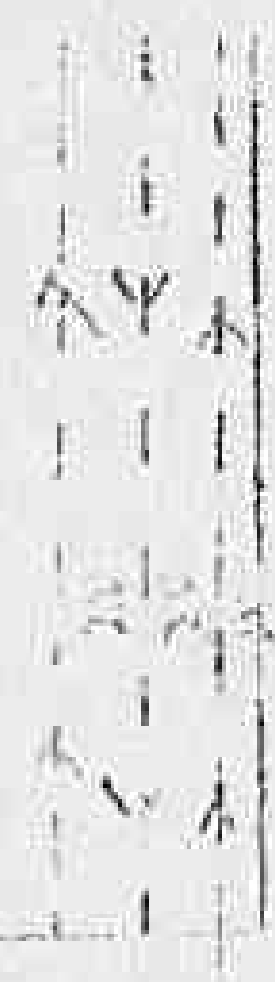


Note method F. turns

5. DIRECTION OF SEARCH: Some considerations affecting the direction in which aircraft should fly are:
a) Reduce turning to minimum, i.e. fly long legs.

b) Creeping-line Search. Usually the best search for aircraft flying singly. But the navigational task is so difficult that 100% efficiency of search cannot usually be approached; and there are frequently other strong reasons for not employing aircraft singly.

2 V between legs or tracks until area covered.



c) Parallel Track Search. Suitable for a long narrow area. Navigational task is simpler than that of Creeping-line Search, but considerable training together will be essential to avoid misunderstanding between the several crews if many aircraft are to be employed.

Formation of A/C used with a leader to carry out main navigation and usually a P.L.R. job.

d) Combination of Creeping-line & Parallel Track Searches. Normal search employed by aircraft of C.O. A/S.R. Squad usually with two, three or four aircraft.



Note method P. turns

5. DIRECTION OF SEARCH : Some considerations affecting the direction in which aircraft should fly are :
 a) Reduce turning to minimum, i.e. fly long legs.
 b) Assist good flying by not having pilot fly towards rising or setting sun.
 c) Tactical considerations, e.g. avoid flying parallel and close to enemy coast.

6. SCANNING THE WATER : a) Captain to organise; run over every member of crew normally has some duty too, do duplicate every pair of eyes.
 b) Carry eyes outwards from ~~nearby~~ water to the maximum distance at which dinghy may be seen, then return them to nearby water and repeat. Do not prolong the study of distant water.

2089

2089

Declassified E.O. 12356 Section 3.3/NND No. 785017

Data Form 6 (cont)

(c) If possible, plan search to limit look-out to about two hours. This will allow some 150 sq. miles per aircraft to be searched using V_{max} mile, or 300 sq. miles using V_{max} mile. (Area varies fairly widely of course with the speed of the searching aircraft).

7. NIGHT SEARCH ; May be organized (aircraft flying singly) in the hope that distressed crew may have pyrotechnics. But negative search will not prove that anything is not there.

8. SEARCH PRO FORM : A copy of Appendix B to the Coastal Command Operational Instruction No. 1/1945 on Air/Sea Rescue is attached to these notes. Completion of pro forma gives the information which ought to be supplied to Aircrew engaged on search operations. The controlling authority should not, however, delay in taking immediate action once sufficient information is available to allow a search to commence i.e. the approximate position of a forced alighting. Search aircraft leaving without the full information shown on the pro forma may be given further details whether distressed airmen are likely to have dingy radio or Walter.

AIR/SEA RESCUE SEARCH PRO FORM

Date	_____	Incident No.	_____
A. Group or Squadron	_____	No. of Aircraft	_____
B. Narrative	_____		
C. Search Area	_____	Direction of Search	_____
D. Starting Point	_____	Via	_____
E. Type of Search	_____	G. A/C Call Signs	_____
F. Time of take-off	_____	Base	_____
H. Position of Convoys & Naval Forces (when relative)	_____	Call Sign Push: from time to time.	_____
I. A/SR Sur- (No.)	_____	Call Sign	_____
Face Craft	_____	Approximate Area	_____
J. Adjacent Search (No.)	_____	L. Sea condition	_____
A/S.R. aircraft	_____		
K. Wind Force & Direction	_____		
M. Special Instructions	_____		
N. T.C.O	_____		

airway is not there.

G. SEARCH PRO FORMS : A copy of Appendix B to the Coastal Command Operational Instruction No. 1/15/45 on Air/Sea Rescue is attached to these notes. Completion of pro forms given the information which ought to be supplied to aircrew engaged on search operations. The controlling authority should not, however, delay in taking immediate action once sufficient information is available to allow a search to commence i.e. the approximate position of a forced alighting. Search aircraft leaving without the full information shown on the pro forms may be given further details whether distressed airmen are likely to have dinghy radio or Walter.

AIR/SEA RESCUE SEARCH PRO FORM.

Date _____ Incident No. _____
A. Group or Sqn _____ No. of Aircraft _____
B. Narrative _____
C. Search Area _____
D. Starting Point _____ Direction of Search _____
E. Type of Search _____ Via _____
F. Time of take-off _____ G. A/C Call Sign _____
H. Position of Convoys & Naval Forces (when relative) _____
I. A/SR Search } No. Type Base Call Sign Posn: from time to time.
Face On/off }
J. Adjacent Search } No. Type Call Sign Approximate Area.
A/S.R. aircraft }
K. Wind Force & Direction _____ L. Sea condition _____
M. Special Instructions _____
N. T.O.O _____

SURVIVAL AT SEA.INTRODUCTION

1. (1) The Medical lectures have given you 'gen' on diseases to be expected when at sea in a dinghy or A.L.B.. Also ways of coping with them and prevention of them, and use of first aid.

(ii) You have also learnt of tropical diseases and treatment of them, and the importance of keeping both mind and body in a state approaching perfect health - or as near to it as possible.

(iii) A good knowledge of these subjects is obviously a very good advantage, and will improve your chances of survival a hundred times, but you must also be equipped with something else. Something which the 'Skipper' should see and know exists in his own crew members, and for which - as skipper - he is responsible directly to his superior officer.

(iv) The lives of the flying crews are determined, in an emergency, entirely by the confidence, discipline and knowledge which they have accumulated during their spare moments, during time spent carrying out organised squadron training, and by discussion in the Plt. Office, and over a beer in Mess.

2. MENTAL EQUIPMENT FOR SURVIVAL

(i) Morale, and determination to live, confident in your own 'Skipper's' knowledge to keep you going until picked up!

(ii) The mental danger, caused from idleness, allowing the mind to dwell on the crews predicament.

(iii) Discipline, and obedience to the skipper, and the possibility of having to leave a crew member available to jump into his place in event of sickness, etc. He must likewise be confident and with the necessary knowledge.

(iv) Good knowledge of area of operations, and lay-out of terrain. All acquired from 'gen' given at briefing.

(v) Commonsense. This best shown by the example of a Chinese seaman who was adrift for 138 days on a raft, with very little training for sea survival, simply by looking after his own personal hygiene and using his head.

(vi) Pre-flight check of equipment, good co-operation between crews, S.A.W.'s, and co-operation between Unit and station A.S.J.R.C's. Preservation of personal equipment, and regular inspection.

(vii) Good crew drill in the air will promote good discipline, and make for good ditching drills.

(ii) You have also learnt of tropical diseases and treatment of them, and the importance of keeping both mind and body in a state approaching perfect health - or as near to it as possible.

(iii) A good knowledge of these subjects is obviously a very good advantage, and will improve your chances of survival a hundred times, but you must also be equipped with something else. Something which the 'Skipper' should see and know exists in his own crew members, and for which - as skipper - he is responsible directly to his superior officer.

(iv) The lives of the flying crews are determined, in an emergency, entirely by the confidence, discipline and knowledge which they have accumulated during their spare moments, during time spent carrying out organized squadron training, and by discussion in the Plt. Office, and over a beer in Mess.

2. MENTAL EQUIPMENT FOR SURVIVAL

(i) Morale, and determination to live, confident in your own 'Skipper's' knowledge to keep you going until picked up!

(ii) The mental danger, caused from idleness, allowing the mind to dwell on the crew's predicament.

(iii) Discipline, and obedience to the skipper, and the possibility of having to have a crew member available to jump into his place in event of sickness, etc. He must likewise be confident and with the necessary knowledge.

(iv) Good knowledge of area of operations, and lay-out of terrain. All acquired from 'gen' given at briefing.

(v) Commonsense. This best shown by the example of a Chinese seaman who was adrift for 158 days on a raft, with very little training for sea survival, simply by looking after his own personal hygiene and using his head.

(vi) Pre-flight check of equipment, good co-operation between crews, S.M.W.'s, and co-operation between Unit and station A.S.J.R.O's. Preservation of personal equipment, and regular inspection.

(vii) Good crew drill in the air will promote good discipline, and make for good ditching drills.

Survival at Sea (cont)

5. Immediate action once in Dingley

- (1) Appoint a leader - crew's skipper if available otherwise someone with the authority and knowledge to get you through.
- (ii) Remain with a/c till it sinks - reason ~~is~~
- (iii) Search for missing men - this applies particularly to transport crews when the skipper would consult passenger list.
- (iv) Salvage floating gear.
- (v) Fix dinghies together.
- (vi) Treat wounded with use of '1st aid' kit from dinghy and the one which should have come from the LCC.
- (vii) Secure all loose gear.
- (viii) Take stock of equipment and rations.
- (ix) Ration and prepare plan of action.

A Plan of action.

Functions to be considered :-
(i) Rations and water available.

(ii) Positions friendly or enemy waters.

(iii) Relative positions of surface vessels.

(iv) Likelihood of air search - weather etc. - was a/c on track.

5. Execution of Plan, and preparation for eventualities.

(i) Immediate institution of rationing.

(ii) Allocation of duties - fishing, sailing, navigation, search, sleep etc.

(iii) Watch roster - wounded only exempt - duties of lookout.

(iv) Rigging of evening - sunburn lotion - wearing of glasses.

(v) Rough weather precautions - lifelines etc.

(vi) Care of dinghy and seamanship.

(a) Topping up. Effect on sailing and drifting speeds.

(b) Keep dinghy dry.

(c) Temporary and permanent repair of leaks.

(d) Care to avoid chafing, tearing, and cutting of fabric.

6. Rationing Water

(i) Thirst the greatest problem. With care survive 8 - 12 days.

- (v) Put dummies together.
- (vi) Treat wounded with use of '1st aid' Kit from dinghy and the one which should have come from the *A/C*.
- (vii) Secure all loose gear.
- (viii) Take stock of equipment and rations.
- (ix) Ration and prepare plan of action.

A Plan of action.

Functions to be considered :-

- (i) Rations and water available.
- (ii) Positions friendly or enemy waters.
- (iii) Relative positions of surface vessels.
- (iv) Likelihood of air search - weather etc. - was c/c on track.

5. Execution of Plan, and preparation for eventualities.

- (i) Immediate institution of rationing.
- (ii) Allocation of duties - fishing, sailing, navigation, search, sleep etc.
- (iii) Watch roster - wounded only exempt - duties of lookout.
- (iv) Rigging of awning - sunburn lotion - wearing of glasses.
- (v) Rough weather precautions - lifelines etc.
- (vi) Care of dinghy and seamanship.
 - (a) Topping up. Effect on sailing and drifting speeds.
 - (b) Keep dinghy dry.
 - (c) Temporary and permanent repair of leaks.
 - (d) Care to avoid chafing, tearing, and cutting of fabric.

6. Rationing Water

- (i) Thirst the greatest problem. With care survive 8 - 12 days without water.
- No water for 1st 24 hours. Then assuming 4 one gey man :-
 - 1 1 1/2 oz. can for 2,3, and 4th days.
 - 2oz from 4th can on 5 - 11 days.
- (ii) Method of drinking - lips, gangle, mouthwash, swallow.
- (iii) Prevention of loss of moisture from body. Advantages of breezes - if cool, wetting clothes, chew gum or butter, smoking, over exertion -
- (iv) Collection of rain water.

7. Rationing of Food.

- (i) None for 1st 2 hours. Extend if possible 20-30 days survival without food. Do not eat if no water as digestion this consumes the juices from the body.
- (ii) Fishing. Start as soon as practicable - bait easy in tropics, just fish around with an improvised net.
Deep water fish - O.K. eat raw.
Inshore - poisonous fish.
- (iii) Birds - snaring and shooting of birds.
Preparation and eating. Blood.
- (iv) Turtles, shell fish, crabs, etc.

9. Sharks.

- (i) Danger and ferocity of greatly exaggerated.
- (ii) Habits -
Attracted by blood and light coloured objects - Timidity and cowardice.
- (iii) Shark repellent.
- (iv) Action if threatened or attacked.

Signals covered in practical sailing.

9. Fishing. Flying fish - widely distributed, and may be most available source of food.
Use any bits of clothing as bait.
Fish spoil in warm climate - clean and eat quickly
Dry whats left - this lasts some days.

Lines - Make from canvas.

Break up and take 8 - 10 strands and roll between thumb and forefinger.

Feed in new threads to overlay

Hooks.

- Hints.
- 1. Don't fasten your line.
 - 2. Go for small fish - large damage tackle
 - 3. Go for moving bait.
 - 4. Use Gills of birds or fish for bait - needn't be fresh.
 - 5. Fish day and night - if possible - at different depths - never give up.

- 10. Seaweed. Tough and salty - eat only if plenty of water.
Small fish and crabs found amongst so examine carefully.

(iv) Turtles, shell fish, crabs, etc.

9. Sharks.

(i) Danger and ferocity of greatly exaggerated.

(iii) Habits - attracted by blood and light coloured objects - Timidity and cowardice.

(iii) Shark repellent.

(iv) Action if threatened or attacked.

Signals covered in practical sailing.

9. Fishing Flying fish - widely distributed, and may be most available source of food.
Use any bits of clothing as bait.
Fish spoil in warm climate - clean and eat quickly
Dry wicks left - this lasts some days.

Lines - Make from canvas.

Break up and take 8 - 10 strands and roll between thumb and forefinger.

Feed in new threads to overlay

Hooks.

Hints.

1. Don't fasten your line.
2. Go for small fish - large damage tackle
3. Go for moving bait.
4. Use Gills of birds or fish for bait - needn't be fresh.
5. Fish day and night - if possible - at different depths - never give up.

10. Seaweed. Tough and salty - eat only if plenty of water.
Small fish and crabs found amongst so examine carefully.

11. Birds. All sea birds are edible. Relatively scarce in open sea. Plentiful - coral island and mid ocean rocks.

Land Indications - Few birds normally range from breeding grounds.
Note evening flight of birds - Heavily morning flight.
Frigate bird - no sleep on water if seen in eve - land 50 - 75 miles.

Lifes battle do not go always to the stronger or faster man.
But sooner or later the man who wins, is the man who thinks he can.

2388

Lecture No. 1

1. INTRODUCTION Your chances in getting thro' depend on :-

- (i) Morale and determination to live.
- (ii) Previous knowledge. Danger to remainder of crew of ignorance of simple rules on part of one member.
- (iii) Confidence in your knowledge of jungle life, and knowing that it is not difficult to live indefinitely in jungle country.
- (iv) Common sense again - pre-landing drill, and /or halting out action.
- (v) Ability to learn by imitation and experience. (Schools in Bafon and Bhopal, latter for reform. crews.)

2. Action prior to landing - To bale or not to Bale that is the question How to decide ?

- (i) Encourage to pin point y urself - as being ~~on~~ or crash landing
- (ii) Watch for other crew members.
- (iii) Take stock of the country into which you are going. proximity of rivers, lakes, high vantage points, open spaces for rescue party landings etc.

3. Immediate action after crash landing.

- (i) Check for injuries, and give first aid.
- (ii) Fix position.
- (iii) Establish W/T contact
- (iv) Preparation of all signalling equipment for immediate use.
- (v) Check emergency and other equipment available.
- (vi) Ration water and food immediately.
- (vii) Relax and formulate plan.

4. Formulation of plan of Action.

- (i) Stay with ~~W/T~~ or start moving - stay if possible.
- (ii) Leave if {a} Position fixed, and able to reach safety.
{b} Weather conditions continue to preclude air search.

Consider the following.

- (i) Visibility or crash from the air.

- (iv) Common sense again - pre-landing skills, and/or bailing out action.
- (v) Ability to learn by mistakes and experience. (Schoole in action and Shovel, latter for refuel, crews.)

2. Action prior to landing - To Bala or not to Bala that is the question
How to decide?

- (i) Engineer to pin point y urself - ~~is~~ bailing or crash landing.
- (ii) Watch for other or w markers.
- (iii) Make stock of the country into which you are going.
proximity of rivers, lakes, high vertage points, open spaces
for rescue party landings etc.

3. Immediate action after crash landing.

- (i) Check for injuries, and give first aid.
- (ii) Fix position.
- (iii) Establish W/T contact
- (iv) Preparation of all signalling equipment for immediate use.
- (v) Check emergency and other equipment available.
- (vi) Ration water and food immediately.
- (vii) Relax and formulate plan.

4. Formulation of plan of action.

- (i) Stay with ~~4/4~~ or start moving - stay if possible.
- (ii) Leave if (a) Position fixed, and able to reach safety.
(b) Weather conditions continue to preclude air search.

Consider the following.

- (i) Visibility of crash from the air.
- (ii) Facilities afforded by crashed a/c.
- (iv) chances of rescue - good or bad.
(a) Good if (1) W/T contact established.
(2) Position on track of regular routes.
(3) Weather good.

- (b) Bad if (1) No W/T contact
(2) Position well off supposed track.

In former remain with a/c
latter, travel

But consider :-

- (i) How accurate is the position. Can you plan a safe route from position and available maps.
- (ii) Distance to nearest rescue point, and nature of objective.
- (iii) Condition of personnel.
- (iv) Sufficiency of clothing, equipment food and water.
- (v) What is available on route.
- (vi) Always underestimate abilities.

5. Hazards of Jungle.

Likelihood of danger from snakes, scorpions, crocodiles etc., greatly over emphasised.

Give examples of hunting expeditions and walk-out on previous occasions.

Real Dangers.

- (i) Rain.
- (ii) Sun.
- (iii) Insects : - mosquito, ticks, leeches etc.
- (iv) Illness and fever : malaria, dysentery, scrubty.
- (v) Poison from contact with or eating plants.

All can be avoided with proper care, caution, and a little common sense.

6. Jungle Travel.

- (a) Types of country.
 - (i) Mangrove or other swamps - avoid.
 - (ii) Tropical rain forests at or near sea level and at higher altitudes.
- (b) Method of travel.
 - (i) Rivers, and dry beds - water courses.
(Make use of bamboo rafts if possible)
Habitat more likely near rivers - down stream.
 - (ii) Animal tracks.
 - Elephant :- 5' wide, footprints.
 - Others :- narrow
 - Elephant best road maker, and avoids hills, eventually leads to water?
 - (iii) Avoid virgin jungle is possible, as may strike heavy under-

5. Hazards of Jungle.

Likelihood of danger from snakes, scorpions, crocodiles etc., greatly over-emphasised.

Give examples of hunting expeditions and walk-out on previous occasions.

Real Dangers.

(i) Panic.

(ii) Sun.

(iii) Insects : - mosquito, ticks, leeches etc.

(iv) Illness and fever : malaria, dysentery, sandfly.

(v) Poison from contact with or eating plants.

All can be avoided with proper care, caution, and a little common sense.

6. Jungle Travel.

(a) Types of country.

(i) Mangrove & other swamps - avoid.

(ii) Tropical rain forests at or near sea level and at higher altitudes.

(b) Method of travel.

(i) Rivers, and dry beds - water courses.

(Make use of bamboo rafts if possible)

Habitat more likely near rivers - down stream.

(ii) Animal tracks.

Elephant :- 5' wide, footprints.

Others :- narrow

Elephant best road maker, and avoids hills, eventually leads to water?

(iii) Avoid virgin jungle is possible, as may strike heavy undergrowth, quite impassable.

(iv) Ridges - often easier than valley or stream.

Vegetation less dense - ridges serve as a guide-outlook good - few streams and swamps - watch/you stray onto interesting ridge in wrong direction.

Remember

(i) Don't travel at night.

(ii) Make it easy - start early - rest every 4 hr. - prepare for night in P.M.

(iii) Sleep as important as food, and water

(iv) Take easier route though longer.

Survival in the Jungle.

LECTURE No. 2

1. Food and Water.

entry of both if you know where to look.

(a) Water - rainwater
vines
plants and broad leaves.
bamboo stems
coconuts

} all pure, and
no chance of
infection.

} digging
holes in rocks, tree stumps etc. } needs
purifying

(b) Food (i) - plants - cultivated or semi cultivated
coconuts, papaya, bananas, mango,
breadfruit, jackfruit, durian
wild - unlimited.
the palm cabbage.

Avoid 1. Coloured or milky sap fruits
2. Bitter or soapy taste.
3. Gaudily coloured - unless recognised O.K.

(ii) Animal food.

Fish : fresh water - boil
poisonous inshore types.
with scales - O.K.
avoid gaudily coloured ones.
young crocodiles,
lizards, snakes, birds, grubs.

2. Shelters; bamboo only essential

(i) Choosing site :

- (i) near stream, but higher ground, 100 yards back.
- (ii) Never in dry bed - floods quickly.
- (iii) Look up and avoid dead trees and coconuts.
- (iv) Use a/c suitably prepared if staying.

(ii) Construction of simple shelter.

Use of parachutes for tent, hammock, lean-to.
Construction of simple bed) Bamboo
Tables etc. and raft or boats)

(iii) Protective clothing, Mosi head cover, gloves,
jungle suits, leech stockings,
Care of, repair, and cleanliness.

(iv) Emergency equipment :
parachute or fish net, fishing lines.

leech stockings, para parachutes,

(b) Food (i) - plants - cultivated or semi cultivated coconuts, pears, bananas, mango, breadfruit, jackfruit, durian
wild - unlimited.
the palm cabbage.

Avoid 1. Coloured or milky sap fruits

2. Bitter or soapy taste.

3. Gaudily coloured - unless recognised O.K.

(ii) Animal food.

Fish : Fresh water - boil

poisonous inshore types.

with scales - O.K.

avoid gaudily coloured ones.

young crocodiles,

lizards, snakes, birds, grubs.

2. Shelters: bamboo only essential

(i) Clothing etc :

(i) near stream, but higher ground, 100 yards back.

(ii) Never in dry bed - floods quickly.

(iii) Look up and avoid dead trees and coconuts.

(iv) Use a/c suitably prepared if staying.

(ii) Construction of simple shelter.

Use of parachute for tent, hammock, lean-to.

Construction of simple bed) Bamboo

Tables etc. and raft or boats)

(iii) Protective clothing, Mosi head cover, gloves,
jungle suits, leech stockings,
Care of, repair, and cleanliness.

(iv) Emergency equipment :
parachute or fish net, fishing lines,
back pack, etc. from parachute.

(v) Fires . Don't waste matches - keep dry.
Burnin glass
Lighters.
Wood rubbing - too much effort.
Charcoal - keeps on when using during a walk.

(vi) Cooking - use of shells, coconuts etc.
bamboo - cups, food container, saucepans etc.

Survival in the Jungle.

3. USES OF RAFTS. :-

Shelter - (1) an-to ' roof of leaves.
 Furniture - bed, table, chairs, etc.

Tools - spoons, forks, harpoons.
 - horizontal and vertical.

fish traps -

cooking utensils - horizontal and vertical.

food - young shoots.

rafts - simple small
 complex large (more protection from reptiles)

SUMMARYSURVIVAL HINTS.

CARE - Real Dangers - watch for :-

(i) PANIC - FEAR OF UNKNOWN

(ii) SUN

(iii) INSECTS - mosquito, ticks, and leeches.

(iv) ILLNESS : DISEASE, AND RIVERS - malaria, and dysentery.

(v) POISON : contact and / or eating poisonous plants, fish etc.

(vi) WILD ANIMALS , variable types depending on area.

With care, and a little knowledge all these can be avoided, coupled with a certain amount of common sense.

ASSETS

(i) Physically fit.

(ii) Dressed and equipped for an emergency.

(iii) Fundamental woodcraft principles, and can apply them ?

(iv) Limited skill in outdoor

2384

Knowledge required :-

(i) Learn to know the jungle - practical experience "walk-outs" at jungle schools.

(ii) Learn sources of food and water, and how to prepare.

(iii) Learn how to care for your body, and conserve energy.

(v) Navigation and pin pointing.

(vi) Familiarize yourself with those things which will harm you.

SCHOOL OF SURVIVAL AND RESCUE - LECTURE PRESENTS.EQUIPMENT - 1.

Ditching equipment revolves around the dinghy which is manufactured from rubber-proofed cotton fabric and colored yellow or orange. Carbon dioxide is used to inflate it because it is easily compressible into a small space, is non-inflammable, heavier than air and cheap to manufacture. The gas is housed in a bottle varying in size for different types of dinghy, fitted to the dinghy and controlled by means of an operating head.

Equipment has to be carried in addition to the dinghy to aid it in doing its job well and to sustain the ditched crew until rescue. Most of this is housed in emergency packs but some is fitted to the dinghy.

Topping up bellows are housed in the centre of the floor of circular dinghies and a bonnet-type strapped on the buoyancy tube of 'K' type for replacing any lost gas by air. The Americans use a very practical type of pump. Leak stoppers are fitted to a fabric housing on the buoyancy tube of the dinghy to plug up any holes in the fabric. A similar design used by Americans is called a bullet hole-plug. A small repair outfit may replace any of the stoppers. Two further patches on the dinghy carry a slash knife for servicing the painter by which the dinghy is attached to the aircraft and a rescue line attached to 25 yards of line for assisting any crew in the water unable to reach the dinghy. Distress signals for attracting attention of aircraft are of two kinds, 1" red, three to a tin, fired by means of a dinghy pistol secured to the crew by a lanyard and the 2 star red cartridges fixed by means of a pin released at right angles down wind. Fluorescine blocks, banded in the water attached to the life-line of the dinghy by its own tape, release a bright green trail on the sea which is more obvious to searchers than the dinghy itself. Many more items will be displayed later but time only permits one, the ditching apparatus. This consists of a periscope canister holding a bag on the outside of which are instructions for use and inside nine briquettes for removing the impurities from the sea. In the lid of the canister is a fabric bag having a length of tube in the centre of its floor plugged by a metal pin. The canister is filled with sea water up to a red line marked on its side which is then poured into the fabric bag and one briquette inserted. The bag is then fastened and shaken for 30 mins after which the metal pin is removed, the bag fastened over the canister and squeezed. Pure circulating water will then pass through the length of tube into the canister.

EQUIPMENT - 2.

Dinghies in general use in the service are seven in number, all identified by a letter of the alphabet. Four are circular in design and only differ in size. They are the J.H.M. and L in order of size. They are followed by the boat shaped K, a dinghy whose primary object is not ditching known as the D and finally the American light raft A 3, included because R.A.F. personnel are still flying American aircraft.

The policy of Air Ministry was at one time that all aircraft should eventually be equipped with a dinghy which will sail. As it is necessary to have a boat shaped hull to get any forward movement of note, the K was the obvious choice. By means of thwart paddles fitted into pocket patches on the buoyancy tube a socket was found for the telescopic mast which was supported by three guy lines, one fitting into a D ring in the nose of the dinghy and two aft of the paddles. The same hook in the mast which held the forward guy line supported the red sail. Unfortunately the K had its sailing limitations owing to the absence of a keel. To replace the circular J dinghy, a sailing Q was designed.

Topping up balloons are hoisted in the centre of the floor of circular dinghies and a coneo-type type strapped on the buoyancy tube of 'K' type for replacing any lost Go2 by air. The Americans use a very practical type of pump. Leak stoppers are fitted to a fabric housing on the buoyancy tube of the dinghy to plug up any holes in the fabric. A similar design used by Americans is called a "weld" hold-down. A small repair outfit may replace any of the stoppers. Two further patches on the dinghy carry a sharp knife for servicing the printer by which the dinghy is attached to the aircraft and a rescue line attached to 25 yards of line for assisting any crew in the water unable to reach the dinghy. Distress signals for attracting attention of aircraft are of two kinds, 1" red, three to a tin, fired by means of a dinghy pistol secured to the crew by a lanyard and the 2 star red cartridges fixed by means of a pin released at right angles down wind. Fluorescine blocks, draped in the water attached to the life-line of the dinghy by its own tape, release a bright green trail on the sea which is more obvious to searchers than the dinghy itself. Many more items will be displayed later but this only permits one. The desalting apparatus. This consists of a perspex canister holding a bag on the outside of which are instructions for use and inside nine briquettes for removing the impurities from the sea. In the lid of the canister is a fabric bag having a length of tube in the centre of its floor plugged by a metal pin. The canister is filled with sea water up to a red line marked on its side which is then poured into the fabric bag and one briquette inserted. The bag is then fastened and shaken for 30 mins after which the metal pin is removed, the bag fastened over the canister and squeezed. Pure drinking water will then pass through the length of tube into the canister.

Equipment - 2.

Dinghies in general use in the service are seven in number, all identified by a letter of the alphabet. Four are circular in design and only differ in size. They are the J, H, M, and L in order of size. They are followed by the box shaped K, a dinghy whose primary object is not ditching known as the D and finally the American light raft A 3, included because R.A.F. personnel are still flying American aircraft.

The policy of Air Ministry was at one time that all aircraft should eventually be equipped with a dinghy which will sail. As it is necessary to have a boat shaped hull to get any forward movement of note, the K was the obvious choice. By means of thwart paddles fitted into pocket patches on the buoyancy tube a socket was found for the telescopic mast which was supported by three guy lines, one fitting into a D ring in the nose of the dinghy and two aft of the paddles. The same hook in the mast which held the forward guy line supported the red sail. Unfortunately the K had its sailing limitations owing to the absence of a keel. To replace the circular J dinghy, a sailing J was designed originally on the Borneo-rigged principle of the lifeboat. This was found not only difficult to put into the J storage but also difficult to rig as a simpler design called the Latoon was produced.

These dinghies each have their own characteristics such as accommodation, buoyancy, that is the weight in lbs that a dinghy is designed to carry efficiently over a long period, storage and finally mention is made of a few aircraft in which each of these dinghies is used.

Dinghy storage is here explained. It can either be packed in a valise or built-in a compartment. The valise is an ordinary canvas wrapping folded around the dinghy and laced. This is released by dinghy inflation. Built in compartment is a housing for the dinghy usually on the upper surface of one of

Equipment - 2 (cont)

the main wings and can be either blow-out or positive storage. Blow-out storage is where the inflator is held in place by friction pads and is forced off by the inflation of the dinghy and positive lock is the addition of a bracket underneath the cover locked by a bolt electrically wired up to the release and the dinghy will not remove the cover till the bolt is withdrawn.

The J dinghy holds 8 men, 300lbs buoyancy, packed in a blow-out storage and is found on Lancasters, Halifaxes etc.

The H dinghy holds 5 people, 1900 lbs buoyancy, packed in valise or blow-out and carried by Dakotas, Anacs, Catalinas.

The K dinghy carries 3, 1080lbs buoyancy, stowed either way and used almost exclusively by the Fleet Air Arm.

The L dinghy carries 2, 750 lbs buoyancy, stowed in blow out only and used on Mosquitos and Beaufighters.

The M dinghy is a single seater, 380 lbs buoyancy, used mainly for fighters and is stowed in one of two types of pack.

The D dinghy is used on Flying boats mainly as a general purposes tender for provisions stores and personnel from jetty to the aircraft moored at base in deep water. Has a buoyancy of 2000 lbs, carries up to 5000 and if taken on a flight is rolled up and stored in the hull of the craft. The A J carries a crew of FIVE, approximate buoyancy is 2000 lbs (American do not consider such details) and is stowed in a compartment either side of the fuselage of the bomber which opens in the positive lock principle.

Here the display room becomes the centre of attraction, where the features of these dinghies are pointed out and in addition one or two German dinghies are of interest.

EQUIPMENT - 3

Before the flight goes sailing, it is deemed advisable for them to be conversant with the vagaries of the two Q dinghies. Therefore this period is devoted to a practical demonstration by the instructor of how to rig both types, all pitfalls being carefully stressed. The flight is then formed into crews and go through the drill themselves under the watchful supervision of the instructor.

EQUIPMENT - 4.

Mention is previously made of emergency packs which are now described.

There are four main packs - two called Primary or Intra Packs and two supplementary packs. The first two are Nos. 3 and 5 and the other Nos. 4 and 7. In design packs should conform to four conditions, easily removed from the aircraft, easily handled by one person, buoyant and waterproof.

There are three methods of stowage: - packed with and tied to the dinghy in its valise, packed with and tied to the dinghy in the blow-out compartment or stowed in the fuselage as near the dinghy exit as possible.

Generally speaking, there are four vital items of equipment in the packs: - Water, food, first aid and signals.

Type 3 pack is now fully described - made of fabric covered tin, handles, lanyard and paddle housing on the outside. It has its own stores reference and mention is here made of the A.P. 1086 where these reference may be found. Its measurements are 24 1/2" X 13" X 4 1/2".

the dinghy is a single seater, 360 lbs buoyancy, used mainly for fighters

and is stowed in one of FIVE types of pack.

The D dinghy is used on Flying Boats mainly as a general purpose tender for moving stores and personnel from jetty to the aircraft moored at base in deep water.

Has a buoyancy of 1000 lbs, carries up to 2000 lbs and if taken on a flight is rolled up and stored in the hull of the craft. The 1/3 carries a crew of FIVE, approximate buoyancy is 2000 lbs (American do not consider such details) and is stowed in a compartment either side of the fuselage of the bomber which opens in the positive lock principle.

Here the display room becomes the centre of attraction, where the features of these dinghies are pointed out and in addition one or two German dinghies are of interest.

EQUIPMENT - 2

Before the flight goes sailing, it is deemed advisable for them to be conversant with the varieties of the two Q dinghies. Therefore this period is devoted to a practical demonstration by the instructor of how to rig both types, all pitfalls being carefully stressed. The flight is then formed into crews who go through the drill themselves under the watchful supervision of the instructor.

EQUIPMENT - 4.

Mention is previously made of emergency packs which are now described. There are four main packs - two called Primary or Little Packs and two supplementary packs. The first two are Nos. 3 and 5 and the other Nos. 4 and 7. In design packs should conform to four conditions, easily removed from the aircraft, easily handled by one person, buoyant and watertight.

There are three methods of stowage: - packed with and tied to the dinghy in its valise, packed with and tied to the dinghy in the blow-out compartment or stowed in the fuselage as near the dinghy exit as possible.

Generally speaking, there are four vital items of equipment in the packs: - Water, food, first aid and signal.

Type 3 pack is now fully described - made of fabric covered tin, handles, lanyard and paddle housing on the outside. It has its own stores reference and mention is here made of the A.P. 1086 where these reference may be found. Its measurements are 24 1/2" X 13" X 4 1/2".

EQUIPMENT - 5.

Lindholme Rescue Gear (S.R. Apparatus type A) Equipment dropped from aircraft to sustain ditched crew, chiefly for crew, after being located until final rescue. Consists of FIVE containers, four of equal size housing rations and one large one holding J type dinghy. Each container joined to its neighbour by 70 yards buoyant rope housed in total valise on top of container. Kapok floats along rope at intervals of 12 ft to assist ditched crew locate new dinghy in heavy sea. One ration container now displayed and features commented upon followed by dinghy container shown assembled and dismantled. Features stressed especially method of inflating

Survival - 5. (cont)

dinghy by soluble plug.

Method of dropping apparatus was pictured emphasising its in crosswind on leeward side of dinghy at 120 feet flying at 140/5 m.p.h. Indication given of the setup and function of the sea anchors.

Drill now required from ditched crew illustrated with final position of two dinghies attached with SIX containers floating in sea joined to dinghy and its object.

Tabulated details of contents of ration containers and all equipment not previously shown, now demonstrated.

EQUIPMENT - 6.

Spittiro Rescue Apparatus (S.R. Apparatus type E)
Pictorial description of the three containers housed in flare chutes of Spitfire Mk. II & V D. Although previous to VI day assembled as S.R. squadrons in Fighter Command was disassembled, equipment can still be used in any aircraft carrying suitable flare chutes possibility of being so used in Catalinas in the last war.

- A container described together with modified L dinghy.
- B container described together with display of ration.
- C container described together with display of 75 yards of rope.

Method of drop now described giving details.
Further modifications on dinghy illustrated.

A.S.R. Supply Dropper (S.R. apparatus type F). Discussion of equipment as replacement for Bircham Barrel. Point out all features, conditions it must fulfil and its contents.

Dictate those tasks on S.D.D. is authorised to undertake and give exceptions. Give hints on the furnishings of the dinghy section. Care and maintenance of dinghies and the Landoline. Show the tests for a can of water.

EQUIPMENT - 7.

Life Saving Waistcoat (Lac West) - Features of daily and monthly inspection. American Lac West and its modifications.

Prototype Lac West and its main features.

Manometer - its design, use and demonstration with aid of L type dinghy.

K dinghy packs - types

A Mk. II (obsolescent) and Mk. III

B, EX (for Mustangs) and B.U.S. (for American harness) C and F types.

Tables I and II - set up of contents for all packs except F and D.

EQUIPMENT - 8.

JUNGLE EQUIPMENT.

- (1) Tropical Back pack and Jungle suit. Display pack, a scribe fitting to Lac West and detail & produce items of equipment.
- (2) American Survival Kit. Light waistcoat worn inside Lac West - show pack. Fit it to self and detail and produce equipment.

EQUIPMENT - 6.

Spittire Rescue Apparatus (S.R. Apparatus type B)
Fictorial description of the three containers used in flare chutes of Spittire
MR. II & V B. Although previous to VE day assembled as A.S.R. squadrons in
Fictior Command was dismantled, equipment can still be used in any aircraft
carrying suitable flare chutes possibility of being so used in Catalinas in
Far West War.

- A container described together with modified L dinghy.
- B container described together with display of rations.
- C container described together with display of 75 yards of rope.

Method of drop now described giving details.
Further modifications on dinghy illustrated.

- A.S.R. Supply Dropper (S.R. Apparatus type F). Discussion of equipment
as replacement for Bircham Barrel. Point out all features, conditions it must
fulfill and its contents.

- Dictate these tasks on S.L.7. is authorized to undertake and give exceptions.
Give hints on the furnishing of the dinghy section. Care and maintenance of dinghies
and the Lindholme. Show the tests for each of water.

EQUIPMENT - 7

Life Saving Waistcoat (Iino West) - Features of early and monthly inspection.
American Line West and its modifications.

Prototype Iino West and its main features.

Manufacturer - its design, use and demonstration with aid of L type dinghy.

K dinghy packs - types

A III. II (obsolescent) and MR. III

B, EX (for Mustangs) and B.U.S. (for American Mustangs) C and F types.
Tables I and II - set up of contents for all packs except F and D.

EQUIPMENT - 8

JUNGLE EQUIPMENT.

- (1) Tropical Back pack and Jungle suit. Display pack, d scribe fitting to
Iino West and detail & produce items of equipment.
- (2) American Survival Kit. Light waistcoat worn inside Iino West - show
pack, fit it to self and detail and produce equipment.
- (3) American Sun still for obtaining fresh water from the sea. Describe and show the
setting up of the still. Describe the operation pointing
out each feature as used. Give some hints regarding
precautions to be taken.

AIRBORNE LIFEBOATS.

(Each pupil is loaned a copy of A.R. 27/61, which he holds for duration of course)

A. Brief history of Airborne Lifeboat (first used 7/5/45 etc.)

B. Their present use - used by British and Americans in many parts of the world, and dropped to crews of one or more (Fighter types note !) whenever surface craft are not in immediate vicinity. Are therefore of great importance to all air-crew, especially as conditions in Pacific may necessitate comparatively long periods on A/B L/B, and, such unnecessary hardship can be caused by lack of knowledge re engines, use of drogue, immediate actions, etc.

C. Description of the following types of A/B L/B : - Mk. I - II - III - IV

under the following :-

1. Carrying aircraft.
2. Range of aircraft.
3. Number of crew boat is equipped for.
4. Parachutes.
5. Weight.
6. Buoyancy.
7. Length.
8. Beam.
9. Draft.
10. Engines (type, cooling system etc.)
11. Fuel capacity.
12. Max. speed (both engines)
13. Max. speed (one engine)
14. Max. speed (one engine)
15. range at "

16. Cruising speed.
17. range at "

D. Description of a L/B drop with special reference to :-

- (1) automatic inflation of buoyancy chambers.
 - (2) rocket projection of drogue and its purpose.
 - (3) automatic projection of buoyant rocket lines and their purpose.
- (the safety, levelling and immersion switches which fire the above are mentioned but not described in detail). (Diagrams on blackboard illustrate the drop).

E. Method to be adopted by crew in dinghy to reach Airborne Lifeboat.

EQUIPMENT - 10.

Inspection of Mk. I Lifeboat.

(Note : - This serves as a lecture in the UK. 1. Also, differences between the two types being pointed out to pupils.)

Special reference is made to the following points :-

1. Position of all hatches and importance of keeping all hatch cover fastened down.
2. Method of jettisoning parachute slings.
3. Method of handling in rocket-projected drogue, and buoyant

craft are not in immediate danger. In all air-crew, especially in conditions in Pacific may necessitate emergency landing periods on A/B I/B, and, such unnecessary hardship can be caused by lack of knowledge re engines, use of drogue, immediate actions, etc.

C. Description of the following types of A/B I/B : - Mrs. I - II - II - PIA

- A 4

under the following : -

1. Carrying aircraft.
2. Range of aircraft.
3. Number of crew boat is equipped for.
4. Parachutes.
5. Weight.
6. Buoyancy.
7. Length.
8. Beam.
9. Draft.
10. Engines (type, cooling system etc.).
11. Fuel capacity.
12. Max. speed (both engines)
13. Max. speed (one engine)
14. Max. speed (one engine)
15. Range at "
16. Cruising speed.
17. Range at "

D. Description of a I/B drop with special reference to : -

- (1) automatic inflation of buoyancy chambers.
 - (2) rocket projection of drogue and its purpose.
 - (3) automatic projection of buoyant rocket lines and their purpose.
- (the safety, levelling and inversion switches which fire the above are mentioned but not described in detail). (Diagrams on blackboard illustrate the drop).

E. Method to be adopted by crew in dingy to reach lifeboat.

EQUIPMENT - 10.

Inspection of Mk. I Lifeboat.

(Note : - This serves as a lecture in the MK. 1 & also, differences between the two types being pointed out to pupils.)

Special reference is made to the following points : -

1. Position of all hatches and importance of keeping all hatch cover fastened down.
2. Method of jettisoning parachute slings.
3. Method of handling in rocket-protected drogue, and buoyant rocket lines.
4. How to inflate buoyancy chambers if automatic inflation has failed.
5. How to keep buoyancy chambers 'topped up'.
6. Method of starting engines, refilling tanks, cleaning plugs, usual causes of engines failing to start etc.
7. Stopping and staying afloat.
8. Shipping rudder and centre board keel.
9. Mounting compass.
10. Message carrier.
11. Oars and rowlocks.
12. How to use bilge pump, - safety belts, - heavy drogue - rescue net.
13. Positions of dry battery and use of this lamp.

EQUIPMENT - 11

AIRBORNE LIFEBOAT cont'd.Inspection of Mk. II Lifeboat.

Special reference is made to points 1. to 13. above in relation to Mk. II lifeboat and in addition the following are demonstrated :-

14. How to use the 'lodgers' and awning provided.
15. Method of removing engine hatch cover to allow access to shaft lubricating cups.
16. Method of removing propeller inspection hatch cover.
17. Use of the 'Master' switch to conserve current.
18. How to set up the mast and kite-beams aerials, connecting them to the switch-unit and thence to the dingy radio and receiver.

EQUIPMENT - 12.

Airborne Lifeboat cont'd.

A. Each item of equipment signed in the hatches of Mk. 2, Mk. I A. and Mk. II lifeboats is shown to the pupils, together with a complete list on the black-board showing the quantity of each item available in these boats.

Where necessary the method of use of the article is demonstrated.

B. All equipment which will be found in the docks, of the three lifeboats is listed, together with the quantity of each item.

C. Immediate Actions to be taken by a crew on reaching an airborne lifeboat :-
The following apply to Mk. I, I A. and II.

- (1) Release parachutes if still attached to boat.
- (2) Inflate buoyancy chambers by manual release if automatic inflation has failed.
- (3) Look for message in message carrier.
- (4) Ship rudder and clamp in position.
- (5) Ship centre board keel.
- (6) Salvage or sink dingy.
- (7) Land in buoyant rocket lines.
- (8) Land in drogue.
- (9) Hatch aircraft for Aldis signals.
- (10) Start engines or startmast and rig sails, and get under way on course indicated in message.
- (11) Display recognition aprons unless in hostile waters.
- (12) Captain to read instruction book.

The following additional actions apply to Mk. I only :-

- (2 a) Inflate side buoyancy chambers with bellows.
- (3 a) Remove packing under pumps.
- (9 a) Remove coxins or line strain from exhaust ports.
- (13) Distribute weight more evenly by removing some of equipment from forward hatch and stowing in aft hatches.

The following additional actions apply to Mk. I A. only.

- (2 a) Remove tail fins
- (3 a) Mount compass
- (9 a) Same as Mk I.
- (13)

The following additional actions apply to Mk II only :-

EQUIPMENT - 12.

Airborne lifeboat contents.

A. Each item of equipment stored in the hatches of Lk. I, Lk. II and Lk. III lifeboats is shown to the pupils, to other crew, a complete list on the blackboard showing the quantity of each item available in these boats.

Where necessary the method of use of the article is demonstrated.

B. All equipment which will be found in the decks, or the three lifeboats is listed, together with the quantity of each item.

C. Immediate actions to be taken by a crew on reaching an airborne lifeboat: -
The following apply to Lks. I, II, and III.

- (1) Release parachutes if still attached to boat.
- (2) Inflate buoyancy compasses by manual release if automatic inflation has failed.
- (3) Look for message in message carrier.
- (4) Ship rudder and clamp in position.
- (5) Ship engine board keel.
- (6) Salvage or sink dinghy.
- (7) Land in buoyant rocket lines.
- (8) Land in drague.
- (9) Watch aircraft for Aldis signals.
- (10) Start engines or stopwatch and rig sails, and get under way on course indicated in message.
- (11) Display recognition aprons unless in hostile waters.
- (12) Captain to read instruction book.

The following additional actions apply to Lk. I only: -

- (2 a) Inflate side buoyancy chambers with bellows.
- (3 a) Remove packing under pump.
- (9 a) Remove cork or line, strain from exhaust ports.
- (13) Distribute weight more evenly by removing some of equipment from forward hatch and storing in aft hatches.

The following additional actions apply to Lk. II only:

- (2 a) Remove tail fins
- (3 a) Mount compass
- (9 a) Steps as Lk. I.
- (13)

The following additional actions apply to Lk. III only: -

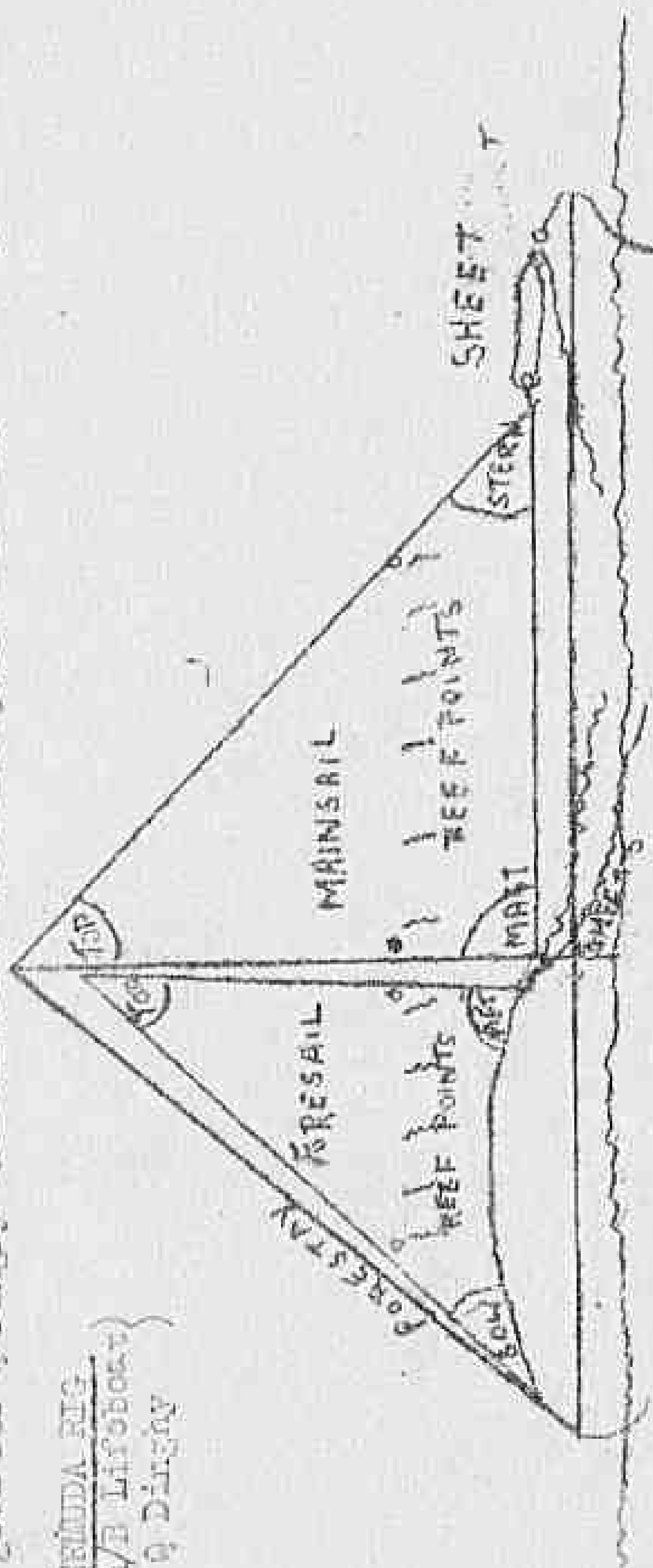
- (2 a) Turn master switch to 'ON' position
- (3 a) Remove packing under compass.

SCHOOL OF SURVIVAL AND ESCAPE - LIFEBOAT PROCEDURES

SAILING - 1.

1. Comment on Drawing of Bermuda Sails indicating that the one drawing holds good for a Dinghy and Airborne Lifeboat apart from different types of sheets.

BERMUDA RIG
(A/B Lifeboat)
(a Dinghy)



Use the model throughout :-

Everyone to copy the drawing, point out the various identification names on sail and in corners.

Describe reefing and how as wind freshens the sails are progressively reduced in area.

Technique.

- (a) Hoist sails until the leading edge is bar tight (in case of foresail it will be noted that the foresay now hangs slack)
 - (b) Never hoist a sail until the forward corner is made fast nor until the sheet is also attached.
 - (c) If a strong wind blowing always reef before hauling up the sails, upon gaining confidence easy enough to shake them out.
 - (d) Mention that the mode of fixing will be learnt by actual experience in the bath and at sea.
 - (e) Just a few passing remarks on the Latteen Sail (couple of minutes)
- This gives a fair working knowledge of the sails, now to actual handling.

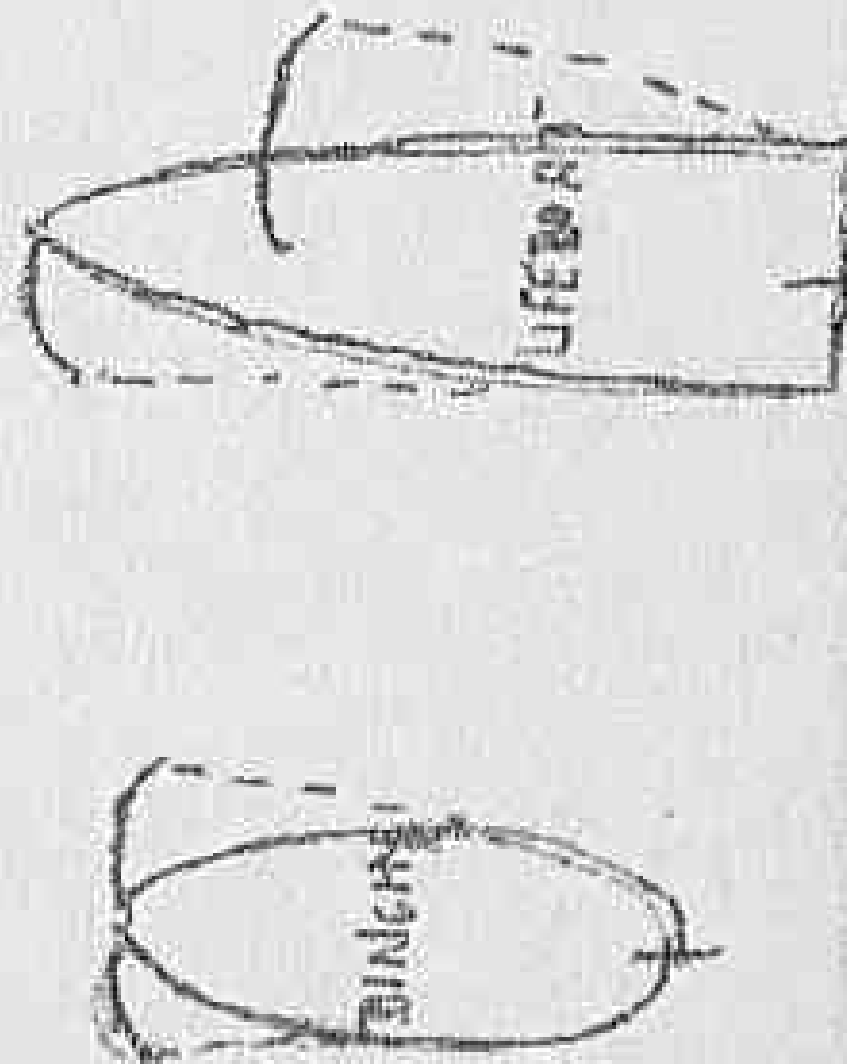
2. TECHNIQUE.

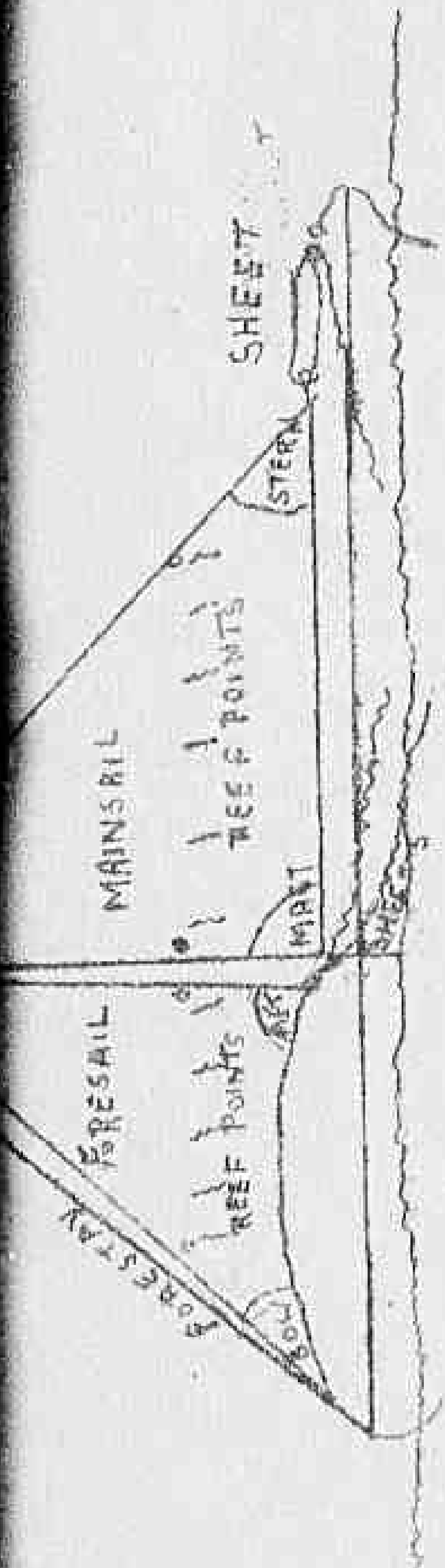
Firstly take the most obvious i.e. wind aft.

Natural that the mainsail should be stretched out across the boat as far as possible and that the foresail in order to catch wind should be played out on the other side.

In the Dinghy this works very nicely but not so the Lifeboat.

The Lifeboat sails will continually droop and move over to the opposite side and vice versa; sometimes quietly and on other occasions with violence.

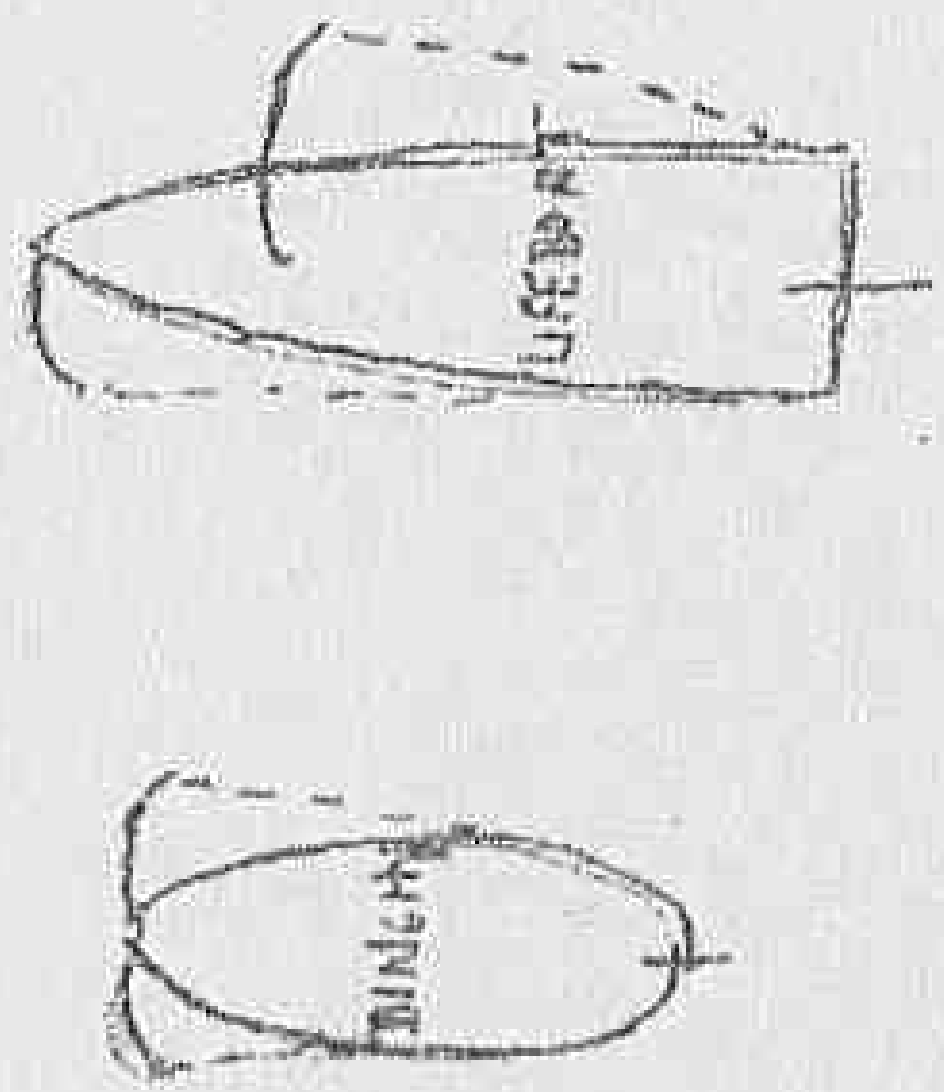




Use the model throughout :-
 Everyone to copy the drawing, point out the various identification marks on sail and in corners.
 Describing reefing and how as wind freshens the sails are progressively reduced in area.
Reminders.
 (a) Hoist sails until the leading edge is taut tight (in case of Foresail it will be noted that the Foresail now hangs slack)
 (b) Never hoist a sail until the forward corner is made fast nor until the sheet is also attached.
 (c) If a strong wind blowing always reef before hauling up the sails, upon gaining confidence easy enough to strike then out.
 (d) Mention that the nodes of firing will be learnt by actual experience in the beach and at sea.
 (e) Just a few passing remarks on the Larzen Sail (couple of minutes)
 This gives a fair working knowledge of the sails, now to actual handling.

2. TECHNIQUE.

Firstly take the most obvious i.e. wind aft.



Natural that the Mainsail should be stretched out across the boat as far as possible and that the Foresail in order to catch wind should be played out on the other side.

In the Dinky this works very nicely but not so the Lifboat.

The Lifboat sails will continually drop and move over to the opposite side and vice versa; sometimes quietly and on other occasions with violence.

Remedy. Use the Oars to keep sails spread.

The sails may be spread in the above manner even when wind is up to 20 - 30 ° away from dead aft but in such cases the foresail must always be on windward side, inboard leeward side. Mention danger of accidental gybe.

Here it is wise to make a few remarks as to the value of sails.
 (i.e.) Wind of 15 H.P.H. goes as fast as with 2 engines - this is quite a moderate wind ; wind over 15 H.P.H. the boat's speed may be expected to increase up to a maximum of about 9 - 10 kts. Dinky maximum about 4 1/2 - 5 knots.

Point out the sail and engine speeds do not add together and when sailing at a reasonable speed use of engines tantamount to throwing fuel overboard.

Next describe how the A/B and Q may be worked to windward but never sail closer than 50 as 30 off wind the craft will be going almost sideways.



Give a quick drawing of 50 courses off wind to illustrate the idea. (No need for this to copy) then go straight on to a simple explanation of the forces working on sail : ie.

Wind at 50 on Port Bow.

Place sail at approx. correct angle:

Inform pupils of this also that you will immediately follow the diagram with an illustration showing how to ascertain the correct angle of sail for any given wind.

Main Push at Rt. angles to sail divided into an ahead component and side component.

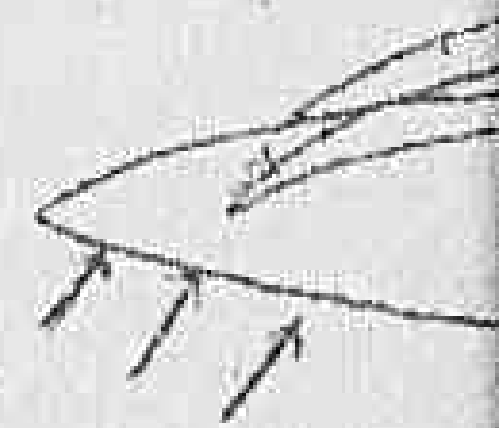
Boat is ready to obey the ahead push but resists the side pressure by virtue of her side and keel and is naturally kept on course with the rudder. Using same drawing indicate how leeway can be estimated by angle of wake also by towing Quoit line astern.

Leeway can be counteracted by hauling boat to windward except she must never be sailed closer than 50 - leeway experienced on close-hauled courses must be accepted and the boat plotted along the Track Made Good

Indicate that Foresail would be somewhat square trim as Mainsail with the lines of force identical also wind 50 on Starboard side, sails would be to Port.

3. To adjust sails at the correct angle for any relative direction of wind, two requirements have to be fulfilled.

- (a) The sails must be filled with wind.
- (b) The line of Push must be near to ahead as possible.



In figure sail is first trimmed too tight then slackened away until leading edge stalls or flutters; now pull back on sheet just enough to stop the flutter (wake first sheet).

The boat must be on course throughout

Wing at 50° in Port Bow.
Place sail as approx. correct angle:
inform waylaid of this also that you
will immediately follow the diagram with
an illustration showing how to ascertain
the correct angle of sail for any given
wind.

Main Push at Lt. angles to sail divided
into an ahead component and side
component.

Boat is ready to obey the ahead push
but resists the side pressure by virtue
of her side and keel and is naturally
kept on course with the rudder. Using
same drawing indicates how leeway can be
estimated by angle of wake also by
towing Quoit line astern.

Leeway can be counteracted by hauling
boat to windward except she must never
be sailed closer than 50° - leeway
experienced on close-hauled courses
must be accepted and the boat plotted
along the Track Made Good.

Indicate that Foresail would be somewhat same trim as Mainsail with the lines of
force identical also wind 50° on Starboard side, sails would be to Port.

3. To adjust sails at the correct angle for any relative direction of wind, two
requirements have to be fulfilled.

- (a) The sails must be filled with wind.
- (b) The line of Push must be near to ahead as possible.



The figure sail is first trimmed too
tight then slacked away until leading
edge stalls or flutters: now pull
back on sheet just enough to stop
the flutter (make fast sheet).

The boat must be on course throughout

Foresail is naturally trimmed the same
way.

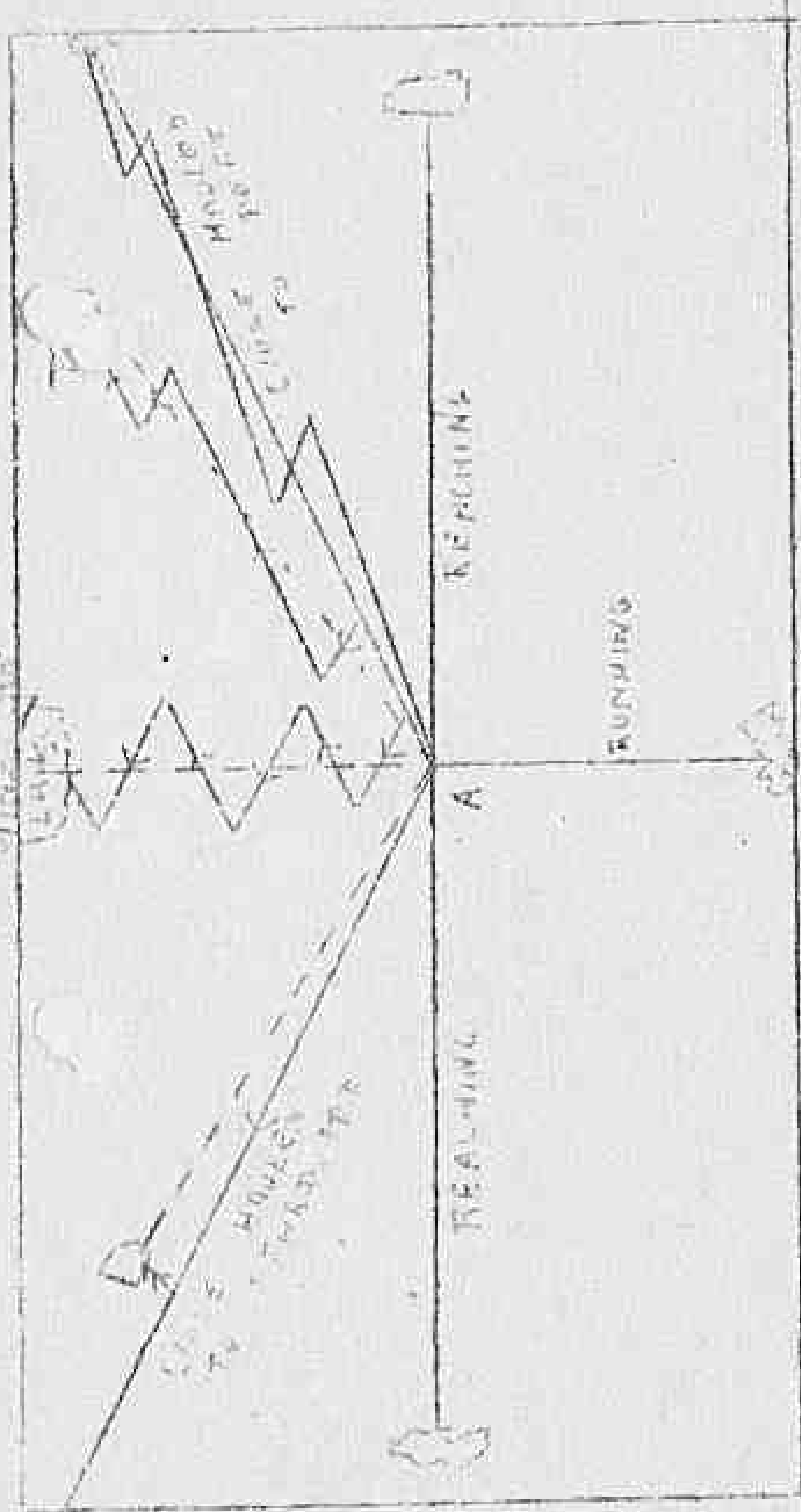
The above procedure is used on all courses except wind aft when sails are
splayed as previously described.

Wind before beam the flutter is very apparent but wind abaft beam it is more
of a lift in the belly of the sail.

Use same technique for Latton sail.

of the force working on sail is:

SAILING - 2.



1. The above represents Mercator's Chart.
Wind 360 A + Position of Dinghy.
050 and 310 represent the two courses fifty degrees either side of wind.

To destinations outside of these two lines all that is necessary is to head boat in the requisite direction, trim sails, check leeway, estimate speed and keep a track plot.

Give examples of Reaching, Running etc. : - Illustrate course 050 Leeway 10 haul boat on to 080 and leeway will be counteracted T.M.G. = 090

To get any destination inside of the arc 310 - 050 it is necessary to always steer these two courses, the length of time on either leg will vary according to relative direction of wind.

Give three examples as shown :

- a) Wind dead ahead
- b) Wind about 30 off destination
- c) Wind about 45 off destination.

Mention wisdom of not getting more than 2 miles off track.

Leeway on these courses always to be accepted (I.L.)

Course 050 (I) Leeway 15 T.M.G. 065 and plotting will be done along this track ; if on a course 50 off wind and any attempt is made to haul boat closer to wind to overcome leeway a substantial loss of speed will occur and incidentally leeway will probably double.

Calculate speed by using Quoit Line.

Here it is worth while to show a small drawing of a yacht with good underwater shape and illustrate how when sailing closer to wind than 50 the sail must be trapezoidal thus bringing line of push further out to the side. The yacht with good keel area can resist this side and be sailed say 30 off wind but a flat-bottomed vessel like L/B lifeboat and Dingy would more so sideways, therefore never, repeat never, sail closer than 50.

2. GOING ABOUT This as the name implies refers to the manoeuvre of turning about from one 50 leg on to the other.

1. The above represents Mercator's Chart.
Wind 360 A + Position of Dinghy.

050 and 310 represent the two courses fifty degrees either side of wind.

To destinations outside of these two lines all that is necessary is to head boat in the requisite direction, trim sails, check leeway, estimate speed and keep a track plot.

Give examples of Reaching, Running etc. : - Illustrate course 090 leeway 10 haul boat on to 080 and leeway will be counteracted T.L.C. = 090

To get any destination inside of the arc 310 - 050 it is necessary to always steer these two courses, the length of time on either leg will vary according to relative direction of wind.

Give three examples as shown :

- a) Wind dead ahead
- b) Wind about 30 off destination
- c) Wind about 45 off destination.

Mention wisdom of not getting more than 2 miles off track.

Leeway on these courses always to be accepted (I.E.)

Course 050 (T) Leeway 15 T.L.C. 065 and plotting will be done along this track ; if on a course 50 off wind and any attempt is made to haul boat closer to wind to overcome leeway a substantial loss of speed will occur and incidentally leeway will probably double.

Calculate speed by using Quoit Line.

How it is worth while to show a small drawing of a yacht with good underwater shape and illustrate how when sailing closer to wind than 50 the sail must be taughtened thus bringing line A push further out to the side. The yacht with good keel area can resist this side and be sailed say 30 off wind but a flat-bottomed vessel like 4/5 lifeboat and Dinghy would merely go sideways, there fore never, repeat never, sail closer than 50.

2. GOING ABOUT This as the name implies refers to the manoeuvre of turning about from one 50 leg on to the other.

When speed is more than approximately 2 m.p.h. the boat will on putting over helm usually swing head to wind and pay off with wind on new side ; all that is required is to turn sails on the new course.

However to make certain the manoeuvre is successful the natural turning power of the sails can be utilised.

Upon coming helm over lot foresail
slake but to when mainsail this weather
cocks the boat into wind.

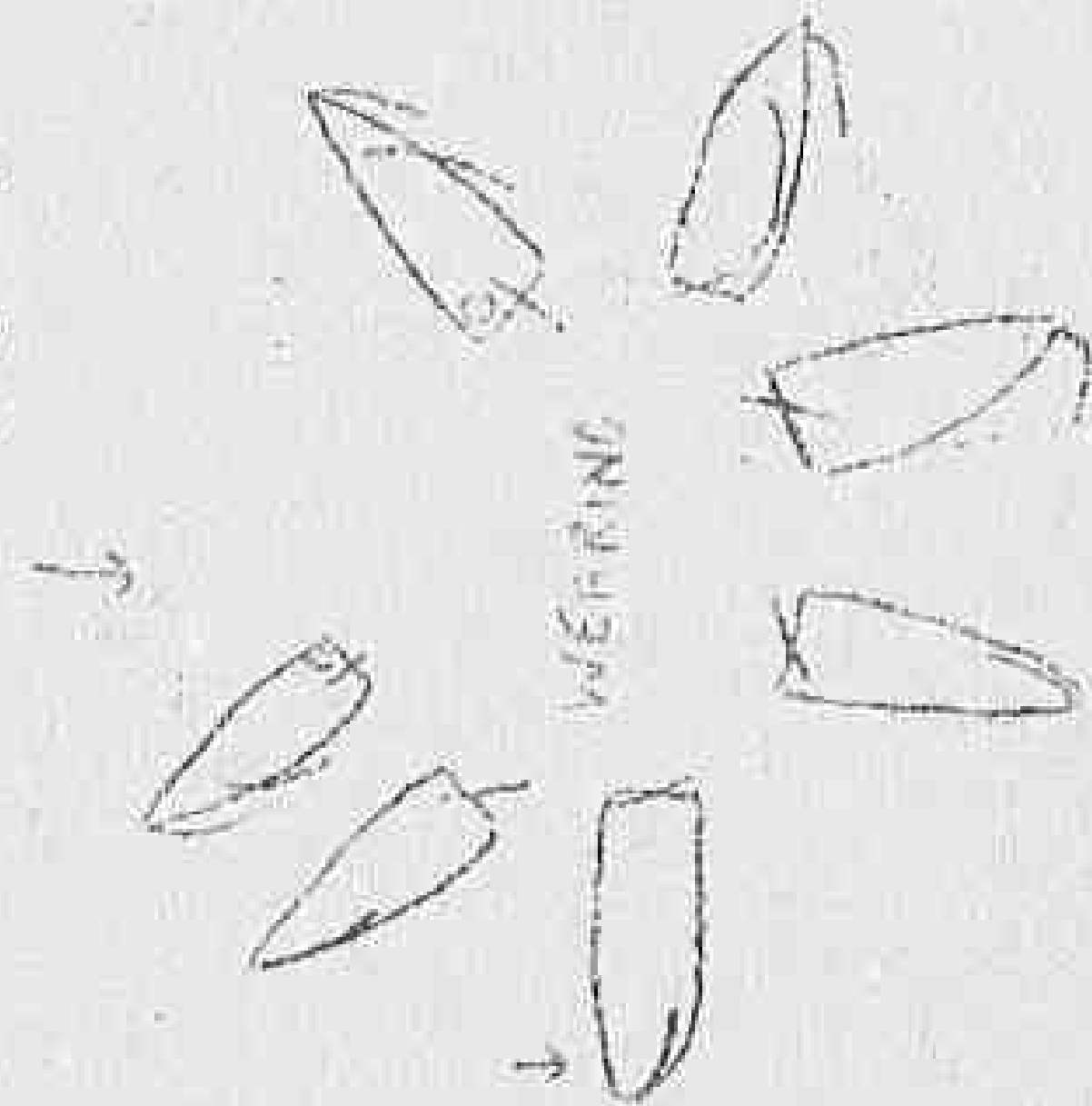
When into wind held the foresail tight
in such a manner that it will fill and push
the bow on to new course, then trim sails.
Dingy instructions on board then refer to
model.

Explain how coming about the opposite
way is similar therefore no need for
example.

Mention that boat almost invariably
swings too far and that it is advantageous
to pick up speed quickly before
Don't just helm hard over after swinging
too far as this merely prevents boat from picking up headway).

SAILING - 3

WEATHER This maneuver is always to be used with Latson Sail and can be
employed in most boats when finding difficulty in going about, or to avoid another
vessel, or prevent going around.



It involves swinging from 50 course
to the other by turning the long way round.

Procedure. Helm hard over to wind-
ward hold foresail taut, slacken main-
sail (by fresh breezes mainsail is a
source of danger and it is imperative that
one man quickly drops this sail or other-
wise hold it into the mast until
wind is on the other side). The boat
will immediately begin to swing quickly.
As boat swings past 'wind off' position
foresail will move to opposite side
take care it is not left slack and also
so to it that mainsail is tightened
to assist swing. When on course
trim sails and proceed.

The procedure for Latson Sail can only be shown using the actual Dinghy in
paths or out sailing.

Describe how in a Bermuda Rigged Craft when mainsail is left up the violence of
sail jumping from one side to the other may break mast and stays.

2. POUNTERS.

Dinghy making more leeway than anticipated ??
Sails are trimmed too tight or
Keel is not properly down.

Dinghy is comparatively light (can be carried by one man when in a velia) therefore position of crew is very important.

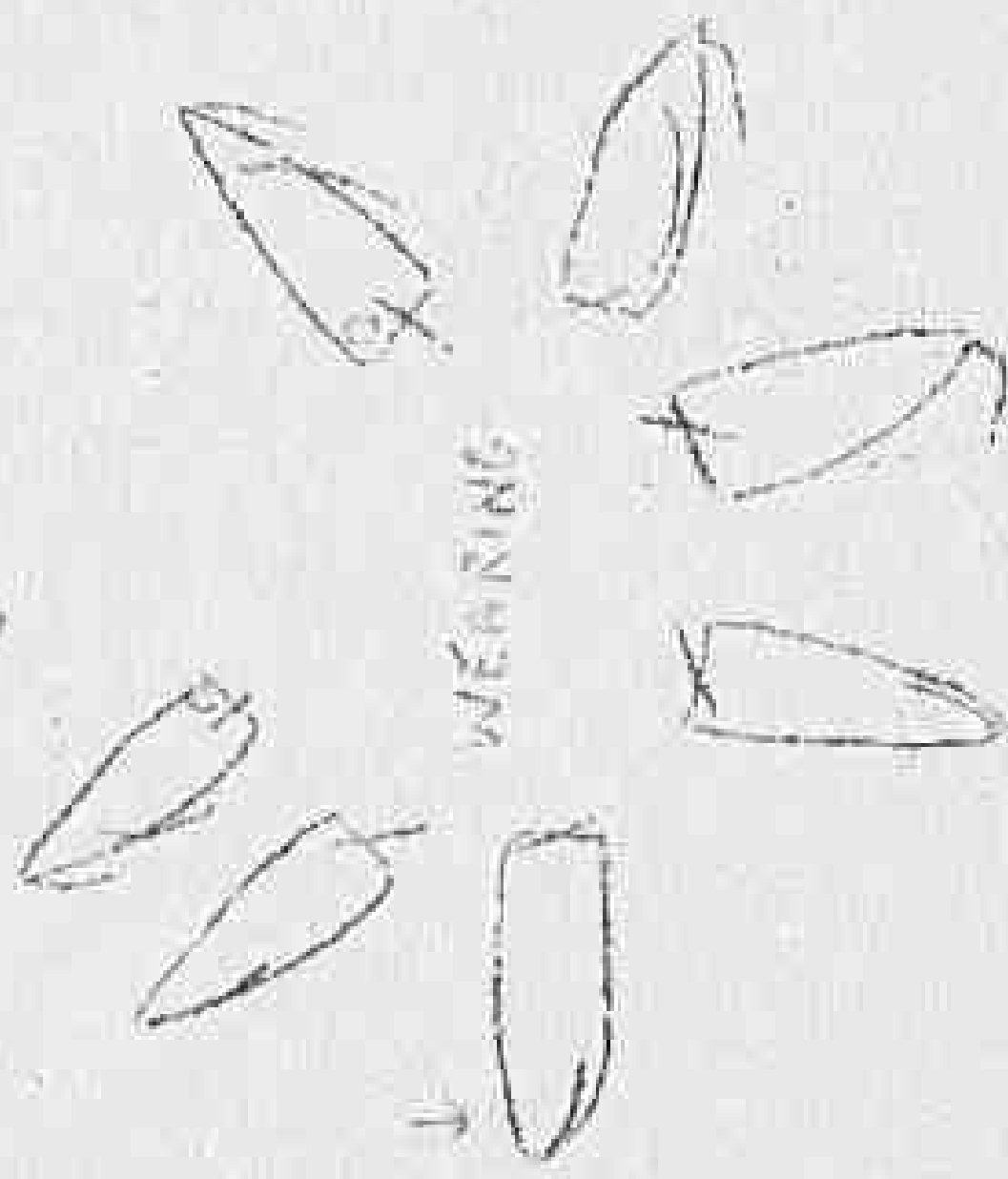
EXAMPLE.

to sail hard 70 or so off wind for about one minute to pick up speed quickly before setting down on the 50 off wind course. (Don't take helm hard over after swinging too far as this merely prevents boat from picking up headway).

SAILING - 2

MANEUVER. This maneuver is always to be used with Latten Sail and can be employed in most boats when finding difficulty in going about, or to avoid another vessel, or prevent going aground.

It involves swinging from 50 course to the other by turning the long way round.



Procedure. Helm hard over to windward with foresail taught, slacken mainsail (In fresh breezes mainsail is a source of danger and it is imperative that one man quickly drops this sail or otherwise hold it into the mast until wind is on the other side). The boat will immediately begin to swing quickly. As boat swings past 'wind aft' position foresail will move to opposite side take care it is now left slack and also so, to it that mainsail is tightened to assist swing. When on course trim sails and proceed.

The procedure for Latten Sail can only be shown using the actual Dinghy in boats or cut sailing.

Describe how in a Bermuda Rigged Craft when mainsail is left up the violence of sail jumping from one side to the other may break mast and stays.

2. POINTERS. Dinghy making more leeway than anticipated ?? Sails are trimmed too tight or Keel is not properly down.

Dinghy is comparatively light (can be carried by one man when in a valise) therefore position of crew is very important.

Most of the weight must be kept aft, if more weight forward the aft it will be impossible to steer dinghy.

The rudder is best guide; if dinghy difficult to steer move crew aft until she responds readily to each movement of the helm.

Dinghy to be pulled up bar tight otherwise speed and seaworthiness will be impaired.

Sailing - 3.

Always make sheets fast in the position provided.

Adv. bags of Letting Sail; easier to rig, wing to permanent length stays and short mast, easier to handle having but one sail, mast and stays indicate that keel is fully down, less danger of capsizing in strong gusts.

3. BERUDA RIG. Complicated to rig, mainsail hard to hoist, is a little faster than Intoon but only when expertly handled.

Lifeboat sails faster when down by the stern also if weather not too rough give her a decided list to leeward as to bury lee gunwale and increase side area.

Wind on or before beam beamman sit windward side; on danger of capsizing push helm away from body, turn boat into wind to shake sails. (In strong winds be ready to let go mainsail sheet).

Wind abaft beam sit leeward side; on danger of capsizing push helm away from body and turn stern into wind.

Twenty minutes must be reserved at end of this lecture to show pupils the sheet attachments etc. on dinghies in museum.

SAILING - 4.

1. With a freshening wind crew will automatically want to reduce sail area. Wind before Beam Reef foresail first as this is the sail which will push boat into trough.

Wind abaft beam Reef mainsail as this one now becomes the sail which will push boat into trough.

(i.e.)

Wind Before Beam
a) Reef Foresail
b) Reef Mainsail
c) Lower Foresail
d) Lower Mainsail

Wind Abaft Beam

a) Reef Mainsail
b) Reef Foresail
c) Lower Mainsail
d) Lower Foresail

Follow above in sequence when reducing sail area, owing to freshening wind.

When proceeding on a course for home with sea before beam turn boat into sea whenever an extra large roller or swell approaches which may swamp boat; when bow has safely lifted over roller resume course.

Should sea be aft of beam turn stern into the extra large roller.

3. PERIODIC RIG. Complicated to rig, mainsail hard to hoist, is a little faster than luffen but only when severely heeled.

Lightest sails faster when down by the stern also if weather not too rough give her a decided list to leeward so as to have too gunwale and increase side area.

Wind on or before beam blowsman sit windward side; on danger of capsizing push helm away from body and turn stern into wind.

Twenty minutes must be reserved at end of this lecture to show people the sheet attachments etc. on dinghies in museum.

SAILING - 4.

1. With a freshening wind crew will automatically want to reduce sail area. Wind before beam Reef foresail first as this is the sail which will push boat into trough.

Wind abaft beam Reef mainsail as this one now becomes the sail which will push boat into trough.

(i.e.)

Wind Before Beam

- a) Reef Foresail
- b) Reef Mainsail
- c) Lower Foresail
- d) Lower Mainsail

Wind Abaft Beam

- a) Reef Mainsail
- b) Reef Foresail
- c) Lower Mainsail
- d) Lower Foresail

Follow above in sequence when reducing sail area owing to freshening wind.

When proceeding on a course for home with sea before beam turn boat into sea whenever an extra large roller or swell approaches which may swamp boat; when bow has safely lifted over roller resume course.

Should sea be aft of beam turn stern into the extra large roller.

SAILING - 4 (Cont) ROUGH WEATHER.

A. weather worsens sails are to be reduced until stage is reached of sailing under one reefed sail only, now is the time to think of streamlining the drogue (or sea anchor)

Principle of Drogue.

Vessel drifts down wind at approx. 3 m.p.h. owing to force of wind blowing on above water area of sides rigging etc. Anything that submerges in water is out of wind and wants to remain stationary; such objects when made fast to a line from bow of boat will act as a drag, keep boat safely heading into wind and sea.

The drogue may consist of a number of such items tied to a line, the whole giving an efficient drag, or may consist of a patent type as illustrated. If it is obvious that storm is approaching stream drogue and don't try to sail until the safety of boat is endangered, as normally a storm builds up fairly quick.

2124

Schedule - 1 (cont.)

Keep bow heavier. When, keel, under analysis.
In dinghy take care as keel will force dinghy into trough of sea.

Dinghy drops very small therefore supplement it by towing until end of
troubled their line.

SCHOOL OF SURVIVAL & RESCUE - RESCUE PROCEDURES

ORGANISATION - 1.

A.S.R. Organisation in Home Waters.

1. A.S.R.C. A.45/1944 and its amendments.
2. Brief survey of present organisation, pointing out that : -
 - Coastal Command, provide and control search aircraft and provide anti surface rescue craft.
 - Fighter Command supply distress information, fighter protection etc.
 - Royal Navy, provide anti surface craft and control all surface rescue craft.
3. Use Maps/Charts to show pupils : -
 - 4 Operational Coastal Command Groups and locations of Headquarters.
 - 4 Operational Fighter Command Groups and locations of Headquarters.
 - 7 Royal Naval Commands & their Sub-Commands.

4. Definitions and description of 'A.S.R.C.', with special reference to : -

- A.S.R. Flying Control Officer.
- R.N. Duty Commander.

5. Duties of F.O.L.O. at Fighter Group H.Q. re A.S.R.

6. Duties of F.O.L.O. and R.N. Sub Command H.Q. re A.S.R.

7. Responsibilities of Coastal Command, Fighter Command, and Royal Navy in A.S.R. :-

Coastal Command :-

- (a) Initiate A.S.R. action on all sightings in Home Waters.
- (b) Provide control search aircraft.
- (c) Provide surface rescue craft.
- (d) Make special A.S.R. arrangements for specific operations when so requested by other commands. (Boats at R.N.V., aircraft spotting or patrolling, etc.)

Fighter Command.

- (a) Keep A.S.R.C. informed of all aircraft in any degree of distress. (Radar plots, V.H.F. 'playdays', etc.)
- (b) Scramble and vector C.C. A/S.R. aircraft when special circumstances warrant such action.
- (c) Provide fighter protection for search aircraft/boats.

Royal Navy.

- (a) Provide long-range surface rescue craft (P.M.L. etc)
- (b) Control all surface rescue craft.

ORGANISATION - 2

A.S.R. Organisation in S.E.A.C.

1. Geographical limits of area (Use Maps/Charts)
2. P.A.F. responsible for A.S.R. and has made HQ. No. 222 Group responsible for organisation and control of A.S.R. operations.
3. S.E.A.C. divided into operational formation areas as follows : -

4. Definitions and description of 'A.C.H.Q.', with special reference to :-
7. Royal Naval Commands and their Sub-Commands.
A.S.R. Flying Control Officer.
R.N. Duty Commander.

5. Division of R.O.L.O. at Fighter Group H.Q. to A.S.R.
6. Duties of F.O.I.C. and R.N. Sub Command HQ. to A.S.R.
7. Responsibilities of Coastal Command, Fighter Command, and Royal Navy in A.S.R. :-

- Coastal Command :-
- (a) Initiate A.S.R. action on all sightings in Home Waters.
 - (b) Provide control search aircraft.
 - (c) Provide surface rescue craft.
 - (d) Make special A.S.R. arrangements for specific operations when so requested by other commands. (Boats at R.V.P., aircraft spotting or patrolling etc.)

Fighter Command.

- (a) Keep A.C.H.Q. informed of all aircraft in any degree of distress. (Radar plots, V.I.R. sightings, etc.)
- (b) Scramble and vector G.O. A/S.R. aircraft when special circumstances warrant such action
- (c) Provide fighter protection for search aircraft/beats.

Royal Navy.

- (a) Provide long-range surface rescue craft (R.H.L. etc)
- (b) Control all surface rescue craft.

ORGANISATION - 2

A.S.R. Organisation in S.E.A.C.

- 1. Geographical limits of area (Use Maps/Charts)
- 2. R.A.F. responsible for A.S.R. and has under HQ. No. 222 Group responsible for organisation and control of A.S.R. operations.

3. S.E.A.C. divided into operational formation areas as follows :-

Area	H.Q.
222 Group	R.A.O.R. Colombo.
Aden	Aden
E. Africa	Montrose
S.A.F.	Calcutta
224 Group	Algiers
Karachi	Mauripur
Bombay	Santa Cruz
Cochin	Cochin
Madras	Red Hills Lake
"	Vizagapatnam
"	sub area

Organization - 2 (cont)

4. H.Q. 222 Group. Allocated the day to day control of A.S.R. operations to the commander of above formation area.

Each formation area, here, at its H.Q. a C.R. operations room which is A.S.R. Control Stations, and is staffed with C.R. Ops. Officers, who will organize search and control A.S.R. Squadrons and Marine craft units in their areas.

5. Responsibility in A.S.R. as follows:-

(a) H.Q. No. 222 Group

(b) H.Q. S.A.F.

(c) H.Q. No. 224 Group

(d) Hqs. Aden, L. Africa, Karachi, Bombay, Ceylon, Madras, and Malaya Sub.

6. Supply and control of search aircraft.

7. Types of search aircraft and their locations.

8. Supply and control of surface craft and their locations.

9. Communications between A.S.R. control stations, aircraft in distress, search aircraft and surface craft.

ORGANIZATION - 3

A.S.R. Organization in Pacific.

1. Geographical limits of area (see Maps/Charts)

2. Pacific divided into:- (N. Pacific - Central Pacific - S. Pacific - S.W. Pacific - S.E. Pacific)
C in O U.S. Pacific fleet responsible for organization of A.S.R. in whole Pacific.

3. Central and S.W. Pacific areas only ones to be considered now.

4. Central Pacific includes Forward area (X, A.P. use bases line from which to base Japan) (see Maps)

5. A.S.R. Task Group responsible for A.S.R. in this area.

6. Responsibilities of A.S.R. Task Group.

7. A.S.R. Task Units, their locations and search aircraft and areas of responsibility.

8. Provision of surface craft and submarines for A.S.R.

9. Deployment of Destroyers etc. and surface craft and submarines prior to a strike by XI A.P.

10. S.T. Pacific. includes V and XIII A.P. areas (see Maps).

11. U.S.A.A.F. responsible for A.S.R. in these areas.

12. V 'Rescue Group and XIII' Rescue Group - their responsibility.

13. Rescue (Air) Squadrons and Rescue (Boat) Squadrons, with their aircraft and surface craft.

6. Supply and control of search aircraft.
7. Types of search aircraft and their locations.
8. Supply and control of surface craft and their locations.
9. Communications between U.S.R. control stations, aircraft in distress, search aircraft and surface craft.

ORGANIZATION - 3

U.S.R. Organization in Pacific

1. Geographical limits of area (see Maps/Charts)
2. Pacific divided into : - { N. Pacific - Central Pacific - S. Pacific - S.W. Pacific - S.E. Pacific }
C in O U.S. Pacific Fleet responsible for organization of U.S.R. in whole Pacific.
3. Central and S.W. Pacific covers only ones to be considered now.
4. Central Pacific includes Forward area (see Map) and bases line from which to bomb Japan (see Maps)
5. U.S.R. Task Group responsible for U.S.R. in this area.
6. Responsibilities of U.S.R. Task Group.
7. U.S.R. Task Units, their locations and search aircraft and areas of responsibility.
8. Provision of surface craft and submarines for U.S.R.
9. Deployment of Destroyers etc. and surface craft and submarines prior to a strike by U.S.R.
10. S.W. Pacific includes V and XIII A.F. areas (see Maps).
11. U.S.A.A.F. responsible for U.S.R. in those areas.
12. V Rescue Group and XIII Rescue Group - their responsibility.
13. Rescue (air) Squad. and Rescue (East Squad), with their aircraft and surface craft.
14. Provision of other surface craft and submarines.
15. U.S.R. in A.A.A.F. somewhat similar to Home Waters.
A.A.A.F. supplies and controls search aircraft and some H.B.I.s.
R.A.A.F. provides some surface craft and controls all surface craft.
R.A.A.F. initiates U.S.R. action from A.O.R.s.

ORGANISATION - A.

1. Sources of distress information :

- (a) I/P D/F S.O.S.
- (b) I/P D/F S.O.S.
- (c) V.R.F. Mayday
- (d) Broadcast I.P.F.
- (e) S.O.S. on 300 km/a.
- (f) Visual sighting by other aircraft.
- (g) Visual sighting by A.S.R. aircraft on patrol.
- (h) Visual sighting by R.O.C.
- (i) Visual sighting by Police.
- (j) Visual sighting by Civilians
- (k) Visual sighting by Coastguards.

2. Channels through which such distress information are used to the appropriate authority for A.S.R. action.

(Note 1: - diagram is drawn on blackboard to illustrate 'E')

(Note 2: - 'A' and 'B' will vary in the three theatres covered in lectures 1, 2, and 3, but as the set-up in 'Home Waters' includes all and more than in the other areas this will serve as an example)

3. Factors to be taken into account by the initiating officer when deciding the area to be searched.

- (a) Accuracy of Fix.
- (b) Effect of wind on dinghies (H.Q. 368)
- (c) Effect of ocean currents (Charts)
- (d) Effect of tides (Tide Tables)
- (e) Possibility that crew are using sails.
- (f) Percentage for safety.

ORGANISATION 5 and 6.

1. Actions to be taken by the appropriate authority when initiating A.S.R. action in his area : -

- (a) Decide the area to be searched (see Lecture 4, 3.)
- (b) If possible, direct A.S.R. or other aircraft already on patrol in vicinity
- (c) Despatch A.S.R. or other aircraft, being briefed crews with all information available.
- (d) Divert or despatch surface rescue craft, again giving crews all information available (In Home Waters this action will be taken by the Royal Navy on request from A.C.H.Q. concerned).
- (e) Request appropriate formation to provide any fighter protection required for search aircraft or surface rescue craft.
- (f) Co-ordinate scheme of search.
- (g) If requirements for search aircraft or surface rescue craft exceed the facilities available locally inform H.Q. (of Coastal Command in Home Waters) and request assistance.
- (h) Inform Parent Unit of ditched aircraft of all action taken to rescue crew.
- (i) Notify the H.Q.s of all squadrons etc. likely to be flying in the search area informing them of the last known position of the ditched aircraft or dinghy, so that crews may be briefed to keep a special look-out when in that area.
- (j) Inform all concerned when search is complete or abandoned.

2. Channels through which such distress information are routed to the appropriate authority for A.S.R. action.

(Note 1: - Diagram is drawn on blackboard to illustrate it.)

(Note 2: - '1' and '2' will vary in the times that are covered in lectures 1, 2, and 3, but in the notes in 'Home Waters' includes all and more than in the other areas this will cover as an example)

3. Factors to be taken into account by the initiating officer when deciding the area to be searched.

- (a) Accuracy of fix.
- (b) Effect of wind on sightings (H.O. 366)
- (c) Effect of ocean currents (Charts)
- (d) Effect of tide (Tide Tables)
- (e) Possibility that crew are using signals.
- (f) Percentage for safety.

ORGANISATION 2 and 6.

1. Actions to be taken by the appropriate authority when initiating A.S.R. action in his area: -

- (a) Decide the area to be searched (see lectures 4, 5.)
- (b) If possible, direct A.S.R. or other aircraft already on patrol in vicinity
- (c) Despatch A.S.R. or other aircraft, being briefed crews with all information available.
- (d) Direct or despatch surface rescue craft, again giving crews all information available (In Home Waters this action will be taken by the Royal Navy on request from A.C.R.G. concerned).
- (e) Request appropriate formation to provide any fighter protection required for search aircraft or surface rescue craft.
- (f) Co-ordinate scheme of search.
- (g) If requirements for search aircraft or surface rescue craft exceed the facilities available locally inform HQ. (or Coastal Command in Home Waters) and request assistance.
- (h) Inform Parent Unit of ditched aircraft of all action taken to rescue crew.
- (i) Notify the H.Q.s of all squadrons etc. likely to be flying in the search area informing them of the last known position of the ditched aircraft or dingy, so that crews may be briefed to keep a special lookout when in that area.
- (j) Inform all concerned when search is complete or abandoned.

2. Types of search aircraft used in the areas covered in lectures 4, 2 and 3.

Their: - range - use as patrolling aircraft (Dumbo)
- the A.S.R. near they can carry - their (present) location.

Organization - 5 and 6 (cont.)

3. Types of R.C.B., R.B. and American surface vessels used in above areas.
 Their : - Main, and auxiliary vessels - range - weight - armament - deck markings - call signs, radio equipment - crews, status of their use at R.I.P. (Stations) and as patrolling boats.
4. Lifeguard submarines, their uses in A.S.R.

Frequencies: Frequencies used in Service just as wave-lengths are used in civilian life, i.e. to listen to any required station's transmissions it is necessary that one's receiver be tuned to that station's frequency. Frequencies used in service vary from 200 Kc/s up to something like 200 Mc/s or even higher and are split up for convenience into three broad bands, known as Medium, High, and Very High Frequencies.

M.F.: - Medium frequencies, roughly from 100 Kc/s - 1500 Kc/s of which R.A.F. are mainly 200 - 500 Kc/s, for D/F purposes, - particularly fixes. A fix obtained by plotting three or more D/F bearings taken by ground stations (composing W/F D/F section) of aircraft's transmission. MF fixes reliable in this theatre up to about 300 miles range, though longer ranges sometimes possible.

R.A.F. use frequencies between 200 - 500 Kc/s to keep away from broadcasting stations (600 - 1500 Kc/s).

Snags of MF - relatively short range, and liability to interference from natural causes. Interference particularly bad in tropics, e.g. in India at monsoon times, MF practically useless.

H.F.: - High Frequency, say 1500 - 30000 Kc/s or 30 Mc/s. R.A.F. use mostly 3000 - 8000 Kc/s, mainly for normal long distance communications (i.e. ordinary passing of routine messages on which D/F bearings are not usually taken) and within limits for D/F (mainly bearings QDMs - generally accepted as unreliable at ranges of more than 100 miles).

Long range (up to 1200 m) due to sky wave - possibly several hops between earth and reflecting layer.

Sky wave unsuitable for reliable D/F bearings, hence any long range bearings on HF are suspect.

In spite of this, in Indian Ocean and Pacific area, HF D/F has to be used in view of immense sea crossings involved, and unsuitability of MF.

Less interference from static.

V.H.F.: - Very High Frequencies - all above 30 Mc/s. Used by R.A.F. for R/T (100 - 150 Mc/s) and for most forms of special equipment: (S.B.A., Gee, I.F.F., A.S.V., H2S). Very good for R/T, being practically free from interference. Also because of the straight line nature of its transmission, particularly good for D/F (if fixing of fighter aircraft for control purposes). Optical range obtained - i.e. must be possible to draw straight line from transmitter to receiver, so range is tied up with altitude, e.g. two stations on ground level, range about 10 miles. One at ground level, other at 100 miles distant would have to be up at height of about 10000 ft to be sure of reception. Rough guide, 1000' for each ten miles range desired.

Reflecting layer usually has little effect on VHF waves, so usually confine ourselves to direct transmissions.

Snag - really long ranges almost impossible. 400 miles (for which aircraft may have to be 36000' - 40000') considered as maximum.

R.A.F. are mainly 200 - 300 Mc/s. A fix obtained by plotting three or more D/F bearings taken by ground stations (composing 1/3 D/F section) of aircraft's transmission. HF fixes reliable in this theatre up to about 300 miles range, though longer ranges sometimes possible.

R.A.F. use frequencies between 200 - 500 Kc/s to keep away from broadcasting stations (600 - 1500 Kc/s).

Snags of HF - relatively short range, and liability to interference from natural causes. Interference particularly bad in tropics, e.g. in India at Monsoon times, MF practically useless.

H.F.: - High Frequency, say 1500 - 30000 Kc/s or 30 Mc/s. R.A.F. use mostly 3000 - 8000 Kc/s, mainly for normal long distance communications (i.e. ordinary passing of routine messages on which D/F bearings are not usually taken) and within limits for D/F (mainly bearings QDMs - generally accepted as unreliable at ranges of more than 100 miles).

Long range (up to 1200 m)
due to sky wave - possibly
several hops between earth
and reflecting layer.

Sky wave unsuitable for reliable D/F bearings, hence any long

range bearings on HF are suspect.

In spite of this, in Indian Ocean and Pacific area, HF D/F has to be used in view of immense sea crossings involved, and unsuitability of MF.

Less interference from static.

V.H.F.: - Very High Frequencies - all above 30 Mc/s. Used by R.A.F. for R/T (100 - 150 Mc/s) and for most forms of special equipment: (S.A., Gee, I.F.F., A.S.V., H2S). Very good for R/T, being practically free from interference. Also because of the straight line nature of its transmission, particularly good for D/F (if fixing of fighter aircraft for control purposes). Optical range obtained - i.e. must be possible to draw straight line from transmitter to receiver, so range is tied up with altitude, e.g. two stations on ground level, range about 10 miles. One at ground level, other at 100 miles distant would have to be up at height of about 10000 ft to be sure of reception. Rough guide, 1000' for each ten miles range desired. Reflecting layer usually has little effect on VHF waves, so usually confine ourselves to direct transmissions.

Snag - really long ranges almost impossible. 400 miles (for which aircraft may have to be 36000' - 40000') considered as maximum.

SIGNALS - 2

Looking at frequencies from A.S.R. angle, it is now obvious that for giving information to ground station of aircraft's intention to ditch, M.F. (if within range of about 200 - 300 miles) or V.H.F. (if aircraft is sufficiently high) would be best frequencies to use. H.F. would give us longer range, but D/F indications being unreliable, possibly any fix the ground station obtained would be a poor one.

So, if we want to home aircraft on to a dinghy from any appreciable distance, up to 300 miles, we require a dinghy transmitter working on an M.F.

Note here, the new American-Dinghy Radio Transmitters work on 500 Kc/s - Kc/s and 5250 Kc/s and H.F. (long range) is mentioned.

Ordinary English and American Radio Transmitters work on 500 Kc/s - International Distress Frequency. As this is a Medium Frequency, then for best results, a long aerial is essential, hence necessity for kite or balloon to support it. Disadvantages of Balloon - angle on aerial in wind, size & weight of hydrogen generators or bottle, and risk of explosion. Disadvantages of present kite - wind of more than eight MPH required.

Emergency Aerials: for use in winds for less than eight MPH when kites cannot be flown, shown and described, with method of use and approximate range 20 miles in each case, - for H, I, Q, dinghies (both Bermuda and Mateen), and Airborne Lifeboat. Necessity of having some form of landing unit for use with such short aerials.

Aerial reel for new Lifeboat shown and principle explained.

SIGNALS - 3

In Cinema: Film on A.S.V. shown demonstrating from first principles of Radar how aircraft home on to ships from outside normal visual range.

Consideration of possibility of using A.S.V. - particularly Mk II as a means of locating and homing to dinghies. The need for some equipment to make dinghies more easily detected by Mk II A.S.V. The two types of such equipment, one to increase the dinghy's reflectivity, other to transmit from dinghy mentioned.

The former - Corner reflected, described and demonstrated. Its principle briefly explained - concentrating echoed signal in beam directed straight back to Radar-fitted aircraft. Method of fitting into dinghy described.

Advantages of 'Corner' enumerated - no batteries or power supplies, lasting effect, light and easily packed, shown definite position of dinghy. Approximate ranges given. Acts as reflector of any transmitted radar pulses.

Disadvantage - not definitely identifying a dinghy (could be anything giving back blip) - possibility of enemy decoy.

SIGNALS - 4

"Walter" or Transmitter T.3480 described and shown. Small, portable, easily packed, transmits signals on 176 Mc/s (frequency of Mk II A.S.V.) and so will show on A.S.V. screen. Type of signal blips picked up described, together with best range and method of using. Its effect on Test Set type 74 is shown, showing that it is putting out some kind of signal. As a V.H.F. set, its maximum range of about 25 miles can only be obtained by aircraft searching at 5000'. Correct method of use - i.e. intermittent transmissions of 2 mins. every 5 mins. except when searching aircraft believed to be in the vicinity, when it is left "on". Method of erecting "Walter" in K, J, Q, type dinghies. Use of Walter must to support red flag to aid visual search, but not to support sail.

Details of its size, weight, approximate ranges, and method of use given in handout (attached).

Mention made of value of Walter in jungle rescues, together with possible ranges to be obtained (e.g. 3 - 5 miles at 600' above dense jungle growth). Disadvantages given - battery power supplies likely to last only limited time, cockpit of dinghy ignorant of life or otherwise of battery, makes K type pack bulky and heavy, aerial to some extent directional.

S.C.R. - 578 American Dinghy Radio Transmitter plus all accessories. (see attached handout for details). Both types of pack SCR - 578 shown and contents (kite balloons, hydrogen generators, signal lamp, aerial (spare), and actual transmitter shown).

Circumstances and times of transmission using dinghy radio dealt with (i.e. not within 50 miles of enemy coast, when in sailing dinghy). Advantages of transmissions at International Silence times stressed (from 15 - 18 and 45 - 48 mins past each hour).

Method of using transmitter - held and strapped between knees of operator, aerial lead-in clipped to bottom of aerial, and kept slack by tying second safety cord to dinghy; earth weight unscrewed from set and thrown overboard into sea to make sea set as 'ground' for transmitter, top end of aerial being attached to kite.

Method of tuning for strongest transmission; cranking for twenty seconds (with switch on 'radio' position) then on Manual with key pressed, rotating the tuning control until the tuning indicator shows brightest light.

Advantages of transmitting by key the aircraft call sign periodically, particularly at quarter past and quarter to each hour.

The signal lamp shown and its use demonstrated.

The set is tuned (by the class), giving out radio signals which are picked up by receiver and put out by loud speaker, so that signals transmitted on each of automatic positions may be heard.

Silica-gel unit for keeping the inside of the radio set dry shown.

SIGNALS - 6

The Airborne Lifeboat Receiver - R. 1545 shown and briefly described. A straight, reaction tuned receiver capable of picking up signals on frequencies between 470 and 530 Kc/s. Used in conjunction with the American Transmitter described in foregoing; search carried out for 15 minutes after each transmission from the lifeboat. Ranges of over 300 miles obtained on test. Battery operated, 3 valve set with 4 spare valve carried which may be used in any position. Telephones, or socket in which flying helms may be plugged, provided for reception.

The idea that airborne lifeboat may be given course to steer, or asked for homing transmissions.

Distress and Emergency Procedure commenced: Emphasis laid on necessity of making early 'emergency' transmission, and using I.F.F. to denote state of trouble.

Advantage of making full emergency message to give as much information to ground station as possible, that they may estimate ditching position and set rescue services in motion. Such message to include details of nature of trouble, course, height, speed, position, and time.

The correct frequency to use for this message, and for subsequent transmissions, depending on location of distressed aircraft, and nature of its duties.

Necessity for frequent transmissions to enable ground stations to obtain fixes (if possible) and so narrow down area, ultimately to be searched.

Cancellation of emergency messages if trouble passes.

S.O.S. and Mayday messages to deal with state of distress if such develops. Attempts to let ground station know estimated position of ditching.

Necessity at end of sending aircraft call-sign and clamping down key, for fixes to be obtained up to last moment. Possible use of trailing aerial to indicate height above sea.

Use of Dinghy Radio Transmitter if all other V/T equipment is unusable.

board into sea to make sea act as 'ground' for transmitter, top end of aerial being attached to kite.

Method of tuning for strongest transmission; cranking for twenty seconds (with switch on 'radio' position) then on Manual with key pressed, rotating the tuning control until the tuning indicator shows brightest light.

Adjustability of transmitting by key the aircraft call sign periodically, particularly at quarter past and quarter to each hour.

The signal lamp shown and its use demonstrated.

The set is tuned (by the class), giving out radio signals which are picked up by receiver and put out by loud speaker, so that signals transmitted on each of automatic positions may be heard.

Silica-gel unit for keeping the inside of the radio set dry shown.

SIGNALS - 6

The Airborne Lifeboat Receiver - R.1545 shown and briefly described. A straight, reaction tuned receiver capable of picking up signals on frequencies between 470 and 530 Kc/s. Used in conjunction with the American Transmitter described in foregoing; search carried out for 15 minutes after each transmission from the lifeboat. Ranges of over 300 miles obtained on test. Battery operated, 3 valve set with 1 spare valve carried which may be used in any position. Telephones, or socket in which flying helmet may be plugged, provided for reception.

The idea that airborne lifeboat may be given course to steer, or asked for homing transmissions.

Distress and Emergency Procedure commenced: Emphasis laid on necessity of making early 'emergency' transmission, and using I.F.F. to denote state of trouble. Advantage of making full emergency message to give as much information to ground station as possible, that they may estimate ditching position and set rescue services in motion. Such message to include details of nature of trouble, course, height, speed, position, and time.

The correct frequency to use for this message, and for subsequent transmissions, depending on location of distressed aircraft, and nature of its duties.

Necessity for frequent transmissions to enable ground stations to obtain fixes (if possible) and so narrow down area, ultimately to be searched.

Cancellation of emergency messages if trouble passes.

S.O.S. and Mayday messages to deal with state of distress if such develops. Attempts to let ground station know estimated position of ditching.

Necessity at end of sending aircraft call-sign and clamping down key, for fixes to be obtained up to last moment. Possible use of trailing aerial to indicate height above sea.

Use of Dinghy Radio Transmitter if all other W/T equipment is unusable, coupled up to trailing aerial to send out distress messages at 500 Kc/s.

Cancellation of distress messages when applicable; i.e. Sending of 'Cancel Distress' and switching I.F.F. off Emergency position if all danger of ditching is passed.

Lastly, stressing importance of taking all available signals equipment - Gibson Girl, Walter, Corner, Pyrotechnics, - into dinghy.

SIGNALS - 1

Complete above, if any left unfinished, then proceed with V.H.F. R/T procedure for emergency and distress. Use of I.T.R., where fitted.

Emergency call on Operational frequency, when time permits, giving course, height, speed, position (if known), and nature of trouble.

Adviseability of changing for subsequent calls to an A.S.R. or Fixer frequency, and for making frequent calls as long as emergency lasts.

Mayday call before ditching (or being out) to give as much information as possible - Rating Out, course, height, speed, position (if known) - whole transmission to last 15 - 20 seconds.

Mention of facilities provided in S.E.A.C. and Pacific for dealing with above distress and emergency calls, and any necessary variations from standard procedure to employ such facilities.

e.g. In S.E.A.C., chains of H.F. D/F stations all on 6615/3815 Kc/s, owing to poor quality of M.F. in that area. M.F. D/F stations on 333 Kc/s only to be used if incident is within 100 miles of coast, and the consequent risk of 'skip' distance on H.F. causing non reception. Provision of Air/sea rescue Control Stations keeping watch on same H.F. frequency (6615/3815 Kc/s) and also on International Distress Frequency (500 Kc/s) for dinghy radio transmissions. Possibility of latter also being received by Commercial or Naval W/T stations.

Variations in Pacific Area: Use of XXX - 'Urgency' signal instead of 'O' - Emergency Priority. Their use of priority - OPASR, and its significance.

Differences in procedure due to their use of Dumbo aircraft or Life-guard submarines, i.e. direct call to these by pilot on R/T and W/Op on W/T giving distance, code name of pre arranged reference point, and true bearing from it, to indicate position of distressed aircraft.

Use of Radio Transmitter Buoy to help in location of ditched crew. Description of such Buoy, and its function - battery operated, transmits signals for homing air and surface craft on 1400 - 1750 Kc/s, identifying letter keyed periodically, lasts 12 hours, range 50 miles.

Transmission of W/T message when in distress, giving intention of ditching, **Lo** ram line, latitude, longitude, course, speed, and height, all in code.

SIGNALS - 5

Search Procedure: Broad outlines of signals procedure when on search, i.e. the rough idea being to employ aircraft first to do the actual search, and then after finding a dinghy to 'home' or guide surface craft to the scene. If search incident is well out to sea, and so outside range of shore R/T stations, then the search will be controlled on W/T, otherwise on R/T.

Summary of watches kept:- Aircraft keeps listening watch on 500 Kc/s except at hour and half hour, when he reverts to the search control frequency (for any instructions dealing with search) for five minutes. Watch on R/T when within range of other aircraft, surface craft, or ground stations.

Surface craft maintain continuous watch on 500 Kc/s, on control search frequency (where possible) and on R/T when required (i.e. within range of searching aircraft)

Communications between air and surface craft on Aldis lamp, R/T (if within range) or 500 Kc/s (W/T)

Boats homed on to dinghies, on 500 Kc/s

Known) - whole transmission to last by at seconds.

Mention of facilities provided in S.E.A.C. and Pacific for dealing with above distress and emergency calls, and any necessary variations from standard procedure to employ such facilities.

e.g. In S.E.A.C., chains of H.F. D/F stations all on 6615/3815 Kc/s, owing to poor quality of M.F. in that area. M.F. D/F stations on 333 Kc/s only to be used if incident is within 100 miles of coast, and the consequent risk of 'skip' distance on H.F. causing non reception. Provision of Air/sea rescue Control Stations keeping watch on same H.F. frequency (6615/3815 Kc/s) and also on International Distress Frequency (500 Kc/s) for dinghy radio transmissions. Possibility of latter also being received by Commercial or Naval W/T stations.

Variations in Pacific Area: Use of XXX - 'Urgency' signal instead of 'O' - Emergency Priority. Their use of priority - OPASR, and its significance.

Differences in procedure due to their use of Dumbo aircraft or Life-guard submarines, i.e. direct call to these by Pilot on R/T and W/Op on W/T giving distance, code name of pre arranged reference point, and true bearing from it, to indicate position of distressed aircraft.

Use of Radio Transmitter Buoy to help in location of ditched crew. Description of such Buoy, and its function - battery operated, transmits signals for homing air and surface craft on 1400 - 1750 Kc/s, identifying latter keyed periodically, lasts 12 hours, range 50 miles.

Transmission of W/T message when in distress, giving intention of ditching, **Lo** ram line, Latitude, Longitude, Course, Speed, and Height, all in code.

SIGNALS - 9

Search Procedure: Broad outlines of signals procedure when on search. i.e. the rough idea being to employ aircraft first to do the actual search, and then after finding a dinghy to 'home' or guide surface craft to the scene. If search incident is well out to sea, and so outside range of shore R/T stations, then the search will be controlled on W/T. Otherwise on R/T.

Summary of watches kept:- Aircraft keeps listening watch on 500 Kc/s except at hour and half hour, when he reverts to the search control frequency (for any instructions dealing with search) for five minutes. Watch on R/T when within range of other aircraft, surface craft, or ground stations.

Surface craft maintain continuous watch on 500 Kc/s, in control search frequency (where possible) and on R/T when required (i.e. within range of searching aircraft)

Communications between air and surface craft on Aldis lamp, R/T (if within range) or 500 Kc/s (W/T)

Boats homed on to dinghies, on 500 Kc/s

On picking up dinghy radio signals, aircraft 'homes' (using loop and radio compass, or equivalent) on to it.

Survivors in dinghy to use Walter, Corner, Gibson Girl Transmitter, wave flags, use pyrotechnics, fluorescence, heliograph to attract attention of searching aircraft.

2139

From: Air Vice-Marshal Sir Basil E. Embry,
K.B.E., C.B., D.S.O., D.F.C., A.F.C.

1A

AIR MINISTRY,

ALEXANDRA HOUSE,

KINGSWAY, W.C.2.

DOL/688/D. G. T.

10th September, 1946.

Dear Brodie,

Thanks for your letter of 17th August.
I am enclosing herewith a copy of the syllabus for
the normal Survival and Rescue Training Course. I
am also sending you a copy of the syllabus for a
special short course which is now being run for
Air Traffic Control Officers.

I am not quite sure what you are after when
you ask for notes referring to the use of safety
equipment for Spitfires, Baltimores and Lightnings.
Do you refer to the normal safety equipment, such as
parachutes, Mae Wests, etc. or to droppable A.S.R.
equipment? Droppable A.S.R. equipment can no longer
be carried by Spitfires and the Spitfire rescue
apparatus is now obsolete, and I have no knowledge of
any such equipment which can be carried by a Lightning.

/The

Air Vice-Marshal I. E. Brodie, O.B.E.,
Air Forces Sub-Commission,
Allied Commission,
ROME.

2372

BB 17/9

2140

The Baltimore can carry the Lindholme gear and
Type P supply dropper. Perhaps you would care
to give me further details as to what you
want and I will do my best for you.

Yours Sincerely

Ben Embury