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6 GROUP REVIEW OF NAVIGATION
No. 1.....MAX 1943..

INTRODUCTION

The aims of this "Review" are three fold.

- (i) To make available to all navigators in the Group the statistics and other notes on navigation that are published in the Group Monthly Summary.
- (ii) To provide a medium for discussion of navigational matters concerning the navigators of this Group.
- (iii) To promote a friendly rivalry among the squadrons within the Group.

The "Review" is not intended to compete with "Navigation Bulletin" of Bomber Command but rather to supplement it. It is hoped to have sufficient copies of both publications to enable all navigators to read them.

TABLE I

Showing how frequently the navigational aids are used.

SQUADRON	NO. OF SORTIES ANALYSED	AV. EXPERIENCE OF NAVIGATORS IN NUMBER OF SORTIES	AVERAGE NUMBER PER SORTIE						
			ASTRO	LOOP	B.A.'S	W/V'S	W/V'S	Q.D.M.'S	M/F
			P/L'S	P/L'S	RECORDED	OUR	HOME		FIXES
408	67	10.0	2.02	2.32	2.52	4.11	2.10	0.01	NIL
419	68	13.1	0.69	2.29	0.32	3.66	1.97	NIL	0.04
426	69	10.6	1.20	4.19	1.20	3.83	1.45	0.03	NIL
427	10	14.4	0.60	2.60	2.70	3.10	1.40	1.00	NIL
428	73	6.6	0.78	1.06	1.18	4.69	1.92	0.08	0.10
429	84	10.1	2.14	3.19	0.61	5.00	2.33	0.12	0.02
432	41	11.5	2.37	1.37	0.95	4.22	1.90	NIL	NIL
6 Group	412	10.1	1.44	2.49	1.16	4.16	1.95	0.07	0.02

TABLE II

Showing how many navigators are using available aids.

SQUADRON	PERCENTAGE SORTIES USING			W/V'S HOME AS A PERCENTAGE OF W/V'S OUR	NUMBER OF SORTIES PER	
	ASTRO P/L'S	LOOP P/L'S	B.A. & R.T.G.'S		Q.D.M.	M/F FIX
408	47.8	55.2	92.5	51.1	67.0	N/A
419	30.9	58.8	25.0	53.8	N/A	68.0
426	36.2	72.5	59.4	37.8	3.5	N/A
427	20.0	50.0	80.0	45.4	1.0	N/A
428	24.7	41.1	63.0	41.0	12.2	10.4
429	48.8	67.8	40.5	46.6	8.4	42.0
432	48.7	34.2	61.0	45.3	N/A	N/A
6 Group	38.6	56.6	56.6	46.2	14.2	41.2

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ASTRONOMICAL NAVIGATION

More and more interest is being shown in this valuable and fool-proof navigational aid. But every effort must be made to encourage its use until it becomes the normal practice of all navigators. During May, the astronomically minded navigators averaged 3.78 position lines on their sorties. This is indicative of the value they place on astro. and an object lesson to those still steer shy of the method.

V/T AIDS

In spite of the curtailment of radio beacon services, the majority of navigators continued to make full use of loop bearings, No. 406 Squadron being outstanding in this respect. The record for B.A. and R.T.C.s is rather varied. No. 408 Squadron continued their extensive use of this aid in which No. 419 squadron appear to put little faith. B.A. is a useful navigational aid under certain conditions and only by constant practice may navigators be assured of taking full advantage of it when it is badly needed.

With a few exceptions the use of Q.D.M's and M/F fixes has been restricted to needy cases. It is desired to point out that, while navigators should take pride in navigation without assistance from ground staffs, they should not hesitate to ask for Q.D.M's and M/F fixes if urgently needed when conditions are such that they cannot obtain bearings or fixes by other means.

WIND VELOCITIES

Table No. 2 reveals a serious navigational fault; the tendency to let navigation slide on the way home. The number of wind velocities found on the way home is less than half as many as on the way out. This is no doubt due to the fact that the target is harder to find than English; but navigators must bear in mind, that while on the way out they should concentrate on reaching the target, the trip home is the finest opportunity they have for improving their technique and practice in navigation. They must be continually on guard against the "Steer west of England" attitude.

LOGBOOK

Many navigators are failing to take pride in their logwork. It may be thought that if a navigator does all the things necessary to take an aircraft to the target and bring it safely back to base that is all that should reasonably be expected of him. It is one of his duties, however, to keep a record of his trip, and the log and chart form this record. The principles of logwork are very simple, and in order of importance they are: accuracy, conciseness and neatness.

Accuracy This is the prime consideration. Make sure of your information before entering it, make every entry as it occurs. Time and again you refer to your own entries later in the trip and on their accuracy depends the success of your navigation.

Conciseness Means complete and yet brief entries. Be sure you give all essential information. Reject the unessential.

Neatness Nothing gives such an impression of work well done as neatness, but unless your work is accurate and concise neatness means little.

Logs and charts are now frequently required by the Operational Research Section of Bomber Command for analysis purposes. A number of the best logs and charts from this Group are now being sent to training schools as examples of a high standard of navigation. For these reasons, quite apart from the navigator's pride in his own work, it is more important than ever that all essential information should be entered in an orderly, concise manner.

THE MONTH'S GOOD WORK

F/O. J.V.G. Foster of No. 406 Squadron deserves this month's special mention. His log of the Boches raid is an excellent record. The entries are

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neat and concise, and give all the information required. While at the limits of "Geo" range he made extensive use of astro. even over enemy territory. His chartwork is clear and easy to follow.

The following navigators are also worthy of mention for good work during May :-

- F/O Boudreau No. 408 Squadron.
- F/O Rolfe No. 426 Squadron.
- F/O. Stockdale No. 427 Squadron

LATTICE CHARTS.

TRAINING

At the beginning of this month, "Inverted Lattice Chart Book Series 2" were distributed to Squadron Navigation Officers for their approval and comments. It is thought that the colouring of the latitude and longitude lines would greatly assist in the reading of these books.

Geo MARK II FILMS.

With the exception of 429 Squadron, all 6 Group squadrons have seen both Part 1 and Part 11 of the Geo Training Film since the 19th of this month. Copies of both Parts are being held at 1659 and 1664 Conversion Units, while the third is to be held at this Headquarters and will be shown to any of our squadrons on request.

LONGER RANGES WITH GEO.

The ranges obtained on the Geo Mark 11 have been even better than last month, fines in "Happy Valley" being the commonplace occurrence rather than the exception. Although squadrons have obtained good ranges on almost every raid participated in, the most consistently good results have been obtained by 419 Squadron. This reflects credit both on the R.D.F. mechanics and the navigators of this squadron.

S.96 EXERCISES.

Headquarters, Bomber Command have informed us that the Operational Research Section will no longer be able to assess the results of S.96 Exercises. A method will be adopted so that the Conversion Units can analyse all photographs taken on these Exercises. This will save the considerable delay which was caused previously due to the time taken in transit.

GEO TRAINING.

SQUADRON	TOTAL HOURS GROUND TRAINING.	TOTAL HOURS LOCAL AER TRAINING.	TOTAL HOURS CROSS COUNTRY	FULLY TRAINED NAVIGATORS	PARTLY TRAINED NAVIGATORS
408	79.00	10.30	92.00	31	2
419	117.00	79.50	93.50	32	NIL
426	40.00	15.00	75.00	17	14
427	21.00	10.00	31.00	32	NIL
428	112.00	45.55	58.10	26	4
429	54.20	18.22	139.31	31	3
432	45.40	26.15	28.25	31	NIL
1659 C.U.	730.00	NIL	438.00	NIL	31

In addition to the above, No. 1659 Heavy Conversion Unit have completed sixty local homings and sixty one S.96 Exercises this month.

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NAVIGATION CONFERENCES

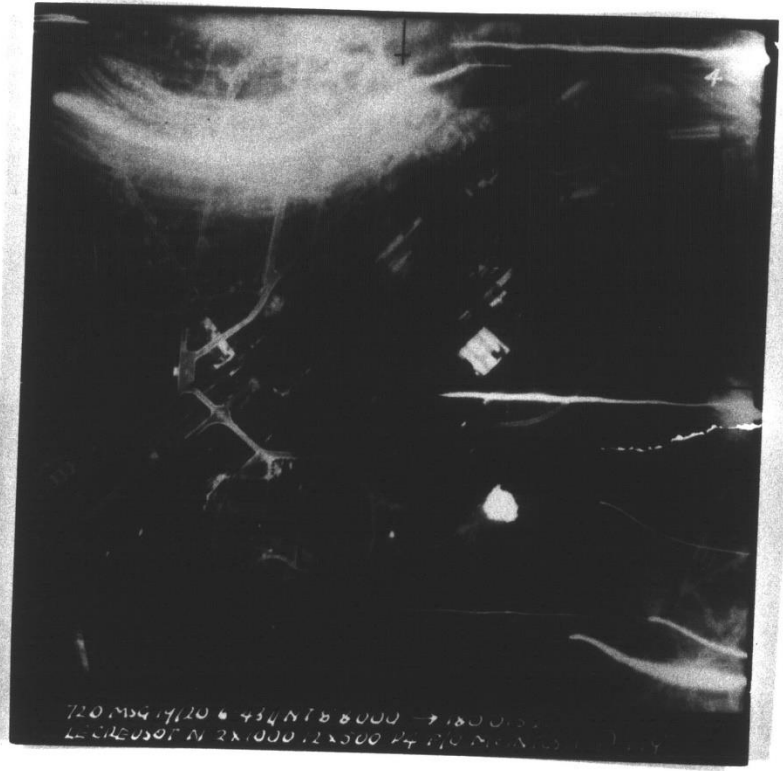
It is hoped to hold conferences once in a while of all the Navigation Officers. Any unit having matters they would like to have thrashed out at such a conference is requested to notify their Station Navigation Officer, who will forward the suggestion to the Group Navigation Officer for inclusion in the next agenda.

THE NAVIGATION STAFF.

A feeling of friendly rivalry among the units of the Group is all to the good. To assist the cause it is felt that the following complete list of the Navigation Staff of the Group will be of interest.

Headquarters No. 6 (R.C.A.F.) Group.	S/L. H.A. Forbes, D.F.C.
Headquarters R.D.F. Navigation	F/L. F.D. Smith.
Base Headquarters, Topcliffe.	S/L. L.N. Orchard.
Station Headquarters, Leeming.	S/L. V.Y. Craig.
Station Headquarters, Middleton St. George.	S/L. J.B. Enderby.
No. 408 Squadron.	F/L. H.B. Gattay.
No. 419 Squadron.	F/L. A.L. Parnall.
No. 426 Squadron.	F/L. J.B. Cleveland.
No. 427 Squadron.	F/L. S. Hensby.
No. 428 Squadron.	F/L. S.B. Mason.
No. 429 Squadron.	F/L. L.C. Dilworth.
No. 432 Squadron.	F/L. G. Belcher.
No. 1659 Conversion Unit.	F/L. J. Pennington.
Instructors.	P/O. H. Fogg, D.F.M. P/O. R.S. Jamieson. P/O. J.K. Knights, .F.C. P/O. R.C. Mayer, D.F.C. P/O. J.N. Price.
No. 1664 Conversion Unit.	F/L. W. Johnston.
Instructors.	F/O. T.M. McDougall, D.F.C. F/O. J.E. Bell. F/O. G.A. Bumstead. F/O. F.S. Sutherland.
No. 1679 Heavy Conversion Flight.	F/O. V. Rolfe.

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Appendix C 32 to RAF
Form 540 H.Q.
No. 6 (R.C.A.F.) Group,
November, 1943

PAGE 1 - (CONTINUED)

BOMBING.

Operational Manipulation Failures.

No bombing manipulation failures were credited to Air Bombers of this Group during the month of October.

There was one photographic failure caused by an Air Bomber accidentally knocking the camera master-switch to the "off" position.

Air Bombers Operational Assessment.

Three hundred and twenty-one Air Bombers Logs were assessed during the month of October, showing the following points of interest : -

1. 1.3 Astro shots per Air Bomber per sortie were taken during the month.
2. The average navigation assessment for all Air Bombers was 3.5 out of a possible 10.
3. The average percentage of all Logs was 76.6 %.

The following Air Bombers are mentioned for their bombing efforts during the month of October : -

F/O Frost	-	432 Squadron.
F/S Lee	-	431 Squadron.
Sgt. Plaster	-	432 Squadron.
Sgt. Brook	-	428 Squadron.
F/O Greco	-	429 Squadron.

Some Units have failed to send in their assessment returns after operations. The instructions are : - "As soon as possible after each sortie, the Bombing Leader is to make a return to Group Headquarters." Only one copy is required.

The Air Bombers Log.

Throughout the Group, Units have used the Air Bombers Log to advantage. A great deal of important information previously overlooked is being checked, and the fact that manipulation failures in this Group are at a minimum, is a further indication of the value of this log. Bombing Leaders of course deserve a great deal of credit in this regard.

On the other hand, however, some Bombing Leaders have failed to carry out their instructions fully. Firstly, holders have not been made for the logs, and hence the Navigators have been bothered with slips of paper. 428 and 431 Squadrons at present are using wireless operator's flimsy holders, and have cut appropriate slits in them. In this way, the back has been used to tabulate general bombing drill and instructions to the Air Bomber, who, if he has forgotten, merely has to check his procedure stage by stage. It is suggested that all Units get into line and adopt this method. If this idea is not sufficiently plain, contact the Group Bombing Leader and he will explain. Secondly, Bombing Leaders have not checked to ensure that the Bombing Information is not repeat not duplicated in the Navigators Log. Remember; Bombing Information is not necessary to good navigation. If the Navigator thinks that he has to repeat all the bombing information in both logs, he will naturally complain.

Air Bombers Duties.

During the month the responsibility for Window was transferred from the Air Bomber to the Wireless Operator, thus permitting the Air Bomber to continue as a member of the bombing and navigation team.

Haste Makes Waste.

Recently an Air Bomber with only five minutes available, removed the safety-pin from the 2000 lb. bomb, made a bomb panel check and got off. He was so hurried that he did not notice that the indicator light did not go on, even though he went through all the motions.

As a result, since no check was made on crossing the English Coast, it was not until he reached the target that he found the bomb-panel fuses were missing, and he was forced to drop the 2000 lb. bomb manually. Of course the incendiaries were all brought back.

It should be remembered that no matter how little time there is available, the bomb-panel must be carefully checked. Any captain who is willing to take off without knowing whether or not he will be able to drop his bombs is a menace to the war effort. Had the bomb-panel check been carried out slowly and deliberately, a complete bomb-load would have reached the target and a crew would have carried out its duty. Always remember; the bombs come first. Without the bombs the aircraft is useless. All Squadron Bombing Leaders are reminded that they are responsible for the way in which crews carry out their bombing checks, and are to bring this story to the attention of all Air Bombers in the Squadrons. The expression "Haste makes Waste" was never more appropriate.

TRAINING.

Night Vision.

In the chart comparing the training of Air Bombers at Conversion Units, it will be noticed that at 1659 Con. Unit each Air Bomber received thirteen hours training. At present this is the only Unit in the Group capable of handling night vision courses.

A number of Air Bombers praise the course very highly and are assured that it has improved their map-reading capabilities considerably. It is not so much that their eye-sight has improved, but that they have been taught how best to use their eyes. This has been particularly marked during attacks by enemy fighters. Air Bombers say that they feel far more competent to keep a look out and spot aircraft quickly.

It is considered timely to pass this information on to Units, and particularly 1659, whose night vision training personnel are to be congratulated.

A.M.B.T.'s.

At the last Bombing Leaders Conference, Bombing Leaders decided that the A.M.B.T. should be fitted with Mk XIV Bombsight and the height should be raised to 20,000 ft.

Until this is done, Bombing Leaders are to get the best out of what they have, and above all are to assist in keeping the A.M.B.T. serviceable by handling it correctly. One Bombing Leader who was told that his A.M.B.T. was serviceable said, "I'll soon fix that." The next day the A.M.B.T. was unserviceable. This attitude must not exist.

SQUADRON SUMMARY - AIR BOMBERS.

UNIT	Total AMBT Hours.	Total Link Hours.	Dual Flying Hours.	Av. No. Astro shots per A/B		Infra Red Practices.	Map Reading Tactics.	Gee Hours.
				Ground	Air			
408	5.00	16.15	26.30	6	1	8	368	38.00
419	U/S	14.00	-	6.6	2.2	-	-	104.30
426	11.00	37.50	4.45	3.	3.	-	81.00	39.30
427	U/S	24.00	3.45	24.	3.	1.	125.00	44.45
428	U/S	28.45	-	20.	2.	-	69.25	62.45
429	-	43.15	4.15	21.6	5.7	6	41.30	77.25
431	-	-	43.00	10.8	2.6	10	532.00	62.30
432	3.00	38.30	15.15	17.	7.	13	52.30	67.15
434	-	-	17.30	3.9	1.6	-	155.00	96.00
1659 OU.	56.00	32.35	160.00	15.	9.	74	994.00	224.30
1664 OU.	-	93.15	89.00	39.9	5.4	52	410.45	191.45
1679 OF.	6.00	58.30	14.00	14.	1.4	20	53.30	207.00
TOTALS :	81.00	386.55	378.00	15.1	3.6	184	2882.40	1215.55

HIGH LEVEL BOMBING STRENSALL RANGE.

SQDN.	NO. OF DETAILS		NO. OF BOMBS		AV. ERROR '10,000'
	DAY	NIGHT			
408	11	-	68	-	142 yds.
419	5	-	26	-	116 yds.
426	1	-	8	-	108 yds.
427	18	-	31	-	180 yds.
428	9	-	51	-	155 yds.
429	3	-	18	-	145 yds.
431	9	-	44	-	101 yds.
434	9	-	42	-	144 yds.
1659 CU	49	-	328	-	156 yds.
1664 CU	38	20	316	171	152 yds.
1679 CF	10	-	83	-	131.6 yds.
TOTALS:	162	20	1015	171	148.6 yds.

CONVERSION UNIT - BOMBING TRAINING.

The following chart compares 1659, 1664 Conversion Units, and 1679 Conversion Flight, with reference to the average training per Air Bomber during the month of October.

UNIT	Av. Flying Times.	Av. Gee Hours.	Av. No. Bombs Dropped	Av. Error	Av. Dual Flying Hours	Night Vision Training
1659	36.8 hrs.	5.6 hrs.	10.4	156 yds.	4. hrs.	13
1664	30.4 hrs.	7.1 hrs.	18.	152 yds.	3.3 hrs.	-
1679	10.4 hrs.	5.6 hrs.	7.6	131.6 yds.	2. hrs.	-

IMPORTANT NOTICE.

Monthly Returns.

Bombing Leaders are reminded that in Section II Chapter III there are complete instructions concerning returns, and the type of form which shall be used. Next month, before making returns, check to see that you are doing them correctly. Adjutants would appreciate being notified of returns you make, so from now on keep them informed.

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Appendix C.24 to RAF
Form 540. H.Q.
No. 6 (R.C.A.F.) Group.
October 1943.

REVIEW of NAVIGATION

NUMBER 5

HEADQUARTERS, NO. 6 (R.C.A.F.) GROUP

OCTOBER, 1943

THE RADAR EMOTION

Since the beginning of the war, a vast improvement has taken place in navigational technique and training. Scientists have provided radar aids, unheard of at the outbreak of hostilities, enabling navigators to work to a precision formerly difficult even on clear, moonlit nights.

It is no longer considered sufficient to arrive at the target. Any amateur might do so aided by the Pathfinder Force. You should not be satisfied unless you arrive at the target at a specified time without deviation from the prescribed route. The results achieved and the losses sustained vary in proportion to your success in attaining this concentration. To do so you must adapt your technique to make full use of the new aids without neglecting the sound basis of your earlier training in D.R. navigation. Indeed if the maximum benefit is to be obtained from radar, your plotting must be up to the minute and accurate. Limitations of radar aids such as range and difficulty of identification can largely be overcome by good D.R. navigation. Never fix crawl; you are asking for trouble.

All radar equipment is prone to some unserviceability due to its complex nature. Much of the trouble encountered can be overcome by a familiarity with the equipment. Study jaming and try to increase your manipulation. Ensure that you understand and are making full use of all controls. Visit the radar workshop on your station frequently. Discuss your troubles and set faults with the radar mechanics there. They are working hard to aid you by bettering the serviceability and improving the results you can obtain on operations. Your active interest helps and encourages them to give better service.

The results that are obtained from radar vary considerably from one navigator to another. The importance of studying new developments and constantly practising to improve your manipulation technique cannot be over emphasized. Radar is winning the war; make full use of the facilities offered.

SEPTEMBER REPORTS

OPERATIONAL

The average experience of navigators operating during September is the lowest since a record of experience has been kept. This appears to be reflected in the results. The most obvious faults were those connected with timing. An alarming proportion of the aircraft seem to show a complete disregard of the time they are due on the target and are bombing not only with waves other than their own but in many cases either before the attack is due to begin or after all aircraft should have left. Timing is a problem in elementary navigation and should not be beyond the capabilities of the average navigator. It is part and parcel of the problem of concentration, so essential at the present time. Navigation Officers must give their attention to this matter and ensure that navigators realise the importance of timing, know how to waste time if they are early, and how to avoid losing time, and making themselves late.

A relative problem is that of bombing heading. The only heading which aircraft are to use is that of the approach laid down in the Bomber Command route. If timing is good there does not seem to be any reason for not bombing on the required heading. It is very dangerous not to do so, not only for the aircraft on the wrong heading but also for those who are doing the right thing.

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The use of Q.D.M's in the search area is still. One aircraft requested no less than 8 Q.D.M's while the search was in progress. Requesting Q.D.M's can be dangerous from the point of view of security, if there are enemy intruders about. Crews should be reminded that the tracking of Q.D.M's and M/F fixes must be regarded as emergency procedure.

The astro keen squadrons, Nos. 420 and 432 still have no serious competitors. It is hoped that Nos. 428, 429 and 434 squadrons will bring themselves in line with the other squadrons during October.

During the month, "40" range operations showed a slight increase despite further enemy jamming. This was largely due to increased use of special frequencies made possible by the introduction of the new R.F. unit. Some crews still failed to make full use of all the facilities offered to obtain the extra range; an occasional navigator dropped out of interrogation when queried on these frequencies that he had neglected even to give them a try. Results obtained on a given frequency varied considerably from one night to another but on no single occasion were all frequencies in the area effectively jammed.

SQUADRON	Number of sorties analysed	Average experience of navigators in number of sorties.	AVERAGE RATE PER HOUR					EFFECTIVENESS OF SORTIES MADE			NUMBER OF SORTIES PER	
			Lines	Searches	Tracks	Fixes	Identifications	Astro Position	Lines	Searches	Q.D.M's	M/F Fixes
419	118	7.4	10.25	10.20	10.01	11.22	2.70	43.2	11.8	1.7	29.5	118
426	31	8.2	10.61	10.32	10.70	3.45	1.42	19.4	19.4	12.9	5.2	31
427	84	9.4	11.89	11.89	11.89	7.8	3.45	39.7	56.3	21.4	8.4	SILENT
428	103	7.1	11.75	11.75	11.75	5.89	2.92	57.5	57.3	10.7	SILENT	51
429	50	10.4	10.76	10.76	10.76	9.50	3.54	24.0	42.0	40.0	8.3	SILENT
432	93	11.7	2.33	0.87	1.29	2.39	2.79	50.5	39.8	25.8	SILENT	93
434	69	7.4	0.23	0.23	0.23	5.17	2.22	14.6	34.2	7.5	17.3	69
6 GP	548	8.5	1.67	0.5	0.18	3.56	2.32	39.8	38.0	15.7	18.3	91

TRAINING

September showed increased output of crews from the conversion units but the standard of training in navigation was maintained. Further emphasis was laid on making all cross-country exercises as near simulation of operational conditions as possible. Weather permitting, 15 cross-country flights at the conversion units included a climb to 20,000 ft. Emphasis was placed on briefed route, timing and height was stressed. The month has also seen a marked increase in the number of "bullseye" exercises providing valuable training for the new crews.

The idea of the "navigation team" was encouraged. All crew members were impressed with the importance of giving their bit towards helping to achieve the exacting standard of navigation required for operations. Bomb liners and Wireless Operators were trained to supply the navigator or plotter with useful navigational observations and facts.

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Squadron	Total hours Country	Total hours Cross-Country	Total hours Cross-Country
403	15.00	175.00	152.10
419	109.20	22.30	25.00
426	70.30	142.00	39.00
427	69.00	27.00	-
428	142.43	31.25	45.45
429	37.10	11.75	52.48
431	140.00	71.00	130.00
432	43.78	41.00	-
434	75.00	21.00	110.00
1039 C.F.	61.00	11.00	89.00
1174 C.F.	70.00	16.00	59.00
1179 C.F.	100.00	12.00	65.50
TOTAL	2310.40	622.25	1663.33

GENERAL INFORMATION

No. 1659 Conversion Unit

September was the 12th operational month for 1659 Conversion Unit.

For the last three months, bullseye and bullseye exercises have been done at a height of 20,000 feet, and are conducted with a view to giving crews as much experience as possible in flying under ideal conditions, and so far this policy has been most successful. Crews fully appreciate the value of this type of training, and seem to treasure the opportunity and gain as much benefit from it as possible.

The use of "Gee" has been in full operation, and navigators speak well of the results obtained. The effect in being able to fit an astro-compass in the nose of one of the aircraft with a view to discovering whether this aid can be made more generally useful than it is at present.

"Gee" difficulties have been reduced to a minimum. On one occasion, a navigator omitted to turn up his gear control and on another a lead wire jammed to kick the aerial lead from the aerial lead unit, otherwise there were no manipulation difficulties.

No. 1664 Conversion Unit

September proved to be 1664 Conversion Unit's busiest month yet. The average flying time per navigator has been of a new high, and serviceability was very good in all aspects. There has been a great deal of bullseye exercises and each crew are getting on by means of the bullseye at night.

The "Gee" handling and the "Gee" aid used by all navigators and good results are being shown. The aid has been improved and new ideas are coming in all the time.

There were 7 S.E. exercises carried out during the month and these plotted showed good results.

No. 1679 Heavy Conversion Unit

The round school syllabus has been temporarily shortened from ten to six days for operational crews in order that the conversion of squadrons might be speeded up. The lectures have been revised to include many of the valuable ideas brought back from the Pathfinder H.T.U. In view of the introduction of air position indicators in the near future, the operation of this instrument is now included in the syllabus.

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Special emphasis is being placed on "goc" landing technique. All aircraft are modified to carry "goc" and every opportunity is taken to carry out 3.50 exercises. In addition, the majority of these exercises have been carried out.

At the same time the highest standard of navigation is being required of navigators who are being encouraged in every possible way to improve their technique generally.

TO THE EDITOR

The Bomber Command "goc" Bulletin is held in high repute throughout the Royal Air Force. There is no doubt as to its usefulness and value and it is eagerly awaited each month by many hundreds of navigators not only in this country but in other theatres of war and training commands. It is, however, in danger of extinction through lack of support by Bomber Command navigators as is indicated in the following extract from a letter by the editor to the Group Navigation Officer :-

"You doubtless will have noticed that frequently in our columns we have invited contributions from our readers - in the form of appreciations (and) criticisms, letters to the Editor, news items etc., or anything that may be of general navigational appeal.

Unfortunately the response to these varied requests has been extremely disappointing - and the situation now is that unless we can be assured of more active support the Bulletin is in danger of falling into disuse.

We have ample evidence that navigators welcome the Bulletin when it arrives - what we want is for them to make the fullest use of it as a medium of expressing their views, and their ideas, to put the views and ideas of the few at Command Headquarters as has been the case in the past.

May I leave it to you then in the hope that you will do your best to see that as far as your Group is concerned we get the necessary support to continue with this publication?"

You will know what a loss to the cause of the Bulletin would be to us all. Many of you have had experiences which are of general interest, others will have ideas, suggestions and so on. Write about them; don't be afraid to put them on paper. Never let it be said that your group let the Bulletin down. The Bulletin is now being sent to all training commands in Canada and they would be particularly interested in suggestions and criticisms. See your navigation officer, he will give you all the assistance he can and will see that the contributions are forwarded.

NOTE

There are frequent complaints that navigators, quite rightly justified at the chance of flying with "goc", are tending to forget or disregard all other aids to navigation, and in some cases, all navigation itself.

It cannot be stressed too often that quite apart from jamming, "goc" is a mechanical instrument which is liable to break down at any moment. Blind faith in the accuracy of "goc" fixes is fully justified, but blind faith in the ability of "goc" to take you every time to any target no matter how far distant, will sooner or later, lead to disaster.

On no account must navigation be "thrown out of the window", just because it is easier to use "goc". "goc" should be used to give a fix whenever one is really needed, and the air should then be used in the proper manner.

"goc" rightly used, is the greatest aid to navigation yet devised. Wrongly used it is a menace.

- From "goc Monthly Bulletin" (No. 91 Group)
September, 1943.

Pauvre

GENERAL REVIEW

THE REVIEW

The month with the title "CONVERSION" will bear the date of the month in which it is held, and will begin on or about the 10th of the month. The operational and training programme will be as in the previous month.

R.F.F. VS. I.I.I.

The term "I.I.I." has been dropped obsolete. The present report "Regular" from "R.F.F. Detection and Advice" has officially substituted. See L.N.O. A.6.3/3.

LISTING

The listing of the unit (No. 10) was completed during September. Thirty-two personnel were listed for the trip and all are very enthusiastic about the prospect of conversion and teaching. We owe a big vote of thanks to the staff of the unit for their co-operation and support. The following is a list of the personnel of the unit during September :-

- P/O. Price No. 10 No. 10 C.U.
- P/O. East No. 10 No. 10 C.U.
- P/O. Crossman No. 10 No. 10 C.U.
- P/O. Hancock No. 10 No. 10 C.U.

- P/O. Gird, No. 10, visited the unit on the 17th September.
- P/O. Gutter, No. 10, visited the unit on the 5th September.
- P/O. Sullivan, No. 10, visited the unit on the 10th October.

STAFF NAVIGATORS' COURSE

- P/O. Hill, No. 10, has been posted for duties in Canada.
- P/O. Astall has been assigned to No. 426 Squadron and has been posted to flight lieutenant.
- P/O. Milne, No. 10, has taken over the new post of "Navigation 2" at Group Headquarters.
- P/O. Fisher, No. 10, has been posted to No. 425 Squadron for duties with the Pathfinder force.
- P/O. Gill, D.F.C., No. 10, has been posted to No. 10 Conversion Unit from Group Headquarters where he had been posted for the month.
- P/O. Fox, D.F.C., No. 10, has joined No. 427 Squadron for operational duties.
- P/O. Blair, No. 10, and P/O. Fisher, No. 432 Squadron, have joined the instructional staff of No. 10 Conversion Unit.
- P/O. Brown and P/O. Evans, No. 432 Squadron, and P/O. Shakespeare, No. 432 Squadron, have joined the instructional staff of No. 10 Conversion Unit.

STAFF NAVIGATORS' COURSE

P/O. A.C. Rowe and P/O. W. Stiles have completed the Staff Navigators' Course, and their certificates should prove of great value to their Conversion Unit.

/Certificates.....

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CERTIFICATES

The following awards have been made for Navigation Certificates, Second Class. All are members of No. 432 Squadron:-

- | | |
|--------------------|---------------------|
| Sgt. J.D. Boston | P/O. W.L.P. Gardner |
| P/O. W.L. Dorr | P/O. G.V. Holmes |
| Sgt. J.C.M. Donald | Sgt. G.W. Hulme |
| P/O. L.E. Gadsby | P/O. R.H. Johnson |

THE MONTH'S GOOD WORK

Special mention for Boston is given to P/O. Rumpel of 419 Squadron for his work on the Munich raid, Sept. 24-25. His log and chart work and careful pre-flight planning are to be commended. Successful results were obtained by intelligent use of astro observations in conjunction with D.R.

Good work was also done by:-

- Sgt. Registrar of 428 Squadron
- P/O. Thomas of 432 Squadron
- P/O. Registrar of 429 Squadron

A. H. Forbes

(A. H. FORBES) Squadron Leader
For Air Officer Commanding,
No. 6 (R.C.A.F.) Group,
ROYAL AIR FORCE.

CG/S. 814/2/Nav.
11th October, 1943.

DISTRIBUTION

	No. of Copies
No. 61 (R.C.A.F. Base)	1
No. 1659 Conversion Unit	2
No. 62 (R.C.A.F.) Base	1
Nos. 408, 426, 431, 432 & 434 Squadrons	2 (each)
R.C.A.F. Station Leeming	1
Nos. 427 & 429 Squadrons	2 (each)
R.C.A.F. Station Middleton St George.	1
Nos. 419 and 428 Squadrons	2 (each)
No. 1664 Conversion Unit	2
No. 1670 Conversion Flight	2
Headquarters, Bomber Command	2
Headquarters, Nos. 1, 3, 4, 5, 8 (PFF), 97 Groups	1 (each)
Navigation Training Unit, R.A.F. Station Upwood	1
Nos. 22, 23, 24 C.T.U.'s	1 (each)

Pauvre

SECRET.

NO. 6 (R.C.A.F.) GROUP SUMMARY OF SIGNALS FAILURES.
OCTOBER 1943.

475 Sorties - 8 Failures.

Total percentage of failures to sorties ----- 1.68%
Percentage of failures preventing aircraft
taking off ----- Nil.
Percentage of aircraft which returned
early due to signals failures ----- 0.42%
Percentage of failures not affecting
mission ----- 1.26%
Percentage of total failures judged to have
been avoidable ----- 25%

Squadron	Sorties	No. of W/T, R/T and Intercom. Failures.	
427	54	2	3.7%
426	60	2	3.3%
428	49	1	2%
429	50	1	2%
432	55	1	1.8%
419	62	1	1.6%
431	39	Nil.	
434	47	Nil.	
408	59	Nil.	

.....W/Cdr.
(T.W. Hodgson)
For Air Officer Commanding.
H.Q. No. 6 (R.C.A.F.) Group.
ROYAL AIR FORCE.

Distribution:-

External:- Nos. 61 and 62 Bases.
R.C.A.F. Stations Topcliffe, Linton, Leeming Middleton St.
George, Eastmoor, Dalton, Womblesdon, Croft, Slipton,
and Thelthorpe.
Squadrons:- 403, 426, 419, 428, 431, 434, 432, 427 and 429.
Headquarters, Bomber Command.
Headquarters Nos. 1, 2, 3, 4, 5, 8 (PFF), 91, 92, 93 Groups.
RAF Farnborough.

Internal:- S.A.S.O.
G.T.I.
Narrative Officer (5 copies).
File: 6GF S.463/signs.

P.T.D.

SECRET.

ANALYSIS OF SIGNALS FAILURES FOR MONTH OF OCTOBER, 1943.

SQDN.	NO. OF SCRIES.	DATE	A/C	SYMPTOMS	RESULTS OF GROUND TESTS	CATEGORY	WHETHER MISSION COMPLETED	REMARKS.
427		27/23	U	T1154/R1155 U/S. Armature of L.F. generator appeared to be rubbing on yoke.	Filament of VT 104 shorting to anode causing fuses to blow.	Manipulation.	Yes	Failure of the VT 104 should not have rendered T1154 inoperative.
426	60	7/8	C	T1154 U/S (low input)	Faulty bearing (ball race) on output end of Generator Type 35A.	Defective Equip.	Yes	Unavoidable.
		7/8	U	R1155 U/S over target.	Short circuit in H.T. Armature of P.U. type 33. Bias resistance was burned out due to faulty C8 shorting H.T. positive to earth.	"	Yes	Unavoidable.
428	49	3/4	J	Intercom. mic. failure affecting all positions aft. of main spar.	Microphone negative lead disconnected at junction box at main spar.	Faulty Maintenance	No	Avoidable.
419	62	8/9	K	R1155 U/S. No aural output	Triode portion of VR 101 (V8) U/S.	Defective Equip.	Yes	Unavoidable.
429	50	4/5	J	R1155 U/S	Failure due to broken lead from C14 to Jones plug.	"	Yes	Unavoidable.
432	55	8/9	L	Intercom failure	Four turret connector type No. 943/4, 1CR/272C broken. Connector caught in turret track	Obscure.	No.	

SECRET.

ANALYSIS OF SIGNALS FAILURES FOR MONTH OF OCTOBER, 1943.

SQDN.	NO. OF SCRIES.	DATE	A/C	SYMPTOMS	RESULTS OF GROUND TESTS	CATEGORY	WHETHER MISSION COMPLETED	REMARKS.
427	54	3/4	K	T.1154 U/S for last 3 hrs of trip.	Filament of VT 104 shorting to anode causing fuses to blow.	Manipulation.	Yes	Failure of the VT 104 should not have rendered T1154 inoperative.
		22/23	U	T1154/R1155 U/S. Armature of L.F. generator appeared to be rubbing on yoke.	Faulty bearing (ball race) on output end of Generator Type 35A.	Defective Equip.	Yes	Unavoidable.
426	60	7/8	C	T1154 U/S (low input)	Short circuit in H.T. Armature of P.U. type 33. Bias resistance was burned out due to faulty C8 shorting H.T. positive to earth.	"	Yes	Unavoidable.
		7/8	U	R1155 U/S over target.	Microphone negative lead disconnected at junction box at main spar.	"	Yes	Unavoidable.
428	49	3/4	J	Intercom. mic. failure affecting all positions aft. of main spar.	Microphone negative lead disconnected at junction box at main spar.	Faulty Maintenance	No	Avoidable.
419	62	8/9	K	R1155 U/S. No aural output	Triode portion of VR 101 (V8) U/S.	Defective Equip.	Yes	Unavoidable.
429	50	4/5	J	R1155 U/S	Failure due to broken lead from C14 to Jones plug.	"	Yes	Unavoidable.
432	55	8/9	L	Intercom failure	Four turret connector type No. 943/4, 1CR/272C broken. Connector caught in turret track	Obscure.	No.	

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SECRET.

RADAR FAILURES - OCTOBER.

GEN.

Station	Sqdn.	Faulty Components. (a)	Faulty Maintenance. (b)	Faulty Manipulation. (c)	Miscellaneous Causes. (d)	% of Failures Against No. of Starts.
Linton	426	Nil	1	Nil	1	3.3
	408		Nil	Nil	1	1.7
Eastmoor	432	2	Nil	Nil	1	5.4
Tholthorpe	431	2	Nil	Nil	1	7.7
	434	2	Nil	1	Nil	6.4
Middleton	419	nil	Nil	Nil	1	1.6
	428	2	1	Nil	2	10.
Looming	427	Nil	Nil	Nil	Nil	Nil
	429	Nil	Nil	Nil	Nil	Nil
GROUP TOTAL.		8	2	1	7	3.9%

NOTION.

Station	Sqdn.	Faulty Components. (a)	Faulty Maintenance. (b)	Faulty Manipulation. (c)	Miscellaneous Causes. (d)
Linton	426) 408)	not fitted.			
Eastmoor	432	Nil	1	Nil	1
Tholthorpe	434	1	Nil	Nil	Nil
	431	1	Nil	1	Nil
Middleton	419	nil	2	3	4
	428	nil	1	2	2
Looming	427	Nil	Nil	Nil	Nil
	429	Nil	Nil	Nil	1
GROUP TOTAL.		2	4	6	8

Appendix C.29 to RAF
Form 540. H.Q. No.6
(R.C.A.F.) Group.
December, 1943.

BOMBING DIGEST

6.(R.C.A.F) GROUP
ISSUE NO. 6 NOVEMBER. 1943.

"SECRET."

PART I - OPERATIONAL.

BOMBING.

Air Bombers' Operational Assessment.

Four hundred and nineteen Air Bombers' Logs were assessed during the month of November, showing the following points of interest : -

- (a) Air Bombers of the Group took 2 Astro shots per A/B per sortie.
- (b) The Navigation standard was 4.7 out of 10.
- (c) The average of the 419 Logs assessed was 82 %.

The following Air Bombers are to be congratulated on their efforts for the month of November : -

F/O Swenerton	-	419 Squadron.
F/O Naylor	-	431 Squadron.
F/S Elsey	-	419 Squadron.
F/S Johnson	-	408 Squadron.

Operational Manipulation Failures.

No. 419 Squadron - 10 x S.B.C.'s were brought back as the result of a Pilot and Air Bomber not knowing their bombing procedure. The bomb doors were closed too quickly.

1 x 2000 lb. bomb was brought back unknown to the crew because the Air Bomber did not personally do the **visual check, but took the word of** another member of the crew.

Remarks: -

The above incidents were both the result of poor crew co-operation.

No. 429 Squadron - 1 x 1000 lb. bomb was brought back due to an Air Bomber not carrying out complete after-bombing checks.

Form 1826.

In order to keep an accurate record of bombing failures for each aircraft, a form 1826 has been issued. Among other things, this form ensures that the A/B knows the load since he has to sign the form before take-off.

After completion of a sortie, when the inspection has been carried out, the Bombing Leader, the Armament Officer and the Electrical Officer each sign as having made a thorough check.

It is considered very important that Bombing Leaders sign these forms, so that all failures will be brought to their attention, thus making them aware of the difficulties which are arising. In some instances, the cause of the failure may be faulty manipulation, in which case, the Bombing Leader is to question the crew, and in particular the Air Bomber, before signing the form 1826. When it is known to be faulty manipulation, valuable time can be saved on the part of Armament and Electrical Staffs if they are informed of it as soon as possible.

If you have not already been using the form 1826 see your Armament Officers right away and get up-to-date.

SQUADRON SUMMARY - AIR BOMBERS.

UNIT	Total AMBT Hours.	Total Link Hours.	Dual Flying Hours.	Av. No. Astro shots per A/B		Infra Red Prac- tices.	Map Reading Tactics.	Gee Hours.
				Ground	Air			
408	-	20.45	16.45	7	1.	3	225.00	28.15
419	-	46.25	11.30	16.4	8.8	-	27.45	261.15
426	-	29.05	16.15	2.	1.	-	115.30	44.30
427	-	38.30	4.00	3.	11.5	34	117.00	118.45
428	10.00	24.40	-	12.	9.	3	95.05	123.20
429	-	44.30	18.30	15.	11.	7	95.05	103.05
431	-	-	-	17.5	4.1	49	315.00	92.00
432	-	28.15	17.00	18.3	4.	26	104.00	46.00
434	-	-	14.00	10.4	7.5	12	221.00	174.00
1659 CU.	47.00	102.00	64.00	26.	8.	47	300.00	119.00
1664 CU.	-	116.00	51.00	49.5	2.3	17	326.00	292.30
1666 CU.	36.00	-	-	18.	8	2	84.00	95.00
1679 CP.	12.00	32.00	6.30	9.4	1.5	-	85.00	152.00
TOTALS :	105.00	432.10	216.30	N/A	N/A	265	2197.25	1649.10

The outstanding improvement in Air Bombers' training during November, was shown in Gee and Link. Returns show, however, that in Lancaster Squadrons, Gee training has fallen off and is far behind that of the Halifax Squadrons.

In addition to the above chart, Units took every opportunity to carry on ground training including dry swims, S. O. S. procedure, bombing up and engineers duties.

- 5 -

HIGH LEVEL BOMBING STRENSALL RANGE.

SQDN.	NO. OF DETAILS		NO. OF BOMBS		AV. ERROR 10,000'
	DAY	NIGHT	DAY	NIGHT	
408	11	3	65	18	139 yds.
419	12	-	58	-	117 yds.
426	5	12	40	80	130 yds.
427	6	-	18	-	121 yds.
428	8	-	48	-	88 yds.
429	10	-	57	-	130 yds.
431	8	6	40	32	111 yds.
432	16	10	86	60	138 yds.
434	15	10	75	36	154 yds.
1659 OU	40	-	258	-	155 yds.
1664 OU	32	-	236	-	184 yds.
1666 OU	4	2	28	8	147 yds.
1679 CF	2	2	16	16	166 yds.
TOTALS :	169	47	1025	250	146 yds.

During November, Strensall Practice Bombing Range was available for only 166 hrs., during which 216 details were carried out by aircraft of this group.

In future, practice bombing will be assessed from 20,000 ft. instead of 10,000 ft. This will give crews a better picture of what they can do at operational heights. The value of bombing from above 10,000 ft. cannot be overemphasised and Bombing Leaders are to brief crews to bomb from operational heights whenever the weather permits.

UNIT	Av. Flying Times.	Av. Gee Hours.	Av. No. Bombs Dropped	Av. Error.	Av. Dual Flying Hours	Av. Link Hours	Night Vision Training.
1659	31.30	6.00	15	155 yds.	3.00	4.45	13 hrs.
1664	29.45	10.00	13	184 yds.	2.20	3.30	11 hrs.
1679	13.00	7.00	1.5	166 yds.	.25	1.30	-

CONVERSION UNIT - BOMBING TRAINING.

The above chart compares 1659, 1664 Conversion Units, and 1679 Conversion Flight, with reference to the average training per Air Bomber during the month of November.

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Appendix C 33 to RAF
Form 540 H.Q.
No. 6 (R.C.A.F.) Group,
November, 1943.

REVIEW OF NAVIGATION

NUMBER 6

HEADQUARTERS, (R.C.A.F.) GROUP

NOVEMBER, 1943

THE CRAFTSMAN

The results of our bombing have been gratifying; we have hit the Nazi war machine in its most vital points with paralysing effect, but there still remains a lot of hard hitting to be done. To this end, our strength in aircrews and aircraft has been built up to a formidable state - we are equipped to do the job - the success or failure depends on the reaction of every crew member to the great responsibility placed upon him.

In the work that lies ahead, navigation will play a very important role, for the success of a raid and the reduction of losses are largely dependent upon its accuracy. The standard required is possible due to the advances made in navigational aids, but these aids alone cannot produce perfect results unless the navigator himself becomes a craftsman in their use, and uses every opportunity to improve his technique. Nor will he attain this high degree of skill by a half hearted effort, but only by conscientious work, a determination to improve, and above all by taking a genuine pride in the job he is doing. The satisfaction derived from a trip, accurately navigated, more than compensates for the energies expended, and establishes a self confidence for which there is no substitute. No navigator has reason to feel he is doing his duty to his crew or his squadron unless he is making an honest endeavour to obtain perfection in his work, and is accepting fully the responsibility placed on him.

OCTOBER REPORTS

OPERATIONAL

That the navigational effort of squadrons tends to deteriorate during periods of conversion has been frequently observed. During October this tendency seems to have applied to all squadrons, being no doubt largely accentuated by enforced inactivity due to unfavourable weather conditions. The use of navigational aids other than radar shows an alarming decline, and indicates that an increasing number of navigators are placing their whole dependence upon the radar aids.

This is a dangerous practice. Navigators must keep in practice in the use of all available aids, particularly any which are not dependent on serviceability or subject to enemy interference. Astronomical navigation is most valuable in this respect and it should be the aim of every crew to become proficient in this aid as soon as possible. There is opportunity for practising astro on nearly every operational trip and this opportunity must not be wasted.

Enemy jamming of the gee transmissions proved somewhat more effective during the month, with a resultant curtailment in the average range obtained. Despite this, little trouble with spurious pulses was reported. The south-western chain was used for the first time by squadrons of No. 6 (R.C.A.F.) Group for mine-laying near Brest and all aircraft reported very good reception with strong pulses in the dropping area.

Serviceability of the gee equipment reached a new high, only 4.2% of the successful sorties reporting gee difficulties. F/O. Dunphy (a navigator of No. 426 squadron) showed a high degree of resourcefulness in successfully repairing, in the air, the blue ply lead to the gee receiver after it had been severed by fighter attack on the night of 20th/21st October.

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-2-

Two concentration diagrams have been prepared recently. The one of the Kassel (22nd/23rd October) raid shows that over eighty percent were within ten miles of track on the outward and over ninety percent on the homeward trip. On the Dusseldorf (3rd/4th November) raid, a very satisfactory percentage of ninety-nine was achieved on the outward which dwindled to less than eighty percent on the homeward trip. There is still much room for improvement but these figures indicate that a much greater degree of concentration is being achieved than even a few months ago. We cannot rest though, for as long as there are aircraft outside the main concentration there will be heavy casualties among them.

While the picture of concentration on track seems to be brightening, the matter of timing leaves much to be desired. In each of the raids mentioned above less than one half of the aircraft bombed within their own wave. On the Kassel raid, fifty percent of the aircraft averaged five minutes late, while on the Dusseldorf raid over forty percent averaged two minutes early. It is conceded that unforecasted winds will on occasion tend to upset the time schedule but this is not an excuse for bombing early as the "60° - 120° dog leg" is now a recognised means of wasting time in hand.

SQUADRON	Number of sorties Analysed	Average experience of navigators in number of sorties	AVERAGE NUMBER PER SORTIE				PERCENTAGE OF SORTIES USING			NUMBER OF SORTIES PER		
			Astro Position Lines	Beam Approaches Recorded	Radio Track Guides recorded	Wind Velocities Found (Out)	Wind Velocities Found (Home)	Astro Position Lines	Beam Approaches	Radio Track Guides	G.D.M.	I/F Fix
408	49	9.2	0.12	0.02	NIL	4.62	1.35	4.1	2.1	NIL	30	15
419	54	8.6	0.91	0.19	NIL	6.15	3.37	24.0	13.0	NIL	31	SILENT
426	49	7.5	0.08	0.08	NIL	3.26	1.53	6.1	8.2	NIL	SILENT	59
427	38	9.1	0.66	1.76	0.34	7.00	2.92	13.2	71.1	29.0	27	54
428	38	6.4	0.58	1.00	0.15	4.75	1.79	26.4	47.4	7.9	SILENT	16
429	45	10.2	1.22	1.14	0.09	6.12	3.56	26.6	57.8	8.9	17	8
431	27	13.4	0.63	0.07	0.07	5.10	2.18	11.1	3.7	7.4	39	SILENT
432	44	12.7	1.96	0.02	0.04	6.10	2.95	45.5	4.6	9.2	SILENT	13
434	36	6.3	0.19	0.26	0.25	4.36	1.56	11.1	22.2	25.0	12	16
6 GP	380	9.1	0.71	0.48	0.09	5.27	2.38	19.0	24.7	7.58	34.0	21.5

The logs and charts submitted this month were of a very high order and all navigators and squadrons concerned are to be congratulated on achieving this high standard of navigation. Special mention for this month's best work goes to F/O. Baker, O.N. of No. 429 squadron for the work on the Kassel raid 3rd/4th October. Careful pre-flight planning, good solid D.R. and the intelligent use of all available navigation aids, resulted in a very successful trip.

Good work was also done by :-

F/O. Shirley, A.W. 427 squadron
 F/O. Barnhart, F.W. 428 squadron
 F/O. Marrion, R.O. 429 squadron
 F/S. Phillips, G.I. 432 squadron.

It is gratifying to note the increased use of the Mk. XIV bomb sight as a navigational aid, and the successful use of single position lines in calculating "most probable positions".

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TRAINING

The standard simplified form of log keeping with emphasize on conciseness and chart work was adapted generally by conversion units and squadrons with the use of symbols to indicate type of positions plotted. This change was favourably received and reports indicated that improved results were obtained.

During this month, the hours of ground training showed a slight increase but owing to poor flying conditions the air training both local and cross-country was somewhat curtailed.

Practice in changing R.F. units as called for on operations was given by carrying R.F. unit 24 and changing to this unit on cross-countries routed to South-Western England.

The table below shows gee ground and air training by squadrons and conversion unit. In addition 214 homings with check photography were completed. Gee homing cards were manufactured by navigators as part of their training on the conversion units.

SEE TRAINING SUMMARY

SQUADRON	TOTAL HOURS GROUND TRAINING	TOTAL HOURS LOCAL AIR TRAINING	TOTAL HOURS CROSS- COUNTRY
408	30.00	NIL	40.00
419	135.00	55.00	40.00
426	50.00	90.00	40.00
427	120.35	86.00	37.50
428	123.00	54.00	42.00
429	87.10	88.45	24.35
431	144.00	82.00	252.10
432	45.00	21.30	24.30
434	125.00	75.00	110.00
1659 C. U.	730.00	NIL	570.00
1664 C. U.	787.00	88.00	406.00
1679 C. F.	196.00	7.00	56.05
TOTAL	2572.45	647.15	1643.10

NOTES ON CORRECTION OF FORECAST WINDS

By F/O. H. Fogg, D.F.M., No. 427 Squadron, with apologies to N.T.U. (P.F.F.)

Forecast winds are usually more correct than those obtained by aircrews and any very large discrepancy is often the sign of a mistake

2. Forecast winds are obtained :-

- (a) From a forecast of position of the Isobar, giving the 2,000 ft. wind.
- (b) From a consideration of air mass temperatures giving the 18,000 ft.
- (c) Intermediate winds are obtained by interpolation.

3. If a wind is obtained which is different from the forecast wind this may be due to (in order of probability) :-

- (a) Errors by the navigator.

/(b).....

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- (b) Error in forecasting the 2,000 ft. wind.
- (c) Error in forecasting the 18,000 ft. wind.
- (d) A combination of (b) and (c).

Suppose the 2,000 ft. wind has been forecast incorrectly and the 20,000 ft. wind correctly and the navigator finds say an error of 20° and 15 m.p.h. at 2,000 ft. The left hand column shows the forecast winds, the centre column the winds he would use on applying the same correction at all heights, and the right hand column the actual winds.

<u>HEIGHT</u>	<u>FORECAST</u>	<u>CORRECTED</u>	<u>ACTUAL</u>	
2,000	240 25	220 10	220 10	} In practice the 20,000 ft. wind is usually the same as the 18,000 ft. wind.
5,000	250 30	230 15	230 18	
10,000	260 40	240 25	243 33	
15,000	270 50	250 35	236 46	
20,000	280 60	260 45	280 60	

It will be seen that the error introduced by correction is greater at high levels than would have been introduced had the forecast winds been used, although these were incorrect.

Conversely had the 18,000 ft. wind been forecast incorrectly and the 2,000 ft. wind correctly and the navigators winds been found at 18,000 ft. and a correction applied downward, it would have introduced target errors in lower levels.

AMONG THE CONVERSION UNITS

No. 1659 Conversion Unit

While cross-country flying, especially at operational height, was hampered by the unfavourable weather, good use was made of local clearances to stress Gee homing which no doubt accounts for the increased accuracy obtained in the many S.56 exercises carried out.

The new log form has been welcomed by all concerned and whether it is coincidence or not, navigation definitely showed an improvement over recent months. General consensus of opinion is that the log saves a considerable amount of time, and enables the navigator to stress chart rather than log, at the same time avoiding needless repetition.

No. 1664 Conversion Unit.

As a result of the limited flying time available during October, the number of fully trained navigators turned out was slightly lowered, and it is felt that with the prospect of more unfavourable weather during the winter months, navigators' air training is bound to suffer and squadrons will be getting only partially trained men unless intakes are curtailed.

The syllabus of ground instruction has been amended to include lectures on the new R.F. unit No. 24 and the air position indicator. S.56 exercises have been successfully carried out, and the accuracy obtained has improved.

No. 1679 Heavy Conversion Flight

Although priority was given to circuit and landings for the period 11th - 25th October, a good showing was made in the number of S.56 exercises and cross-countries completed. The latter were planned to include a steady climb to a concentration point, arriving at the "target" at a fixed time, and wherever possible, routes and times were chosen to enable the use of the R.F. unit No. 24.

Pauvre

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The mingling of squadron and O.T.U. navigators proved quite a boon to the latter, since they have benefited by the various queries and suggestions brought up by the more experienced members in course of lectures.

ITEMS OF INTEREST.

The conference.

A conference of navigation officers of No. 6 Group was held at Topcliffe on 10th November. Minutes are being prepared and will be distributed to interested units. The following outside representatives attended :-

S/Ldr. H. Shapiro, D.F.C.	Headquarters, Bomber Command
S/Ldr. T.W. Blair, D.S.O., D.F.C.	Headquarters, No. 91 Group.
F/Lt. A.D. Dobson, D.F.C.	Headquarters, No. 4 Group.
S/Ldr. F.M. Critchley, D.F.C.	No. 22 O.T.U., Wellesbourne
F/Lt. D.A. Inman	No. 23 O.T.U., Pershore.
S/Ldr. W.P. Simmons, D.F.M.	No. 24 O.T.U., Honeybourne

The Navigation Bulletin

The Bomber Command Navigation Bulletin No.5 has published a letter by Sgt. Robertson, Compass Adjuster No. 462 squadron. Good work! Let's see some more contributions from 6 Group.

The attention of all navigators is called to the useful article "Thermal Errors and their Importance in Climbing Navigation" appearing in the same issue of the Bulletin. This should be read and digested by all.

Liaison and Visits.

The following navigation instructors on a liaison tour from Canada visited Topcliffe from 24th to 27th October, and Middleton St George from 28th to 31st October :-

F/Lt. H.C. Nixon	F/O. R.G. Comfort
F/Lt. J.M. Baker	F/O. L.R. Semard
F/Lt. J.E. Smith	F/O. G.F. Duncan

F/O. Batchelor of No.23 O.T.U. visited Croft 23rd October.
F/O. J.O. Peltier of No.23 O.T.U., visited Topcliffe 27th and Leeming 28th October.

S/Ldr. Garland, Navigation Officer, Bournemouth visited Topcliffe 31st October, Leeming on 4th November.

F/Lt. S. Hensby, No.427 Squadron, visited No.23 O.T.U. on 6th and 7th November.

F/O. Tomlinson, No.22 O.T.U., Wellesbourne, visited Leeming, Croft and Middleton St George during October.

Certificates

The following navigators have been awarded Air Navigation Certificates, 2nd Class :-

No. 427 Squadron

F/Lt. S.A. Hensby
F/O. A.W. Shirley
F/O. G.M. Walls
F/O. J.P. Greening
F/O. C.L. Hughes
F/S. L.W. Jones
Sgt. J.P. McKenzie

No. 429 Squadron

F/O. H.M. Brown
F/O. O.N.W. Baker
F/O. J.J. Thurmier
F/O. H.M. Blackman
F/O. R.W. Hale
P/O. A.C.H. McConnell-Jones
F/S. W.J. Bernard
F/S. P.M. Vann
SGT. W. Pass

Pauvre

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No. 428 Squadron

F/O. J.A. Derosenroll

No. 4664 Conversion Unit

F/O. J.G. Messenger

No. 1659 Conversion Unit

F/O. J.R. Price, D.F.C.

F/O. J.K. Knights, D.F.C.

F/O. A.H. Fernand, D.F.C.

H.Q. No. 6 (R.C.A.F.) Group

F/O. J.W. Kerr

F/O. G.A. Martin

THE NAVIGATION STAFF

There have been many changes recently, so we give the complete list of navigation officers again :-

Group Headquarters

Group Navigation Officer

Navigation 2

Navigation (Radar)

No. 61 Base Navigation Officer

No. 62 Base Navigation Officer

Station Navigation Officer, Middleton St
George

Station Navigation Officer, Leeming

S/Ldr. H.A. Forbes, D.F.C.

F/Lt. L.C. Dilworth, D.F.C.

F/Lt. F.D. Smith, D.F.C.

S/Ldr. W. Johnston

S/Ldr. L.N. Orchard

S/Ldr. J.S. Endersby

S/Ldr. F.Y. Craig

Squadron Navigation Officers:

No. 408 F/Lt. H.B. Gattey

No. 419 F/Lt. F.T. Judah

No. 426 F/Lt. J.B. Cleveland

No. 427 F/Lt. S. Hensby

No. 428 F/Lt. R.A. Westoll

No. 429 F/Lt. A.M. Stockdale

No. 431 F/Lt. D.B. Moyes

No. 432 F/Lt. H.S. Kemley

No. 434 F/Lt. H. Curry

Conversion Unit Navigation Officers:

No. 1659 F/Lt. J. Pennington

No. 1664 F/Lt. T.R. McDougall,

D.F.C.

No. 1666 F/O. G.A. Bumstead

No. 1679 F/Lt. V. Rolfe, D.F.C.

Radar Navigation Instructors:

F/Lt. J.H. Boudreau

F/Lt. C.H. Parker

F/Lt. G.B. Sharman, D.F.C.

F/Lt. G.J. Wothor

F/O. J.W. Kerr

F/O. G.A. Martin

No. 1659 Conversion Unit:

F/Lt. R.C. Moyer, D.F.C.

F/Lt. R.E. Jamieson

The following are new instructors at conversion units:

No. 1659 Conversion Unit:

F/O. W.S. Hendry, No.419 Squadron

F/O. P. Campbell, No.419 Squadron

F/O. B.H. Gadsby, No.432 Squadron

No. 1664 Conversion Unit:

F/O. J.G. Messenger, No.429 Squadron

P/O. N.M. Bush, No.428 Squadron

P/O. W.M. Watkins, No.428 Squadron

W/O. J.C.B. Donald, No.432 Squadron

No. 1679 H. Con. Flight:

P/O. J.P.H. Carrero, No.9 Squadron

P/O. C.J. Carrigan, No.408 Squadron

No. 1666 Conversion Unit got under way with the following instructors:

F/O. J.A. Clarke, No. 1659 C.U.

F/O. W.H.R. Gardiner, No.432 Squadron

F/S. W.H. Hughes, No.102 Squadron

F/O. Crossman, No.1664 C.U., has been posted to No.23 O.T.U. for instructor duties.

Pauvre

SECRET.

Page 1.

NO.6 (R.C.A.F.) GROUP SUMMARY OF SIGNALS FAILURES.
NOVEMBER 1943.

636 Sorties - 6 Failures.

Total percentage of failures to sorties ----- 0.94%.

Percentage of failures preventing aircraft
taking off ----- 16.6%.

Percentage returning early due to signals
failures ----- 0.47%.

Percentage not affecting mission ----- 0.63%.

Percentage of total failures judged to have
been avoidable ----- 50%.

Squadron	Sorties	No. of W/L, M/T and Intercom. Failures.	
431	73	2	2.74%
419	95	2	2.1%
426	61	1	1.64%
428	90	1	1.1%
432	10	Nil	
408	68	Nil	
431	75	Nil	
429	81	Nil	
427	83	Nil	

Date:- 4th December 1943.

Ref:- GCP/S.463/Sign.

W. B. Eaton
.....W/Cdr.
(N.B. Eaton)
for Air Officer Commanding.
H.Q. No.6 (R.C.A.F.) Group.
ROYAL AIR FORCE.

Distribution:-

- External:- Nos. 61 and 62 Bases.
R.C.A.F. Stations Topcliffe, Linton, Leeming, Middleton
St. George, Eastmoor, Dalton, Wombledon, Croft,
Skepton, Tholthorpe and Dishforth.
Squadrons:- 408, 426, 419, 428, 431, 434, 432, 427, 429,
and 433.
Headquarters Bomber Command.
Headquarters Nos. 1, 2, 3, 4, 5, 8 (FFF) 91, 92, 93
Groups.
R.A.E. Farnborough.
- Internal:- S.A.S.O.,
G.T.I.,
G.S.L.
Narrative Officer (5 copies).

Pauvre

SECRET.

RADAR FAILURES - NOVEMBER 1943.

G.

Station	Sqdn.	Faulty Components (a)	Faulty Circuits (b)	Faulty Manipulation (c)	Miscellaneous Causes (d)	% of Failures attributable to each.
Linton	426	1	1	Nil	4	9.83%
	408	1	1	Nil	3	7.35%
Tholthorpe	434	1	Nil	Nil	2	4.1%
	431	3	Nil	Nil	1	5.33%
Middleton	419	1	Nil	4	1	6.31%
St. George	428	Nil	Nil	1	5	6.66%
Leeming	427	2	Nil	1	1	4.82%
	429	Nil	Nil	Nil	1	1.23%
Group Total		9	2	6	18	5.5%

MONICA.

Station	Sqdn.	Faulty Components (a)	Faulty Circuits (b)	Faulty Manipulation (c)	Miscellaneous Causes (d)
Tholthorpe	431	3	2	Nil	1
	434	4	2	Nil	2
Middleton	419	2	2	4	5
St. George	428	1	1	5	4
Leeming	427	7	Nil	Nil	3
	429	3	Nil	Nil	1
Group Total		20	7	8	16

Pauvre

Appendix C.4D to RAF
Form 540. H.Q. No.6
(R.C.A.F.) Group.
December, 1943.

REVIEW OF NAVIGATION

NUMBER 7 HEADQUARTERS, NO. 6 (R.C.A.F.) GROUP. DECEMBER, 1943

GREETINGS.

The editorial staff extend their best wishes to every navigator for a happy Christmas and a New Year of good track keeping and split second timing with many happy landings.

NOVEMBER REPORTS.

OPERATIONAL.

The general standard of navigation showed a marked improvement towards the end of the month. The difficulties experienced in some of the mid-month raids would appear to have inspired the navigators to greater efforts on the later raids which are mainly responsible for the month's improvement.

The very substantial increase in the use of astro is gratifying. On the individual raids there was a significant correlation between the amount of astro used and the standard of track keeping.

SQUADRON	Number of sorties Analysed	Average experience of navigators in number of sorties.	AVERAGE NUMBER PER SORTIE						PERCENTAGE OF SORTIES USING			NUMBER OF SORTIES PER	
			Astro Position Lines	Beam Approaches Recorded	Radio Track Guides, recorded	Wind Velocities Found (Out)	Wind Velocities Found (Home)	Astro Position Lines	Beam Approaches	Radio Track Guides	Q. D. M.	M/F Fix	
408	56	9.7	0.48	0.23	0.18	5.55	1.96	17.8	19.6	3.6			
419	72	9.3	3.20	0.71	0.01	6.58	3.35	55.5	32.0	1.4	SILENT	17.0	
426	47	11.0	0.17	0.02	0.02	5.40	2.17	4.3	2.1	1.4	SILENT	31.7	
427	75	9.5	2.67	1.82	0.56	8.50	4.08	50.6	85.5	45.3	61.0	20.3	
428	75	6.1	2.50	1.33	0.08	6.00	3.08	62.6	74.8	8.0	SILENT	83.0	
429	65	9.6	1.99	1.75	0.08	8.34	4.37	60.0	81.6	6.2	SILENT	90.0	
431	62	10.1	0.79	0.26	0.48	6.50	2.15	37.0	21.0	16.5	SILENT	20.3	
432	10	13.3	0.50	0.10	NIL	7.00	2.80	33.3	10.0	0.18	SILENT	15.0	
434	60	8.5	1.27	0.60	0.25	6.31	1.55	33.3	41.7	0.18	SILENT	9.0	
6 GP	522	9.3	1.74	0.91	0.16	6.95	2.94	42.7	47.5	13.2	79.4	21.9	

Note:- No. 432 Squadron took part in one raid only.

There were a number of abortive sorties due to faulty navigation during the month. Some of them were reported failures of compasses. It must be impressed on all crews that the P4 compass is an extremely reliable instrument and in many cases where it differs greatly from the D.R. compass the pilot should, after ensuring that it is not being influenced by some metallic object such as a torch, use it for setting and checking courses.

The necessity for constantly checking one's work was well illustrated by the experience of a navigator on the Leverkusen (19/20th November) raid. While still over England he found he had considerable time in hand and took measures to waste it, after which he discovered that he had made a large error in E.T.A. and had not had the extra time at all. The result was an abortive sortie.

Pauvre

Two concentration diagrams were made during the month. The one of **Bombardier (1/14th November)** raid showed an excellent concentration on the outward but considerably scattered on the homeward journey. The diagram of **Berlin Mannheim (18/19th November)** raids shows what happens to concentration under difficult wind conditions and drives home the necessity for expert navigation at all times to enable the navigator to cope with outward situations even when they arise unexpectedly. Analysis of bombing times and headings are now new features of the diagrams and are proving of interest and value. There is great room for improvement in this field as is shown in the following table analysing the bombing times for all raids during November. It will be noted that the general tendency is for aircraft to be late on target. This is a strong argument for the policy of allowing a few minutes in hand when setting course.

SQUADRON	Percentage of aircraft on time for wave	Percentage of aircraft late for wave	Average minutes late for end of wave	Percentage of aircraft early for wave	Average minutes early for start of wave
408	44.7	32.2	4.1	23.1	4.8
426	35.5	50.0	2.9	14.5	3.8
419	43.5	34.8	7.0	21.7	1.6
427	40.0	45.6	7.6	14.4	2.2
428	32.8	43.0	5.4	24.2	1.9
429	30.9	47.2	5.2	21.9	2.2
431	44.0	32.1	7.5	23.9	2.0
434	66.6	25.9	4.8	7.5	3.0
6 GROUP	42.0	39.7	5.6	18.5	2.9

The log and chart by **F/Sgt. C. Isford**, No. 427 Squadron, for the **Frankfurt (25/26th November)** raid was an excellent example of the work of the present day navigator in Bomber Command. Wind velocity checks and intelligent interpolation resulted in successful track keeping and timing. Good use was made of **Gee**, **astro**, and **flak** position lines. There was no tendency to slacken efforts on the homeward journey. The revised methods of log and chart keeping were fully employed. This was **F/Sgt. Isford's** sixth trip.

Others submitting good work during the month were:-

- F/O E. Fogg**, **R.F.M.**, No. 427 Squadron
- F/O B.W. Foskott**, No. 428 Squadron
- F/O W.E. Rempel**, No. 419 Squadron
- F/O R.E. D. Bataille**, No. 426 Squadron
- F/S J. S. Evans**, No. 432 Squadron

TRAINING

November was a disappointing month from the standpoint of flying weather suitable for navigation training exercises, but every effort was made to make up for this with increased ground training.

More liaison between Conversion Units and Squadrons was encouraged to make sure that Conversion Unit training included all latest operational developments and that suggestions and complaints were delivered first hand.

Pauvre

The table below shows gee training by squadrons and conversion units. In addition, 127 local headings with check photography were completed.

GEE TRAINING SUMMARY.

Squadron	Total hours Ground Training	Total hours Local Air Training	Total hours Cross- Country
408	18:00	57:10	53:05
419	124:00	45:00	20:00
426	48:00	35:00	45:00
427	152:35	75:15	152:25
428	132:00	61:00	50:00
429	118:25	155:25	111:05
431	108:00	75:00	161:00
432	95:00	93:20	156:45
434	57:00	155:00	65:00
1659 C.U.	124:00	-	267:00
1664 C.U.	742:00	58:00	213:00
1666 C.U.	109:00	15:00	-
1679 C.U.	240:00	7:10	33:05
TOTAL	2590:00	882:10	1327:25

AMONG THE CONVERSION UNITS.

No. 1659 Conversion Unit.

Bad weather considerably hampered air training, but the navigation section was kept busy with the introduction of a revised syllabus and new radar equipment.

The R.F. unit type 2, is being used on cross countries within the south-western chain area, with considerable success. The main snag is the awkward positioning of the receiver unit in the Halifax which make the changing of R.F. units rather difficult.

Navigators passing through the unit, with few exceptions, have been of a satisfactorily high standard.

No. 1664 Conversion Unit.

Due to poor weather it was difficult to get all navigators trained to the required standard during the first part of the month. The latter part was more satisfactory and flying training was up to the standard of previous months.

Special attention is now being given to the gee training of navigators from Whitley O.T.U.'s.

No. 1666 Conversion Unit.

The month of November saw No. 1666 Conversion Unit swing into action and by the end of the month there were twenty-two partially trained navigators. Flying was limited to begin with but as many cross-countries as possible are being carried out, and every advantage is being taken of the weather to fly as high as possible - twenty thousand feet being the usual height. All navigators are given concentration and target times and also positions at which to change R.F. units. It is the Policy to go over each log and chart thoroughly with the navigator concerned before he is allowed to proceed on another flight.

Pauvre

The making of geo haing cards is included in all navigator's ground school training and these are proving most valuable, especially to crews who have not had geo air training at O.T.U.

No.1679 Heavy Conversion Flight.

The conversion of No. 432 Squadron was completed during the month and the full training programme was resumed with the arrival of O.T.U. intakes again. During the month seven aircraft carried out sea searches, giving the navigators valuable experience in geo operation over the North Sea.

Due to the fact that a large part of the flying time is occupied by geo M.C.II training an attempt is being made to incorporate such ideas as wind interpolation, most probable positions, time wasting methods, etc., in the "dry swim" exercises.

ITEMS OF INTEREST.

Liaison and Visits.

P/O Skuthorp, No. 24 O.T.U., visited Linton and Thelthorpe on the 17th and 18th November.

F/L Pennington, No.1659 O.T.U. visited No.22 O.T.U. on the 25th and 26th November.

Sgt. H.D.Robertson, compass adjuster No. 426 Squadron, visited the Central Navigation School, Cranage, on the 4th December to give a talk to compass adjusters U/T on what was expected of them on operational squadrons.

P/O Fogg, D.F.M. No. 427 Squadron, visited No. 23 O.T.U. on the 10th and 11th December.

Changes in the Staff.

F/L H.B.Gatley, D.F.C. No. 408 Squadron has been posted to No. 23 O.T.U. Pershore.

F/L T.R.Mc Dougall D.F.C. No. 1664 Conversion Unit has become navigation officer of No. 408 Squadron.

F/L Cleveland, D.F.C. No. 426 Squadron has been posted N/E sick as a result of an aircraft crash. We wish him a speedy recovery.

F/L L. Allen, is the navigation officer of No. 420 Squadron and F/L A.T.Biech, D.F.C. of No. 425 Squadron.

F/L D.Simpson, from 426 Squadron is navigation officer of the new No. 433 Squadron.

The following are new instructors at Conversion Units:-

<u>No. 1659 Conversion Unit</u>	P/O A.P. Leitch, No.424 Squadron.
<u>No. 1664 Conversion Unit</u>	P/O J.W.Young, No.425 Squadron
<u>No. 1664 Conversion Unit</u>	P/O M.Tucker, No.434 Squadron
<u>No. 1666 Conversion Unit</u>	P/O J.L.Begg, No 431 Squadron
<u>No. 1679 Conversion Flight.</u>	P/O L.W. McPhee, No 425 Squadron

P/O A.C.Paulton, D.F.M. and P/O C.M. Howden have been posted from No. 1664 Conversion Unit and have joined the staff of No.1666 Conversion Unit.

Pauvre

CERTIFICATES.

The following navigators have been awarded the Air Navigators Certificate 2nd Class.

419 Squadron.

- F/L. F.T. Judah,
- F/O. W.E. Rempel
- F/O. J.E. Hart,
- F/O. E.T. Albert,
- F/O. C.M. Andrews,
- F/O. J.B. Hall,
- F/O. O.W. Fonger,
- F/O. R.A. McKenzie,
- F/L. M.G. J. Harvey,
- W/O. A.B. Chiswell.
- F/S.T. B. Johnson,
- Sgt. B. Rogers,
- Sgt. R.C. Gibson,

428 Squadron.

- F/O. B.W. Foskett
- F/O. A.A.C. Harris,
- F/O. E.H. Pell.

No. 1659 Conversion Unit.

- F/O. W.S. Hendry,
- F/O. P. Campbell,

No. 1666 Conversion Unit.

- P/O. W.H. Hughes.

H.A. Forbes
 (H.A. FORBES.) Squadron Leader,
 For Air Officer Commanding,
 No. 6 (R.C.A.F.) Group,
 ROYAL AIR FORCE.

GC/S. 814/2/Nav.
 13th December, 1943.

DISTRIBUTION.

No. 61 (R.C.A.F.) Base.	No. of Copies	1
No. 1659, 1664, 1666 Conversion Units		2
No. 1679 Conversion Flight.		2
No. 62 (R.C.A.F.) Base.		1
Nos. 408, 426, 432, 420, 425, Squadrons.		1
R.C.A.F. Station <u>Leeming</u> .		2 (each)
Nos. 429, 427, 424, 433, Squadrons.		1
R.C.A.F. Station Middleton St George		2 (each)
Nos. 419, 428, 431, 434, Squadrons.		1
Headquarters, Bomber Command.		2 (each)
Headquarters, Nos. 1.3.4.5.6 (PEF), 91 and 92 Groups.		2
Navigation Training Unit, R.A.F. Station Upwood.		1 (each)
Nos. 22, 23, 24, and 82 O.T.U.'s.		1
		1 (each)

Appendix No. 22 to RAF
Form 540. H.Q. No. 6
(R.C.A.F.) Group.
January, 1944.

BOMBING DIGEST

6. (R.C.A.F.) GROUP
ISSUE NO. 7 DECEMBER, 1943.

"SECRET"

PART I - OPERATIONAL

BOMBING.

Operational Manipulation Failures.

- 427 Squadron - (1) The bomb panel fuses were not checked until the aircraft was over the target.
Result - A complete load missed the target.
- 428 Squadron - (1) The Bomb doors were closed too quickly.
Result - All incendiaries were brought back.
- 431 Squadron - (1) The Air Bombers of two aircraft failed to fuse their bombs.
Result - 2 x 2000 lb. bombs dropped safe.
- Result - (2) The Air Bomber failed to select all switches.
1 x 1000 lb. mine brought back.

Apart from the above manipulation failures, there appears to have been a slack attitude among Air Bombers during the month of December. Bombing Leaders are to increase their efforts to ensure that crews and Air Bombers in particular are briefed in such a way as to eliminate these careless mistakes. December's effort was the poorest to date. Snap out of it Air Bombers.

The Air Bombers' Log

During December it was decided that in future, logs should be graded "A", "B", "C" or "D" instead of being marked as a percentage. Outstanding efforts reported by the Squadron Bombing Leaders will be mentioned in the monthly summary as usual.

PART II - TRAINING.

Gee and Link training for the Group have reached a new high, probably due to the decrease of operational requirements.

The A.M.B.T., formerly neglected, has been used to the extent of 194 hours. It is considered that with the addition of the Mk. XIV Bombsight throughout the Group and the use of new and better transparencies, the figures will be doubled.

Mk. XIV Bombsight.

Estimating distances with the Mk. XIV Bombsight is being done in the Group as a method of improving the Air Bomber. If you think you are a good judge of distances at operational heights, just get up there and try it and then check your results with those of the Bombsight. Unless you are exceptional, the results will surprise you considerably.

Practice Bombing

It will be noted that practice bombing is being assessed from 20,000 ft. instead of 10,000 ft. The fact that Squadron errors are considerably better than Conversion Unit errors is perhaps indicative of the fact that crews on Squadrons are taking their practices more seriously; 419 Squadron, however, appears to have been the exception.

Range R/T Procedure

Although a distinct improvement has been recorded in the use of R/T over Strensall Range, there still exists the problem of call signs. Bombing Leaders have not co-operated with the Signals officer, and as a result the Range N.C.O. has experienced considerable difficulty in allotting results in a minimum of time.

Ranges

Skipsea Range is now available for the Units of R.C.A.F. stations Leeming and Skipton. All results are to be photographed and analysed from the prints until further instructions.

Snape Range is now about to be constructed and should be available in approximately six weeks.

Bombing From Above 10,000 Ft.

During the month of December, 108 bombs were dropped above 10,000 ft., as compared with 76 during November. Our object during January is to double this number.

SQUADRON SUMMARY - AIR BOMBERS

UNIT	Total AMBT Hours	Total Link Hours	Dual Flying Hours	Av. No. Astro shots per A/B		Infra Red Prac- tices	Map Reading Tactics	Gee Hours
				Ground	Air			
408	U/S	15.00	15.30	1.	1.	2	265.30	32.30
419	U/S	44.45	6.30	11.	12.	-	31.45	123.00
420	-	-	-	-	-	-	-	-
424	-	-	-	-	-	-	-	-
425	-	-	-	-	-	-	-	-
426	-	31.15	22.00	5.	3.	3.	127.45	41.30
427	-	23.00	25.50	3.	9.5	18.	137.30	158.30
428	U/S	39.00	-	13.	9.	8.	98.30	114.00
429	U/S	32.10	13.15	16.	4.	10.	49.45	60.45
431	61.00	29.00	14.30	12.5	1.7	18.	324.00	52.00
432	U/S	27.15	29.30	15.	6.	8.	130.00	93.45
433	-	14.55	-	5.	2.	21.	102.00	145.00
434	19.30	9.45	14.00	6.2	5.7	12.	249.00	175.00
1659 CU	49.30	95.35	126.00	29.	7.	33.	374.00	228.45
1664 CU	9.00	78.45	-	61.	5.3	17.	180.00	226.30
1666 CU	43.00	-	-	20.	13.	18.	195.00	194.00
1679 CF	12.00	24.30	18.00	4.9	-	2.	76.30	111.00
TOTALS:	194.00	464.55	284.55	-	-	170.	2311.15	1756.15

HIGH LEVEL BOMBING STRENSALL RANGE

SQDN.	NO. OF DETAILS		NO. OF BOMBS		AV. ERROR 20,000'
	DAY	NIGHT	DAY	NIGHT	
408	12	14	71	87	156 yds.
419	2	-	12	-	226 yds.
420	-	-	-	-	-
424	-	-	-	-	-
425	-	-	-	-	-
426	4	14	29	92	138 yds.
427	8	-	48	-	142 yds.
428	4	-	20	-	-
429	6	1	34	5	146 yds.
431	12	-	48	-	147 yds.
432	1	-	5	-	-
433	2	-	9	-	179 yds.
434	-	23	-	93	148 yds.
4659 CU	33	-	222	-	205 yds.
1664 CU	17	3	139	24	239 yds.
1666 CU	16	5	115	40	196 yds.
1679 OF	11	3	82	24	250 yds.
TOTALS:	128	68	834	365	197 yds.

A.7. - BOMBING LEADERS - DUTIES AND TRAINING.

(S.88291/D.D.T. Arm. - 6.1.44.)

1. The primary duty of a Bombing Leader is to ensure the highest standard of bombing accuracy in his unit. O. + T.
2. The "bombing team", consisting of either pilot, air bomber and navigator, or pilot and navigator (B), is his particular responsibility and he is answerable to his C.O. for -
 - O. (i) maintaining by his own enthusiasm and personal example the efficiency and interest of air bombers, navigators and pilots in bombing and allied subjects;
 - O. (ii) advising his C.O. in conjunction with the armament officer on operational bomb loads and their distribution on the aircraft;
 - O. (iii) ensuring that the "bombing team" is fully briefed and, in particular, that the bomb aimer understands the details and method of release of his load;
 - T. (iv) initiating and co-ordinating bombing training in his unit, including Air Ministry bombing teacher training;
 - T. (v) supervising air bombers' map reading training;
 - O. (vi) maintaining detailed records of all operational and practice bombing carried out;
 - T. (vii) ensuring that all members of the "bombing team" are present at the analysis of bombing results, and appreciate fully the part which their own particular function plays in bombing accuracy;
 - O. (viii) investigating, in conjunction with armament and instrument sections, all failures of bombing equipment, hang-ups, etc.;
 - O. (ix) examining photographic results in conjunction with crews and the photographic section;

Submitted by a Bombing Leader in this Group.

On the night of January 2nd, 1944, this Squadron was scheduled to do a mine laying trip. Since take-off time was after dark, it was necessary to marshall the aircraft early. One pilot while marshallng closed his bomb-doors and did not open them again when leaving the aircraft.

When the Air Bomber arrived at the aircraft, he at once noticed that the bomb-doors were closed, and wishing to check his load in the bomb bay and also wishing to do his light check, he ordered his pilot to open the doors at once. This was done, and as the last bomb door light came on the mines thundered down to the ground. The reason at once was discovered. In the interval between marshallng and the arrival of the crew to prepare to take-off, some one had unknowingly or in ignorance pushed the jettison bars across so as soon as the circuit was completed by the opening of the bomb doors the mines dropped.

Now the Air Bomber was definitely to blame for not having crawled in the nose and checked the jettison bars, but in his keenness to check the bomb-bay, which he would ordinarily have done first, he "boobed".

Now this is something that I think could have happened to the best of Air Bombers, especially when he knew that the bombs had already been slung up and were apparently safely attached to the aircraft.

The Moral

If the bomb doors are closed and you want them opened, check the jettison bars and ensure that they are fully over to the "safe" position, before any action is taken.

Comments by the Group Bombing Leader.

This Headquarters has been notified officially of three cases of bombs having been dropped on the tarmac just before take-off.

So far, no conclusive evidence has been provided to show who is responsible for leaving or moving the Jettison bars to the "on" position in the case detailed on page 6 of this pamphlet. The accident would appear to have been caused by anyone but the Air Bomber. In other cases, however, the Air Bomber, though not proven to be responsible, has shown himself to be negligent of the procedure laid down.

An incident occurred recently where the Air Bomber checked his Mk. XIV Bombsight before checking the Jettison bars, during which time the batteries were connected, and eight cans of incendiaries fell on the tarmac, injuring two members of the Armament Section. Luckily the aircraft escaped damage.

Bombing Leaders are to ensure that all Air Bombers are made aware of these incidents, and that they check the Jettison bars and safety clip before carrying out any other checks.

Since it is the duty of the Air Bomber to ensure that the complete load is delivered "to the target", the gravest mistake he can make is to neglect the "Jettison Bar check" and allow all or part of a load to be deposited on the tarmac. Such a "Boob" invariably creates a non-starter.

CONVERSION UNITS - BOMBING TRAINING

The following chart compares Nos. 1659, 1664, 1666 Conversion Units, and 1679 Conversion Flight, with reference to the average training per Air Bomber during the month of December.

UNIT	Av. Flying Times.	Av. Gee Hours.	Av. No. Bombs Dropped.	Av. Error	Av. Dual Flying Hours.
1659 CU	31.30	7.00	7.0	205 yds.	3.30
1664 CU	22.45	9.00	8.6	239 yds.	1.25
1666 CU	31.20	12.05	12.0	196 yds.	3.05
1679 CF	17.00	6.00	9.6	250 yds.	1.15

NOTICE

Form 247.

Communications of special importance sent out by this Headquarters are accompanied by a receipt (Form 247). This receipt should be signed by the officer receiving the communication and returned to Headquarters. Considerable difficulty has been experienced in the past by the non-return of Forms 247 and Bombing Leaders are requested in future to sign and return them without delay.

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SECRET.

Page 1.

NO. 6 (R.C.A.F.) GROUP SUMMARY OF SIGNALS FAILURES
DECEMBER 1943.

~~428~~⁴³⁷ Sorties - 3 Failures.

Total percentage of failures to sorties 0.68%

Percentage of failures preventing aircraft
taking off Nil.

Percentage returning early due to signals
failures 0.45%

Percentage not affecting mission 0.22%

Percentage of total failures judged to have
been avoidable Nil.

Squadron	Sorties	No. of W/T, R/T and Intercom. Failures.
434	41	1 2.43%
419	45	1 2.22%
432	51	1 1.96%
428	40	Nil
427	46	Nil
429	49	Nil
426	50	Nil
431	50	Nil
408	65	Nil

Date:- 5th January 1944.
Ref:- 6GP/S.463/Sigs.

Noel Eaton
..... W/Cdr.
(N.B. Eaton)
for Air Officer Commanding.
H.Q. No. 6 (R.C.A.F.) Group.
ROYAL AIR FORCE.

Distribution:-

External:- Nos. 61 and 62 R.C.A.F. Bases.
R.C.A.F. Stations Topcliffe, Linton, Leeming, Middleton
St. George, Eastmoor, Dalton, Dishforth,
Wombledon, Tholthorpe.
Squadrons:- 408, 426, 419, 428, 431, 434, 432,
427, 429, 433.
Headquarters, Bomber Command.
Headquarters Nos. 1, 2, 3, 4, 5, 8(P.F.F.), 91, 92,
93 Groups.
R.A.E. Farnborough.

Internal:- S.A.S.O.
G.T.I.,
G.S.L.
Narrative Officer (5 copies)

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ANALYSIS OF SIGNALS FAILURES FOR MONTH OF DECEMBER 1943.
HEADQUARTERS NO. 6 (R.C.M.F.) GROUP.

Sqdn.				Results of Ground Tests	Category	Whether Mission Completed	Remarks.	
432	51	2/3	O	R1155 W/S shortly after tinselling	Cause of failure breakdown of C25 (Type 782) resulting in R1 burning out.	Defective equipment	Yes	Unavoidable
419	45	20/21	E	R1155 W/S one hour after take-off	Failure of C22 causing R58 to burn out	Defective equipment	No	Unavoidable
434	41	29/30	R	H.T. on R1155 failed 2 hours after take off.	Failure caused by wires in connecting cable Type 33(53/496) broken off in Jones plug by vibration.	Miscellaneous.	No	Unavoidable

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Appendix 11 to RAF
Form S.A.O. H.Q.
No. 6 (R.C.A.F.) Group.
January, 1944.

REVIEW OF NAVIGATION

NUMBER 8

HEADQUARTERS, NO. 6 (R.C.A.F.) GROUP.

JANUARY, 1944

WHAT THE OLD HANDS DO.

Despite the development of radar aids to navigation, Gee remains the simplest and most useful within its range. That the Hun realises this is amply demonstrated by his efforts to jam it. It is our job to see that this attempt does not end in a purely moral defeat.

On the last Mannheim raid, a navigator from this group achieved gee cover over virtually the whole sortie. This is by no means an isolated instance, and one or two "old hands" normally do manage to outstrip the tyros by upwards of a hundred miles. Most of these instances are due to "low cunning" and not to private "nods". Nevertheless, whether due to "nods" or slight of hand these aces are producing results that the remainder of the Force should be able to emulate.....

Gee has been in a long time but it does not follow that it is obsolete. Navigators who throw it overboard now because they think that something better will come along are making a mistake. The best possible use must be made of any equipment which is provided.

From: No. 3 Group Monthly Summary, November, 1943.

DECEMBER REPORTS.

OPERATIONAL

The first year of activities in No. 6 (R.C.A.F.) Group closed with the standard of navigation on a higher level than in any previous month. However, during the year, the requirements of navigation became much more exacting. The duration of waves on the target shrank to three to four minutes and timing and concentration assumed first place among the navigational problems. Improvements to existing equipment and the introduction of new aids made large demands upon the navigators for extra training. To deal with these new problems and to use the new equipment effectively requires navigation of a much higher order than previously and it is encouraging to note that the Canadian squadrons have responded well.

The introduction of new navigational aids is usually reflected in a reduction in the use of existing aids. This is especially true of astro. It is however, a healthy sign that the use of astro in the group is steadily increasing, for astro is still the only fundamental aid independent of enemy interference and mechanical difficulties.

Concentration diagrams for the Leipzig (3/4th), Frankfurt (20/21st) and Berlin (29/30th) raids were prepared and distributed during December. They reflect a growing realisation on the part of aircrews of the importance of concentration, and, as can be seen from the tables, bombing times show a slight all round improvement over the November figures.

A new and interesting feature, which shows promise of considerable development was introduced on the Berlin (29/30th) raid. Forecast winds were sent to the aircraft on each half-hourly group broadcast period having been obtained from aircraft of No. 5 Group with whom this group is affiliated for this

/purpose.....

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purpose until suitably equipped aircraft of this group can take over the work. The scheme was generally considered very successful; reception was very good and navigators found the winds very reliable.

Nos. 419 and 434 squadrons share the honour of being the first "silent" squadrons. No requests for G.D.M.'s or M/F fixes were received from these squadrons during December.

SQUADRON	Number of sorties analysed.	Average experience of navigators in number of sorties.	AVERAGE NUMBER PER SORTIE						PERCENTAGE OF SORTIES USING			NUMBER OF SORTIES PER	
			Astro Position Lines	Beam App. reaches Recorded.	Radio Track Guides Recorded.	Wind Velocities Found (Out).	Wind Velocities Found (Home)	Astro Position Lines	Beam Approaches.	Radio Track Guides.	G.D.M.	M/F fix.	
408	56	11.5	0.45	0.04	0.02	7.53	2.22	19.6	4.2	2.1	64.0	32.0	
419	37	10.1	3.08	0.16	Nil	6.61	3.62	72.9	13.4	Nil	SILENT	-	
426	33	10.9	0.53	0.12	0.03	7.21	3.09	27.3	9.1	3.0	SILENT	50.0	
427	40	10.1	2.92	0.63	0.68	8.89	4.22	65.0	55.1	55.1	23.0	15.3	
428	37	7.4	3.08	0.57	0.11	8.40	3.79	75.5	40.6	8.1	40.0	SILENT	
429	34	8.2	2.56	0.82	0.03	7.55	4.70	70.5	55.9	2.9	14.6	SILENT	
431	40	5.8	0.63	0.50	0.50	6.77	3.15	15.0	5.0	5.0	50.0	25.0	
432	38	-	1.00	0.21	0.29	7.31	3.40	47.3	15.8	21.1	SILENT	SILENT	
434	31	9.3	0.94	0.16	0.29	6.98	1.94	35.5	6.5	6.5	13.6	6.8	
6 GP	346	9.5	1.63	0.29	0.16	7.50	3.34	46.2	22.8	13.6	39.2	30.9	

SUMMARY OF BOMBING TIMES.

SQUADRON	Percentage of a/c bombing within correct T.O.T. for wave.	Percentage of a/c bombing after time off target for wave.	Average minutes late of a/c bombing after time off target for wave.	Percentage of a/c bombing before T.O.T. for wave.	Average minutes early of a/c bombing before T.O.T. for wave.
408	45.3	19.0	5.2	35.3	3.3
419	48.6	51.4	5.3	Nil	Nil
426	52.0	20.0	6.2	28.0	3.8
427	38.9	52.9	4.5	8.2	2.3
428	47.2	44.5	6.8	8.3	2.0
429	33.3	51.8	6.2	14.9	1.0
431	54.0	32.2	6.3	13.8	1.0
432	42.0	22.6	4.6	35.4	2.6
434	34.5	52.0	3.5	13.5	1.0
6 Group	44.0	38.5	5.3	17.5	2.5

/This month's.....

This month's special mention goes to F/O. M. G. Utas, No. 427 Squadron for his work on the Berlin (29/30th December) raid. Log and chart keeping was of a very high standard and the use of all available aids, including bomb sight bearings and astro fixes, in conjunction with accurate D.R. resulted in a most satisfactory trip. F/O. Utas is the third navigator of No. 427 Squadron to get a special mention during the last six months.

Others doing good work during December were:

- F/O. G. R. Frost No. 429 Squadron
- F/O. D. R. Rand No. 427 Squadron
- F/O. K. A. Solomonson No. 426 Squadron

TRAINING

The H.2.S. training programme made steady progress during December. Training is underway at the following units:- Nos. 419, 428 and 433 squadrons and No. 1659 C.U. Both Nos. 419 and 428 squadrons have now more trained crews than H.2.S. modified aircraft.

New miniature 1:1,000,000 lattice charts, Series II, were introduced during the month. Stiff covers are being supplied for binding these charts in book form. In the near future a supply of these miniature lattice charts will be available for use with all Gee chains. The new books and charts have proved better from the standpoint of both accuracy and convenience and as further miniature lattice charts are introduced, the inverted lattice books and 1:500,000 lattice charts of the continent will be rendered obsolete. For the time being, 1:500,000 charts of the British Isles are being retained and experiments are proceeding, using these charts cut down for enclosure in the new chart covers.

The table below shows geo training by squadrons and conversion units. In addition 142 hours with check photography were completed.

Squadron	Total hours Ground Training	Total hours Local air Training	Total hours cross-country
408	15.00	27.00	51.00
419	141.00	65.00	35.00
426	50.30	38.50	126.05
427	173.55	93.50	176.30
428	133.20	27.30	44.45
429	77.00	102.45	69.15
431	52.00	60.00	145.00
432	50.30	38.50	126.05
433	132.00	35.25	153.45
434	52.00	101.00	77.00
1659 C.U.	676.00	8.00	340.00
1664 C.U.	314.00	12.00	162.00
1666 C.U.	465.00	65.00	197.00
1679 C.U.	240.00	36.35	90.00
TOTAL	3072.15	794.45	1793.25

AMONG THE CONVERSION UNITS.

No. 1659 CONVERSION UNIT

Navigators were given specific targets and stress was laid on the importance of keeping to track and scheduled time. The new system of weather

/reports.....

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reports was introduced. By this means each aircraft is allotted a particular time at which to make a full report, the consolidation of the reports from various aircraft giving a good picture of the meteorological conditions over the route. Although rather difficult to go over log and chart work with each navigator before he proceeds on another cross-country, this is done whenever possible and it has been noticed that it definitely brings results.

No. 1664 COVERSION UNIT

The unsettlement due to the move from Croft to Dishforth was short-lived but weather and aerodrome serviceability interfered somewhat with the training programme, but post-war re-equipping made it possible to cope with new intakes without difficulty. Gee training time was higher than in any previous month.

No. 1666 CONVERSION UNIT

The navigation section of No. 1670 Heavy Conversion Flight was amalgamated with that of No. 1666 Conversion Unit and training is now all Lancaster. It is the policy to give each navigator one Halifax and at least two Lancaster cross-countries. A few difficulties arise at first but these have nearly all been ironed out and things are running very smoothly. The same syllabus with some minor alterations and additions is being followed.

Note:- A syllabus of training for all categories of aircrew including that of navigator has been devised for use in conversion units of No. 6 Group and will shortly go into effect.

WARNING AGAINST FLAK.

Few of us have ever needed any warning against "flak" but now that it has been found to serve a purpose other than that for which it was intended a little word of warning does not seem out of place. The use of "flak" position lines is becoming an increasingly popular method of fixing by navigators of this group, and very accurate fixes are being obtained over parts of the route where other navigational aids are limited. It must be borne in mind that the disposition of "flak" batteries is always changing and great care must be exercised in the use of these as pinpoints. Accurate D.R. should be employed to ensure the pinpoint is positively identified, and only the heavier barrages should be used, for in most cases these are centred around cities whose defences change little from time to time.

A WORD ON ASTRO

Navigators often stray far from track because they are flying on D.R. and have not obtained any fixes for a considerable time. There is seldom any reason why they do not attempt to use astro. There seems to be a widespread notion among navigators that astro is more trouble than it is worth. This is decidedly untrue. If astro is used intelligently, a very small amount of work is of great value.

You should have your air bomber or engineer take astro sights regularly while you are within gee range, as you will be able to assess their accuracy. If the sights are reasonably accurate and they do become more accurate with practice, they may prove of great assistance when no other aids are available, particularly on sorties involving long periods of flying over enemy territory.

The most useful way of using star sights is as follows. Decide preferably before take-off, which stars will be on your beam on the various legs. You can work this out very quickly with your planisphere if you look up the G.H.A. and obtain the L.H.A. for each leg. You will often find the pole star is suitable, as most legs on operational sorties are roughly east-west. Make note of their approximate altitude.

/You will

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You will find that it is more accurate and very little less work after practice to calculate from the Astronomical Navigation Tables than to use the limited number of stars available on the astrolabe, and the position line from a star on your beam will help you to decide whether you are off track, which is the most important thing to consider. If you have a good idea of the degree of accuracy your air brother or engineer will have, you can check your track very easily. You will find it easier if you put the bubble in the sextant for him under your table lamp. It is a tricky business sometimes putting in bubbles in the dark.

If you, as a crew, are in practice in taking sights and plotting them, you will find it easy to plot a position line and know its accuracy within four or five minutes. Remember, astro is one of the few aids which "Jerry" cannot "jam".

F/Lt. M. G. J. Harvey, No. 419 Squadron

THE NAVIGATION BULLETIN

The Bomber Command Navigation Bulletin, Number 6, has been recently distributed. It contains an interesting budget of items. One article discusses careful reading and study by every navigator. That is "Causes and Behaviour of Winds" on page 4. Another is "Fixing Position" on page 17. Compass adjusters will be interested in a letter on page 30 which continues a discussion in which compass adjusters of this group have taken part.

Navigators would do well to read "Air-Sea Rescue Service" page 32. Aircraft of this group were guilty of some of the unfortunate incidents related there.

Unfortunately only a limited number of copies of the Bulletin are available but every station has at least one. See your navigation officer.

ITEMS OF INTEREST

LIAISON AND VISITS.

	<u>PRO</u>	<u>VISITED</u>	<u>DATE</u>
F/O. Jackson	No. 19 O.T.U., Kinloss	Topcliffe	14th December
F/Lt. M. G. J. Harvey	No. 419 Squadron	Wellesbourne	14/15th December
F/O. R. N. Dumpy	No. 426 Squadron	Ossington	11/13th December
F/O. Singleton	No. 82 O.T.U., Ossington	Topcliffe	14th December
F/Lt. E. L. Stranco D.F.C.	No. 24 O.T.U., Honeybourne	Linton	5th January
F/Lt. Moran	No. 24 O.T.U., Honeybourne	Leeming	8th January
F/Lt. J. K. Bell D.F.C.	No. 1664 Conversion Unit	Pershore	During December
F/O. Nicoll	No. 23 O.T.U., Pershore	Leeming & Skipton	7/8th January

F/Lt. Harvey submitted a very full and interesting report on his visit to No. 22 O.T.U., Wellesbourne. Every person making a liaison visit should submit a report in duplicate to his station navigation officer, one copy of which is forwarded to group headquarters.

CHANGES IN THE STAFF

S/Ldr. J. Pennington, No. 1659 Conversion Unit, has been appointed station navigation officer at Craft. F/Lt. J. K. Knights, D.F.C. of No. 1659 Conversion Unit replaces S/Ldr. Pennington as navigation officer of that unit.

S/Ldr. Dilworth, D.F.C. Navigation 2, Group Headquarters is taking up duties as navigation officer at one of the stations. He has been replaced by F/Lt. V. Rolfe, D.F.C. of No. 1679 Heavy Conversion Flight.

/F/Lt. Ratcliffe.....

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F/Lt. R.M.D. Stcliffe, No.416 Squadron, has become navigation officer of that squadron.

F/Lt. J.L. Bell, D.F.C., No.1664 Conversion Unit, has become navigation officer of that unit.

P/O. R.L. Skiller, D.F.M. No.427 Squadron has joined the instructional staff of No.1659 Conversion Unit and P/O. J.C. Cavanaugh, No.425 Squadron Squadron, the staff of No.1665 Conversion Unit.

MORE THAN A LEADER.

There is a regrettable tendency even on the part of navigators to refer to the navigation officer as a navigation leader due no doubt to the fact that all other section heads are referred to as leaders. The navigation officer should of course be a section leader but he is also "ex officio" much more than that. Navigation is no longer a matter which concerns only the navigator, it concerns the whole crew especially the air bomber, pilot and wireless operator, and on the navigation officer, devolves the responsibility for co-ordinating the navigation work of the whole squadron, station or what-have-you. The responsibility is big and in short, keen and conscientious navigation officer is an essential part of every unit.

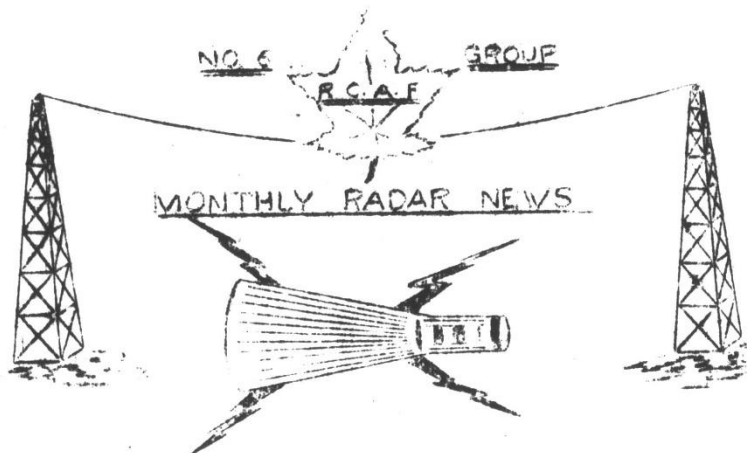
H.A. Forbes
(H.A. FORBES) Squadron Leader,
for Air Officer Commanding,
No. 6 (R.C.I.F.) Group,
ROYAL AIR FORCE.

6G/S.814/2/Nav.
12th January, 1944.

DISTRIBUTION

- Nos. 61 and 62 (R.C.I.F.) Bases 1 each
- R.C.I.F. Stations: Linton, Shelthorpe, Leeming, Skipton
Middleton, St George, Croft. 1 each
- Nos. 408, 419, 420, 424, 425, 426, 427, 428, 429, 431,
432, 433 and 434 Squadrons. Nos. 1659, 1664, 1666
Conversion Units. 2 each
- Headquarters, Bomber Command. 2 copies
- Headquarters Nos. 1, 3, 5, 9, 10 (P.T.F.), 91 & 93 Groups. 1 each
- Navigation Training Unit, R.C.I.F. Station Upwood. 1 copy
- Nos. 22, 23, 24 and 82 O.C.'s. 4 each.

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SECRET

VOL. 1

JANUARY 1944

NO. 1

WHAT IT IS ALL ABOUT

Probably your first reaction to this little sheet will be "more bump". We sincerely hope not. The idea is this; we have found that nearly every Radar Section discover or develop some smart way of doing things, saving time and effort, and we thought that it would be a good idea to have some method of collecting this gen together and passing it out to everyone, together with any good ideas and interesting information we can pick up from other sources. This paper has been prepared with that object in mind. It is an experiment and if you like it and find it useful and are willing to contribute to it, we will issue one each month. The preparation of it each month will mean more work for us, but we will be glad to do it, if you think it is worth while.

FURTHER POINTS

In order to avoid any misunderstanding, we want to make it clear that this is not an official organ, and is purely for information only. At all costs we want to avoid having the "News" become a "Bind or Moan" effort either from this end or from your end. It is not designed for that purpose, and all "Binds or Moans" should be passed on in the usual manner. Another point, the News must not become an "Inventors' Corner". All modifications must be put up through the official channels.

CONTRIBUTIONS

The distribution of the "News" will be such that every Radar Mechanic will have a chance to see it, and he is the man we want to have make contributions, suggestions and comments. It is his paper and we want his stuff, so that we would like you chaps to hand in your contributions to your Radar Officer who can send it to us by D.O. letter, or if you are too shy, pass it in to the Group Radar Party when they are around your way.

So much for that.

WELCOME TO NO. 6 R.C.A.F. GROUP

We would like to extend a very hearty welcome to the Officers and airmen who have come to us recently from other Commands. We have needed your help for a long time, and we hope that you like it here.

PEEK-A-BOO WINDOW

Sgt. Radley on No. 433 Squadron found a rather clever use for the

Pauvre

circular window from the front of the detonated Gee Indicator. He cut a circular hole in the upper panel on the door between the Workshop proper and the Radar Office, and neatly mounted the window in the hole.

AERIAL LOADING UNIT COVERS

Are your aerial loading units being stepped on and broken in the Hellies? Are you getting fed up with it? You are, then go and see your Engineer Officer and tell him that if he will rush along Bomber Command Mod. No. 48, Halifax Airframe - "Protective covering Loading Unit" you will fix his radio for him next time it goes u/s.

GEI EQUIPMENT

We regret that we have't been able to hand out the Gee Indicators and Receivers these days like we would like to, but we hope that very soon there will be lots for everyone. Don't forget though, it is up to you to get the R.F. Units in the usual way.

YOU HAVE BEEN WARNED

The R.C.A.F. Trade Test Board will be coming around again, and inside information says that it will be at York between 22nd and 25th February. How about getting down to it fellows, and show them what 6 Group can do. Incidentally, we are coming along to give you moral support. "n easy way to gen up it to hold discussions, and shooting each other down on those tricky points. Remember, you too can get your "A" Grouping if you really try. Here's one for you to work on.

ONLY A PUZZLE - OR - WHAT IS IT?

On a Gee Indicator the following effect was noticed; the brilliance control could not be made to blackout the S.T.P. but would effect blackout on the M.T.B. However, the control seemed to have an unusual action on the M.T.B. because having tuned it to blackout the M.T.B., when the control was advanced the M.T.B. trace would brighten up at the left hand side and continue along to the right until, with enough rotation, the whole trace was brightened up.

Answer will be given next month.

INFORMATION PAMPHLETS.

You have probably wondered when you have received "Information pamphlets" which are always labelled "For Information only" whether or not you should carry out the modification. The answer is, that unless you are specially told not to, you can, providing you can scrounge up the necessary bits and pieces, but you must not demand components, because nobody has had time to have some contractor manufacture the extra thousands of condensers required for the modification. That reminds us, on one station we know they have neatly bound all the information pamphlets under a stiff cover, so it can stand being used on the bench.

HOW TO KEEP FROM GROWING OLD

1. Let your sergeant catch you using the Thermocouple Voltmeter as a Yo-Yo.
2. Test your I.F.F. detonators with a Megger.
3. Don't bother replacing power leads on the V.C.P. after doing a D.I.

COMMANDO SCHOOL

Rumour has it that the H2S course at Cranwell is going to be cut down from 6 weeks to 4 weeks, with Monica and I.F.F. thrown out. This will be good news to you chaps who are waiting for an H2S course.

PAUURE

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6 GROUP DOES IT AGAIN

We are mighty proud of our Gee Serviceability, during both November and December, No. 6 Group led the Command. If we can do it for January, we get the "Cup".

Well, that's all for this month. Next month we will have lots more, if you give it to us. Just one more thing, please don't take this out of the workshop, or send it home to bother, because it is SECRET.

Distribution

Nos. 61 and 62 R.C.A.F. Bases
R.C.A.F. Stations: Middleton St. George, Leeming, Croft, Skipton, Eastmoor,
Tholthorpe, Linton, Topcliffe, Dishforth, Wombledon,
Dalton, (one copy each)
Squadrons: 419, 428, 434, 431, 427, 429, 433, 424, 432, 430, 425,
408, 426, (one copy each)
Conversion Units: 1659, 1664, 1666, 1679, (one copy each)
Spare copies - 10

Squadron and Conversion Units copies are to be put up on Radar Section notice boards until seen by all concerned and then placed in appropriately labelled file cover and held by the Radar Officer.

APPENDIX No. 75 to
R.A.F. FORM
H.Q. No. 6 (R.C.A.F.) GROUP

DATE March 1944

BOMBING DIGEST

6. (R.C.A.F.) GROUP
ISSUE NO 9 FEBRUARY 1944

"SECRET"

FOREWORD.

Time passes and changes continually take place. Look back over the past year - criticize, condemn or praise and acknowledge as you will, yet the fact ever remains that the Air Bomber has cut a swath that grows wider as he strides.

Wiping off the dust accumulated over a period of exactly one year, we quote from the month of February, 1943 : -

"Five manipulation failures were directly attributed to Air Bombers during the month of February.

1. 8 S.B.C's. brought back owing to incendiary plug not being pulled or jettison bars used.
2. 1 x 1500 lb. vegetable brought back. The distributor was not fully wound to Number 1 contact.
3. Failed to select one switch and left the target with one full S.B.C. which was jettisoned on the return journey.
4. Preselector set in such a way that one S.B.C. failed to drop. (The Air Bomber thought he was correcting a mistake).
5. Failure to carry out "after bombing drill". Jettison bars not pressed nor test made for lights on Panel. 1 x 500 lb. bomb brought back.

These five errors resulted in the loss of 5600 lbs. of bombs representing 7 % of Groups' entire failure report."

420 Squadron led the field in the use of Astro on operations with an average of 20 Air Sights per Air Bomber for the month.

278 practice bombs were dropped by nine Squadrons and one Conversion Unit - averaging 14.7 bombs per Squadron plus 146 for 1659 Conversion Unit. The objective for 1659 was 300 bombs per month. (February 1944 recorded 44.7 practice bombs per Squadron and 177.6 per Conversion Unit).

Verily our duties are becoming more manifold as the demands upon accuracy and precision are made and as the tempo of operations is speeded up, but the basic principles of our trade will always be the same. Bombing will always be bombing and a near miss will never be as good as a hit. Panel drill must never be allowed to become rusty if failures of the past are to become stepping stones towards the success of the future. We must blow the dust off those instrument panels in the corner and keep at it.

PART I - OPERATIONAL

BOMBING

Operational Manipulation Failures.

428 Sqn. - (1) The wiper on the distributor did not work, cause unknown. Faulty jettison bars meant that the Air Bomber could not release No. 2 mine on second run.

Result The report is not lucid enough re circumstances and actions taken to warrant classifying as a non-boob.

429 Sqn. - (1) The Air Bomber forgot to fuse his mines. The panel was of a type permitting free use of the bomb release switch regardless of the position of the fusing switches.

Result The vegetables were planted safe, and a hitherto good record became marred.

Failure reports reaching this Headquarters bear evidence of hasty preparation of these essential returns. Bombing Leaders are requested to give more supervision to compilation of all reports in order that full information of all particulars can be utilized for reference and instruction.

The only bombing failures of which we require immediate notification are those directly attributable to the fingers and brain-work of an Air Bomber. Constant liaison with the Station

Armament Officer is required. Items of training and/or operations of interest to the Group are covered by Section No. II, Chapter III, Part VII of the Bombing Leaders' Instructional Manual.

Secondly, the old bogey of inactivity will always take a toll of earnest efforts if no combat is organized against his wiles. Beware of that chap who has had little application of his knowledge for a lengthy spell. The ideal aim should be to keep each man as active as possible, physically and mentally (preferably trade subjects), so that he remains at all times in a state of constant readiness. The Air Bomber not only must know the gun but must also know how to apply it effectively.

GREMLIN FANFARONADE.

In the annals of history (6 Group Bombing History) there peer past the curtains of obscurity those who have played their infamous part in the drama of error, dispute, and uncertainty.

In a brilliant cast of well meaning and earnest actors (Armament, Electrical and Bombing) the Air Bomber stands out like a colossus in the glaring footlights of doubt and criticism. The spotlight of investigation plays upon the whole company bringing out subtle differences of opinions and intricate circumstances.

All nonsense aside, on the night of February 7th, 1944 while flying on a Cross Country Exercise, aircraft "D" of -- Squadron accidentally dropped five practice flash bombs. So reads the official communique, and another gremlin episode remains unsolved. This state of "no-one-did-it" conclusion is becoming much too prevalent. It is a lot of poppycock. No event can occur without cause. That cause must be ascertained every time we meet the word "accident". Too often our indolent minds assume, forgetting that an assumption never can be a conclusion.

This aircraft had been detailed for practice bombing following a Cross Country Exercise. The summary of evidence gathered by interrogating the Air Bomber is as follows: -

"The Air Bomber carried out a complete light check on the ground prior to take-off and found everything in order. On the

4.

last leg of the exercise the Air Bomber decided to do a check levelling of the Bombsight. Prior to requesting the Pilot to open the bomb doors he checked the jettison bars, the bomb tit and switches. Following instructions he also had the switch box set to "Distributor". Shortly after opening the bomb doors the Rear Gunner reported two flashes on the ground which resembled the bursts of flash bombs. This was reported to the Air Bomber who did an immediate light check and discovered that one bomb remained on the aircraft on No. 3 station."

Responsibility for that salvaging is still unplaced, and because there is no apparent solution the Air Bomber must remain under the shadow of suspicion.

Were you he, what would you have done to solve the mystery? Or do you accuse the gremlins too? In the event of any armament irregularity no Air Bomber can rest content until he knows why something did or did not happen when it should not or should have done so. The onus is ours.

COMMENDABLE COMPETENCY.

A unusual interest is an incident that occurred on No. 434 Squadron. We give due credit to the particular Air Bomber, for it must be remembered that each individual effort blends into the prestige, good or bad, we earn by labour.

On February 25th, 1944, an Air Bomber of this Group was engaged on a local flying trip with his crew and three extra passengers in the aircraft. During the trip a seagull hit the windscreen and shattered the perspex. This resulted in an injury to the Pilot and caused a loss of vision to such an extent that he was unable to handle the aircraft. The Air Bomber immediately took control of the aircraft.

The aircraft was then flown back to base and after three attempts it was landed by the Air Bomber, assisted by the Navigator. During this time the Air Bomber was handicapped by a severe wind through the break in the perspex and also by the poor visibility through the remainder of the windscreen. The aircraft was badly damaged, but aside from the original wound to the Pilot, no further injury was incurred by any of the other 9 members of the crew.

The Air Bomber had never attempted to land an aircraft before and took landing instructions from the Pilot over the inter com. His dual training had been limited to a few hours prior to the incident. He was trained at No. 23 O.T.U. and No. 1664 Conversion Unit.

Justification for stressing dual training is evident.

PART II - TRAINING

Training is swinging to more and more navigation and the Air Bomber assumes added responsibility the further the tendency swings. Our task remains to cope with expanding chores without impairing our efficiency as the men who aim the bombs. We are left with one course of action - study and revision.

During the month of February No. 433 Squadron Air Bombers completed 342 H2S training hours, and No. 427 Squadron 117 hours. The training return pro-forma will be amended accordingly. In the meantime, since H2S is another one of our gadgets, training hours will be included in the general remarks of the Monthly Squadron Summary.

No. 429 Squadron have been able to set a noteworthy example of general remarks. We quote ; -

W/T	17.30 hrs.	Intelligence Room	28.00 hrs.
Bombing Up	18.00 hrs.	Navigation Training	13.00 hrs.
Eng. Co-op.	41.00 hrs.	Bomb Dump	04.30 hrs.
Dry Swims	35 exercises		

No. 408 Squadron completed 40 hours of lectures.

No. 1664 Conversion Unit Night Vision Training enabled each Air Bomber to receive 16,12 hours attention, and No. 1659 Conversion Unit 11 hours.

All Sections appear to be expending training efforts as the opportunities beckon. However, from the administrative viewpoint many Bombing Leaders are not adhering to the pro-formas of returns and reports required. Outward appearances should be a result of inner organization, so amend your habits accordingly.

6.

DONNING ARMOUR.

Yesterday a new crew was posted to a Squadron. To-day a brand new unflak-happy Air Bomber strode into a Section. And so it goes on, for to-morrow will also cast its share of warriors into the front line so long as the war continues. Therefore it behooves all who serve on an operational Squadron to ensure that each new type is adequately fitted with the necessary kit in order that he may fully comprehend what is required of him.

To that end and with the primary objective being to stir up thoughts as to our present technique, we ask that you consider the following suggestions. We realize the possibility of curtailed pre-training time on Squadrons, and allowance has been made for such a factor.

In the first place, we must bear in mind that the recruit has been training for a long time in order to get as far as the Squadron. All the time his training has been to realize that one aim. For that reason we must not accept him as a bona fide member of the clan until various practical tests have been satisfactorily concluded. No eventuality that can happen must be overlooked.

An excellent idea is for the Bombing Leader of the relative Conversion Unit to pass via telephonic communication a glimpse of his findings before the lad reports for duty on the Squadron. There is no cause for rush since the formalities of arriving are seldom hurdled in less than a day.

Upon arrival the Air Bomber should be welcomed by the Squadron Bombing Leader in person. If not available at the moment his proxy must entertain until the time when the Squadron Bombing Leader can exercise a welcome chat. This is most important because the Squadron Bombing Leader will remain the key in the impending career. Moreover, as the man in charge, he knows precisely what he can give and what he wants. The chat should be very informal and yet accomplish all desired ends. Points to cover should include peace-time occupation and habitat, training, welcome, service quarters, flying equipment, known knowledge of training weaknesses inherent in syllabus or in self, etc

An arrival form for the purpose of records is essential. The information it gathers is dependent upon that required by the policy of the individual Squadron Bombing Leader. Liaison between units should assist in this regard.

A thorough visit around the Section and a complete description of its set-up will tend to make newcomers more at home than would otherwise be, and it will eliminate many questions that can be answered before they are asked. The lad can enter and feel at home.

To follow on a more serious basis, the Squadron Bombing Leader must lay down the law, so to speak, and withhold no punches, as he places the full facts of the case at point blank range. The lad must know where he stands, what he must do in the light of what others are doing, what aid he can expect, an insight of snags that are encountered (targets, bombs, etc.) and the duties of the Squadron Bombing Leader. This session should be as short as possible but nothing of importance must be missed. The rookie should be aware of what will be happening to him as his tour unfolds.

We then suggest that he be turned over to a Flight Bombing Leader and grilled with an entrance examination made to cover as much scope as possible, and with practical application of the spoken word. At the same time as he is being examined for training flaws the Flight Bombing Leader can put across many useful tips garnered from experience.

The Flight Bombing Leader is responsible for delegating an experienced and suitable body to conduct a nose-to-tail familiarization of an operational aircraft with the new chap - asking questions and being asked. This effort waylays the specific Squadron modifications not known at Conversion Unit. Station points of interest should also be covered.

At the first opportunity the new lad should be introduced to the whole Section - name, nickname, and any interesting information. The only Air Bombers he need be introduced to individually are the Flight Bombing Leaders.

In like manner the Squadron Bombing Leader should be introduced, and introduce himself, to the complete crew, as per Section No. V, Chapter II, Bombing Leaders' Instructional Manual. The sooner this can be done the more effect will result. If not

done within the first few days the effect will be nullified and the opportunity lost.

Within the first week the new lad should receive a series of lectures by competent, experienced Air Bombers on subjects such as the following : - P.F.F. raid gen, briefing gen (a day when ops creek), Mk. XIV, panel, bomb gear (carriers, camera) etc. Not until all have been covered in detail should we feel free to recommend sending a new warrior on the warpath.

It might even be beneficial to have someone supervise the first pre-flight light check. The point to be remembered is that although an Air Bomber posted to a Squadron is reported qualified and ready for active service, we know that such is not the case with the average Air Bomber. Training has its rightful place but it is, and always will be, a complementary power realized as never before when experiences are viewed in retrospect. Each Air Bomber received on posting must be categorized and assessed on the Squadron in the light of his true worth as a vital member of the bombing team.

PRACTICE BOMBING.

The near future will provide adequate relief for congested Stronsall. Cross Country Bombing Ranges are ready and waiting, and in addition new range areas within the Group are nearing completion. By the time you receive this publication Snape will be feeling the thud of bursting bombs.

CONVERSION UNITS - BOMBING TRAINING.

UNIT	Av. Flying Times	Av. Gee Hours	Av. No. Bombs Dropped	Av. Error	Av. Dual Flying Hours	Av. Link Hours
1659	31.30	6.45	HL 2 LL 2	206 } 99 } yds	3.03	2.50
1664	38.35	13.06	HL 6.2 LL 12.2	196.8 } 112.8 } yds	2.47	3.02
1666	44.40	22.2	13.5	285 yds.	5.24	NIL

DO YOU KNOW ?

Bombs and Components fill page after page in our note-books. They are of interest to us and we have to possess knowledge of them. We were taught during training but, in the swelter of navigational, co-pilot, Air Bomber duties, etc., there is a possibility of forgetting that which we should know. We propose a series of revision chats on the subject of armament for aircrows.

Have you ever wondered why one night you have carried 1000 M.C. bombs and the next night 1000 G.P. bombs? The reason lies in the type of target. As targets differ, so do the bombs designed for their destruction. As an Air Bomber, you are responsible for the "safe" conveyance of those bombs to the target and for their accurate delivery in a "live" condition, so that the most damage possible is inflicted upon that place where they strike. This is a heavy responsibility, and, if for no other reason, you should have a sound knowledge of the various types of bombs now in use, their capabilities and limitations, and the various methods of fusing them.

At some time, you may be called upon to assist in arming your own aircraft. You must know just how far bombs and their accessories (or components) are safe to handle, and the precautions you must take. Self-confidence is a good thing so long as it is born of knowledge, but you must never allow self-confidence to take the form of carelessness or negligence when handling bombs or any explosive stores. When you get an opportunity, watch an experienced armourer loading a 2000 H.C. into an aircraft.

We shall call this Lesson No. 1 and leave one question with you: - Does a bomb explode or does it detonate?

SQUADRON SUMMARY - AIR BOMBERS.

UNIT	Total AMBT Hours	Total Link Hours	Dual Flying Hours	Av. No. Astro Sights per A/B		Infra Red Prac- tices	Map Reading Tactics	Gee Hours
				Ground	Air			
408	U/S	25.00	12.15	2.	3.	19	235.30	62.30
419	U/S	16.00	9.10	12.	13.	-	164.15	239.00
420	-	5.00	22.40	2.	2.	-	-	222.00
424	U/S	-	11.00	6.	4.	-	102.00	248.00
425	-	9.15	13.15	14.	7.	11	85.00	173.00
426	-	27.30	8.00	1.	3.	6	55.00	72.00
427	4.30	27.35	7.00	3.4	6.4	12	158.30	191.00
428	U/S	38.15	-	6.	9.5	-	69.00	155.50
429	U/S	39.00	7.35	3.	10.	9	71.00	80.00
431	101	43.30	44.45	9.3	7.7	3	273.00	117.00
432	U/S	65.00	26.25	10.	4.5	25	111.15	146.15
433	U/S	11.30	13.25	3.6	5.	8	160.00	197.00
434	65	51.00	21.45	13.3	7.	9	207.00	189.00
1659 CU	28	66.20	92.15	19.	5.	5	535.45	187.15
1664 CU	75.15	96.10	89.00	25.7	6.8	39	508.55	418.45
1663 CU	32.	-	-	13.	10.5	12	250.00	222.00
Totals:	305.45	611.05	378.30			158	2956.10	2918.35

Noticeable in these totals when compared with past figures is a substantial decrease in astro training plus a marked increase in Gee. The average standard is high but individual units can improve.

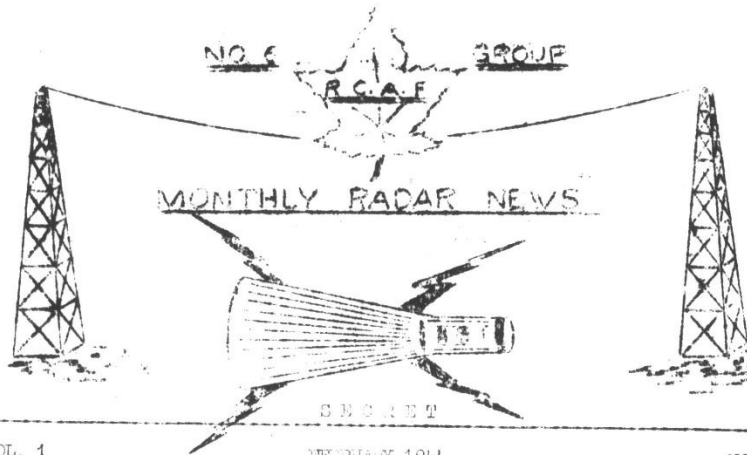
HIGH LEVEL BOMBING STRENSALL RANGE.

SQUADRON	NO. OF DETAILS		NO. OF BOMBS		AV. ERROR 20,000'
	DAY	NIGHT	DAY	NIGHT	
408	9	10	52	58	160.5 yds.
419	8	-	47	-	166 yds.
420	-	-	-	-	-
424	2	-	12	-	234 yds.
425	-	-	-	-	-
426	12	9	74	50	200 yds.
427	-	-	-	-	-
428	2	-	12	-	-
429	10	-	63	-	226 yds.
431	8	4	36	16	223.4 yds.
432	6	2	32	12	124.5 yds.
433	-	-	-	-	-
434	6	12	36	53	173 yds.
1659 CU	8	-	64	-	206 yds.
1664 CU	17	7	142	57	203 yds.
1666 CU	29	5	243	27	285 yds.
	117	49	341	273	189 yds.

The number of bombs dropped during the month is still far below what it should be. 408, 426 and 1666 have set a pace not far below the standard at which we aim. Some Squadrons are levelling the Mk. XIV on the ground. The accuracy of this method must be verified at a bombing range.

32 Simulation Bombing Exercises were carried out by No. 419 Squadron with an average error at 20,000' of 159 yds. Can you better it?

Pauvre



VOL. 1

FEBRUARY 1944

NO. 2

THE SECOND ISSUE

The general reaction to our first issue of the "News" seems to have been that it is "a good thing" although that may be because you were just being discreetly tactful. We can't honestly say that we were snowed under with contributions but we wish to gratefully acknowledge those contributions that were supplied to us, helping to make this second issue possible. There is evidence that you can give us lots more, so please make a real effort. We keep a notebook titled "Material for the News" and anything suitable that comes along, we jot down. How about you doing the same. We want not only contributions but also suggestions as to what you would like us to put in, because as we said before, we want this to be your paper.

THE NEW COMERS

To the 24 Mechs who have just come to this Group from where we would all like to be, we extend a warm welcome. These men have spent about 6 or 7 months taking courses and now will have a chance to do their stuff. We would like you old hands to do all you can to "show them ropes". Help them to pick up Gee and there are some interesting things they can tell you about.

NEW MODIFICATIONS

Leeming (we feel it is safer to use a collective term here) have produced a good modification to reposition the Gee Receiver which works in both H.2.S. and non H.2.S. aircraft. The idea has been put up to Command for approval and when we get their O.K. we will pass it on to everyone.

At Shipton, they have figured out a way to get an alternative power supply for the Gee from the H.2.S. type V V.C.P. We will give you the gen on that as soon as Command agree that it is a good thing.

Command have promised us that a modification will be incorporated in production line to provide storage for R.F. Units in Halifax and Lancaster aircraft. The modification will be done retrospectively as well.

I.F.F. or "WHO GOES THERE"?

The term I.F.F. is rather appropriate because A.R.I. 5025 is a darn good thing "I.F.F." it is working properly, the problem being, how can the Aircrew tell whether it is or not. That is where you come in. It is your

/job.....

Pauvre

job to help to educate the W/Ops so that they can determine if the set is "squittering" or faulty in other respects. You see, if the W/Op knows that his I.F.F. is not working, he can identify on W/T and everyone is happy but if he comes sailing in depending on I.F.F. when it is U/S, the Fighter boys get all excited, climb out of bed and go up on the cold night air with their Beaufighter and chase the bomber down. It makes them pretty sore when they find it is one of ours...especially if some enemy kites have sneaked in while they were on this wild goose chase. During September and October, 1943, this happened 160 times consequently robbing our towns of the night fighter protection they deserve. We suggest that you rig up a typical A.R.I. 5025 installation and arrange with the Squadron Signal Leaders that all W/Ops secure a good training along the lines of paras 6 and 7 of A.P. 1766Q or S.D. 0250 (second issue) para.60

ANOTHER POINT ABOUT I.F.F.

Inspite of many warnings, a lot of Crows insist upon keeping their I.F.F. on over enemy territory or trying to use it to interfere with enemy searchlights. This idea has gradually grown up and take it from us, it is ready duff gen. When they do that, it is just the same as broadcasting "Look, here we are". Figure it out for yourself; Jerry sets up apparatus like our I.F.F. Interrogating Apparatus and the aircraft comes up on the tube like a sitting duck. We like you to spread some propaganda on this to the crows and put them straight on it.

WHO'S WHERE

The new establishment of Radar Officers caused a certain amount of "reshuffling" within the Group and we thought you might like to know where our Officers are now located;

F/L. Waters	No.61	(R.C.A.F.)	Base, Topcliffe	
F/L. Crawford	No.62	(R.C.A.F.)	Base, Linton.	
F/O. Noff	No.419	Squadron,	Middleton St George.	
F/O. Able	No.428	"	Middleton St George.	
F/O. Lamb	No.431	"	Croft.	
F/O. MacIntosh	No.434	"	Croft.	
F/O. Schlete	No.427	"	Leeming.	
F/O. Normandeau	No.429	"	Leeming.	
F/O. Gamble	No.435	"	Skipton.	
F/O. Burton	No.424	"	Skipton.	
F/O. Hemshen	No.408	"	Linton.	(attached to H. G. No.6 Group.)
F/O. Carstairs	No.426	"	Linton	(in hospital.)
F/O. Gillies	No.432	"	Eastmoor	
F/O. McGregor	No.420	"	Tholthorpe.	
F/O. Harvie	No.425	"	Tholthorpe	
F/O. Flythe	No.1664	H.C.U.	Bishforth.	
F/O. Budzack	No.1666	H.C.U.	Wombleton.	

NEWS FROM HOME

For the information of the Lechs who had their Radar courses at No. 31 R.D.F. School Clinton, the school was officially re-constituted as No. 5 Radio School on July 31st, 1943. All R.D.F. personnel have been repatriated and the school has been completely canadianized. Training plans are completed and No. 5 is now post graduate school for general signals and radar personnel.

Pauvre

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RANDOM RADAR ECHOES

Congratulations to F/Lt. Waters on his recent promotion. Congratulations are also in order to F/O Scholte and to F/O Honishon who replaced their thin ring with a thick one since our last issue.

Cpl. Charney and LAC Weese of No. 426 Squadron and LAC Sproule of No. 408 Squadron have gone down to Coastal Command to give them all the gon on how we do it up here.

One of our Radar Officers has learned that H2S works much **better** on Test Flights if the Black Lead is making connection. We hope that F/Lt. Musselmann doesn't hear about it, it would break his heart.

LAC Hiebert, formerly of 408 Squadron, who left us to go home for a Pilot's course, should be well on the way by now. He will be missed by his old Squadron.

We hear that F/Sgt. Berthot expects to go back to "Gods Country" any day now to start an Aircrew course.

Radar seems to be well represented in the local Hockey League. Cpl. Gourlay of 426 is one of the stars of the Linton Station Team, and has done more than his share to put the team in the play offs. LAC ~~Banks~~ is doing the same thing for Middleton's team.

LAC Charron P.G. has moved from No. 431 Squadron to No. 434 Squadron. LAC Shepherd (433) and LAC Hodge (424) were down at Command during the early part of the month to learn all about H2S Trainers.

F/Sgt. Ginsberg (Group) Cpl. Smith (427) attended the second Trainer course.

LAC's Ayers and Kolberg have moved from 1666 H.C.U. to 424 Squadron.

Ten Nochs from the Group have attended the course at R.A.E. Farnborough on Visual Monica.

Sgt. Holtby (434)
Cpl. Patterson (431)
LAC Longwell (408)
LAC Landry (426)
LAC Brigham (431)
LAC Drummond (434)
LAC Fisher (419)
LAC Acaster (428)
LAC Sproule (408)
LAC Weise (426)

A little bird also told us that Cpl. Bailey (1664) will soon be a papa.

LAC Benford (425) has left us to go back home for Aircrew training.

A Cpl. on one of the Con. Units really shook the boys the other day. He actually went out to the Flights to work.

NO. 6 GROUP'S CORPUS CHRISTI

We plan to start the first Group H2S course at Dalton on February 21st. The course will last for two weeks and the boys on the Group Party are all genned and ready to go.

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NIGHT LIFE

One morning after operations, we were visiting a Radar Section and we found a bunch of Mochs. with puzzled looks on their faces gathered around a book. They were trying to figure out the report made by the Duty Radar Mechanic at interrogation on the previous night. Here are some suggestions for Duty Joes, on what to do and what not to do at interrogation.

1. Along with your interrogation book have several sheets of foolscap, preferably clipped down on a wooden board.
2. Make sure you have a chance to talk to each Navigator yourself, and get as much information from him as you can, but remember that he is damn tired and wants to get to bed even more than you do.
3. Don't attempt to write down in your book while interrogating. Take down notes on your foolscap and then sort it out later, in order to put clear, concise information in the book for the benefit of the Mochs. who will have to trace any trouble down in the morning while you're asleep.
4. If any Navigator had difficulty, don't take some other person's opinion as to the cause of it. Get enough information from the Navigator until you are satisfied as to the cause, or feel that it can easily be traced. Remember you are the gen man present, and you can best decide what was the cause of the failure.
5. Make sure that cases of difficulties due to jamming or out of range are treated as such on the Radar operational Reports, and not counted as failures. That's why there is a space on the report for you to sign, and you are not to sign until you are perfectly happy. Every difficulty listed on the Radar report should be covered in your book, or Command will accuse us of cheating.
6. If you suspect "finger trouble" don't say so to the Navigator in so many words, but rather tactfully suggest that you and he go out to the kite the next day so you can get more details from him on his difficulty. Doing it that way, you may be able to cure his trouble. Remember that a difficulty due to "finger trouble" is as much a failure so far as operations are concerned as one due to a component defect, and if there is anything that you can do to clear it up, so much the better.
7. One last point; don't let the fact that the Navigator may be an Officer, and you maybe an L.A.C. bother you. If you show that you are keen and anxious to do all you can to keep the staff working, the majority of the Navigators will be glad to listen to you.

H2S TRAINERS

H2S Trainers are now working at Topcliffe, Skipton and Middleton. We hope to be able to get one at Leeming in the very near future. Those of you on these stations have probably noticed that the range scales on the Switch Unit of the Trainer are not correct. We have asked for some of the pukka type, but they are slow coming through, so perhaps one of you clever lads can prepare one to do the job in the meantime.

H2S SERVICEABILITY

You H2S men have probably seen Command's report on H2S serviceability for January by now. We want to offer our heartiest congratulations. No. 433 Squadron can be justly proud of their excellent show. We haven't got very many aircraft fitted yet

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however, and maybe it won't be so easy when they start to really push us. Incidentally on 433 Squadron they have got a set which consistently gives 50 to 60 miles range, and has never had a failure since it was installed. Can any of the other H2S Squadrons beat that record.

H2S SET HOURS PER FAULT

There appears to be some misunderstanding about our letter on H2S serviceability by set hours dated 22nd January, which we regret was not very clear. The idea is this. At interrogation the Navigators will give the Duty Mechanic the number of hours to the quarter hour in each case during which they had the sets on. The same thing applies to cross countries, but not to flight tests. Now you add these times up at the end of the week and say it comes to 400 hours. You then add up the number of failures that occurred on those Ops. and cross countries and you find it comes to say 5. Therefore, set hours per fault = $\frac{400}{5} = 96$. Simple, isn't it, and it gives an accurate picture of the serviceability. Coastal Command claim that they get over 100 set hours per fault, let's see how we compare.

MAINTENANCE TIPS

When tuning Gee R.F. trimmers, always turn anti clock wise first to avoid jamming the rotor against the base of the spindle.

If you are stuck for material to replace a broken strobe coupling, try a piece of old aerial co-axial cable after shaping it on a dural cylindrical mould with a hot iron.

When No. 425 Squadron came up against one of those Monica sets which is reported w/s by aircrew, and is found to work O.K. on D.I., the following morning, they "cook" the set on the bench for eight hours, if necessary taking meter readings and checking with the scope regularly. They claim that in nearly every case this treatment will show up Dr. Jokyl and Mr. Hyde sets. They do the same thing on all sets held as spares, to make sure that they are "bang on" before taken on Ops.

A FEW MORE ECHOES

The boys at Middleton are wondering if the fact that L.A.C. McLaughlin (now on 433) was working on the connections to the D.R.C. for the H.M. had anything to do with the kite landing in Scotland.

It looks as if the Radar people at Skipton are heading for the "Brains Trust" after their recent quiz, especially some of the Mochs.

Have you heard about the Moch. who was repairing a w/s Gee Power supply? He ripped out the B.L.T. transformer and put in a new one. Then he discovered that a duff VU 120 was the cause of the trouble, so he replaced the valve and then put back the original transformer. Anyway, it was good practice.

GEE POWER SUPPLY

Here is an idea you can use in your Mandrel aircraft. Carry a spare lead made of Ducoel, of suitable length with a 2 pin plug at one end and a 4 pin plug on the other. This lead will make it possible to supply power to Gee from the Mandrel V.C.P. If you put them in, be sure and tell the Navigators and W/Ops about them.

THINGS NOT TO DO:) by G.T.S.P.

Come on Group Radar courses without a notebook, you won't forget if you put it on paper, or if you do forget, you can always look it up, and your notes will be handy, comes time for a trade

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test and you are after that "A" Grouping and that extra bit of change that comes with it.

Send Radar gear to Group for repair minus the components: If you must remove components, send along a list of them. A nice example of this was a Squadron that sent in an I.F.F. set recently all nicely encased, and it looked quite complete but... minus relays and upto ten leads opened up with no place to go.

LAST MONTH'S "WHAT WAS IT FUZZLE"

You probably know by now, yes it was the brilliance diode VI9 u/s. The diode being u/s results in no neg. D.C. restoration of S.T.B. blackout pulse, result is that the picture cannot be blacked out by means of the brilliance Pot alone. A bit too obvious wasn't it, this one is not so easy.

THIS MONTH'S "WHAT IS IT"

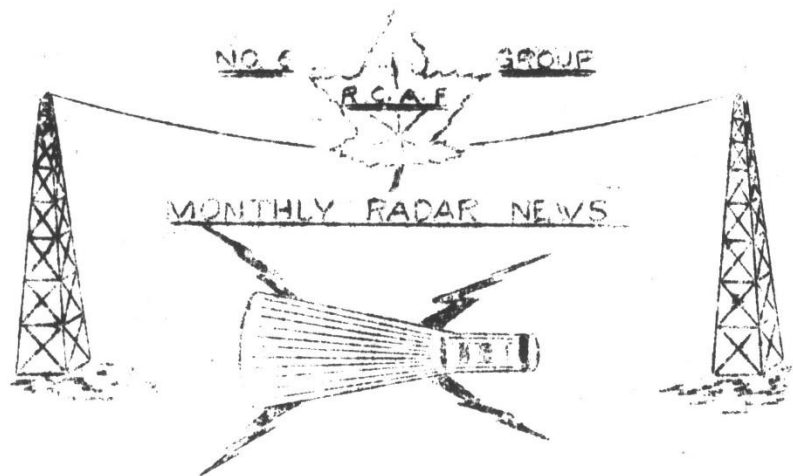
An indicator had the following symptoms:- Cal pips were very distorted on M.T.B. and S.T.B. Upon scooping it was found that the cal pip input to VI was O.K., the output from the Cath. of VI was also O.K. On scooping the X2 plate, the sawtooth was found containing pips on it, the H.T. smoothing choke also had cal pips on the output side of the H.T. link, these pips were all amplified and inverted. What is it?

WE'VE HAD IT

Well it looks like we have lost the cup for Gee Serviceability. Although the Group average was better than the Command average during January, No. 1 and No. 3 Groups got in there way ahead of us. Let's offer them our congratulations, and make sure that we beat them next time, but it won't be too easy. The funny thing about it all is the way that Squadrons go up and down in their serviceability. The three Squadrons that were down in December were up in January, while three other Squadrons were down. Although it is a good idea to have some friendly rivalry between Squadrons within Groups and between Groups within the Command over Radar serviceability, we must not allow ourselves to overlook the real reason for good serviceability; Better Radar serviceability = more successful sorties = more Bombs dropped on the right place = the shorter the war = the sooner we get home.

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SECRET



VOL. 1

MARCH 1944

NO. 3

INSIDE INFORMATION

Looks as though we may be getting Boozer in the near future. Sgt. Brooks and L.A.C. Landry have just had a course on it at T.R.E. and as soon as we get a couple of sets we will run a short Group Boozer Course.

The Radar people at Tholthorpe have been given the job of developing a modification to fit Mark IV A.I. into the Halifax as a Tail Warning Device. To do this they were supplied with three sets of A.I. which incidentally was nearly all u/s. However, we were able to get some spares from a Fighter Group and they are now making good progress with the test installations. No. 5 Group have developed a mod. to fit it into the Lancaster and they think that it made a wizard "visual Monica".

No. 419 Squadron has finally got the famous Canadian Lancaster "The Ruhr Express". She was held up while some modifications were being completed. As soon as she arrived the Radar Mechanics started work to put another mod. on her. We can't tell you what the mod is because nobody is supposed to know that they are doing it, but you can guess.

We expect to get some mains operated Gee sets for training purpose any day now. They will eliminate the various difficulties of power supplies for Navigation training installations.

We understand that Cpl. Ennis No. 431 Squadron has invented a scheme for testing I.F.F. which replaces the Test Set Type 74. This modification is less cumbersome to handle and can be conveniently used in an aircraft. It will be put up in the usual way as a proposed modification.

GETTING ON

The people who make establishments and things are beginning to appreciate the importance of Radar for they have given us a F/L post as a Parent Station Radar Officer at Middleton and Leeming. As a result of this new establishment the following changes have taken place.

- F/L Able takes over at Middleton.
- F/L Waters has moved to Leeming
- F/L Gillies is now the No. 61 Base Radar Officer
- F/O Blythe has moved from 1604 H.C.U. to No. 428 Squadron

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F/O Budzeck is now Radar Officer on No. 432 Squadron.

We offer our Best Wishes to these Officers in their new posts and we expect to get a drink out of Able and Gillies.

TOOLS ORGANISATION

We are open to suggestions of some good methods of keeping track of tools. Several Squadrons we know are having trouble with this problem, and we feel that one of you may know of a method which will

prevent tools from getting lost and still does not involve too much paper work or complicated organisation.

HIDE AND SEEK

You know how difficult it is sometimes to find a particular kite on dispersal when you get a panic call. Well - here is an idea suggested by F/O Normandeau to keep track of where all the kites are on the field. Have the artist of your section draw up a plan of the airfield including all the dispersal points, and pin the plan up on your notice board. Then get some of those pins with big flat heads with a space on the top for a little circular piece of cardboard. Label the pins A.B.C. etc., for each aircraft you have and stick the pins on the map corresponding to each kite's position on dispersal. Now if you want to go to any particular kite just have a look at the board. You may be able to scrounge the pins from the Intelligence Branch but if not you can easily buy them in the nearest town while waiting for opening time.

RANDOM RADAR ECHOES

L.A.C. Jack Gillespie No. 428 Squadron is taking life's big step next month. Yes - he is getting married and we join the Radar Mechanics of No. 428 Squadron in extending our congratulations and best wishes to Jack and the lucky girl.

We understand that F/O Neff No. 419 Squadron's Radar Officer is bettering himself by spending his leave taking one of these educational courses at Cambridge or Oxford or one of these high class Universities.

No. 434 Squadron are throwing farewell parties these days. It seems that L.A.C. Sergeant is pulling stakes to return to Canada for aircrew training. When he returns to England again maybe the boys of 434 will have the fun of ticking him off for finger trouble! We wish him all the best anyway and we hope that he will be good enough to prod the folks back home or the authorities in charge, whichever is easier to speed-up our mail delivery.

Rumour has it that L.A.C. Cairns 419 Squadron is going for a commission in the Educational Branch of the Service. We extend our Best Wishes to Principal Cairns, (as he was known in civvy street), and hope that he meets with every success in his new job.

F/O Bill Homishon has left us to return to his Squadron No. 408 and F/O Carstairs who is now all mended has moved in as Radar II at Group.

L.A.C. Kirby has left his Squadron at Skipton and has gone over to help out No. 426 Squadron.

L.A.C. MacGillivray was posted from 1664 H.C.U. to 425 Squadron.

L.A.C. Iverson has moved further north from No. 427 Squadron to No. 434 Squadron.

F/Sgt. Gorma has handed No. 429 Squadron over to F/Sgt. Prior and is now in charge of No. 431 Squadron.

Congratulations to Cpl. Utley and L.A.C. Glover on their "gongs".

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That 1939 - 1943 Star ribbon is going to look very nice on their tunics, and there aren't many in these parts who have the rosette to go with the ribbon.

Since our last issue stores have had to hand out some tapes and the odd crown or two. Now it is -

- F/Sgt. Radley on 433 Squadron
- F/Sgt. Rittberg on 424 Squadron
- Sgt. Laprise on 433 Squadron
- Sgt. Hearn on 1659 H.C.U.
- Sgt. Kennedy on 1664 H.C.U.
- Cpl. Wilcox on 424 Squadron

Congratulations fellows from all of us.

GOLD HOUSEKEEPING

It may be a coincidence but it is very noticeable that on those Stations where a sincere effort is made to keep the Radar workshop clean and tidy, the Squadrons have the best serviceability. We do appreciate that you are constantly waging the "Battle of Mud", and with two Squadrons in one airfield things are pretty crowded. However, soon we will have a workshop per Squadron and as you know we can now get lines for the floors so we would like to see everyone make a real effort to keep the place clean. Radar is coming more and more into the limelight and don't be surprised if the Station Master drops in on a "Social Call", one of these days. If he finds your place clean but still business like it will do a lot to make him Radar conscious and that sure helps.

BRAIN WAVES

Croft and Middleton have found a use for the motor from a detonated I.P.F. set. It seems that the motor will satisfactorily turn a small grindstone - very useful for sharpening tools.

Middleton has found a good use for the few of the now unused Wire Guards. They find that the Wire Guards make very handy trays and baskets for the office staff.

Cpl. Howarth No. 419 Squadron and L.A.C. Greer of No. 428 Squadron discovered how to prevent the glass on the face of the mixer current meters on the H.2.S. Indicator from being pushed in against the needle. They found that a piece of light perspex placed on the front of the meter and fastened by the existing screws does give the added protection.

V.C.P.'s

With all the fancy gadgets we now have to play with we may become rather inclined to scorn the humble V.C.P. but if we do its just asking for trouble. You know what can happen if a V.C.P. is not set up correctly - Gee jitters and condensers popping all over the place. The next time you do a D.I.'s make a thorough check on the V.C.P. but don't try to fix the Carbon Pile regulator unless you really know how. You can find all the gen in A.P. 1766 J.A. Volume 1 - Voltage Regulator Type E. Incidentally when you do a D.I. do you always check on the fuses in the V.C.P.? We had a case recently where the Navigator went to change the fuse and he found that all the spare fuses were duff.

THE BACK ROOM BOYS

A good deal of praise is due to Radar Mechanics on Conversion Units. They are the boys who give their best every day and night to "keep 'em flying" so that our good friends the navigators arrive at operational squadrons well genned and full of confidence in the latest Radar equipment. Keep it up boys - your work is most important and the confidence that you

directed in Radar equipment gives the navigator a good start on his first tour.

GEN HURRAH

Loud cheers have been heard coming from practically every squadron in the Group. It seems that the reason for the 'hurrahs' is the recent ruling that Detonators are no longer required for Gee and H.2.S. equipment. Although the I.F.F. equipment is still required to contain a detonator when on operations, it is, however, very evident that the hard working mechanics realize that from now on, the usual 'panic' at take off time will be greatly reduced. Speaking of panics, did we hear some one mutter something about "I.F.F. switches".

H.2.S. COURSES

There seems to be bags of H.2.S. courses these days. Cranwell is still going strong and it has now been confirmed officially that the course there is only four weeks long. Command hopes to continue its courses and the Group Course at Dalton has really swung into its stride with an intake of 15 men per course. The H.2.S. film is now shown at the beginning of each course there.

EQUIPMENT GEN

You have probably noticed that much of the information on how to get H.2.S. equipment is sent out in equipment letters and unless you are well in with your equipment officer you are apt to be left out of the picture. It is not always necessary for you to have copies made of these letters if you keep a note book and log the more important points such as the reference, date, title, file, enclosure number and an outline of the letter.

H.2.S. TRAINERS

The one big bind that the Mechs have about the H.2.S. Trainer is that there is very little bump on the ruddy things. You can help by giving us your experiences with the trainer on the Weekly Radar Defect Report. Command recently issued a small gen sheet on faults which we think you found useful and all the information it contains came from stations with trainers. Incidentally the Navigation people will be very grateful if you can fix up a small light over the main trainer controls.

GEN MEN

We want to offer our congratulations to those Mechanics who got their 'A' grouping when the R.C.A.F. Trade Test Board was in York during the last of February. No. 432 Squadron put up an especially good show - six men took the test and six men passed. To those who failed we say Better Luck next time.

DEFECT RETURNS

There has been a marked improvement in the Squadron Radar Defect Returns lately. We know that it is a binding job to make them up but it is even more binding to everyone if they are not made out correctly. If the Squadron officers advise the Mechs of the information they need and then keep the return up to date day by day there should be very little to do at the end of the week.

LAST MONTH'S FAULT. (GEE)

An answer is hardly required but we will give it just to keep the record straight. The trouble is an open decoupling condenser in the

anode circuit of V1 - don't say there isn't one cause there is, C.45 located in the top right hand corner of Fig. 13 of the S.D. With this condenser open circuit the cal rips run will through out the H.T. network and turn up as distortions on the time bases.

THIS MONTH'S PROBLEM (H.2.S.)

A certain Squadron reported that the height tube in the H.2.S. indicator showed large pulses at the end of the transmitter pulse. The suppression control would not eliminate these pulses, and rotation of the scanner had no effect on the amplitude of them. On investigation it was learned that the mechanics replaced the Magnetron, pulse transformer, filament transformer, and reversing diode, but the spurious pulses still persisted. What would you check for a possible source of trouble?

SERVICEABILITY.

Our good friend F/L Musselman seems to be a bit late this month, issuing his summary of Radar Serviceability and we can't hold up publication any longer. However we can tell you that the Gee and H.2.S. serviceability has been wizard so far during this month. If you keep it up we should be so far ahead that they won't be able to see us for dust.

OUR SHATTERED NERVES.

When we were collecting material for this issue we called up each station in turn for contributions. One Squadron Officer said that he was sorry but he had nothing to offer. The next day we happened to be talking to this Officer and he in the conversation mentioned, two promotions on his Squadron, and idea for mounting the Monitor Type 28, a rack designed on the Squadron to hold valves, and several other good points and yet he had no contributions. We relate this case because we think that it is typical. Frankly we feel that you are not trying or else you are not interested. In either case unless we get more contributions we may have to discontinue the News after this issue. How about it?

DISTRIBUTION.

- Nos. 61 and 62 R.C...F. Bases.
- R.C...F. Stations: Middleton St. George, Looming, Croft, Skipton, Eastmoor, Tholthorpe, Linton, Topcliffe, Dishforth, Wombledon, Dalton, (one copy each).
- Squadrons: 419, 428, 434, 431, 427, 429, 433, 424, 432, 430, 425, 408, 426. (one copy each).
- Conversion Units: 1659, 1664, 1666, 1679 (one copy each).

Spare copies - 5.

Squadron and Conversion Units copies are to be put up on Radar Section Notice boards until seen by all concerned and then placed in appropriately labelled file cover and held by the Radar Officer.

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APPENDIX No. 86
R.A.F. FORM 540
H.Q. No. 6 (R.C.A.F.) GROUP

DATE April 1944

No. 6 (R.C.A.F.) GROUP SIGNALS FAILURES SUMMARY FOR MONTH OF
MARCH 1944.

SECRET.

Date of failure	Station	Sqdn. No. and A/C Letter	Details of Failures.
<u>1. EQUIPMENT.</u>			
7/8	Linton	408 - "P"	TR.1196 failed. Contact points slipped off insulating plugs on Send-Receive relay arm causing H.T. to short to earth. Cat. C.
2/3	Middleton St. George.	419 - "J" "D"	Microphone type 25 failed due to ingress of moisture. Spare used. Cat. C.
2/3	Middleton St. George.	428 - "K" "P" "X" "Q" "F"	Microphone type 25 rendered U/S by ingress of moisture. Spare used. Cat. C.
6/7	Middleton St. George	428 - "G"	Microphone type 25 rendered u/s by ingress of moisture. Spare used. Cat. C.
13/14	Middleton St. George.	428 - "P" "I" "V"	Microphone type 25 rendered u/s by ingress of moisture. Spare used. Cat. C.
15/16	Middleton St. George.	428 - "K"	T.1154/R.1155 failed completely due to bearing in power unit (10K/13066) seizing up. Cat. C.
15/16	Middleton St. George.	428 - "P"	R1155 failed completely due to breakdown of condenser C5 reference 10C/2239 causing H.T. to short to earth. Cat. C.
15/16	Middleton St. George.	428 - "U"	Intercom. howl due to U/S VR21 in all 3A. Emergency i/c used to complete trip. Cat. C.
15/16	Middleton St. George.	428 - "G"	Mid-upper gunner and W/Op's microphones type 25 waterlogged causing unintelligible speech. Spare used. Cat. C.
18/19	Middleton St. George.	419 - "T"	Bomb Aimer's microphone failed due to ingress of moisture. Spare used. Cat. C.
18/19	Middleton St. George.	428 - "G"	Mid-upper gunner's microphone failed due to ingress of moisture. Spare used. Cat. C.
18/19	Linton	408 - "H"	R.1155 u/s. C3 in L.T. power unit broken down causing short to earth. Cat. C.
22/23	Middleton St. George.	419 - "S" "I"	Mid-upper gunners' microphone failed due to ingress of water. Spare used. Cat. C.
22/23	Middleton St. George.	428 - "T" "R" "D"	Microphone type 25 failed due to ingress of moisture. Spare used. Cat. C.
22/23	Eastmoor.	432 - "H"	R.1155 H.T. supply failed due to break inside rubber insulation in H.T. neg. inside power unit. Due to vibration. Caused condenser C40 in P.U. type 35 to break down and resistance R1 (10C/1001) to burn out. Cat. C.
25/26	Linton.	408 - "Y"	R.1155 u/s. Signals faded out on return journey. V8-VR101 u/s. Cat. C.
30/31	Eastmoor	432 - "R"	R.1155 failed - Burned out heater in V8-VR101. Cat. C.

...../OVER .

PAUURE

Date of failure	Station	Sqdn. No. & A/C letter	Details of Failures.
<u>2. SERVICING.</u>			
15/16	Linton	408 - "H" "1"	TR.1196 starting relay not closing had to be pressed in by W/OP. (Air). Gap on relay too big. When gap was lessened relay operated correctly. Cat. C.
18/19	Linton	408 - "O"	Intercom. failed - nuts securing brushes to slip rings on mid-upper turret missing causing intermittent short on rotation of turret. Cat. A.
29/30	Middleton St. George.	428 - "1"	R.1155/T.1154 complete failure. Broken insulation L.T. supply lead between terminal block and Power supply socket ref 5C/596. Short occurred in socket blowing fuse. Cat. C.
7/8	Linton	426 - "C"	R.1155 reception intermittent due to fading. Due to contacts of Londex relay not breaking. Cat. C.
<u>3. INSPIRATION.</u>			
15/16	Tholthorpe	420 - "W"	T.1154 u/s. No input. D/F interlock plug on type J switch accidentally pulled out during flight and W/Op. failed to rectify. Cat. C.
26/27	Linton	426 - "O"	Intercom. u/s in mid-upper position due to hanging parachute harness. Cat. C.
26/27	Eastmoor	432 - "J"	T.1154 failed due to interlock plug becoming disconnected from type J switch. Cat. C.
<u>4. MISCELLANEOUS.</u>			
18/19	Linton	408 - "N"	TR.1196 failed due to aerial being shot away. Cat. "C".
23/24	Croft	431 - "R"	Complete W/T failure of T.1154/R.1155. Failure not reproduceable on ground or air tests. Cause unknown. Cat. B.
24/25	Linton	408 - "L" "O"	TR.1196 failed due to aerial lead-in being shot away in each case. Cat. C.
24/25	Tholthorpe	425 - "P"	Intercom. to rear turret u/s. Broken lead inside 359 socket. Cat. B.
<u>5. TRAINING.</u>			
7th	Wombleton	1666 - "H"	T.1154/R.1155 power failure due to fracture of plug H.T. power unit. Cat. C.
10th	Wombleton	1666 - "U"	R.1155 failed due to breakdown of C.21 followed by R.58 and R.23. Cat. C. Missed recall.
18th	Wombleton	1666 - "Y"	R.1155 valve V8 (VR101) u/s. Cat. C.

...../OVER

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ANALYSIS OF FAILURES.

1665 Sorties - 40 Failures.

Percentage of Failures to sorties	2.4%
Percentage of Equipment Failures to Sorties	1.62%
Percentage of Servicing Failures to Sorties	0.3%
Percentage of Manipulation Failures to Sorties	0.18%
Percentage of Miscellaneous Failures to Sorties	0.3%

Signals failures were responsible for 1 non-starter (Cat. A) and 2 early returns (Cat. B).

Date:- 2nd April 1944.
Ref:- 6GP/S.463/Sigs.

.....
..... *J. Colley* F/Lt.
(J. Colley)
for Air Officer Commanding.
H.Q. No.6 (R.C.A.F.) Group.
ROYAL AIR FORCE.

Distribution:-

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APPENDIX No. 27 to
R.A.F. FORM 540
H.Q. No. 6 (R.C.A.F.) GROUP

MARCH

DATE April 1944

SUMMER OF ENCOUNTERS



NO 6 RCAF GROUP
HQ

PAURE

SECRET

From:- Headquarters, No. 6 (R.C.A.F.) Group.

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Date:- 16th April, 1944.

Ref.:- 6G/S.660/Trg.

SUMMARY OF ENCOUNTERS WITH ENEMY AIRCRAFT

During the Month of March, 1944.

REPORT NO. 11.

During the month of March Lancaster and Halifax aircraft of No.6 (RCAF) Group had 44 known encounters with enemy fighters out of which two were claimed as destroyed and seven damaged. This is a decided increase over the previous month of February.

Three of the Bombers were surprised-attacked and three sustained damage.

Enemy types as identified by Gunners were as follows:-

6 attacks by Ju. 88's	2 attacks by F.W. 190's
9 " " Me. 110's	6 " " Me. 109's
2 " " Me. 210's	19 " " unidentified

The majority of attacks were on the way to the target. The Hun is doing everything within his power to prevent our Bombers from reaching the target.

Stages of operation at which attacks were made:-

<u>Way to Target</u>	<u>Return Journey</u>	<u>Target Area</u>
22	12	11

Types of Enemy aircraft Encountered:-

<u>Ju. 88</u>	<u>Me. 110</u>	<u>Me. 210</u>	<u>F.W. 190</u>	<u>Me. 109</u>	<u>Unidentified</u>
6	9	2	2	6	19

FORMS OF ATTACK

	<u>LEVEL</u>	<u>ABOVE</u>	<u>BELOW</u>	<u>TOTAL</u>
<u>FROM ASTERN:</u>	1	9	4	9
<u>FROM QUARTERS:</u>	9	9	16	34
<u>BEAM ATTACKS:</u>	3	2	1	6
<u>BOW ATTACKS:</u>	1	1	0	2
<u>TOTAL:</u>	14	16	21	51

J. F. Clark
 (J. F. CLARK) Squadron Leader,
 for Air Officer Commanding,
 No. 6 (R.C.A.F.) Group,
 ROYAL AIR FORCE.

Pauvre

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Encounters:-

Night of 18th March, 1944. Operations to Frankfurt.

Halifax aircraft "C", Serial No. HK.314 of 424 Squadron.

While on the inward journey to the target FRANKFURT, on the night of 18th March 1944, Halifax aircraft "C", Serial No. HK. 314 of 424 Squadron, encountered an enemy aircraft identified by both Gunners as an ME.110, at a position 51°00'N. - 02°50'E. at 2044 hours, while flying at 14.5 m.p.h. I.A.S., on a course of 110°T., at 20,000 feet altitude. Visibility fair, slight haze, no moon, and cloud 2/10ths, tops at 8,000 feet.

The enemy aircraft was first sighted by the Mid-upper Gunner flying a parallel course, on the Port Quarter, half-up, at 800 yards range. While maintaining this range, the enemy aircraft then occupied a position on the Starboard Quarter, 45° down, and came in to attack on a climbing curve of pursuit. As the range closed to 350 yards, the fighter opened fire, and the Rear Gunner immediately gave Combat Manoeuvre, 'corkscrew Starboard' and returned fire with two short bursts. The fighter closed in to 250 yards range, firing one long burst with no tracer ammunition being used, and broke off the attack to the Port Quarter up at 200 yards range, and was not seen again. "Resume course" was given after one complete corkscrew had been carried out. The sighting was visual only, as "Fishpond" was U/S at the time of the attack.

There was no searchlight activity in the immediate area, and no signs of ground co-operation were in evidence. The type of enemy armament is not known as no hits were scored on the Halifax, but it is believed to be of small calibre, with three guns firing from each wing. Damage is believed to have been caused to the ME.110 with the Rear Gunner's first burst, with strikes scored presumably on the Starboard side of the fighter.

The Rear Gunner, only, fired expending 200 rounds from four guns with one link stoppage experienced.

The Rear Gunner, F/O Queen, trained at No.3 B.&G.S. and 23 O.T.U.
The Mid-upper Gunner, P/O Mellstrom, trained at No.2 A.G.S. and 23 O.T.U.

Comment:- Gunners left it a little too late before they opened fire and were very fortunate that the fighter's opening burst did not do a great deal of damage.

(b) Halifax aircraft "Q", Serial No. HK.804 of 429 Squadron.

While on operations to the target FRANKFURT, at the commencement of the bombing run, Halifax aircraft "Q", Serial No. HK.804 of 429 Squadron, encountered an enemy aircraft identified by the Rear Gunner as an ME.109, at a position of 50°14'N. - 08°42'E. at 2203 hours, while flying at 170 m.p.h. I.A.S., on a course of 188°M. at 25,500 feet altitude. Visibility fair, with no moon and 3-5/10ths cloud, tops at 8,000 feet.

The enemy aircraft, which carried no lights, was first sighted by the Rear Gunner on the fine Starboard Quarter level, at 700 yards range. The Rear Gunner gave Combat Manoeuvre, 'corkscrew Starboard', and when the range had closed to 400 yards, he opened fire with a 3-second burst. The fighter appeared to make an attempt to follow the Halifax through the dive, but broke off the attack at 300 yards range, and was last seen by the Flight Engineer on the Starboard Beam, above. The enemy aircraft was not seen again, and the Captain resumed course, after having completed one dive.

Numerous searchlights were in evidence at the time of the encounter, but the Halifax was not coded. "Monica" was U/S and there were no other signs of imminent attack. The enemy aircraft did not open fire, so the type of armament is not known. The Rear Gunner and the Flight Engineer state that the Gunner's tracer appeared to pass right through the fighter just before he broke away, and it is claimed as damaged. The Rear Gunner expended 200 rounds with no stoppages.

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The Rear Gunner, Sgt. Hunter, trained at No.9 B.&G.S., 24 O.T.U. and 1664 Con. Unit.

Comment:- The Rear Gunner showed great initiative in not opening fire too soon and in this way, succeeding in driving off the fighter.

Encounters:-

Night of 24th March, 1944. Operations to BERLIN.

While on the outward journey to the target BERLIN, on the night of 24th March 1944, Halifax aircraft "Y", Serial No. LK.806 of 429 Squadron, was surprise-attacked by an unidentified aircraft at a position 54°39'N. - 09°23'E. at 2141 hours, while flying at 19,000 feet altitude, on a course of 110°M. Visibility good, with no cloud.

The Halifax was coned in an intense belt of searchlights and was hit several times by flak. The first indication of imminent attack was evident when the Rear Gunner observed tracer coming from the Port Quarter. ("Monica" was U/S at the time) Dazzled by the searchlights, he opened fire in the direction of the tracer, at the same time giving Combat Manoeuvre, 'corkscrew Port'. As the Bomber was rolling over, a second burst of tracer came from the Starboard Quarter, and the Rear Gunner directed another burst in its direction, and gave Combat Manoeuvre, 'corkscrew Starboard'. A few seconds later the Pilot observed more tracer coming from the Port Quarter and he immediately carried out Combat Manoeuvre, a dive to Port. No further attacks were experienced, and at no time during the combat was the enemy aircraft seen by any of the crew.

Immediately preceding the attack, the Flight Engineer saw a red flare with green stars fall behind the Halifax, and coincidentally the flak ceased.

The Halifax sustained damage to the Port fuselage in two places; several small holes in the Starboard fuselage, (believed to have been caused as a result of the hit scored on the Starboard bursting inside the aircraft), Starboard wing bomb compartment. It is difficult to determine whether the damage was caused by flak or the enemy aircraft. No damage to the enemy aircraft is claimed.

The Rear Gunner expended 500 rounds from four guns with one No.2 stoppage in both left-hand guns.

The Rear Gunner, Sgt. Fraser, trained at No.9 B.&G.S., 22 O.T.U. and 1659 Con. Unit.

Comment:- Gunners should try and maintain their night vision as much as possible when they are coned by searchlights by closing one eye. The Rear Gunner did a fine job under difficult conditions.

Night of 26th March, 1944. Operations to ESSEN.

Halifax aircraft "K", Serial No. LW.415 of 429 Squadron.

While on the return journey from the target ESSEN on the night of 26th March 1944, Halifax aircraft "K", Serial No. LW.415 of 429 Squadron was surprise-attacked by three unidentified enemy aircraft (believed to be single-engined) at a position between 50°28'N. - 05°40'E. and 51°03'N. - 03°25'E., and interception commenced at 2249 hours, with the attacks being broken off at 2320 hours. The Halifax was flying at 21,000 feet altitude, when first attacked, on a course of 284°M., at 170 m.p.h. I.A.S. Visibility moderate with some haze and 8/10ths cloud, tops at 10,000 feet, at the beginning of the attack, but during the combat the cloud dispersed and visibility improved.

The first indication of attack came when the Rear Gunner observed yellow tracer coming from both Quarters and Dead Astern. He immediately gave Combat Manoeuvre, 'corkscrew Starboard' and at the same time opened fire in

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the direction of the tracer. From that time on the Halifax was attacked more-or-less continuously until 2320 hours, when the Pilot was able to resume course.

No searchlights were in evidence at the time of the combat, but two fighter flares were dropped dead astern of the Bomber just before the attack, and "Monica" warnings were received intermittently. The Halifax sustained no damage, but judging from the large flashes, the crew believe the fighter's armament comprised heavy calibre.

Following one long burst from the Rear Gunner, a bright explosion appeared in the sky and the Captain, Engineer, Mid-upper Lookout, and Rear Gunner saw an aircraft fall earthwards, hitting the ground and a flash observed. The Mid-upper Gunner was in the under blister lookout position at the time, and the Wireless Operator Air Gunner went over the Mid-upper turret.

A few seconds later, just after getting in, he observed tracer coming from the Starboard Beam, and he immediately gave Combat Manoeuvre, 'corkscrew Starboard', opening fire in the direction of the tracer. The enemy aircraft moved round to the Starboard Quarter still firing, and both the Rear and Mid-upper Gunner returned fire with a long burst in the direction of the tracer. Suddenly a burst of yellow flame appeared where the tracer was coming from, followed by a red glow and the outline of a single-engined aircraft, plunging earthwards. A few seconds later a red glow was seen on the ground by the Engineer, Wireless Operator Air Gunner, and Rear Gunner. Both enemy aircraft are claimed as destroyed.

The Rear Gunner expended 800 rounds from 4 guns with on No.2 stoppage, and the W.Op./Air Gunner expended 150 rounds, experiencing link stoppages in all four guns in turn.

The Rear Gunner, Sgt. Faulkner, trained at No.3 B.C.G.S., 24 O.T.U., and 1664 Con. Unit.
The W/Op. Air Gunner, Sgt. Wilson, W.R.

Comment:- This crew are to be congratulated in doing a very fine job especially the Wireless Operator, who showed great presence of mind in manning the Mid-upper turret and helping the Rear Gunner to shoot one of the enemy aircraft down.

Night of 30th March, 1944. Operations to NUREMBURG.

Halifax aircraft "J", Serial No. LW.440 of 424 Squadron.

While on the inward journey to the target NUREMBURG on the night of 30th March 1944, Halifax aircraft "J", Serial No. LW.440 of 424 Squadron, encountered an unidentified twin-engined enemy aircraft, at a position of 50°30'N. - 07°05'E. at 0025 hours, while flying at 160 m.p.h. I.A.S., on a course of 094°M, at 20,000 feet altitude. Visibility good, with quarter moon conditions and 8/10ths cloud at 10,000 feet.

The enemy aircraft was first sighted by the Rear Gunner coming in to attack on the Port Quarter, 10° up, at 500 yards range. No warning devices were carried, and the enemy fighter carried no lights. Combat Manoeuvre, 'corkscrew Port' was given, and the Rear Gunner opened fire at 150 yards range with one short burst. The enemy fighter broke off the attack to the Starboard Beam down, without opening fire, and "resume course" was subsequently given.

A second attack developed at a position 50°22'N. - 10°07'E. at 0105 hours, while flying at an I.A.S. of 160 m.p.h. at 21,000 feet altitude, on a course of 186°M. The enemy fighter, identified by the Rear Gunner as a F.W.190, was first sighted by the Rear Gunner flying parallel on the Port Quarter, half-down, carrying no lights, keeping this position for approximately 2 minutes. Combat Manoeuvre, 'corkscrew Port' was given by the Rear Gunner, as the enemy aircraft occupied a position on the Port Quarter, 5° up, coming in to attack. The Rear Gunner opened fire with

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a long burst, terminated when the fighter broke off the attack to the Starboard Beam down, at 200 yards range, without returning the fire, and was not seen again. "Resume course" was given after two complete corkscrews.

There were no signs of ground co-operation and no fighter flares. The fighter has a very light camouflage, and showed up very distinctly against the background, and was seen to fly through the Gunner's trace.

The third encounter developed at a position $50^{\circ}00'N - 10^{\circ}55'E$, at 0113 hours, while flying at 150 m.p.h. I.A.S., on a course of $186^{\circ}M$. at 21,000 feet altitude, with the same weather conditions, with the exception of cloud increase to 10/10ths.

The attack came from head on, and the first warning given was tracer scoring strikes on the Bomber (comprising one attack only). This surprise-attack by an unseen enemy aircraft was executed so quickly it did not permit for Combat Manoeuvre. Trace was observed for some distance behind the Halifax, and it is believed that the opening range of the fighter was very close. There were no signs of ground co-operation. Damage sustained to the Halifax consisted of cannon and machine-gun fire; light calibre damage to the Port inner engine and forward section to the Port side of the fuselage; cannon shell damage to the Starboard outer engine, rendering it u/s.

The fourth encounter took place on the outward journey, at a position $50^{\circ}35'N - 02^{\circ}55'E$, at 0404 hours, while flying at 150 m.p.h. I.A.S., on a course of $314^{\circ}M$, at 9,500 feet altitude, and consisted of two attacks. The enemy aircraft identified by both Gunners as a JU.88, was first sighted by the Rear Gunner flying on a converging course, 20° up on the Port Beam, at 1,000 yards range, carrying a red light. (The position of this light could not be determined). The fighter continued on this course until the range had closed to 600 yards, when the light was extinguished, and it was subsequently lost to view. It was next sighted half-down on the Starboard Quarter by the Rear Gunner, who allowed him to approach to 250 yards range, before giving Combat Manoeuvre, 'corkscrew Starboard', due to the aircraft not being too manoeuvrable, and opened fire with a 3-4 second burst. The fighter broke off the attack without opening fire, to the Port Beam down, at 200 yards range. The second attack took place almost immediately by an aircraft identified as another JU.88, and is believed to be the same machine, as the tactics adopted were identical as in the first attack. It was first sighted on the Starboard Quarter down, at 300 yards range following the Bomber, and then putting its nose up, preparatory to attack. Combat Manoeuvre, 'corkscrew Starboard' was given by the Rear Gunner, as soon as the fighter made this move, and he opened fire with a short burst. The enemy fighter broke off the attack at 200 yards range, without returning fire, to the Port Beam down, and no further attacks were experienced.

There were no signs of searchlight or ground co-operation. On all of these attacks only the Rear Gunner opened fire, expending 500 rounds from four guns, encountering 2 No. 3 stoppages.

The Rear Gunner, Sgt. Power, trained at No. 9 B.S.G.S. and no O.T.U.

Comment:- Good method of search cannot be stressed too highly, this crew were lucky in the third combat as they were completely surprised. Each crew member should be given a definite part of the sky to search.

(b) Halifax aircraft "F", Serial No. IK.802 of 429 Squadron.

While on operation to the target NUREMBURG on the night of 30th March 1944, Halifax aircraft "F", Serial No. IK.802 of 429 Squadron, encountered an unidentified twin-engined aircraft, at a position $50^{\circ}21'N - 08^{\circ}31'E$, at 0030 hours while flying at 22,000 feet altitude, on a course

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of 089°N. at 160 m.p.h. I.A.S. Visibility was excellent, with almost a half-moon high on the Starboard Quarter; 5/10ths cloud below.

The first indication of attack came when the Rear Gunner saw tracer approaching the Halifax from below on the Port Quarter. He instantly spotted the enemy aircraft, which carried no lights, and gave Combat Manoeuvre, 'corkscrew Port', opening fire with a short burst. The enemy aircraft was last seen by the Mid-upper Gunner well down on the Starboard Beam before it was lost to view. "Resume course" was given after two complete corkscrews had been carried out.

No searchlights were in evidence at the time of the encounter, but many fighter flares were being dropped along the route. "Monica" gave warning after the enemy aircraft had been sighted. This, coupled with the fact that the tracer from the fighter appeared to fall short of the Halifax, suggests that the enemy aircraft was attacking another Bomber. There were no other signs of imminent attack. No damage was sustained by the Halifax. The enemy's armament is believed to comprise both heavy and light calibre armament. No claims are made on the fighter.

The Rear Gunner was unable to bring his sights to bear accurately on the enemy aircraft, so the range is unknown. He expended 150 rounds from four guns with no stoppages. The Mid-upper Gunner did not open fire as he could not depress his guns sufficiently to do so.

The Rear Gunner, Sgt. Chapman, T.B., trained at No. 9 B. & G.S., 24 O.T.U. and 1664 Con. Unit.

The Mid-upper Gunner, F/Sgt. McLean, M.W., trained at No. 3 B. & G.S., 22 O.T.U. and 1559 Con. Unit.

Comment:- This is another case of the Gunner being surprised. Search should be intensified especially when fighter flares are very much in evidence.

APPENDIX No. 103 to
R.A.F. FORM 540
H.Q. No. 6 (R.C.A.F.) GROUP

DATE April 1944

BOMBING DIGEST

6.(R.C.A.F.) GROUP
ISSUE No. 10 MARCH. 1944.

"SECRET"

FOREWORD

In the past, there has been a tendency for us all to pay too little attention to the efficiency of our bombing. From now on, however, bombing generally, and bombing accuracy in particular, will be paid the highest possible attention and therefore the work of the Bombing Section and the personnel concerned will be given the spotlight. You Bombing Leaders will be the first to agree that such attention is long overdue.

The Bombing Section is going to be taxed to the utmost and it is a sure thing that the weak members will be left out in the cold. Squadron Bombing Leaders in co-operation with the Armament Section will be called upon to play their part in laying on attacks with the greatest accuracy and will be obliged to have all the answers at their finger tips.

If you are a smart Bombing Leader, you will take stock of yourself and your section. Don't be caught flat-footed, but prepare for the greatest effort both in operations and in training. Pay extreme attention to detail, whether at briefing, lecturing, interrogation or investigation.

Remember too, Bombing Leaders, that no small part of your job is to keep the interest and offensive spirit of your Bomb Aimers up to the highest possible pitch at all times. We are sure that you can do it.



(C.R. SLEMON) Air Commodore,
Senior Air Staff Officer,
No. 6 (R.C.A.F.) Group,
ROYAL AIR FORCE.

20th April, 1944.

PART I - OPERATIONS

BOMBING.

Operational Manipulation Failures

No. 419 Squadron - The Captain selected flaps instead of Bomb doors on the Bombing Run, noticed his error and selected Bomb doors open. When Air Bomber pressed bomb tit wing door lights only were showing and the centre bay lights came on later. The Captain then closed the doors.

The Air Bomber noticed that the wing door lights were on, but failed to see that the centre bay light was not showing. He pressed the bomb tit at release point and the arm went to "H". He jettisoned and carried out a light check on Single and Salvo. Presumably, the Bomb doors had still not opened - no lights showed. He did only a very hasty visual inspection without a flashlight on No. 1 station

Result

Abortive sortie. Practice bombing exercises should eliminate boops of this kind. 2 x 1500 lb vegetables were brought back unknown to the crew

No. 420 Squadron - An Air Bomber neglected to check his pre-selector settings.

Result

1 x S.B.C. brought back.

No. 427 Squadron - An Air Bomber failed to carry out correct visual inspection.

Result

1 x 1000 lb. G.P. brought back

The sooner a failure is reported the easier it is to track down the cause of the failure. All technical staff concerned will greatly appreciate your co-operation in this matter.

Accidental Release of Bombs

No. 424 Squadron - An Air Bomber entered a marshalled aircraft, did a complete ground light check, moved back to the Navigator's position and was standing in front of the H₂S when the entire load fell to the ground. On investigation the jettison bars were found to have been moved. It is assumed that due to confined space, the Air Bomber accidentally brushed against jettison mechanism. Fortunately no bombs detonated. The jettison bars on all aircraft are being modified to prevent a repetition of this failure.

General Operational Notes

Incidents have occurred on operations as a result of the distributor wiper arm failing to work or stepping part way in its travel. Since the distributor is seldom used during practice bombing, Air Bombers are advised to make regular checks with the settings at various times. If the wiper arm is not operating smoothly, notify the electrical section and your Bombing Leader.

- - - - -

Have you signed a form 1826-A recently? If not, see your Bombing Leader immediately. Every Air Bomber must sign for every load lifted and sign again upon completion of the sortie. This is not being done in all Squadrons as was detailed. See the Bombing Digest for November - page 3. In the near future it will be imperative that complete information is at hand concerning every load lifted and the form 1826-A will be an essential part of this information.

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H₂S The Air Bomber's Pigeon

H₂S is a wonderful piece of equipment only if it is used. Recent analyses of raids show that either it isn't being used or that the operator lacks experience or training. In some cases, non-H₂S aircraft have kept on track with greater accuracy than H₂S aircraft. This should not be and will not be if Air Bombers

(3)

realize the responsibilities thrust upon them in the operating of this equipment.

Statistics show that track keeping is far more accurate on the outward trip than it is on the homeward trip. This is of course caused over the target by a break in the set operation during which time the aircraft gets off track. Once off track, it becomes increasingly harder to get back on. The one sure method therefore is never to get off track.

Map reading still applies to H₂S and mistakes can be made with regularity unless great care is taken. Numerous incidents of serious nature have been caused by giving the Navigator the wrong position through incorrect H₂S reading. One way to overcome this difficulty is to prepare a special track chart. This is the idea. Using one, two or three charts if necessary, draw in the tracks and cut out a space fifty miles on either side of track (Thirty miles if you are confident of your ability). Then handle these separately as track 1 - track 2 etc. In this way you will have only the essentials and won't be bothered by large charts. Pre flight planning should include the marking of points to be used which will give the best possible return. The points thus marked will then be considered dependable while the other fixes or position lines obtained will be treated with greater care.

Consideration is now being given to the problem of how to keep the Air Bomber at the set as much as possible, and particularly over and coming back from the target. Further developments in the Bombing and Navigation team will be passed out from this Headquarters in the near future.

(4)

PART II - TRAINING

The increase in the number of Practice Bombing exercises and number of bombs dropped during March is very gratifying, details being 64 % higher than last month. The average error being 9 yards greater (196 yards) during March. The average number of assessed bombs per Squadron was 69, the equivalent figure for Conversion Units was 234.6.

The importance of continued and increasing effort cannot be too strongly emphasized. The consideration of two of the main factors involved makes this obvious : -

- (a) Experience with Panel and Bombsight reduces possibility of manipulation failure on the part of the Air Bomber.
- (b) It is by far the most satisfactory check on failures due to manipulation, technical or electrical causes. In fact, many of the failures which might occur on operations can be detected and corrected at this point.

In future every bomb dropped is to be included when assessing the group, unless they are too far off the chart. The errors will show some increase over past records, but this is perfectly natural when the worst bomb/or bombs have previously been discarded to obtain a "good group".

Total training hours air and ground are 9314.25 for March against 7170.05 for February. This is apart from Astro sights taken or Infra Red exercises completed. Unfortunately the number of Bombing details carried out by individual Squadrons varies considerably from the average of all Squadrons at 8 for day details, and even larger variation is shown in night details; the average for all Squadrons being 4 details. The immediate goal is to bring the number of night bombing details up towards the present level of day details. SNAPE Bombing Range will be available on 16th April, and should relieve the present congestion at Stronsall

Gremlins Again !!

Due to heavy evasive action the photo flash has on occasion fallen out of the tri-cell into the aircraft, so far without untoward result. This Air Bomber's heartbreak of "No photo" will soon be a thing of the past. A "Mod" to the chute in the form of a retaining catch will shortly be installed in all aircraft.

(5)

Very little use has been made of cross country (free for all) targets. They are there for a very definite reason so whenever the route takes you in the vicinity of one take advantage of it.. Bombs are to be dropped in one stick of two, one run only being made. These count as bombing details and are assessed accordingly.

For information regarding availability and location of these targets see "Bombing Leaders' Instructional Manual" Section IV, Chapter II, Part IX.

After much discussion and consideration of the pros and cons involved, it has been decided to standardize all operational Squadron bombing details. In future, with the exception of cross country attacks on free-for-all ranges, all details will consist of four bombs only. All four bombs are to be included when assessing the group. As the error is due mainly to two reasons (1) Settings on, or serviceability of Bombsight, and (2) Sighting or manipulation on the part of the Air Bomber. (1) will be constant for all four bombs, and (2) would vary only to a small extent for 2, 4, or 5 additional bombs in a detail.

In this way, more details will be completed and an average error more nearly approaching the true error arrived at.

The following procedure has been suggested to give an average of 2.5 to 3 minutes for each run, and to vary the direction of attack : -

- (1) After 1st bomb, continue on same course $\frac{1}{2}$ minute
- (2) Make left hand turn of 225° at rate $1\frac{1}{2}$
- (3) Run up $\frac{1}{2}$ - $\frac{3}{4}$ minutes.

Conversion Units - Bombing Training

UNIT	Av. Flying Times	Av. Gee Hours	Av. No. Bombs Dropped	Av. Error Yards	Av. Dual Flying Hours	Av. Link Hours	Av. Night Vision Training Hours
1659	37.50	6.30	8	187	3.00	2.10	11.00
1664	41.30	10.15	15.8	225	2.30	3.05	17.30
1666	42.50	14.30	10.2	228	3.30	0.35	-

(6)

Psychology Applied to the Newcomer

How easy it is for the Air Bomber without previous Squadron experience (and "They are not alone") to tread on the toes of his weary Bombing Leader or to err unknowingly in such a way as to invoke the wrath of the gods upon his neck. When this happens, and alas it does, try the old nerve tonic and count up to ten. Then, instead of releasing your incendiaries on the offender, land with your load intact and help to restore the self-confidence he has lost. This has another reaction upon him, very important to the Bombing Leader. It increases the culprit's confidence in you as leader and mentor. Further to this, he will show less reluctance to come to the Bombing Leader for enlightenment on matters obscure and entirely new to him. He must learn these things, and the manner of instruction or correction will influence his outlook to the extent of making or crushing latent possibilities which it is the duty of the Bombing Leader, and anyone else concerned, to develop to the full towards an efficient and competent Air Bomber.

The excellent score of 37 yards converted to 20,000 ft. for a group of five bombs, is the prize effort on the part of F/S LOCKETT of No. 426 Squadron. Good show. This is the type of report your Bombing Leader likes to be able to send in his Monthly Training Sheet.

DO YOU KNOW ?

That the Air Bomber is responsible for his crew knowing how to bomb-up an aircraft !

That it is his duty to see that instruction is given periodically to all members, and, that in the event of the crew being called upon to bomb-up an aircraft he is responsible for supervision of this proceeding if an armourer is not available !

Where or when certain types of loads are to be jettisoned "Safe" or "Live" ?

(4)

Squadron Summary - Air Bombers.

UNIT	Total AMBT Hours	Total Link Hours	Dual Flying Hours	Av. No. Astro Sights per A/B		Infra Red Prac- tices	Map Reading Tactics	Gee Hours
				Ground	Air			
408	U/S	39.00	23.50	3.0	2.0	26	247.30	39.25
419	U/S	13.30	32.00	8.8	20.5	4	391.30	381.30
420	-	14.30	10.30	6.	3.	3	58.15	164.45
424	-	-	21.00	8.3	8.	4	132.00	391.00
425	U/S	21.25	25.00	24.	10.6	5	125.00	226.00
426	U/S	32.30	32.20	8.5	6.5	9	70.00	84.00
427	22.00	23.00	7.45	10.	15.	-	180.00	226.00
428	U/S	37.30	-	5.	16.3	-	130.15	323.00
429	5.	31.00	3.40	12.6	23.40	-	72.30	97.20
431	89.00	40.00	54.00	11.5	28.7	2	251.30	95.00
432	25.20	104.30	45.05	18.	12.	12	333.15	199.00
433	-	-	18.30	7.	4.5	4	145.55	264.30
434	43.00	56.00	39.00	12.3	13.4	1	242.00	382.00
659 CU	32.00	60.30	96.55	34.4	9.2	8	657.00	236.00
1664 CU	36.00	102.45	80.30	52.9	7.5	27	534.00	336.45
1666 CU	68.00	17.30	107.00	19.	11.	42	364.30	449.00
TOTALS:	320.20	595.40	597.00			147	3946.10	3855.15

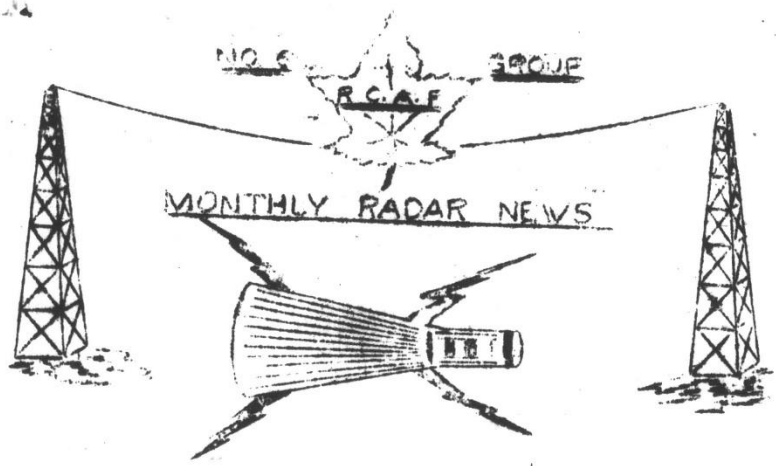
Astro has improved, but I.R. is the lowest figure since August, 1943.

(8)

High Level Bombing

SQDN.	NO. OF DETAILS		NO. OF BOMBS		AV. ERROR 20,000'
	DAY	NIGHT	DAY	NIGHT	
408	42	25	202	126	164 yds.
419	3	-	15	-	102 yds.
420	13	-	78	-	187 yds.
424	3	-	14	-	125 yds.
425	8	-	48	-	278 yds.
426	14	15	94	102	157 yds.
427	11	-	82	-	170 yds.
428	1	-	6	-	284 yds.
429	3	-	17	-	217 yds.
431	-	7	-	36	226 yds.
432	2	5	8	22	163 yds.
433	1	-	6	-	179 yds.
434	5	1	34	7	176 yds.
1659 CU	11	-	88	-	187 yds.
1664 CU	27	11	206	92	225 yds.
1666 CU	36	14	211	107	228 yds.
TOTALS:	180	78	1109	492	198 yds.

Pawure



SECRET

VOL. 1

April 1944

No. 4

YOU AND THE WAR - Contributed by the C.S.O.

As months go by, it is becoming more and more obvious that this is a scientific war. It has well been called "The Battle of the Electrons", and this is literally true. Radar devices are responsible in no small measure for the safety of our aircraft and for the accuracy of our bombing. On them our crews depend for accurate navigation and defense from enemy fighters. The maintenance of these devices is therefore of prime importance if we are to shorten the war, and return to more peaceful pursuits.

Yours is not a glamorous job; it is hard, tiring and often discouraging. You have to contend with mud, lack of transport and many other disappointing obstacles. But have no doubts, you are playing a most important part, and can feel equally responsible whenever a crew reports that they have successfully bombed their target.

It is gratifying to watch from Group Headquarters the efforts put forth by the "Blip and Pulse" experts to keep our maintenance record high. Keep up the good work, the better we do our job now, the less of it we will have to do.

A SHAKY DO

The first Halifax which Tholtorpe fitted with Mark IV A.I. went into a spin and crashed while on a cross country test flight last month. Cpl. Ried of 425 Squadron went along to check the equipment. He and the mid upper escaped by parachute. Cpl. Ried can now wear a little catpillar (under his lapel). That unfortunate crash delayed the work but two more kites are now fitted and the test work should be finished early this month.

THE RUHR EXPRESS AGAIN

You may remember that last month we mentioned a modification on the Ruhr Express. Now it can be told that the modification was H.2.S. They have got it finished now and they have made a smooth job of it. The experts who claimed H.2.S. would not work with the big bomb doors fitted, have been shot down on flames, because work it does work. 30 miles range at 10,000 feet homing on targets.

GROUP TYPE

As most of you know F/O Carstairs is helping us out as Radar II at Group. His official duties are given in the Group Signals Staff Allocation of duties but briefly they are Personnel, Equipment, and Routine returns. You can contact him on extension 66, and tell him all your troubles.

SQUADRON TIPS

They tell us that the cap covering the plug in the lower left hand corner of the H.2.S. Modulator which is removed when using Fishpond, can conveniently be used to cover up the now obsolete detonator plug on the Indicator.

As well as making trays for holding all the "bump" the wire guards for Gee Indicators make very useful shelves for holding valves within easy reach. Steel rods along the back, front and centre give additional support and standard steel wire can be used to suspend the shelves from the wall.

433 Squadron have experienced some difficulty with Modulators tripping due to resistance R. 39 (3.9k $\frac{1}{2}$ watt) burning out. They have found that by replacing this resistance with one of the same value but of 1 watt size, that it cures the fault and everything in the garden is lovely.

400 Squadron says if you need ball bearings for Visual Monica switch motors, those to be found in the variable condensers in u/s strobe units will do the trick.

A handy gadget for removing burned out bulbs from your V.C.P.'s can be made from a spent .303 cartridge with a 2 inch length of rubber tubing slipped over one end. The tubing may be obtained from a piece of old I.F.F. cable.

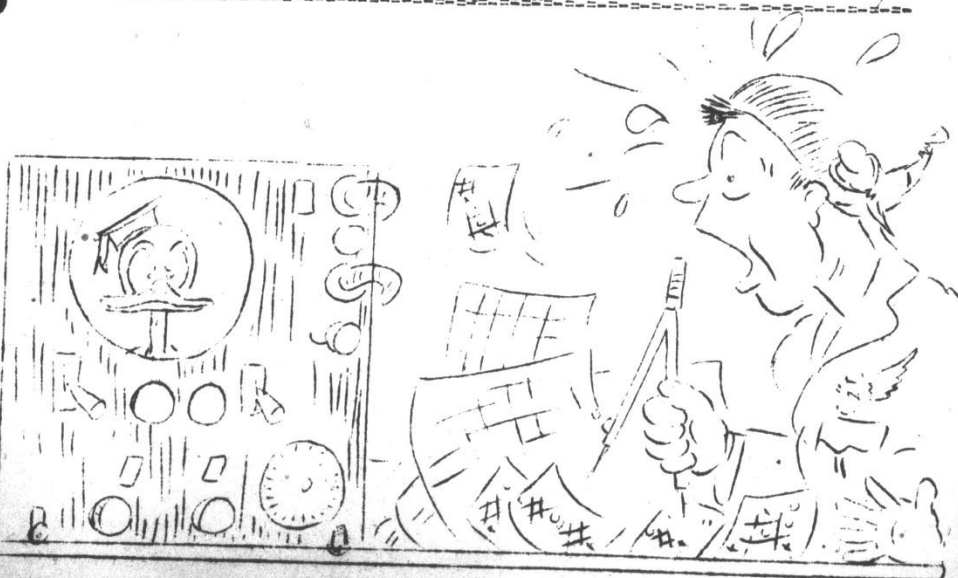
A D.C. meter (1k. II I.F.F.) and an A.C. thermo couple voltmeter mounted in a small panel on the wall will enable you to keep a check on those supply lines on the bench. A switch on each one is advisable, particularly the A.C. meter.

LINE SECTION

No. 419 Squadron claim that their H.2.S. sets are so good, the Navigators can pick out sheep jumping over the hedge. However, it is true that they have picked up flak ships on Fishpond.

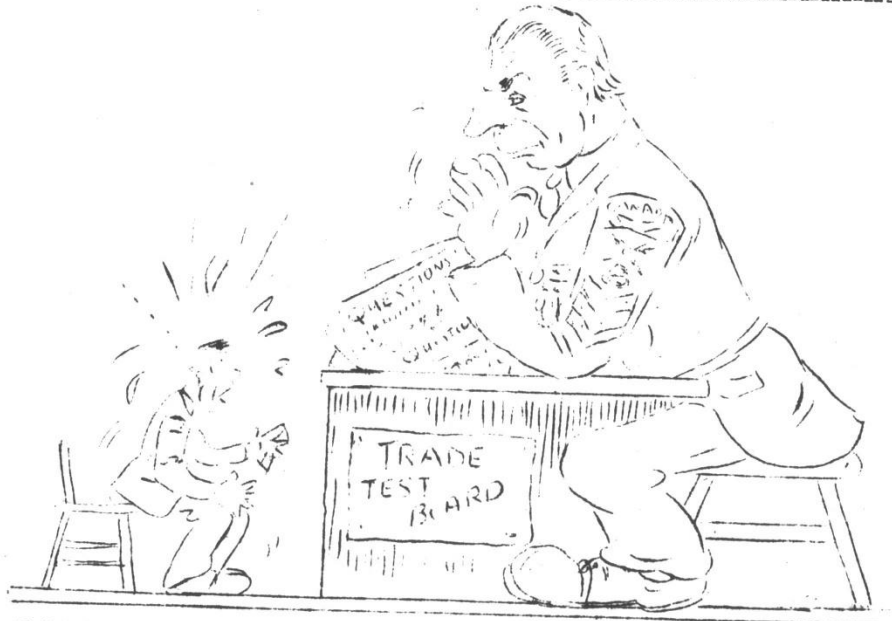
F/Lt. Ratcliffe, the 426 Navigation Officer, says he wouldn't know about Gee. unserviceability. He completed his tour without a Gee failure.

FINGER TROUBLE ??? Contributed by L.A.C. Clearly
of 431 Squadron



Visitors

F/Lt. Perrin from Headquarters, Bomber Command and a whirlwind visit to most of the stations in the Group during April and F/O Giddy visited Middleton to get the gun on Lancaster X which has been modified to take H₂S.



WHAT AGAIN!

This excellent little cartoon which was contributed by L.A.C. Clearly of 431 Squadron, is to remind you B Groupers that the Trade Test Board will be around again next month. Don't let yourself get in a spot like this little fellow.

We hear that L.A.C. Booker of No. 431 is getting down to it. He is coming up for the first time and he says that he will get it or bust. That's the spirit.

VISUAL MONIC DELUXE

The boys at Groft got tired of seeing W/Ops going around with a kink in their neck, so they brought out a mod. to put the picture where it could be seen. They took the CRT out of the Indicator, made a special metal cover for it and mounted the whole effort above the Marconi Transmitter with leads to the Indicator. The W/Ops are very keen about the whole thing. We have told Command the story and are waiting for their O.K.

TOOLS ORGANIZED

We have received a reply to last months request for a solution to prevent Radar tools from getting lost, stolen or otherwise misplaced. The suggestion comes from R.C.A.F. Leeming and, we understand, the system is also in use at R.C.A.F. Middleton. Both of these Stations make out a loan card (F.668) for each Radar Mechanic on which is recorded the date of issue, reference number, quantity and description of the tools held on charge by that mechanic. The Radar Mechanic signs the loan card and until the tools are taken off his charge he is personally responsible for the tools he has signed out.

Pauvre

Page 4

To make the scheme workable, each mechanic should have for his own use one Radar Mechanics Lock-up Tool Bag, reference LA/2676 authorised by Air Ministry letter C.S. 12748 dated 4th Nov. 1942. We feel that this scheme should solve the problem, but suggestions or comments on the subject are still welcome.

DRUMPH AND MORE DRUMPH

All the Radar Officers in this Group except one missed a perfect opportunity to shoot us down in flames. We sent two almost identical letters on the same subject one dated 30th March and one dated 5th April under reference G/CF/S. 479/2/Radar. Could it be that you don't always read the bump.

RANDOM RADAR ECHOES.

Midlife missing - it seems to be pretty popular these days. We hear that L.A.C. Baker of 434 Squadron is getting to feel this month. We offer our congratulations.

F/Sgt. Berthot has left for Canada to become Aircrew, and Sgt. McKay is carrying on as the Big Chief of the 408 section.

Work-

The 408 Squadron Radar Shop should be completed very soon and the section hope to be installed in their new home by the time the next "News" is issued.

Sgt. Bob Gallimore now sports a crown and answers to "Flight". Rumour has it that one of the York pubs did reverberate under the strain of celebration.

The boys at Eastmoor have been doing a bit of redecorating lately. They now have new line on the floor, shelves above the benches for all test equipment and plenty of fresh green paint which has taught some of the fellows not to sit on the work benches.

P/O Tommy Flythe 428 squadrons' well liked Radar Officer is temporarily leading a band at Dishforth. No. 1664 H.C.U. is being fitted as an H.2.S. Conversion Unit, and as this Station is Tommy's old stamping ground, his experience should prove of great assistance to all concerned.

L.A.C.'s Flat, Parsons and Kent of 432 Squadron, fresh from the Group H.2.S. course at Dilton are obtaining some good practical experience at Middleton while at the same time giving a helping hand to the hard pressed Radar sections of 419 and 423 Squadrons.

P/O Marcille, the former 408 squadron Gee gen man paid London a visit the other day. He is now stationed at Pocklington. He says he didn't mind the Radar course at South Ken but had plenty of hard work to do on the Officers course at Cosford.

Willie Years of 1659 H.C.U. started a Physical Fitness course on 3rd April. The question is "Willie make the grade".

L.A.C. Crook, 433 Squadron Radar Mechanic feels that he can almost be classified as aircrew these days. Taking part in a cross country flight the other day, his aircraft diverted to an airfield down South and he was forced (?) to enjoy the hospitality of our American cousins for a day or so.

L.A.C. Hodge 424 Squadron and L.A.C. Shepherd 433 Squadron are sporting a couple of shiny new tapes, and now answer to the name of Corporal.

Cpl. Hermonson 424 Squadron has joined the ranks of Senior N.C.O.'s.

GEN SOURCES

It rather shook us the other day when a Radar Officer admitted that he had neither seen or read Headquarters No. 6 (RCAF) Group Standing Signals Instructions or Bomber Command Signals Staff Instructions. We suggest that all Radar

Pauvre

Officers who are not familiar with these publications take an early opportunity to do so. Your Signals Officer holds them.

NOTE SQUADRON TIPS

P/O Gamble came forward with the suggestion that all Squadrons would find it very helpful if they held a copy of A.P. 1186 Vol. 1 Sect 8., Servicing Radio Valve Manual. He says it is obtainable through the Orderly Room, and that the mechanics find it useful when Valve characteristics etc. are required.

Skipton have made a very satisfactory bench arrangement for using test equipment. The oscilloscope or Test Set is mounted on a tray which is allowed to swivel on a centre bolt and so permits easy reading of the test set from all angles. Also all the meters pertaining to test equipment are mounted on a drop board from the shelf above the work bench, and so give a straight forward view of the meter reading when any testing is being carried out in the workshop.

We have noticed that H.2. S Squadrons are experiencing some trouble with valves CV.54 in positions V. 300, V.301, V. 302 and V. 303 in Power Units Types 274 and 280. Information Memorandum No. 1072 suggests replacing CV. 54's in these positions with valves Type VU. 133 A.M. Ref. 10E/211.

A. POEM

Elastic cords,

Close open doors.

H.2.S. TRAINER MAINTENANCE

Here is a tip from Skipton on how to cure sparking on the Trainer P.P.I. tube. The trouble may be due to the commutators of the P/W and N/S motors being dirty. These can be cleaned satisfactorily with a glass commutator brush which can be obtained from Rand I Stores.

A. CORRECTION

Yes follows - we too make mistakes (quiet please) - and to prove it we admit that in last months issue we gave 424 Squadron the credit for L.A.C. Wilcox's promotion to corporal in error, so into the parlance of His Ministry Orders - for 424 squadron read 425 squadron.

TEST EQUIPMENT LAYOUT.



PAWRE

TEST EQUIPMENT LAY-OUT (Cont)

This is a picture of the lay-out of the bench and test equipment set-up, which they use at Linton for the servicing of Visual Monica.

Here is the gen on the set-up as provided by P/Lt. Crawford of No. 62 Base.

"The object is as follows:

- (a) To provide permanently wired bench connectors for the equipment to be serviced.
- (b) To provide permanent power and pulse connectors for the test equipment so that it is only necessary to switch the test sets on.
- (c) To clear all connectors and test equipment away from the bench so that there is nothing on the bench but the sets being serviced.
- (d) To bring the tubes of oscilloscope test sets up to normal eye level and thus make them easier to read.

The test equipment is placed on a shelf which is mounted on the wall about eighteen inches above the bench level. Three mains sockets are secured to its under side to provide power for the test sets 43, 73, and 165. The test set 72 is supplied with 12 volts D.C. from the shop 24 volts D.C. supply through a dropping resistor.

The bench connectors are so cut and cabled together that they "fit" the bench units and junction boxes are wired in to provide the necessary pulse waveforms to trigger the test set. The pulse leads to the test sets are also permanently wired so that it is necessary to change around connectors in order to get a test set going. The cabling to the bench units is so arranged that these units can be moved any way desired without getting the connectors into a maze of tangled wire.

The advantages claimed for this type of lay-out is that it provides everything "to hand" and no time is lost in moving around test equipment and connecting it up. It leaves the bench clear of all unnecessary items which at times tend to "dog" the works, and it does place oscilloscopic test sets at a convenient eye level and eliminates the necessity of bending to peer at a tube which in time becomes a strain to the mechanic working on the equipment. This test rig has worked out very well at Linton and has contributed materially to the successful servicing of Visual Monica."

MORE ECHOES

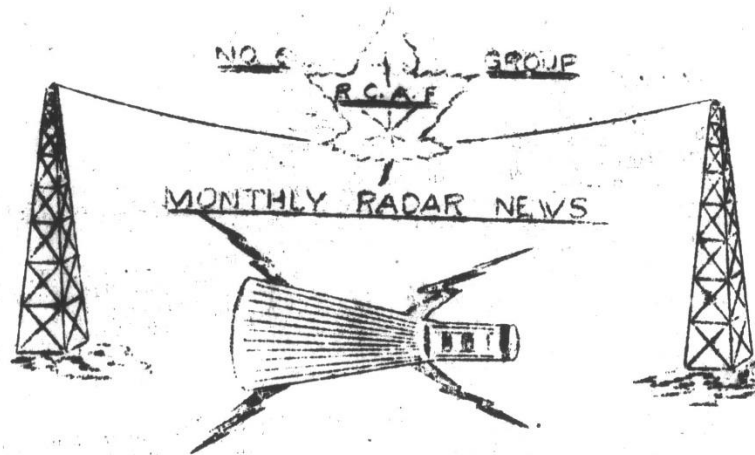
A number of the Radar Mechs at Linton have been busy building radio sets and somehow manage to make them work. It isn't considered good form to ask P/Lt. Crawford how his is working, he having spent many weary hours with very little success? Rumour has it that he is considering taking a course in fundamental radion to find out why his brain child refuses to function.

Sgt. Waters 428 and Sgt. Kay 431 have moved into the Sergeants' Mess and Cpl. Banner of 429 has been busy sewing on his tapes in place of props.

CONTRIBUTIONS

We would like to gratefully acknowledge the contributions which were supplied to us for this issue. If there is nothing in it about your Squadron or Conversion Unit, you should know why. Incidentally we wish to apologise for the large number of typographical errors in the last issue. We were late "going to press" and had to rush it.

Pauvre



SECRET

VOL. 1

MAY 1944

NO. 5

MONICA MARK V

Tholthorpe has completed its test installation of Monica Mark V (A.I. Mark IV) inspite of all kinds of difficulties and tough luck and is now starting to fit both Squadrons. We hope to get enough sets to fit another Squadron yet to be selected but the big snag is a shortage of test gear. The A.I. Trainer Type 6 which was at Croft has been transferred to Tholthorpe for training W/Ops on Monica Mark V.

BOOZER TEST INSTALLATION

The poor old Ruhr Express appears to have become the guinea-pig of 6 Group. In addition to all kinds of Engineering, Electrical, Signals, Armament etc., mods. it is now being moded to take Fishpond and at the same time a Test Installation of Boozer is being made on it. As some one remarked, "It will soon be able to do almost everything except fly." We were supposed to get an allocation of Boozer this month but production has been slower than was expected.

MAKING VISUAL MONICA VISUAL

After getting approval on their Visual Monica mod, which repositioned the C.R.E., Croft were asked to make a test installation whereby the complete Visual Monica Indicator is repositioned up in front of the W/Op. After several hours of labour they did the job and are sending in the story. It looks pretty good and although it is too big a mod to be done retrospectively we hope to have it incorporated in the aircraft on production.

H.2.S. ON CONVERSION UNITS

Nos. 1664 and 1666 Con. Units have started on the H.2.S. We understand that the general policy is to have 10 H.2.S. aircraft on each Unit as soon as sufficient aircraft are available. The H.2.S. Trainer at Middleton has been moved to Dishforth. In view of the H.2.S. aircraft on Conversion Units the establishment of each Radar Section has been raised by one Corporal and three L.A.C.'s.

Pawke

H.2.S. PICTURES

H.2.S. Operation has reached a new phase on 428 Squadron, and cameras have been fitted to give accurate plotting pictures of target areas. The first results were somewhat disappointing but the Navigation Section managed to plot two out of three pictures.

For the benefit of any other squadrons taking H.2.S. P.P.I. photos, F/Sgt. Scott of 428 Squadron has developed a mod. so that the filter can be removed after the camera has been set in place. All that is necessary is to turn the filter mount clockwise ninety degrees, the spring loaded screws prevent the filter from sliding out.

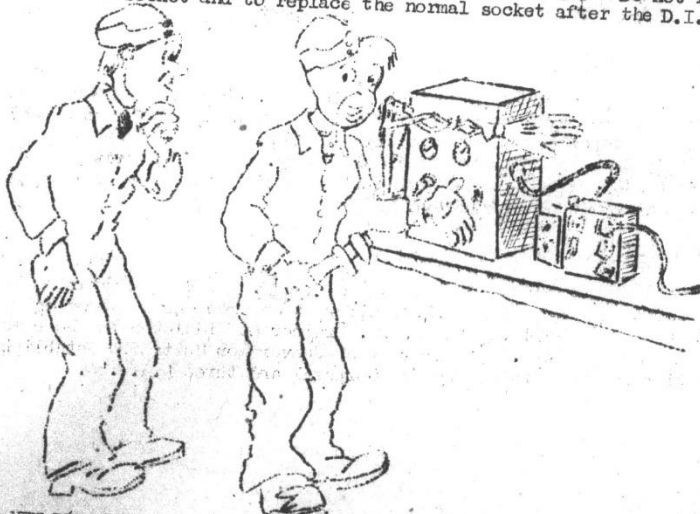
R.F. STOWAGE

F/O Brash, the new Radar Officer of 429 Squadron brought up a very simple idea for stowing extra R.F. Units. The mod. consists of a piece of elastic cord, the ends of which are fixed to a flat surface in a line, about 7" apart. A hook is mounted on the same surface on the perpendicular bisector of the line between the ends of the cord about 7" above it. The R.F. Unit to be stowed is secured to the flat surface by stretching the elastic cord over the unit and fixing the loop under the hook, in a similar manner to a parachute stowage. Any convenient surface may be used and the cords should be of a suitable length to hold the R.F. Unit tightly (about 20" should be sufficient). It is understood that this stowage has been used successfully throughout 5 Group.

I.F.F. TESTER

A very handy gadget for I.F.F. D.I.'s has been devised by No. 424 Squadron. The back is removed from a Switch box type B (ref. 5c/543) and the switch secured to a socket type 395 (ref. 10H/13079) by means of 2 screws through holes drilled in the cover of the latter.

When doing a D.I., the 5 pin socket which normally goes to the Pilot's ON/OFF and Distress switches is removed from the Control Panel and the above socket is plugged in. The pins which go to the ON/OFF switch are shorted out inside the test socket and the pins to the Distress Switch are broken through the switch box attached. When this socket is plugged in, therefore the I.F.F. receiver is immediately switched on, and distress can be checked by throwing the above switch ON obviating the necessity for breaking any of the sealing wires and afterwards having to re-seal them. - WARNING - Do not forget to remove the switch socket and to replace the normal socket after the D.I.



"A NEW PIECE OF EQUIPMENT...If the W/Op tries to put the IFF control panel switch on, the automatic hand slaps him on the wrist!"

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IN BLACK AND WHITE

At Eastmoor there is a blackboard up in the Radar Workshop where all can see, titled;

"Work to Be Done"

We think that it is a good idea because so often you think of something which you would like to get done when things are slack and then when the time comes you can't remember what it was. Of course you won't need a very big blackboard.

VISUAL MONITOR MOD.

To increase the stability of the Sync. Control on the type 116 Indicator R.55 is reduced from 250K to 200K thus reducing somewhat the H.T. voltage on V.1. This Mod. gives a stable locked time base over a travel of 1/4 turn on the Sync. Control, instead of 1/8 turn before the mod. is incorporated. Since the sets have been thus modified no cases of free running time bases during ops trips have been reported.

YOU TOO CAN WRITE TO AIR MINISTRY

Middleton has found a way to make the preparation of A.M.O. A. 869/43 Defect reports a piece of cake. A stencil has been made of the questionnaire section of the A.M.O. and copies are distributed freely in the Workshops so that the Mech. who finds the fault can fill in the questionnaire in pencil. Incidentally we haven't seen many of these Defect Reports lately. No Component troubles??

POWERFUL GEN

Much discussion on the subject of running Gee with the 1200 watt. P.E. set and having trouble with Type III V.C.P.'s as a result has taken place at Leeming and at Skipton. The relevant A.P.'s on the subject reveal that a Type U alternator should not be used with a load of less than 300 watts, and that it should have 11 R.F. in series to correct for the power factor due to its field inductance. To obviate any trouble in this respect, F/Sgt. Rittberg has been requested to investigate the possibility of replacing the D.C. generator on the large P.E. set with a dual-purpose Type R. alternator and generator (i.e. type R.H., R.K. or R.L.X). To avoid the necessity for two sets of leads, it was decided that the terminals of the two alternators could be taken to a double-pole, double-throw switch and be switched as required to a single set of leads either for the Type V V.C.P. for the R.S. D.L., or the Type III V.C.P. for the Gee. Any comments or suggestions from other R23 squadrons in the Group would be welcome.

THEY SHADOW PROMOTION BUSINESS

We have been trying and trying to get some pukka gen for you on shadow promotion but without much success. As you probably know it has been definitely scrubbed for all trades except Radar. We understand that this has been done because, (a) The rate of promotion in the U.K. is at least equal to, if not better than that in Canada.

(b) The old shadow promotion system sometimes got off the rails through misunderstanding of its purpose.

As far as the Radar trade is concerned, the question of shadow promotion is under review at R.C.A.F. Headquarters at the present time and if it is decided to continue shadow promotion for that trade, a committee will be set up to investigate deserving cases and shadow rank will be given to only a certain percentage of those normally eligible for it under the old system. If we get anymore information we will let you know.

INTERROGATIONS

If on your squadron the interrogations are done by the Squadron Radar Officer or the N.C.O.'s from the Section, we think that it is a good idea for an L.A.C. to go along and sit in. It makes life more interesting for those of you who seldom have a chance to talk to the fellows who use our stuff.

Paure

LIGHTING UP

To provide sufficient light to enable the Bomb Aimer to keep a log of the H2S fixes he takes, No. 427 Squadron has cut a hole 3/8" x 5/8" in the bottom of the shield for the bearing plate pilot lamp. When the shield is turned to allow the light onto the bearing plate, considerable light is also sent downwards, and Bomb. Aimers have expressed their satisfaction with the Mod.



CABLE TESTER

Cpl. Cherney of 426 Squadron has made up a cable tester from a megger and some bits and pieces, following out the idea of the H.2.S. cable tester.

The parts required are a megger, an 18 point switch, all types of "w" plugs, used in Radar installations up to the 18 pin type and a suitable chassis.

The megger is mounted on one end of the chassis, the switch above it and the "w" plugs at the end opposite the megger. One lead from the megger is connected to the arm of the 18 point switch and the other to the tester chassis (earth). Connections are made from switch point No. 1 to all No 1 pins on the various plugs on the chassis and similarly for other switch points up to 18.

A shorting box is also made up which consists merely of a chassis on which are mounted the same type "w" plugs as are mounted on the first chassis. Each pin is connected to the box chassis.

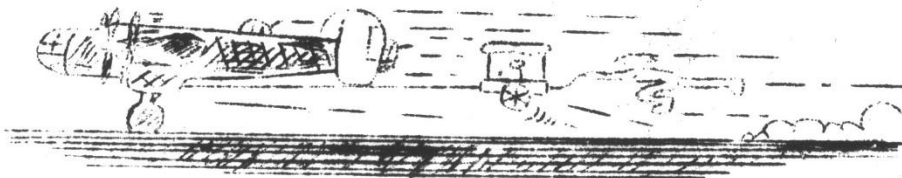
By connecting one end of the cable to be tested, to the checker and disconnecting the opposite end, the insulation of each conductor can be meggered to earth by selecting it with the switch. Then the cable is connected to the shorting box and this enables the continuity of each conductor to be similarly checked.

Pauvre

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COVERS FOR S.D.'s

Leeming has found a good method of preventing S.D.'s from getting dog ear corners. A metal cover is made up out of dural or some other suitable metal with piano hinges. The only snag is that nobody knows where F/O Normandeau wangled the piano hinges and now he he has left Leeming. Incidentally Command tell us that in future the circuit diagrams for S.D.'s will come separately in a little pocket in the cover so that you can pin them up.



EARLY TAKE-OFF

Clear
431
3

BASIC GEN

Most of you know this tip but in case you don't, make up a C.R.T. socket with leads to a C.R.T. base. Then you can remove the Gee C.R.T. to get at the valves and still have the Indicator working.

RANDOM RADAR ECHOES.

61 Base

There has been a big influx of Radar Officers into the Base during the last month.

P/O Wilkins is the new Officer on 1664 Con. Unit.

P/O Hay will shortly fill the vacancy on 1666 and P/O O'Neill has taken over 1659.

1664 Con. Unit welcomes Sgt. Kennedy back from his H.2.S. course at Bomber Command. It seems that he picked up a lot of gen, and liked the course very much. L.A.C. Hartwick has just returned from a very enlightening Gee course at Dalton.

Corporal Clark of 1666 is one of the lucky men who are going back to the land of the Maple. He has visions of assisting to set the "Rising Sun".

L.A.C. Campbell states that the new Radar workshop at Dishforth is the third one he has wired for 1664 within a year. They expect to move into their new abode very shortly.

L.A.C. Mears of 1659 is sporting a new set of tapes. The 1659 Radar Section ball team has made a good showing in the inter-section league at Topcliffe with the able support of P/O O'Neill.

A.C.I. Travis at Wombledon is quite exhilarated having recently had the good news of the arrival of a baby daughter.

L.A.C.'s Spicer and Putman from 1659 are initiating the boys at 1666 into the mysteries, or perplexities of H.2.S. maintenance. L.A.C. Hawlet has been confined to hospital with a slight touch of pneumonia. The gang of 1659 hope he will soon be back on the job.

A Mk. II stand for scanner maintenance designed by Topcliffe is nearing completion and it is hoped that all details will be available shortly.

62 Base

F/Sgt. Gallimore's face is very red and his pocket book is very blue, as the result of a recent argument on "Radio Theory" with L.A.C. Landry, the Visual Monica "Gen" man. As is usual with these two, the argument got serious, on what goes on inside a condenser, so serious in fact that the large sum of eight

Pauvre

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The "Gen" man won the money after he had laid on a practical demonstration to prove his point but it is said he is having a hard time to hang on to his winnings, for a certain P/Lt. is claiming a percentage as royalties.

Sgt. McKay of 408 Squadron returned from a pleasant H.2.S. session at H.Q.B.C. to find that he had a raise in pay, and the boys were calling him "Flight".

420 Squadron have moved to their new Workshop resplendent with shining linoleum on the floor. P/Sgt. Daniel has promised to obtain a bottle to celebrate the occasion. The question is "Where is he going to get it?"

The 426 Section football team is doing its best to equal the sections' record for Gee serviceability. So far, the team has done 5 "ops" in the station league with one failure. Their defect report does not state whether this was due to manipulation.

The 408 team's faces are very red, no figures are available but it is stated their wins are the wrong polarity! However, they have now started up the hill by beating the Stores Bashers in a close game.

Radar Mechanics of 432 Squadron have become fathers. An adopted female cat has left off, three-to-one. Even the "gen" men were astounded. When last seen the three kittens (Gee, Monica and Iffy) were doing well.

408 Squadron's newest arrivals from the mythical place called Canada, namely Sgt. Wilding and Cpl. Beynon, have been sojourning at Dalton to learn the mysteries of that favourite musical instrument the Gee - St - pardon - box.

L.A.C. McDiarmid of 420 Squadron is the envy of every man in the section. He has just received three weeks sick leave. What we couldn't do with that now.

Cpl. Courley and his gang at Bas, have accepted 34 aircraft for Radar during April. They do 13 Cpl. 7 and Radar Mods. on the aircraft, so that it is ready for the boxes when it arrives in the Squadron, a very good job.

Promotions seem to be the order of the day at Tholthorpe. P/O Harvey of 425 Squadron has been posted to 93 Group where he is now wearing two rings. Sgt. Ricard of the same squadron and Sgt. Daniel of 420 Squadron are now wearing the golden crown above their tapes. P/O MacGregor of 420 Squadron has exchanged his thin ring for a wide one. The landlord of the local has been warned to order a large supply.

We have welcomed two new Officers to the Base, P/O Normandeau came from Leeming to take over 425 Squadron, and P/O Priestman on 420 Squadron. P/O MacGregor is moving to 426 Squadron, and P/O Homishen is living temporarily at Tholthorpe to help out on Mk. V Monica. The Base Radar Officer says that it is keeping him dizzy following his Squadron Officers around.

The picture of Linton's Monica Test equipment layout was not unfamiliar to our L.A.C. "Monica" Hamilton; not only is his set-up similarly convenient, but he has even succeeded in eliminating visible leads. They pop out of surprising little holes in the bench, instead of dangling in an unseemly fashion.

P/Sgt. Pinkney of 432 is working hard to create a "fool-proof" tool board. By "fool-proof" we mean one that holds the tools so well that careless mechanics cannot remove them.

63 Base

Skipton and Leeming Sections have both managed to get a tricycle of the box delivery type from Stores, and now that the novelty has worn off and everyone has had a ride, a real good use for them has been suggested. P/O Gamble, No. 433 Squadron says they provide adequate transport for checking I.F.F. With 2 12-volt, 40 A.H. accumulators, a Test Set 74 Power Unit, and a couple of spare I.F.F. receivers in the box, the "Bike" can be taken around to each aircraft for a comprehensive I.F.F. check. Apart from this suggestion, these tricycles are very handy around the section for picking up stores, etc.

Sgts. Laprise and Hermanson recently took a week's "Commando" course at Skipton and should feel pretty fit now.

Congratulations to P/O Gamble on his promotion.

P/O Normandeau has been posted to No. 425 Squadron, Tholthorpe and has been replaced by P/O "Bud" Brash of No. 617 "Dam-Buster" Squadron fame.

By the time the Radar News goes to press L.A.C. Ferguson of No. 424 Squadron will probably be a corporal.

We welcome 2 new men to 63 Base namely P/O Campbell and L.A.C. Barolay. The former is attached to the Base, and the latter, now working with No. 429

Pauvre

- page 7 -

Squadron, will be attached to the Leader Command H.2.S. Fitting Party.

It looks very much as though Sgt. Hornstein of No. 429 Squadron will be repatriated when he is released from the Hospital at Northallerton. He was admitted to Hospital with Fleury about 7 weeks ago and we'll be very sorry to see him going home on those grounds.

F/Sgt. Ritberg, No. 424 Squadron Sgt. Laprise, No. 433 Squadron and Cpl. Smith No. 427 Squadron have all completed their repatriation papers after more than 3 years overseas and are now wondering what the next step towards Canada will be.

Case

Softball is in full swing at Middleton and L.A.C. Bob Bauer is fielding a team of Radar Mechs. who have every chance of being in the play offs.

P/O Les Partridge has organised a rifle shoot, and much to the amazement of the Defence Officer, the range is crowded with mechanics. The highlight of the shoot being Cpl. Al. Howarth of 419 Squadron who managed seven holes in one target with five shots, while Cpl. MacArthur of No. 428 Squadron won the "W.O.P. and fuse" for putting five shots through one hole.

L.A.C. Levi of 434 Squadron has been lying in hospital for over a month now. He hopes and we hope that he will be up and about very shortly.

419 Squadron have welcomed back an old member Sgt. Jim Brooks who has served as a WEF and a Radar Mechanic when the squadron was down south.

Sandy Packer of 418 Squadron is now sporting two hooks and keeping tabs on his flight.

No doubt other stations have found out from experience, that it is not safe to play ball within striking distance of their workshop as not only windows are susceptible to damage by a softball, but also the doors and walls will show where a ball has passed through; if not take P/Sgt. Gemma's advice and all ball enthusiasts stay clear of your workshop when indulging in this sporting pastime.

L.A.C. Rosenberg of 426 Squadron has just returned to his squadron after being attached to P/O Tommy Blyth's section, for the purpose of bashing H.2.S. sets.

The Wedding March was played in honour of L.A.C. Gillespie and his bride the other day, its' too bad the leave restriction prevented a honeymoon.

P/O Doug Neff's mechanics will soon be leaving the old homestead and moving into the new section. It is rumored that a housewarming will be held.

Staff has followed Linton's example of shelving the test equipment for Visual Mechs and find that it does facilitate the maintenance of this equipment.

P/O Lamb and P/O Macintosh of 431 and 434 Squadrons respectively played host to some 30 of their boys in their section on 5/5/44 at a nearby local.

Amongst the more notorious guests were P/Lt. Able, P/O Blythe, and P/O Neff from those well known A.P.U.'s at M.S.G., probably accounting for most of the liquid refreshment consumed during the evening. Sgt. Holtby of 434 Squadron diligently pounded the ivories while the rest of the boys enjoyed a sing song. One outcome of the party was that it is now known who wears the pants in Chiefy Gemma's family as he was conspicuous by his absence.

L.A.C. "Toby" Creer of 428 Squadron has been doing a mod. to the H.2.S. modulator case to enable flight crews to stop the Modulator from tripping without removing the set from the case. The secret is a hole in the rear of the case, about one inch in diameter right behind the toothed wheel which drives R24, see the Modulator Diagram SD.0296.

L.A.C. Lidwell of 431 has been posted to T.R.E. to give them the gen you will be interested to know that L.A.C. Cairns supplied the cartoons about the I.F.F. hand and the Navigator mod. He has drawn cartoons for Liberty Magazine. Unfortunately it is not possible to do his originals justice in reproducing them on a stencil.

ACKNOWLEDGEMENT.

We would like to gratefully acknowledge the contributions which were supplied to us for this issue. You really surprised us. Please keep it up. Any suggestions for improvement would be welcomed. We would also like a new design for the cover page. If you have any ideas send them in.

SUPPLEMENT.

As a supplement to this issue you will find charts for the layout of the three Gee indicator tag boards. These were prepared by L.A.C. Hopper of 408 Squadron.

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OCT. 44



APPENDIX No 2 to
R.A.F. FORM 44
H.Q. No. 6 (R.C.A.F.) GROUP
DATE 9/10/44

SECRET

BOMBING DIGEST

Ducink

PART I - OPERATIONAL

Manipulation Failures

Icing and finger trouble are two of Jerry's best defences against heavy bomb loads. With the advance of winter there will be a tendency to allot the credit for a higher percentage of failures to icing, but the people with the fingers will be still at work or rather flying. The fact that alibies are now easier to obtain is no reason for Bombing Leaders to relax their pressure on Air Bombers.

Following are the works of erratic geniuses of the Group during October, 1944 : -

415 Sqn.

1. Air Bomber neglected his fusing switches.

Result 13 x 500 dropped safe.

3 Failures

2. Air Bomber knocked off selector switches and failed to make last-minute check. He also neglected to have Pilot pull jettison toggle.

Result 3 x 500 lb. did not reach target.

3. Air Bomber did not fully check Connell pre-selector box which was set up improperly.

Result 1 x 500 lb. did not hit target.

425 Sqn.

1. Air Bomber neglected panel check during run-up to target. One selector switch had been knocked off.

Result 1 x 500 lb. did not hit target.

1 Failure

433 Sqn.

1. Air Bomber neglected panel check during run-up to target. One selector switch had been knocked up.

Result 1 x 500 lb. did not hit target.

1 Failure

These failures make it obvious that the panel check, which should be made during the run into the target, is just as important and more conclusive than the pre-flight check of all equipment.

It is ridiculous to waste all, or part of, the work of the ground staff and other members of the crew because of a few moments' carelessness or indifference on the part of the Air Bomber.

It is suggested that Squadron Bombing Leaders have their Sections sign as having read all manipulation failure reports listed in the Bombing Digests of the past, present and future. You cannot ride with them but you can make them aware of the remarkable ease with which mistakes are made.

DO ALL NEWCOMERS KNOW ABOUT THE POSITIVE CIRCUIT MASTER SWITCH ?

The errors plotted in the Battles of Strensall, Snape and Bradbury show that the crews are able to bomb with a degree of precision which they definitely do not reproduce in the Battle of Germany.

The Bombing team - Pilot, Navigator and Air Bomber - must study all available maps and mosaics of the target, and the last leg into the target. The Air Bomber must check and double-check bombsight settings and operation, see that the bombsight is turned on long before E.T.A., and that the bomb doors are open in time to allow the aircraft to settle down to straight and level flight and correct airspeed. Corrections should be given to the Pilot in degrees to aid him in accurate flying on instruments. "S" turns should be employed, particularly on Wanganui runs, to enable bombing on correct heading. All corrections should be made early in the run in order to have a settled bombsight at the time of release.

The Navigator should have an accurate indicated W/V calculated for the Mk. XIV Bombsight which the Air Bomber should feed into the computer correctly, always remembering that incorrect W/V is one of our bigger sources of bombing error.

Pilots must fly the aircraft accurately and ensure that there is no crabbing, even going so far as to have the Rear Gunner's turret motionless. Crabbing RUINS the operation of the Mk. XIV Bombsight.

The whole effort of Bomber Command is dedicated to dropping bombs on targets, not around them, and the last few minutes of the bombing run make or mar the entire effort as related to each individual aircraft.

DO NOT LOSE TRIPS THROUGH CARELESS NAVIGATION, POOR FLYING OR MISTAKEN RELEASE.

PART II - TRAINING

The training in Gee and H₂S have remained almost at the same level as last month. Map reading has slumped.

Below is a table comparing training with last month.

	<u>September</u>	<u>October</u>	
Gee	4625:04	5531:35	+ 906:31 = 17 %
H ₂ S	6561:25	6492:40	- 68:45 = 01 %
Map Reading	5469:19	4616:10	- 853:09 = 16 %

The navigational training has dropped to 1009 hrs., but is still well above August. All other training has increased more or less.

	<u>September</u>	<u>October</u>	<u>Increase</u>
Other lectures	592:55	1150:25	557:30
Bomb dump & bombing up	147:30	169:00	21:30
W/T training	39:15	61:40	22:25
Panel drill	81:00	205:00	128:00

There are roughly at least four hundred and twenty Air Bombers operational in the Group yet there were only 169 hours spent studying bombing-up and bomb dumps. It is a fact that the Air Bomber should know all about bombing up. The time spent at this would cause one to doubt the above.

Practice Bombing

It is indeed not gratifying to see the grand totals for bombs dropped in October fall to 5343 as compared with 6545 in September last. Obviously weather had a ruling hand in this.

Congratulations to Squadrons for getting their bombing errors below the 200-yard mark. The Squadron crew error is now 191 yards, as compared with 201 yards in September.

The Heavy Conversion Units have an average crew error of 269.3 yards, as against 235 yards for September. The H.C.U. error is some 20 % greater than that of the heavy bombardment Squadrons.

SQUADRON SUMMARY OF TRAINING - AIR BOMBERS.

Unit	Total AMBT Hours	Total Link Hours	Dual Flying Hours	Infra Red Practices	Map Reading Tactics Hrs.	Ge Hrs.	H ₂ S Hours	Successful Flashlight Exercises
408	-	11.15	1.30	-	212.00	57.30	184.00	5
415	-	6.00	22.30	-	212.00	571.00	238.00	-
419	-	23.30	59.20	4	122.15	907.15	198.10	3
420	-	10.00	16.00	-	119.30	225.00	10.00	-
424	-	23.00	51.00	2	240.00	224.00	429.00	-
425	8.00	12.10	5.25	-	248.10	486.35	57.15	4
426	-	-	4.30	-	124.45	91.00	107.15	-
427	-	6.45	10.30	-	286.00	28.00	277.00	3
428	-	18.45	34.30	-	162.30	483.00	183.30	1
429	-	7.30	17.10	-	111.00	81.35	173.45	-
431	-	22.10	43.00	-	240.00	168.00	216.00	-
432	32.00	1.50	11.35	-	400.05	59.05	645.00	-
433	-	17.05	21.45	-	177.40	228.00	403.00	-
434	-	23.05	29.20	2	227.15	473.00	256.00	-
1659	40.00	-	-	10	796.40	740.00	1208.25	38
1664	42.30	-	17.30	19	326.40	434.35	988.00	18
1666	-	-	26.00	22	609.40	274.00	918.20	20
TOTALS	122.30	183.05	371.35	59	4616.10	5531.35	6492.40	92

9.
HIGH LEVEL BOMBING

Unit	No of Details	Number of Bombs		Cross Country		Av. Errors (yds.)					
		Day	Night	Day	Night	10,000'			20,000'		
						Crew	A/B Pilot	Nav.	Crew	A/B Pilot	Nav.
408	47	180	8	-	-	-	-	-	171	184	156
415	65	248	12	-	-	-	-	-	219	111	138
419	33	111	14	-	-	-	-	-	166	159	79
420	63	253	-	-	-	-	-	-	190	228	125
424	26	106	-	-	-	-	-	-	153	130	-
425	47	173	12	-	8	-	-	-	206	176	-
426	22	80	8	-	3	-	-	-	195	171	203
427	40	104	88	-	-	-	-	-	202	148	193
428	33	99	30	-	8	-	-	-	190	151	93
429	14	23	35	-	-	-	-	-	207	139	-
431	26	94	12	-	-	-	-	-	161	137	110
432	50	180	20	-	-	-	-	-	173	152	-
433	20	71	-	-	-	-	-	-	250	135	155
434	9	14	24	2	-	-	-	-	192	172	-
1659	108	432	216	-	30	-	-	-	259	184	169
1664	126	588	180	8	20	-	-	-	214	142	276
1660	142	312	554	13	30	-	-	-	335	208	103
Sqdn. Av.	35.3	124.2	23.9	2	6.3	-	-	-	191	156.6	139.1
HCU Av.	25.3	444	316.6	7	26.6	-	-	-	269.3	178	182.6

PRACTICE BOMBING

Unit	LOW LEVEL		TOTAL HL & LL	
	No. of Details	No. of Bombs	Details	Bombs
408	-	-	47	188
415	35	140	100	400
419	-	-	33	125
420	-	-	63	253
424	-	-	26	106
425	-	-	47	193
426	16	64	38	155
427	-	-	40	192
428	5	20	38	157
429	-	-	14	58
431	-	-	26	106
432	5	20	55	220
433	-	-	20	74
434	-	-	9	40
1659	69	414	177	1092
1664	19	113	145	909
1666	27	166	169	1075
Total Sqn.	61	244	556	2267
Total HCU	115	693	491	3076
Grand Total	176	937	1047	5343

CONVERSION UNIT SUMMARY OF TRAINING - AIR BOMBERS.

Unit	Average Flying Times	Average AMBT Hours	H ₂ S		CEE		Average Du.I Flying Hours	Average Night Vision Hours	Average Map Reading Hours	Av. Infra Red Exercises	No. on Course
			Air	Ground	Air	Ground					
1659	36.57	1.00	9.30	20.40	7.32	11.15	-	11.00	19.55	.25	40
1664	33.53	1.11	7.00	17.7	7.37	4.00	.49	-	8.16	.53	40
1666	46.55	-	8.36	22.00	3.66	5.46	.52	6.04	19.40	.71	31

7.

PRACTICE BOMBING ANALYSES

Pickle Barrel Boys.

Errors converted to 20000'

Unit	Air Bomber	Pilot	Ht.	Crew	A/B & Pilot	Nav.
419	F/L Best	F/L Bishop	3000	100	100	-
"	F/O Paisley	F/O Osborne	7500	93	93	-
"	F/O Barron	F/L Bell	4000	55	55	-
"	F/O Hirst	F/O Mansfield	5000	78	78	-
"	Sgt Morgan	F/O McVicar	10000	99	99	-
428	F/O Marritt	F/L Quinn	6000	73	58	38
"	F/O Bezaire	F/O Miller	10600	85	49	65
431	F/O Craib	F/O McLeod	8000	50	64	20
433	F/S Bodie	Sgt Jensen	9000	72	59	54
420	F/O Aitcheson	F/O Cox	4000	90	-	-
425	F/O Ogilvy	F/L Hemphill	6000	84	55	84
432	F/O Todd	F/O Britten	4000	94	85	89
"	F/S Flannagan	F/O Save	5500	58	63	22
"	F/O Hayden	F/O Deane	8000	52	52	-
"	F/O McKerrow	F/L Horan	3000	94	78	78
408	F/O Hoff	F/O Kellond	4000	37	31	8
426	F/O Hopper	F/O Hunt	4000	95	82	55
415	F/S Graham	F/S Lane	3500	82	55	78
"	F/S Blau	- Brett	3500	93	80	72
"	- Mellard	- Simpson	4000	86	43	78
CONTRAST						
432	F/S Foley	F/O Bews	4000	510	490	126
LOW LEVEL ERRORS AT HEIGHT			Ht	Crew	Pilot	A/B
432	F/O Wilkinson	F/O Speirs	1500	41	27	27
415	- Fuller	- Mooers	1500	45	-	-
415	- Scanlon	- Tims	600	38	-	-

FLASHLIGHT EXERCISES

Unit	Detailed	Attacked	Successful
408	6	6	5
419	4	4	3
425	4	4	4
427	9	9	3
428	2	2	1
1659	43	42	38
1664	23	21	18
1666	30	27	20

GROUP BOMBING LEADER

S/LDR. G.A. SWEANY D.S.O., D.F.C.

BASE BOMBING LEADERS

No. 61 Base S/L McNICOL D.F.C.
 No. 62 Base S/L CRUICKSHANK
 No. 63 Base S/L CARTER D.F.C.
 No. 64 Base S/L MASSEY D.F.C.

SQUADRON BOMBING LEADERS

No. 408 Sqn. . . . F/L BRYDON	No. 427 Sqn. . . . F/L CLARK D.F.C.
No. 415 Sqn. . . . F/L ATKINS	No. 428 Sqn. . . . F/L ROSS
No. 419 Sqn. . . . F/L SELDINE D.F.C.	No. 429 Sqn. . . . F/O GLASS
No. 420 Sqn. . . . F/L KELLY	No. 431 Sqn. . . . F/L INSTRELL
No. 424 Sqn. . . . F/L MITCHELL	No. 432 Sqn. . . . F/O SUNLEY
No. 425 Sqn. . . . F/L BOURLASSA	No. 433 Sqn. . . . F/L STEELE
No. 426 Sqn. . . . F/L KENNEDY D.F.C.	No. 434 Sqn. . . . F/L HUNT D.F.C.

CHIEF BOMBING LEADERS

No. 1659 H.C.U. F/L CAMPBELL
 No. 1664 H.C.U. F/L CRAIGER
 No. 1666 H.C.U. F/L SMITH
 No. 1695 B.D.F. F/L LOWANS
 D.F.C.
 D.F.M.

Oct. Secret 1944

monthly

Radar
NEWS

NO 6 RCAF GROUP 



Pauvre

APPENDIX No. 45 to
R.A.F. FORM 149
H.Q. No. 6 (R.C.A.F.) GROUP
DATE 02/1/44

NO. 6 R.C.A.F. GROUP

SECRET

MONTHLY RADAR NEWS

VOL. 1

OCTOBER

NO. 10

EDITOR'S PAGE

EDITORIAL COMMENT

We would like to say just a word or two about three articles we are featuring this month. The first one concerns re-habilitation which is a subject all of us should be thinking about, and the long dark wet Yorkshire night, which will be with us for some months now, should provide plenty of time in which to do some planning for the future. The fact is that the final phase of the war is now here (we aren't going to make any guesses as to when it will end), and it won't be very long before some of us at least will be heading back to 'Civvy street'. Certain steps have been taken by the authorities towards setting you up when you start wearing the old bowler hat, and we figured that a very good way to let you know about them is to give you some facts and figures in the 'News'. We therefore enlisted the help of the Group Educational Officer whose first article gives the gen on the gratuity you will get on discharge. We will publish similar articles during the succeeding months and you will be able to find out about Educational programs and the rest of the schemes which are in the wind. We won't pretend that these articles will give you all the information but they will give you some very good clues, if you want to learn more your Education Officer has the answers. One word of caution, after reading this month's article on gratuities, don't go out and spend all the money you figure you are going to get!!!

While we all know everything about all the boxes, we work with (we hope) we don't always know the story from the other end, that is from the point of view of the chap who uses them in the air. We therefore thought it would be a good idea to have one of them tell you what he does with Gee and H.S. while he is doing an op. The result was our second feature article written by one of our Navigators and we think you will admit it has in addition turned out to be a very nice appreciation of the work of the lads who D.I. 'em!!

We found the third article very interesting, giving as it does a picture of what our cousins south of '49 are doing in the Radar line. We were also very pleased that the author presented it to us, free, gratis, and for nothing.

We wish to express our appreciation of the work of LAC Cairns who was responsible for the originals of the two cartoons reproduced on this month's cover and many others which have appeared in past editions. We shall miss these bright spots of Radar life for Cairns has left Middleton to take a commission in the Educational Branch of the R.C.A.F. We certainly wish him all the best in his new field.

And speaking of cartoons we acknowledge the receipt of one from the Hon. Clearly of Croft which we hope to publish in a later issue.

CP

THANKS CAIRNS.

2.

REHABILITATION

How are you going to spend your Gratuity?

Before one can answer that question it is well to be able to picture just how much money he may have from his gratuity.

The War Service Grants Act, 1944, passed in the House of Commons on August 11th, provides for two different types of grant to the discharged member of the forces -- War Service Gratuities and Re-establishment Credits. These will be paid to every honourably discharged man or woman who has served in this war in the Navy or Airforce or on general service in the Army, and to men on limited service in the Army who served in the Aleutians.

War Service Gratuity

(a) Every Serviceman or Woman is entitled on discharge to a gratuity of \$7.50 for every thirty days of service in the Western Hemisphere and \$15 for every thirty days served Overseas. ("Overseas" in this bill includes Greenland, Iceland and the Aleutians, but nowhere else in the Western Hemisphere.)

(b) In addition the discharged member of the forces will receive, for every six months of Overseas Service, the equivalent of seven days' pay and allowances, including whatever dependents' allowance he was getting immediately before discharge, and including the naval lodging and provision allowance or the army or airforce subsistence allowance, whether he was getting it or not before discharge.

Re-establishment Credit

The re-establishment credit is primarily for those members of the forces who do not elect to take educational, vocational or technical training or benefits under the Veterans' Land Act. This credit is the equivalent of the basic gratuity and may be used at any time within a period of ten years, for -- acquisition of a home; repairs of home; working capital for profession or business; insurance premiums; special equipment for educational or vocational training; or any other purpose authorized by the Governor-in-Council.

TRY THIS SIMPLE COMPILATION --

(1) Basic Gratuity:

(a) Home Service - 7½ dollars for each month in Canada
~~- 7X~~ X = \$ _____

(b) Overseas Service - 15 dollars for each month Overseas
~~- 15X~~ X = \$ _____

Total Basic Gratuity - (a) plus (b) = \$ _____

(2) Supplementary Gratuity:

(a) 7 days' pay for each half year Overseas
~~- 7X~~ X = \$ _____

(b) 7 days' Dependents Allowance for each 2yr. Overseas
~~- 7X~~ X = \$ _____

(c) 7 days' Subsistence Allowance for each 2yr. Overseas
~~- 7X~~ X = \$ _____

Total Supplementary Allowance - (a) plus (b) plus (c) = \$ _____

Pauvre

3.

(3) Payment upon Discharge:

- (a) Thirty days' pay -
- 30X = \$ _____
- (b) Thirty days' Dependents Allowance -
- 30X = \$ _____
- (c) Thirty days' Subsistence Allowance -
- 30X = \$ _____
- (d) Clothing Allowance -
= \$100.00

Total payment on Discharge - (a) plus (b) plus (c) plus (d) \$ _____

(4) Re-establishment Credit = Total Basic Gratuity = \$ _____

(5) Total mustering-out Gratuities and Credits =
(1) plus (2) plus (3) plus (4) = \$ _____

NO MONEY OR CREDIT RECEIVED UNDER THE ABOVE ACT CAN BE ATTACHED FOR DEBT.
IT'S ALL TAX-FREE ALSO.

THE GEN ON RADAR-NAVIGATION

OR

WHAT HAPPENS BETWEEN H.2.S. AND GEE D.I.'s.

Aside from being a "bind" and a source of much work and worry to the Radar Mech, H.2.S. and Gee are of primary importance to the navigation team. This has been particularly true during the past year or year and a half and navigation has, in fact, been almost entirely remodelled to fit around these two instruments and the A.P.I.

Previously, navigation was more or less by thumb and finger methods, inaccuracies were numerous, but since the introduction of Radar equipment accurate navigation has progressed by leaps and bounds. Abortive sorties are practically negligible, blind bombing has been possible since the introduction of P.P.F. (which relies almost entirely on Radar equipment) has increased the accuracy of our bombing. This is what Radar has done for Bomber Command and does not take into account the numerous special uses of Radar in Coastal Command and Air Defence.

On an actual operation, the navigation team usually relies first on Gee as the basis of their navigation. This is particularly true when the route takes them over water, where H.2.S. is useless. The Bomb Aimer usually operates both the H.2.S. and Gee. He logs and plots the fixes on his own chart and is able to pass a fix to the navigator whenever required. By plotting a series of fixes the track made good may be determined and by measuring the distance and time between the fixes the ground speed can be calculated. Thus the Navigator knows where he is going and how fast he is going and is able to determine an accurate estimation of his position at any time in the future. By combining fixes from either the Gee or H.2.S. and readings from the A.P.I., he can calculate the wind velocity and thus work out the course for the pilot to steer in order to make good the required track.

Without Gee, the navigator's only other alternative aid over long stretches of water, is Astro. This requires considerably more experience to use, more time to use, and finally it is not (in most cases) entirely accurate. From this may be gathered the degree to which a navigator relies on his Gee and the greater range that he can get from it - the happier he is.

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On northern routes the Gee usually 'picks-up' before the enemy coast is reached. When this happens the navigator resorts to the use of H2S and once again range becomes important. The navigator has probably been flying for half an hour or more with no check on his track and ground-speed and so, if he can check his track by an H2S fix 25 or 30 miles from the enemy coast, he has ample time to make the proper alterations to ensure crossing the coast at the correct position thus avoiding defended areas and ensuring that his aircraft is in the stream concentration. Both these points are important for the safety of the aircraft.

From here, H2S is used almost entirely, in the same manner as the Gee was used, but with added advantage. The Bomb-aimer is continually taking, logging and plotting fixes every 3 or 4 minutes, in order to ensure that the aircraft stays on track. Track keeping and timing are vitally important. The navigator receives a fix from the Bomb-aimers' log every 10 or 15 minutes and uses this to alter course, check the wind velocity or check the ground speed. If H2S were not available, there are few other means of keeping tab on these things accurately. In one case the navigator knows definitely where he is or where he is going and in the other case he simply hopes that he is where he should be or that he is going where he should be going.

And so (because our H2S and Gee equipment is in all condition) we reach the target. We know it is the target because we can "see" it on the H2S. If we are good, we can even tell if the P.F.F. markers are on the target or 6 miles off!! It has been done. We can bomb it visually, in a pinch, we can bomb it blindly using H2S.

The route home is a repetition of the route out. Some navigators get lost but even so, if they have H2S, they can still determine their track, ground-speed and wind velocity regardless of the fact that they are unable to identify a response on the P.F.I. Also there is no reason why they should wander over heavily defended areas (as would probably be the case without H2S) for they can "see" all the built-up areas on the P.F.I.

Occasionally (too often, unfortunately!) difficulties arise. For instance, the range marker may mysteriously disappear. In which case the navigator still gets fixes by taking two bearings on different land marks and gets a "running fix".

Eventually the crew reaches base and the navigator begins his 'binding' about poor range, no range marker, mush, spoking etc., However, in actual fact he is not really 'binding'. He is merely interested in his set not only from his own personal point of view but because it is a contributing factor towards the safety of his aircraft and his crew and he naturally wants the best possible results that he can get from it. You are the one that can help him to do that. In the past you have done a damn good job of it and the navigation boys do appreciate your work and your efforts immensely - in spite of all their "binding"!!!

The moral of the story, is that your efforts are by no means wasted or forgotten. You keep the equipment in working order and the navigator will use your efforts to get the bomb load on the target and the Radar equipment back to you in time for the next D.I.

AMERICAN AN/APS - 15 EQUIPMENT (H2X)

by P/L W.M. Waters

I had the excellent opportunity recently to visit the U.S.A.A.F. Station at Alconbury, near Peterborough, and although my stay was all too short to collect as much information on their equipments and technique as I should have liked, I am going to attempt to describe some of the outstanding features of the American APS-15 to you.

The prime reason for my visit to Alconbury was to find all I could about 10cm. beacons, and particularly what chances we have of obtaining a 10cm. effort to give an H2S response to our practice bombing at Snape. From this point of view the success of the mission was merely "so-so", since AFS-15 is 3 cm. gear and the only beacons they have are for use with that equipment. I did, however, manage to find out something on the subject of 10cm. beacons, but our immediate prospects of obtaining one are remote. The ideal "HIPS" beacons with a receiver bandwidth of 100 Mc/s, and tunable over the complete "3" band of frequencies, are in short supply and urgent demand by Troop Carrying Command, who use them with their airborne SCR 717 (H2S). The alternative, JIN-17, is actually a cm. IFF for MBW identification, and if we can have them, the receiver will have to be modified to give it a wider band than its present 10Mc/s, or at least three of them on different frequencies used in order to accommodate the H2S magnetrons permitted variation of + or - 15 Mc/s.

According to Major Cade, Alconbury's king-pin Radar "hawk", good results are nearly always obtained by Bomb-aimers when they have such a target as a beacon "spot" to bomb, but the difficulty is to bomb a particular section of a larger area response. Apparently the trouble they have is mainly in recognizing the particular section. To give this practise, the U.S.A.A.F. gave a GL outfit just on side Peterborough which plots the aircraft on its bombing run and fixes it very accurately over the town when they get the "Bombs away" over the R/T. This sounds like an excellent scheme, and I for one would like to see 6 Group with a British Mk. III GL (Canadian made, as I got the story) set up outside York for use by all our Squadrons. Whether we do or not I am not prepared to say, since I have no idea what complications are involved in securing a GL set for such a purpose.

So much for the purpose of my visit to Alconbury; and now for the purpose of this article. Before I go ahead and tell you about AFS-15 I think it wise to warn you that I had little more than a glimpse at it and I ventured only a few leading questions as to its 'guts' because of the shortness of time. Also, I had never thought of making it the subject of an article for the Radar News. So please don't ask me any embarrassing questions about it the next time you see me!

Alconbury is purely a training station for those American heavy bomber crews who are to fly ops as formation leaders, or 'Master Bombers'; it is, in effect, a P.F.F. "Com. Unit". They fly Fortress B-17G's down there, of which they have about 40 fitted with AFS-15. Each U.S. bomber formation is led by a master bomber who navigates and bombs (when conditions dictate) using AFS-15. As soon as the rest of the formation see his bombs go down, they release their own, and the result is this "pattern bombing" we hear so much about ("WE HOPE"). For this reason, AFS-15, or "Mickey", as they fondly refer to it, is quite an ingenious device.

AFS-15 corresponds to the British Mk. III H2S, or H2X, working on 3 cm. but, its range is at least twice as great, and Major "Mike" Cade maintains they have far less trouble with it than we have with our own Mk. III. On a wavelength of 3 cm, and only a 1AKV pulse on the magnetron, one would naturally expect the range of their equipment to be less than that of ours, but in practise, a Radar Navigator can rely on ranges of 60-80 miles with AFS-15, and often gets even better ones. Major Cade thinks this improved range lies mostly in the super-sensitivity of the receiver, as it probably does, but there are other factors which, to my mind, cannot be overlooked. First, the T2R is a completely "pre-plumbed" waveguide job from magnetron to the output where it takes up the scanner waveguide feeder without any sort of matching being necessary. Next, the design of the scanner paraboloid and the waveguide "sprout" appear to be such as would concentrate the maximum power into the transmitted beam. And finally, AFS-15 has Automatic Frequency Control which obviates considerable tuning "finger trouble" on the part of the operator. As for the alleged increased serviceability

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APS-15's. I think I can recall a few features which may account for some of that. For a start, there's the "pre-plumed" TR box again. Also both the modulator and the T2R are pressurized for high-altitude working, which would prevent condensation and subsequent insulation break-down even at lower altitudes. Ease of servicing and maintenance is another point; the whole outfit is contained in five units and a 4 position switch on the Height Tube thus enables it to be used as a scope for checking the action of various circuits, when on positions 2, 3, and 4. The test equipment available at Alconbury for APS-15 seemed very adequate and comprehensive, but I doubt if it is any more thorough than our own when properly used.

A few of "Mickey's" interesting and outstanding features are:-

1. The Scanner This unit is rather elaborate but considering the number of things that can be done with it, it is better than ours. As would be expected at the shorter wave-lengths, the paraboloid is somewhat smaller than ours, and it is almost completely round (scalloped on the lower edge) not cut off top and bottom as in the H2S 'mirror'. It is mounted in a partially retractable blister which replaces the ball turret.

The tilt of the scanner is variable to a certain degree, allowing it to be elevated or depressed according to what angle of elevation the operator is striving for his best returns. It has two speeds, SLOW and FAST, which both seem to be 'slow', being of the order of 20-30 r.p.m. and 40-50 r.p.m. respectively. Such speeds are permissible since the PPI has an extremely after-glow, and they are very desirable because the beam, in taking longer to pass over a target, gives better definition to that target. In addition to the Slow/Fast switch, another switch on the Switch Unit, when switched 'ON' causes the scanner to point North and scan back and forth over an area about 20° either side of North. A sector selector switch enables this sector scanning to be confined to any desired compass point, but North is the guide from which the reference is taken, and the scanner will always take it up automatically until another sector is selected.

2. The Indicator By far the larger Radar unit I have yet seen (it is roughly the size of 3 Gee indicators), the APS-15 Indicator appears to be the main item of the installation. The P.P.I. is mounted at eye-level at the top centre of the front panel, and the height tube is directly to the right of it. To the right of the tubes are situated many of the controls, most of them pre-sets for Focus, Brilliance etc., and to the left are the various cables connecting the Indicator with the other units. Most of the actual operating controls are located below the P.P.I. and the remainder are on the Switch Unit.

A range switch offers 4 ranges of 5, 20, 50, and 100 miles. A range drum controls a variable range marker on each of these T.B. sweeps, but a separate brilliance knob on the Indicator will bring up range marker rings similar to those on Fishpond; 5 on the 5 mile range at 1 mile intervals; 4 on the 20 mile range at 5 mile intervals; 5 on the 50 mile range at 10 mile intervals; and 4 on the 100 mile range at 25 mile intervals. Another control varies the sweep speed on any range set that the whole picture may be spread out or closed in at will, the outside range being easily estimated by means of the range rings just mentioned. For beacon working, a T.B. delay switch on the Switch Unit delays the start of the T.B. sweep by almost anything up to 100 miles, thereby enabling a beacon response to be picked up, if possible, at a range of 200 miles.

A remote indicating unit may be fitted, and usually is, for the purpose of taking photographs with a special PPI camera.

3. Modulator and T2R Both these units are mounted on either side of a common base about 2 feet square. The Modulator is mounted on the upper side of the base and is covered by a round, air-tight dust cover which is pressurized before installation in the aircraft. The whole unit is mounted on the retractable blister platform so that it moves up and down

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with the blister and the scanner.

The T2R is fundamentally the same as our own, the Magnetron, soft-Magnetron, scanner switch, crystal mixer, and pre-amplifier I.F. stage. The big difference is that the reflector-klystron local oscillators are also located in this box, and that their frequencies are varied by means of the voltage on the reflector anode. This arrangement lends itself readily to Automatic Frequency Control. If the local oscillator frequency is too low to give the I.F. beat-frequency of 30 Mc/s, the AFC. circuit automatically raises it accordingly by a change in voltage on the reflector anode. The purpose of having a second local oscillator is to eliminate ground returns when working with beacons. To do this, the transmitted beacon frequency is outside the normal working frequency, and a separate, tunable L.O. is necessary. This is tuned manually to give a 30 Mc/s I.F. with the Beacon.

I have an invitation to visit Alconbury again sometime and fly with "Hickey", and if I do, you chaps will certainly be hearing more about it. I, personally, say it's quote, "hang on," unquote!!!!

TEST GEAR AND CALIBRATION PARTY

For those of you who may have seen our letter C G/S.475/1/11 Car dated 25th August, 1944, about the bomber Command Test Gear and Calibration Party we would like to briefly tell you what it is all about. A section of Radar Test Gear experts has been specially trained at H.Q.B.C. and this Section has been split up into small parties of two men. One party has been lent to each operational Group. Our party, which consists of Sgt. Hall, who helped us fit the Lane A's at Millstone, and L.C. Sirett, will operate from Group Headquarters. We are fixing a little test bench for them in our own Workshop.

Now this party will have three main duties, which are:-

- (a) Calibration of all Radar Test Gear in the Group.
- (b) Repair and maintenance of all Radar Test Gear within the Group.
- (c) Instruction on the manipulation and application of Test Gear or in other words it is their job to make you "Test Gear Conscious".

We have wangled a van for our party so they will be able to come around to help you as often as possible. Bearing in mind that the basic idea of this party is to help you to have good test gear and thereby make your job easier, we want you to give Sgt. Hall and Sirett bags of co-operation, and to take advantage of their knowledge of test gear. They will, of course be checking up on your test gear and will ask you questions about it but don't get the idea that they are snooping on you because if they find anything wrong they will tell you about it not us, except of course, if they find no improvement on a later visit.

We know that this party is a step in the right direction and we feel that you will realize the advantages to be gained by making this new venture a success.

TRADE TEST BOARD

This is to remind you that the R.C.M.P. Trade Test Board will be with us again next month, the date is approximately the 20th of November.

Last experience has shown that a combination of organized lectures and good self-organizing have made the Trade Test a much less difficult hurdle than might be expected.

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Don't forget your fundamentals of Radio and Radar, they have been a stumbling block to many, even some who knew their equipment well.

LOREN

We expect all you types are beginning to wonder what is happening about Loren. From what we can gather, it appears that the S.S. Chain is working fairly well but the homing Chain has too many bugs yet for operational use.

It is likely that it will be some time before we get Loren in greater quantities than at present which of course means that we won't be faced with an immediate fitting program. However, when Loren does come through it is highly probable that it will be fitted in all aircraft in addition to Gee and it will therefore pay you to get acquainted on it while there is yet time.

LAST DAYS OF SCHOOL

With the completion of the H2S course at Dalton on the 20th October, 1944, we are going out of the school business, at least for the time being, as we feel that the odd few Radar boys who haven't had courses can be trained on Stations and there are several more important matters which require the attention of W/O Ginsberg and Sgt. Howarth (please note promotions).

We think you will agree that W/O Ginsberg and his assistants have done an excellent job of giving out the 'gen' on the series of Gee and H2S courses and that they are now entitled to get cracking on some work which is closer to operations than the school at Dalton.

The marks on the last two courses are given below:-
22nd September- 5th October.

<u>Number</u>	<u>Rank</u>	<u>Name</u>	<u>Unit</u>	<u>Results</u>
R.159859	LAC	McDiarmid	Tholthorpe	93%
R.178614	LAC	Malin, J.L.	Tholthorpe	89%
R.186295	LAC	Young, J.P.	Linton	89%
R.156151	LAC	Wilson, R.M.	Linton	87%
R.180217	LAC	Kellett, E.W.	Leeming	86%
R.174027	LAC	Temple, R.N.	Tholthorpe	83%
R.135558	LAC	Bush, M.B.	Leeming	86%
R.166007	LAC	Veith, G.H.	Linton	82%
R.130574	LAC	McAride, R.D.	Croft	78%
R.136010	LAC	Cooke, V.L.	Linton	76%
R.180568	LAC	Davy, R.J.	Tholthorpe	75%
R.173552	LAC	Niebergall, O.G.	Eastmoor	73%
R.183674	LAC	Moyer, S.L.	Tholthorpe	72%
R.202010	LAC	Desislets, R.S.	Tholthorpe	62%
R.122834	LAC	Beal, S.	Tholthorpe	54%
R.144774	LAC	McLachlan, A.D.	Linton	54%
R.166466	LAC	Morris, A.W.	Skipton	49%

7th October.- 20th October

<u>Number</u>	<u>Rank</u>	<u>Name</u>	<u>Unit</u>	<u>Results</u>
R.86237	Cpl.	Clark, M.H.	1666 H.C.U.	36%
R.101843	LAC	Maskell, W.H.	1664 H.C.U.	53%
R.176423	LAC	McEachern, V.H.	1659 H.C.U.	68%
R.176503	LAC	Artz, E.D.	62 Base	69%
R.163310	LAC	Cohen, A.	62 Base	62%
R.154958	LAC	Cunningham, D.J.	62 Base	50%

R.126219	LAC	LeBlanc, J.Y.	62 Base	60%
R.159878	LAC	Letellier, J.	62 Base	54%
R.200909	LAC	Lodge, R.	62 Base	77%
R.136996	LAC	Possat, J.R.	62 Base	58%
R.159438	LAC	Vagt, D.H.	62 Base	70%
R.205946	LAC	Barclay, B.F.P.	63 Base	70%
R.160944	LAC	Barrie, J.J.	63 Base	70%
R.65429	LAC	Crook, A.J.	63 Base	80%
R.95972	LAC	Guy, D.G.	63 Base	68%
R.176434	LAC	Kennedy, C.H.	63 Base	82%
R.175095	LAC	Howe, A.R.	63 Base	86%
R.173082	LAC	Nickerson	63 Base	74%
R.148679	Cpl.	Burlington, L.	64 Base	83%
R.95946	LAC	Torrance, C.E.	64 Base	56%

RAIDER IN T'OTHER GROUPS

No. 3 Group now have three Squadrons, 218, 514, and 149 nearly completely fitted with G-H. It took plenty of scrounging to get enough equipment to do this so the boys were pretty happy to hear that about 70 sets of G-H Mark II are supposed to be ready by the end of this month.

No. 1 Group claim that A.G.L.T. is proving itself to be the best tail warning device yet invented and its results as such are remarkable. During August they had a serviceability of 88.7% and as 9 of the 26 defects were due to H2S and 3 were due to manipulation the "true" technical serviceability of A.G.L.T. was of the order of 93%.

Fitting of Lucero Col. 7 has commenced in No. 12 Squadron and the ground beacons have been received. No Col. 9 equipment has arrived as yet.

Nos. 83 and 97 Squadrons in No. 5 Group are almost completely fitted with Mk. III H2S, the serviceability during August was 88.96% for 172 sorties.

No. 32 M.U. is modifying the aircraft of No. 101 Squadron to take not only A.B.C. but also H.2.S. We understand that it wasn't any easy job to fit both equipments and have them work properly.

No. 3 Group now has three Mossie Squadrons fitted with Mk. III. At Wyton the Mechanics have developed a device for checking the polar diagram of the Mark III scanners. Since certain aircraft are cancelled for blind markers these kites are made "teachers pets". They are fitted with the scanners and sets which consistently give the best results and only the top notch Radar Mechanics work on them.

Several Squadrons are fitted with Carpet and fitting is well on the way in our old Squadron No. 405.

The Mechanics at Wyton are having lots of fun fitting the American Tail Warning Device AN/AP513 into Mossies.

.....TECHNICAL TIPS.....

INDICATOR TYPE 62A

We have had several complaints about the 62A and have as a result done some snooping around inside it ourselves. Although several things have been brought up in the complaints it seems that the main trouble is caused by the VR.91 valve holder.

As we recall, even away back into our Mk. V "I.I." and Mk. II "S.V." days, the experts have always had trouble in designing a base for the VR.91 type of valve and the pins either don't make contact or the valve pops

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out and starts to go places on its own. And although the designers have turned out a new type of base for the 62A, the old troubles are still with us.

The present base is made in two types, one with a rubber compound type of insulation and the other with ceramic insulation, but aside from the insulation employed they are similar. The spring contacts are U-shaped and sit loosely in square holes and this is where the trouble begins. The sideways movement of the spring contacts is liable to be up to 1/16" and if the contact strays over to the side of the square hole by this amount the valve pin will locate itself between the contact spring and the wall of the hole instead of between the U of the spring as it should. Then when you press the valve home you bend the valve pin and the contact spring and probably break the glass seal around the pin.

When all this happens the fun begins, for in the first place you will have poor or intermittent contact between the spring and pin with lots of jitter or even complete failure the result; secondly you will find that the spring is now pushing upward against the valve pin and in some cases this upward pressure is sufficient to overcome the pressure of the retaining springs and the valve is forced out of its base.

Croft reported this trouble in the first place and we then took twelve 62A's from the Group Pool and had a look at them. In three of these there were two cases of valve base troubles, in eight there was one case and in the remaining one all bases were O.K. So you can see that the frequency of this fault is very high.

We have made a memo to the powers that be asking for an improved type of valve base, and practising what we preach, we included an A.I.O. Defect Report. In the meantime however, you will have to handle these indicators very carefully and make sure that when you replace VR.91's all the pins enter the contact springs on the valve base the way they should. If you find that there are cases of this trouble in the new indicators you get from the Group Pool, by very careful manipulation of the bent spring contacts you can make them serviceable again. Always examine a VR.91 before you insert it in one of these Base and ensure that none of the pins are bent.

AERIALS

The following goes on the care of whip aerials is a reproduction of Bomber Command Signals Pamphlet No. 108 which has just been issued.

WHIP AERIALS - RUSTING AND CORROSION

1. It has been found in service that there is a tendency for the following whip aerials to become rusty and hence to weaken mechanically:-

Type 117 (10B/13061) used with A.R.I. 5083

Type 137 (10B/13241) used with S.B.A.

Type 147 (10B/13339) used with V.H.P.

2. All whip aerials are to be inspected, at frequent intervals, for corrosion and rusting and those which appear likely to become weak mechanically are to be replaced. In most cases it will be sufficient to replace the appropriate aerial rod, i.e.

Type 117 Rod aerial type 87 (Ref. 10B/13180) length 5 feet

Type 137 Rod aerial type 110 (Ref. 10B/13260) length 3 feet

Type 147 Rod aerial type 122 (Ref. 103/15334)
Length 2 feet 3 ins.

3. All whip aerials are to be cleaned at frequent intervals with an oily rag - not emery cloth - and either treated with lanoline or vaseline, or coated with a suitable tough varnish. In cases where aerials have been given a protective coating during manufacture, no action is required unless the coating shows signs of wearing off.

A.P.I. ATTACHMENT FOR H2S TRAINERS

The Radar mechanics at Ambleston have developed a neat set-up for an A.P.I. attachment to the H2S trainer. For the benefit of other stations, here is the "how" on how to do it:-

You will need the following Equipment:

- One Instrument Mechanic, 'A' Group
- One Air Position Unit
- One Air Mileage Unit
- One Air Speed Indicator
- One Junction Box, ref. 50/955
- One Siphon Bellows

The 24 volt D.C. supply for the A.P.I. can be taken from the normal 24 D.C. supply already provided for the Trainer Type 54. The load is about 3 amps.

The inter-connection of the A.P.I., A.M.U. and A.S.I. is up to the instrument mechanic. It is the Radar's job to provide a tap from the output of the Admiralty Transmitter in the Control Unit 425 or 425A to feed the Repeater Motor in the A.P.I. To do this identify the 4 pin plain plug No. 24 on the Control Unit Type 425 or 425A (Fig. 11 or 19 of CD9896a) which is normally connected to the right hand 4 pin on the leading Central Unit. A Junction Box reference 50/955 is fitted to this 4 pin plain plug No. 24 so as to produce two similar outputs and one of these outputs is fed to the A.C.U. as before and the other is connected to the A.P.I. In other words from the Control Unit 425 or 425A you feed the same thing to the A.P.I. repeater motor as you normally feed to the HCU. The relevant pins on the 4 pin plain plug No. 24 are No. 1, No. 3 and No. 4.

The siphon Bellows which are worked by hand, provide pressure to A.S.I. and the HCU. The A.P.I. compass and the output from the A.P.I. operate the counter unit on the A.S.I. and register the position at 10 times.

The direction of the A.P.I. compass is governed by the movement of the Course Control and the actual direction will have to be found by trial and error when connecting the A.P.I. The Course Control must be turned at a moderate speed to allow the A.P.I. to follow.

H2S SWITCH UNITS

After having four cases of breaking of the lead from VR.152 and VR.153 to earth Linton has concluded that it is the result of vibration in the resistance mounting panel. They suggest that as the lead is usually extremely short the cure is to replace it with a larger one which has more "give".

CIRCUIT DIAGRAM HOLDERS

The 1659 H.C.U. boys at Topcliffe have produced a very snappy holder for those new Air Ministry circuit diagrams. Workshops made them some dural holders which are merely a sheet of dural with about a half inch turn

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over on the two sides and bottom and about two or three inches of extra metal along the top to act as a handle. The circuit diagrams slip down inside the turnovers as does a sheet of thin celluloid of the same size which both protects and holds the diagram in. The final touch is a strip of cellulose tape across the top of the celluloid to seal the open top.

The Linton boys have a different method, they cut one sheet of thin plywood and two sheets of celluloid the same size as the diagrams, place a circuit diagram on each side of the plywood, a piece of celluloid on top of each and bolt the whole thing together with about eight 20.A.'s.

Take your choice!

LES KINKS FROM THE 3 CHOICE BOYS

Voltage stabilizer in YMU: It will probably be found that the first symptoms of a fault in the Voltage Stabilizer Circuit (V404) will be a kink in the Range Marker Ring on the PEI with the Heading marker switched on.

A common fault, a part from valve trouble is to find the 15r (R.425) in the anode circuit of this stage open circuited. The input lead to V404 also has a habit of burning up and it is advisable to keep a stock of spares (140 ohm wire wound Ref. 10w/9257).

Klystron output probes: Burred threads on the L.O. lead (type 1801) to the Klystron output probe can be fixed by Station workshops with the assistance of a No. 26 thread chaser and/or lathe.

RAIN AND RADAR

Croft have had some difficulty with rain dripping onto the Gee receiver and getting into the power supply where it causes a lot of trouble with rectifiers and transformers. They have evolved a temporary modification to get around this whereby doped linen is stuck over the holes at the back and top of the receiver in the region of the power pack. This still leaves plenty of ventilation area while preventing the rain from trickling down into the power pack.

.....EQUIPMENT NOTES.....

THOSE BASE POOLS

During the Past couple of weeks we have been struggling valiantly to fill up the Base Pools with Radar equipment to a scale we have evolved in the light of past experience. It might be as well therefore to shed some light on the scale of equipment we are using and the purpose of the Base Pools.

We have a separate scale for H23 and Gee and they are as follows:-

H.23.	GE
20 complete sets	20 complete set - per Base Pool
15 complete sets	10 complete sets - per station Servicing Pool
1 set - per Ytype a/c	1 complete set - per aircraft.

The Base Pool of Radar equipment is primarily to provide a reserve of sets held by B.M.S.S. for fitting in replacement aircraft. It is unlikely that the fitting of replacement aircraft will average more than two per day unless some terrific panic occurs, so this pool provides enough equipment for at least a week of normal acceptance of aircraft. The second function of the Base Pool is to provide a stock of equipment from which stations can draw serviceable items in exchange for the u/s boxes which are beyond their capacity to repair, in other words the stuff which goes to No. 30 M.U.

The Station Servicing Pool is merely the stock of spare sets which used to be called Squadron spares. This equipment is held only to replace u/s equipment in aircraft and should not be called upon for installations in new aircraft. The only changes which will occur in the Station Servicing Pool will be the exchange of u/s equipment with Base.

Now how does all this work? Well, first of all Base sends Group a return each week showing the number of sets and aircraft held. Then by using the scale shown above Group is able to figure out how many of each Controlled Item is needed and requests Bomber Command to supply. When the equipment arrives in Group Pool several days later, the Bases are informed that they can pick up all the items necessary to bring them up to scale. From that point it is up to Base to see that each aircraft is fitted in B.M.S.S., that each of its Stations holds its full scale of servicing spares and that where a Station cannot repair a piece of equipment it gets a good one in exchange. All this is done from the Base Pool.

The idea behind the whole scheme is that the Group Pool is not an M.U. it is merely a distribution centre for Controlled Items, and we want the equipment at the spot where it will be used. So we push the stuff out to the Base and that is the place for Stations to obtain their requirements. In this way, we can avoid panics, save on transport and everyone is happy!!

At the present time we have almost got the Bases up to the scale we have figured will work out but we still have a little evening up to do for there are more of some boxes than others. We should have things fixed up pretty well this week and then we hope to sit back and see how it works. The scale we are working to is considerably modified from that originally proposed by Bomber Command so we may have to change it a bit but this is something we shall learn from experience.

SIMPLE COMPONENTS

We are publishing below a list of components which are available through the Group Servicing Party. We must however repeat a statement we made above, the Group Pool is not an M.U. and that means that these components are available in small quantities and once you've had them, you've had them. So if you have a definite need or an emergency on your hands give us a shout and you're welcome to what we've got. But always remember, that the stores bahers are pretty smart and can usually get what you want.

<u>Value</u>	<u>Resistors</u> <u>Wattage</u>	<u>Value</u>	<u>Resistors</u> <u>Wattage</u>	<u>Value</u>	<u>Resistors</u> <u>Wattage</u>
1k	Potentiometer	4.7k	2w	56k	2w
500	"	150k	2w	1k	2w
5000	"	5m	1w	500	2w
10k	"	1m	2w	33k	2w
25k	"	47k	2w	33k	1w
1m	"	2.2k	2w	33k	2w
1.2m	2 watts	120k	2w	100k	2w
1.2m	1/4 & 1/2w	27k	2w	470k	2w
1.5k	3w	470	2w	220	2w
220k	2w	56k	1w	47k	2w
390k	1w	2.5k	2w	4.7k	1w
470k	1w	27k	2w	2.2m	1w
680	2w	22k	1w	10k	1w
1.1m	2w	470k	1w	10k	2w
1m	1w	390	2w	1m	1w
				500	2w

PAVRE

D.

Value	Condensers Working Volts	Value	Condensers Working Volts	Value	Condensers Working Volts
0.1mfd	2500v	.25	450v	200pf (Mica)	
.2mfd	450v	.05	375v	500pf (Mica)	
.25mfd	350v	.01	450v	.005	440v
0.05mfd	3000v	.1	500v	25pf	
2.0mfd	2000v	.02	450v	1mfd	2000v
.25	375v	200pf	300v	.5mfd	450v
.1	370v			50pf	

Valves Type

VR.65
VR.64
VR.116
V.78
VR.91

Valves Type

VR.92
647g
637g
VCR.97

Valves Type

VCR.517
CV.113
VI.507
WI.120
6v6g

Miscellaneous Parts

3W.T10
Relays 100P - 623 100P - 9f4
VR.91 Bases
Sw. Cover plates
12 pin valve bases
Octal valve bases (VR.65)
Uniplugs
Paxolin Valve caps
S. T10 - 4425
Push Button Sw.

Miscellaneous Parts

Oscill Tuning coil
Transformers Gee Ht.
Gee power packs (less EEP transformers)
Tag boards
Eye plugs
2 pin 10H - 389 plugs
2 gross 1.5m wire
1mm wire
Unicell (4)
Spaghetti 1/8" or 1/4"
Loading Units Type 2 (Goe)

.....No. 61 BASE.....

Topcliffe

Topcliffe is now getting well stocked with radial engine Halifax III's fifteen have now been received, five of which are fully equipped with H2S.

F/O Doug Neff says he is jinxed with mochs, who fall through H2S blisters. Fortunately, the A/O was on the ground when Herb Hawley, much to his surprise, dropped out the bottom the other day.

The Type 54 trainer is being modified by addition of an air speed indicator and A.P. 1 equipment, following the "gen" provided by Wombledon. The instructors are keen on the idea and say it will assist greatly in training.

The B.M.S. Section is working on G.L. Mark II targets for attaching the net balloons, for greater accuracy in taking wind, etc. The great difficulty is to find a suitable light material such as bamboo strips, from which to make the frames.

Wombledon

Sgt Kay and Cpl. Love are having brainstorms which have to do with improving the performance of the H2S synthetic trainers. The only visible results so far have been the appearance of grey hairs!!!

Cpl. Clark is H2S "genning" at Dalton while Cpl. Morton has just returned from the Bomber Command version of the same.

Two members of our section had a shock the other day when they were going to glean some equipment from a crashed Mosquito, and were informed

Pauvre

15.

that the said equipment was to ~~secret~~, and someone was coming from Air Ministry to clean it up! Oh! happy day!

LtC Van Norman is back after enjoying his first leave in Edinburgh. No doubt Scotland will suffer from a shortage of liquid refreshment s.

LtC "Jock" Grant did himself proud with his Station Band at the recent Station concert.

Word from our erstwhile mate, now Sgt. Lyle Myers of the Education Branch, tells us that he is in Belgium and is living a very satisfactory life with no regrets.

We have noticed a new respect for the lowly demands of the Radar Section. The happy coincidence of having two MacGregors on Camp; the C.O. and the Radar Officer is a great factor in favour of our Camp business.

Dishforth

We were all sorry to lose Cpl. MacKinnie, who since leaving us seems to have spent his time seeing the countryside; when last seen or heard of he was about to take up residence at No. 8 Radio School Cranwell - Poor Kim!

We are hoping to see LtC Middleton back with us soon again. Keith has been in dock for the past couple of weeks.

.....No. 62 BASE.....

It seems appropriate to say a few words about the nice effort each station made recently in the attempt to provide a "pukka" Radar Training Room.

To reflect a bit, it is quite obvious that the standard of knowledge required by operators of our equipment is necessarily very high. It then follows that any little thing that we can do to make this knowledge come easier, will not only be appreciated but will in itself improve manipulation and therefore serviceability on the whole. And that is why we now have beautiful, gleaming Training Rooms!!

B.M.S.S.

Since last month's issue, we the "back-room plumbers", feel we are no longer forgotten men. Even the most skeptical will believe that B.M.S.S. is the up and coming thing.

Cpl. Clark (the L ran King) has been doing things again! Under the able guidance of LtC Bowden, the W/T Cpl. has taken over the fitting and maintenance.

This section has started a tri-weekly technical run to facilitate the collection and exchange of equipment from stations.

LtC McLachlan, Keith and Cook have just come back to the section after a two weeks H2S "Gen" session at Dalton. Cpl. Marcus has also joined the ranks of the Long Haired, but he got "his" at H.Q.B.C.

LtC Fraser is "on loan" to 20 M.U. helping to fit Col. 7 H2S to 64 Base aircraft.

Until recently B.M.S.S. had used space in the station workshops for running up H2S but with the fitting of H2S on the increase this was no longer practicable and new workshop space had to be found. Two rooms which had been made habitable by much soap and water, paint and oil was grease were put on trial as H.2.S. workshops but it was found that there was too much screening by adjacent buildings to get permanent echoes. So a new scheme which involved moving the H2S to the original Base workshop and Gee and SRA

PAUVE

in the two new rooms had to be tried, fortunately with a successful ending.

16.

Linton

When L/C's Arts, Cohen, Lolwe, Vagt, and Cunningham come back from Dalton on the 20th, the kids at Linton will all have had an H23 course.

F/Sgt. Callimore is now cracking the whip at Tholthorpe, but he still manages to spend the odd night at Linton after a York "do", with the Linton mob.

F/Sgt. McKay is back on the job again after spending some time away at North Allerton Hospital. After his three weeks sick leave, the boys think he should have gone back to North "A".

F/Sgt. Daniels, formerly a Tholthorpe type, has the shivers these days and it is not from the good brain-liquid. He is going to say "I do" on the 21st October and the bride is one of the drivers of Tholthorpe's Radar Section. And speaking of tying knots, Cpl. Goudley is going away up to Dundee to tie on the bull and chain.

As this is the third time in the Group a flight has married a section driver we are wondering what power these "Chieffies" have, or is their resistance low?

Found in York on night of October 5th in Betty's, F/O Gillies, F/O Hoff, F/O Hayo, also F/O MacGregor but he had a good excuse, he was on his way to catch a 2 AM train for parts north.

L/C Pepper/W/loch doing Radar duties is in hospital.
L/C Conlay, also W/loch, seems to be very enthusiastic about Radar in general.

Tholthorpe

This past month has seen the posting of our F/Sgt. Dennis to Linton. "Best of luck, Danny" in your new post at Linton.

On the receiving end this time, we were glad to welcome to our newly painted section, F/Sgt. Callimore and two wireless mechanics, F/O's Pooey and Norreston. With all this new blood we expect big things to be happening in the near future.

A new am was open in Signals and Radar a few weeks ago. The Station Signals and Radar, combined to have what proved to be a "bang on" party. True to our form, we managed to keep them off the sign types on paper, even if we did have to carry a few of "our" warriors home.

In search of new information we despatched six of the section to Dalton to get the latest on H23, from the very capable hands of W/O Ginsberg.

Our super salesman F/Sgt. Ricard has turned his hand to the selling of bonds for victory. As this note leaves us the sales are mounting hourly.

Eastmoor

Statistics show that the average Canadian family contributes 1.5 to the country's population. We were pleased to hear that F/O Senuk having recently been presented with an addition to the family has only 0.5 to go.

The few mechs who were with 432 Squadron in the Skipton days, were pleased to see and talk to F/O "Red" Gamble, as he paid Eastmoor a lightning visit with F/Sgt. Ricard, another old 432 man.

Eastmoor has acquired a wondrous new tool chest of goodly size and beautifully austere line (utility)!! The main problem is to catch enough tools on the wing to hold down the doors on this ruddy thing. Lumber? Well you see F/O Senuk's room mate is the armament officer. (Can you find your way to the Bomb Dump? No!)

Pauvre

17.

The new inter-section telephone system is a wonderful idea, we now have "Radar Nav" in our daily servicing Office with F/Sgt. Macdonald. F/Lt Jones, F/L Robsen and F/O Pearson are doing a "bank on" job of training here and we do our own little private interro, on "X" countries etc. Our intercom takes care of the bottleneck when Jersey cracks the whip on some poor helpless Bomb timer who didn't know where the fuse was. (then too our senior N.C.O.'s have something to play with).

LtC's Drennan, Harrod, Janzen and Kelly of the W/T Section, have been paying us two at a time weekly visits, "Gennine-up". We were very thankful for their timely aid and hope they feel the time with us well spent.

Odd as it may seem to see an experienced airman throw away his life and mental stability, we have "on strength" one Cpl. McArdle, reamustering through our unit from G.C. to Radar. We are wondering though, where he is and whether he makes up the man we are short.

Personnel movements go on forever. Base has a knack of "borrowing" our men. The last "borrowing" removed LtC's Letellier, and Cook to B.M.S.S. Cpl. Vennes is moving to Linton after his course at B.C. followed by leave. Farewell to L.A.C.'s Kent and Wickstrom, whose postings have finally been confirmed after "attachment" for 4 months at B.M.S.S.

LtC Parsons is back in healthy condition after a short near diphtheria sojourn in hospital. To LtC Platt in a hospital down south we also send hopes of a speedy recovery and want him to know his invention is receiving the very best of care.

LtC Wiegand is back from instructing and leave, we hope we see much of him now.

.....NO. 63 BASE.....

We take our hats off to Cpl. Roy Inster for doing such a fine job of training 36 of our mechanics on Loran equipment in the short period of one month. With seven men from the Base attending an H2S Course at Dalton, it is impossible to continue Loran training and we all hope Roy is enjoying his well earned leave. With four lads who had Loran on their course back home, 63 Base can now boast of having 40 Loran-training Radar Mechanics.

B.M.S.S.

There have been a few changes in personnel at B.M.S.S. since last month. The old red carpet was rolled out for Johnny Felt, formerly of Slipton, and "Solenoïd" Sollanych who, really a Lancaster man at heart, is gradually being converted to the good old Halifax. LtC "Mac" MacKenzie has returned to the Flights, and is now pushing "Gornys" for D.S. In his place we have LtC "Mattie" Batterick. To complete the list of personnel in Base Major Servicing Section, LtC Ferron has arrived from Slipton after completing a Loran course, and we now have all the men the present establishment calls for.

Radar Installation at 63 Base is still going at a good rate and looking back through the records we find that since July 12th Base has fitted 64 aircraft with more coming in all the time! What with courses, and leave in the bargain, the section has been working with a minimum of men, and we are mighty proud of our record.

Recently away on an H2S course at Dalton, was Bill Bush, who has now returned all genned up. Another Loran man is "Solenoïd" Sollanych who spent five days down at Slipton absorbing the intricate working of this new equipment.

Pauvre

18.

LEARNING

To celebrate the completion of two years in this country some ex-427 and ex-429 bods felt that parties were called for at North and Exolby respectively. It is said that a good time was had by all.

The old feud for the ownership of the "Lard" (to the unowned, our type 422 Radar Van) has arisen again with Cpl. Bull Smith wanting to know who is going to drive it while P/O Schlote is on leave.

The R & I. Section would like to know if the bloke that scratched out those electrical symbols into a likeness of a circuit for the workshop earthing system realized the amount of work such a simple looking drawing entailed? After tackling the job with pessimism, Cpl. Williams and L/C Kellett finally completed it and now look back on it as well worth the effort. Especially when Cpl. Ted Smith turned from his bench long enough to state, the contrivance was the handiest rig-a-ma-jig yet to be installed in the workshop. It has saved plenty of trouble and has helped us in finding faults in power supplies several times.

L/C M. Kellett has just returned from a Group HCS course at Dalton. Evidently W/O Ginsberg really puts a "bug" in their ears when they for M. has come back with gen sticking out all over. At present L/C's Kennedy, Guy, Barclay and Barrie are being genned up down their

SIMPON.

Cpl. Charlie Goddard had a tough time with Cpls Buck Moore and Bill Hodge the other day. He finally managed to convince them that there was nothing wrong with their strobe positions, it was only one of those Type 621 indicators which Bill and Buck had taken out of one of their kits as being w/s.

Our Mark II Canadian, Johnny Beard is one of the leading spirits in Bridge on this station. He is organizer-in-chief of this indoor sport and leads our station team in games (mostly unsuccessful) against some of the leading civvie players in Harrogate.

Accompanying Johnny on these weekly excursions to Harrogate is Al "Bill" Abner" Kolberg, Vancouver's gift to Canada. Incidentally, the radio which Al has been building for the past six months seems to be getting along well. It now produces intermittent howls. Consultant to Al is Sgt. Bob Hemanson.

Our loss and Learning's gain is gen man concerning everything and anything in relation to our work, L/C Johnny Felt. In addition to doing good work in the section servicing equipment, Johnny has built any number of tools. His ability for fixing bicycles will be missed by some of the Jeds who have been pranging them in the past. Johnny is also a master handle craftsman. He has, on several occasions, done some fine work on lamps and lamp shades.

There were a couple of red faces and threatening glances, in the direction of Charlie Denham at a dance not so long ago. Charlie, who leads the Station Band, announced the next number, "Sweet Sue", and dedicated it to Harold Brown and dancing partner. Harold, by the way, is doing a "bang on" job of selling Victory Bonds.

Johnny Perreault, respresent in new uniform, has gone artistic on us. He's now stage manager of the Station Dramatic Society and may possibly be doing a few Charles Boyer roles for us in the future.

Pause

.....NO. 64 BASE.....

19.

F/O Crooks and F/O McRae from 91 Group visited the Base one day early in the month to see an operational Station at work. In fact we have had so many visitors lately that we are seriously considering the conversion of one of our Radar vehicles into a bus so that we can run conducted tours!

There have been rumours that Crof 's Radar Officer is planning to take the big jump into matrimony one of these days. The Base Radar type is quite willing to supply any advice required.

Due to the many postings out of Base Signals personnel the Radar Sections have had to release most of the Signals types who were on attachment. However, two W/Ops and one R.T.O. still remain and we are doing our best to hang on to them. We can't express too much thanks to these Signals lads who have given us so much help and we are looking forward to seeing more of them if and when they can be spared.

B.M.S.S.

B.M.S.S. is happy to make its first official report to Radar News. Since the last issue this section has made much progress thanks to the sustained efforts of Sgt. Gray, Cpl. Baldwin, and LAC's Wiers, Cheyne, Wisher and now and again "Take-aw" LAC Cummins.

The B.M.S.S. Has been progressing so smoothly lately that W/O Mike O'Neill was heard to lament that soon everything would be so well organized that he wouldn't have anything to do.

The welcome mat went out last week to LAC/s Charron and Eretz, formerly of Croft, and to Cpl. Burnham, a Lease-lend W/T mechanic.

If the present influx of aircraft keeps up it won't be long 'til Jerry feels the weight of two more Canadian-built Lancaster X Squadrons. Although as yet we have not been accepting Croft's Halifax aircraft here, we have been assigned the task of carrying out periodic inspection of all the Radar equipment in the Pool of Lancaster X a/c being formed for future use at Croft.

MIDDLETON MASTER MINDS

F/Sgt. Maxwell of the Radar C.T.T.B. has been spending a few days visiting the Station. We gave him an extra special fifty shilling tour and did our best to see that he departed only after being well informed as to the operational end of the Radar field.

With the introduction of a test-pilot for the Base, all new a/c as well as category a/c after repair, will be air-tested. Provision has been made whereby a Middleton Station or B.M.S.S. Radar mechanic will go along with the Navigator or Bomb Limer to test the performance of the Radar equipment. We feel that this scheme will put the final touch to the aircraft before being passed out to the Squadrons concerned, as well as providing a closer understanding between Navigator and Radar in that they will each become acquainted with the others requirements.

The Radar training room is well on the way to completion and we really think it the "gen" place, and feel quite proud of the whole effort. The idea is simply to base all the Radar training gear in one room, set-up as much as possible to resemble an aircraft installation, and we feel quite certain that it is the beginning of the end for all manipulation difficulties. The aircrew personnel have been showing a great deal of interest and it is fortunate that at the same time we have a Fishpond Instructor(aircrew) with us and he is really whipping the boys into shape. In spite of the limitation on the use of H2S and Fishpond these days emphasis here is being put on more and more training as the only positive

The prime reason for my visit to Alconbury was to find all I could about 10cm. beacons, and particularly what chances we have of obtaining a 10cm. effort to give an H2S response to our practice bombing at Snape. From this point of view the success of the mission was merely "so-so", since AFS-15 is 3 cm. gear and the only beacons they have are for use with that equipment. I did, however, manage to find out something on the subject of 10cm. beacons, but our immediate prospects of obtaining one are remote. The ideal "HIPS" beacons with a receiver bandwidth of 100 Mc/s, and tunable over the complete "3" band of frequencies, are in short supply and urgent demand by Troop Carrying Command, who use them with their airborne SCR 717 (H2S). The alternative, JIN-17, is actually a cm. IFF for MBW identification, and if we can have them, the receiver will have to be modified to give it a wider band than its present 10Mc/s, or at least three of them on different frequencies used in order to accommodate the H2S magnetrons permitted variation of + or - 15 Mc/s.

According to Major Cade, Alconbury's king-pin Radar "nark", good results are nearly always obtained by Bomb-aimers when they have such a target as a beacon "spot" to bomb, but the difficulty is to bomb a particular section of a larger area response. Apparently the trouble they have is mainly in recognizing the particular section. To give this practise, the U.S.A.A.F. gave a GL outfit just on side Peterborough which plots the aircraft on its bombing run and fixes it very accurately over the town when they get the "Bombs away" over the R/T. This sounds like an excellent scheme, and I for one would like to see 6 Group with a British Mk. III GL (Canadian made, as I got the story) set up outside York for use by all our Squadrons. Whether we do or not I am not prepared to say, since I have no idea what complications are involved in securing a GL set for such a purpose.

So much for the purpose of my visit to Alconbury; and now for the purpose of this article. Before I go ahead and tell you about AFS-15 I think it wise to warn you that I had little more than a glimpse at it and I ventured only a few leading questions as to its 'guts' because of the shortness of time. Also, I had never thought of making it the subject of an article for the Radar News. So please don't ask me any embarrassing questions about it the next time you see me!

Alconbury is purely a training station for those American heavy bomber crews who are to fly ops as formation leaders, or 'Master Bombers'; it is, in effect, a P.F.F. "Com. Unit". They fly Fortress B-17G's down there, of which they have about 40 fitted with AFS-15. Each U.S. bomber formation is led by a master bomber who navigates and bombs (when conditions dictate) using AFS-15. As soon as the rest of the formation see his bombs go down, they release their own, and the result is this "pattern bombing" we hear so much about ("WE HOPE"). For this reason, AFS-15, or "Mickey", as they fondly refer to it, is quite an ingenious device.

AFS-15 corresponds to the British Mk. III H2S, or H2X, working on 3 cm. but, its range is at least twice as great, and Major "Mike" Cade maintains they have far less trouble with it than we have with our own Mk. III. On a wavelength of 3 cm, and only a 1AKV pulse on the magnetron, one would naturally expect the range of their equipment to be less than that of ours, but in practise, a Radar Navigator can rely on ranges of 60-80 miles with AFS-15, and often gets even better ones. Major Cade thinks this improved range lies mostly in the super-sensitivity of the receiver, as it probably does, but there are other factors which, to my mind, cannot be overlooked. First, the T2R is a completely "pre-plumbed" waveguide job from Magnetron to the output where it takes up the scanner waveguide feeder without any sort of matching being necessary. Next, the design of the scanner paraboloid and the waveguide "sprout" appear to be such as would concentrate the maximum power into the transmitted beam. And finally, AFS-15 has Automatic Frequency Control which obviates considerable tuning "finger trouble" on the part of the operator. As for the alleged increased serviceability

Pauvre

21.

.....THE THOLTHORPE GANG.....

We are very pleased to introduce the Tholthorpe section famous to all for their development of Monica Mk. V. They are now getting deep into the mysteries of H23, maybe that's the reason for their smiles!



Reading left to right.

Front Line

LAC Rankin, R.
LAC Grundy, R.
P/S. Ricard, J.R.A.
Sgt. Tod, R.G.
P/L D.G. Gamble,
Sgt. R und
P/Sgt. Gallimore, R.F.

Third Line

LAC Legris, A.J.
LAC Tooley, J.B.
LAC Hudson, A.N.
LAC DeBryne, B.E.
LAC Temple, P.W.
LAC Brynildson, L.
LAC Roun, B.H.

Second Line

LAC McDiramid, J.C.
LAC Marrin, F.J.
LAC Bourbonnais, J.
LAC Moyer, S.L.
Cpl. Burke, C.D.
Cpl. Utley, D.T.
Cpl. Malin, J.L.

Back Line

Cpl. Perron, J.L.
Cpl. Rollins, R.J.
LAC MacGillivray, W.S.
LAC Desislcts, R.
LAC Davy, R.J.
LAC Forester, H.E.

Personnel missing
From Picture

Cpl. Hurst, C.B.
Cpl. Reid, D.C.
LAC Leblanc J.Y.
LAC Posset P.J.
LAC Nickafor, J.

THE WAGES OF SIN



MONTHLY SUMMARY
OF

APPENDIX No. 121 to
R.A.F. FORM 540
No. 6 (R.C.A.F.) GROUP

ENCOUNTER

SECRET



RCAF GROUP

Oct. 1944

Pauvre

SECRET

From:- Headquarters No. 6 (R.C.A.F.) Group.

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To H.Q.B.C.
for onward
transmission

Date:- 5th November, 1944.

Ref:- 6G/S.660/Trg.

SUMMARY OF ENCOUNTERS WITH ENEMY AIRCRAFT

During the month of October, 1944.

REPORT NO. 18.

During the month of October, No. 6 Group aircraft had 75 Combats, twenty-four of which developed into attacks. This is the third highest figure in the history of the Group.

2. Approaches or attacks, four of them surprise attacks from quarters, were made as follows:

ATTACKS FROM	LEVEL	ABOVE	BELOW	TOTAL
ASTERN	7	2	5	14
QUARTER	15	22	6	43
BELN	8	3	1	12
BOW	2	1	1	4
REAR	2	Nil	Nil	2
TOTAL	34	28	13	75

3. Our claims are one enemy aircraft destroyed, one damaged, and two probables. Five of our bombers sustained damage.

4. Enemy aircraft were encountered on the three different stages of operations.

<u>OUTWARD JOURNEY</u>	<u>TARGET AREA</u>	<u>HOMEWARD JOURNEY</u>
14	27	34

P.T.O.

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5. Six different types of aircraft were encountered apart from the many unidentified aircraft.

<u>ME.262</u>	<u>ME.109</u>	<u>ME.110</u>	<u>ME.210/410</u>	<u>JU.88</u>	<u>FW.190</u>	<u>U/I</u>	<u>U/I S/E</u>	<u>U/I T/E</u>
1	7	5	4	14	12	8	9	7

6. The enemy is now making use of the jet propelled ME.109 and ME.262 as night fighters. Gunners must expect faster closing attacks, which will call for still better search and immediate combat manoeuvre.

7. Four of our aircraft were fired at by Lancaster aircraft and one by a Halifax. Gunners are to warn Gunners that they must identify the aircraft as an attacking fighter before opening fire. If doubtful they must give combat manoeuvre without firing.

8. Too many Gunners are allowing claims of destruction or damage to enemy aircraft when there is no reason to substantiate the claims. They are reminded of this Headquarters' letter GG/S.360/TG. dated 5th Novem. 1944, which deals with claims against enemy aircraft.

(S.A. FROUD), Squadron Leader,
for Air Officer Commanding,
No. 6 (R.C.M.F.) Group,
ROYAL AIR FORCE.

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DETAILS OF OUTSTANDING ENCOUNTERS IN OCTOBER, 1944.

Night of 5/7th October, 1944. Operations to DORTMUND.

Halifax aircraft "A" Serial No. NP. 718 of 400 Squadron.

While on operations to the Target of Dortmund on the homeward journey this bomber encountered an enemy aircraft identified by the Rear Gunner as a No. 109 at a position 51:47 N - 06:35 E while on track flying on a course of 228 T at a height of 14,000 feet.

At the time of this attack the sky was free of clouds and the moon just rising dead astern.

The first warning of a possible attack was searchlights activity and some fighter flares. The Rear Gunner sighted the enemy aircraft orbiting a fighter beacon, it then dived in to attack dead astern. The Rear Gunner gave the order to corkscrew starboard, also giving the position of the enemy aircraft to the Mid-Upper Gunner who opened fire at 400 yards. The fighter broke away at 250 yards to port quarter down without opening fire.

Owing to the fact that the intercom was unserviceable in the turret the Rear Gunner had his turret centralized - doors opened and intercom connected in the fuselage. As it was impossible for him to rotate his turret and bring his guns to bear on the enemy he kept up a running commentary of the attack.

Both Gunners and the Pilot observed two explosions in the fighter which disappeared down to the port side. Two other crews from the same squadron reported seeing an aircraft hit the ground in flames at the same position and time of this attack. The No. 109 is claimed as DESTROYED.

A total of 400 rounds was fired by the Mid-Upper without encountering a stoppage.

The Mid-Upper Gunner, P/Sgt. Humphreys G.L. trained at No. 7 B & G, 22 O.T.U. and No. 1659 H.C.U., and the Rear Gunner, P/Sgt. Cadorette J.A. at No. 9 B & G, 22 O.T.U. and No. 1664 H.C.U.

COMMENT:-

Very good co-operation between Gunners, and good shooting from the Mid-Upper. A good show all around.

Encounters:-

Night of 9/10th October, 1944. Operations to BOCHUM.

Halifax aircraft "F" of 426 Squadron.

While on operations to the Target of Bochum on the outward journey this bomber encountered an enemy aircraft identified by the Mid-Upper Gunner as a FW. 190 at a position 50:31 N - 06:26 E while on track flying a course of 089 T at a height of 13,000 feet.

Shortly after fighter flares were dropped on both quarters, the Mid-Upper Gunner sighted the enemy aircraft at 400 yards on the starboard quarter level. The order to corkscrew starboard was given by the Rear Gunner who fired 600 rounds without stoppages. Tracers were seen to ricochet off the wings and fuselage of the FW.190 until the range closed to 200 yards, when a Halifax aircraft crossed the Rear Gunner's line of sight and forced him to abandon firing. The enemy aircraft did not open fire and was seen going down in an uncontrollable dive. This fighter is claimed as DAMAGED.

At the time of this attack, visibility was good with cloud below.

The Rear Gunner, Sgt. Cross, trained at No. 3 B & G, 22 O.T.U. and No. 1655 H.C.U.

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Encounters Cont'd:-

COMMENT:-

Good shooting by Rear Gunner. Very unfortunate that the Halifax aircraft prevented the enemy being destroyed.

Encounters:-

Night of 6/7th October, 1944. Operations to DORTMUND.

Halifax aircraft "A." Serial No. ME. 823 of 427 Squadron.

While on operations to the target of Dortmund on the outward journey, this bomber encountered an unidentified enemy aircraft at a position 50:18 N - 06:59 E, while flying off track on a course of 044° T at a height of 20,000 feet.

The first indication of attack was tracers coming from starboard quarter level against a dark sky. The Rear Gunner immediately opened fire, giving the order to corkscrew starboard. There was no further indication of attack.

A total of 50 rounds was fired by the Rear Gunner who however never sighted the enemy aircraft but only fired towards the origin of the trace.

This same aircraft ten minutes later, on the outward journey encountered three unidentified enemy aircraft at a position 50:35 N - 07:12 E while flying off track on a course of 044° T at a height of 20,000 feet.

The Rear Gunner first sighted three fighters respectively on the starboard quarter slightly up astern and on the fine port quarter up. Just as the Gunner gave the order to corkscrew the three enemy aircraft simultaneously opened fire with a short burst and broke away to port quarter up as the Gunners returned fire. The enemy aircraft disappeared from view and were not seen again.

A total of 100 rounds was fired by the Rear Gunner and 50 rounds by the Mid-Upper Gunner without encountering any stoppages.

This same aircraft again encountered an unidentified enemy aircraft twenty minutes later at a position 51:32 N - 07:26 E while orbiting the target at 20,000 feet.

The first indication of enemy aircraft was tracers coming from approximately 400 yards on the starboard quarter up and passing above the bomber. The Rear Gunner gave the order to corkscrew starboard and the fighter immediately broke away to port quarter at 300 yards. Neither of the gunners returned fire in this last attack and the fighter was not seen again.

At the time of these three attacks the weather was clear above and hazy below.

The Rear Gunner Sgt. Woods trained at No. 10 B & G, 22 O.T.U. and 1659 H.C.U. The Mid-Upper Gunner Sgt. Maltinsky trained at No. 5 B & G, 22 O.T.U. and No. 1659 H.C.U.

COMMENT:-

The first two interceptions are probably due to bomber being off track. A case of bad search in the last two attacks and this crew must ensure that they have the right search procedure.

Encounters:-

Night of 5/6th October, 1944. Garden operations to HELIGOLAND.

Halifax aircraft "A." Serial No. ME. 944 of 432 Squadron.

While on "Gardening" operations near Heligoland, Halifax "A." encountered an enemy aircraft identified as a JU:86 at a position 54:00 N - 08:10 E at 20:20 hours, while flying on track just after leaving the "garden area", on a course of 270° at 12,000 feet.

Cont'd.

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Encountered Cont'd:-

At the time of this attack visibility was very good with clear sky and bright moon astern.

The first indication of attack were cannon shells exploding in the rear turret, empennage and port wing. The Mid-Upper Gunner then sighted the JU.88 on the starboard fine quarter level at 300 yards range, still firing at our bomber.

Corkscrew was impossible due to damaged controls, so the Pilot started to dive in an attempt to escape the fighter. As the enemy aircraft moved over to port quarter up to begin another attack from 200 yards and started closing in, the Mid-Upper opened fire obtaining strikes on the fighter's starboard wing, engine and cockpit and kept firing until it closed in to 100 yards when it dropped its undercarriage, slipped on its back and dived vertically to port. It was last seen going vertically down towards the sea. This aircraft is claimed as PROBABLY DESTROYED.

The Rear Gunner was killed in this action and damage was caused to the tailplane, elevator, bomb bays and fuselage.

A total of 400 rounds were fired by the Mid-Upper Gunner encountering two link stoppages in the two upper guns.

The Mid-Upper Gunner, P/O Cochrane J.M. trained at No. 9 B & G, 81 O.T.U. and No. 1659 H.C.U.

COMMENT:-

A case of very bad search as the enemy managed a surprise attack against a clear sky during the moon period. However, a good show on the Mid-Upper Gunner's part after the first attack.

Encounters:-

Night of 24/25th October, 1944. Gardening operations to OSLO FJORD.

Halifax aircraft "Y" Serial No. MZ 910 of 455 Squadron.

While on Gardening operations in Oslo Fjord, shortly after leaving the "Garden area" this bomber was subject to fire from an unidentified single engine enemy aircraft at a position 59:43 N - 10:22 E while on track flying a course of 232° T at a height of 12,000 feet.

Visibility was good with a moonlit sky and 10/10th cloud below at 6,000 feet.

The enemy aircraft was first sighted against light sky by the Mid-Upper Gunner, coming in from port beam above at 400 yards range. Immediate order to corkscrew port was given.

At 250 yards, the fighter opened fire, tracer passing above the bomber. Both Gunners returned fire as the fighter closed in to 150 yards dead astern and tracers were seen to rake the enemy aircraft which turned over on its back and was seen diving down with flames coming from the fuselage. Shortly afterwards a red glow was seen below the clouds by the two Gunners and the Flight Engineer.

This aircraft is claimed as PROBABLY DESTROYED.

A total of 400 rounds were fired by both Gunners with the Rear Gunner encountering one stoppage.

The Rear Gunner P/Sgt. Christie J.H. trained at No. 9 B & G, 22 O.T.U. and No. 1659 H.C.U. and the Mid-Upper W/O Munro E.G. trained at No. 2 B & G, 22 O.T.U. and No. 1659 H.C.U.

COMMENT:-

Quick combat manoeuvre and good shooting by both Gunners. Good Show.

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1944

Monthly

APPENDIX No 453 to
R.C.F. FORM 640
R.C.F. No. 6 (R.C.F.F.) GROUP
DATE Nov/44

Radars NEWS

NO 6 RCAF GROUP 

WHAT YOU WANT

Every month about this time we take up the task of digging up and sorting out material for the "News", and though we tackle the job with all the enthusiasm of which we are capable we are always assailed by doubts which tend to dampen the enthusiasm. First, we wonder if anyone reads the "News" anyway and then if it has been read what is the reaction of our readers.

Well 64 Base have given us the answers to both questions and from the result of a Gallup Poll which was recently conducted in that territory to the North we find that not only is the "News" read by a fair number of Radar Mechs (we wont boast) but, being only human, our readers profess preferences for information covering subjects from instructions on how to build a civvy radio set to all the gear on the latest Gerry Radar Equipment!! We know that we can't satisfy all of you but we will try to follow up some of the suggestions we have received through the Poll.

It appears that most of you are interested in the whereabouts and doings of your fellow mechs on other stations and that you would like to hear more about their travels and promotions. We would like to comply with the many requests for more of this type of information but we must make it clear that here is one place where you can help yourselves. We depend on you to send us all the news of the happenings in your section, the promotions, the movements and the funny things that occur during the days work. If you don't send the news in we can't print it, for we just can't get around to every station every week to pick up these things for ourselves. So just remember that some of your old pals want to know that you are doing, just as you want to know what they are doing and if you both tell us you will both find out!

ARTICLES

No doubt you have all wondered what was inside that box of tricks which is known as the D.R. Caspary, and how it manufactures the pulses which make the repeater rotors go round. The Electrical Branch tell us all in the article which we are publishing this month and we hope you find it interesting. You might tell us whether you like information on the gear used by other trades and if you would like to know something about A.P.I.'s and A.M.U.'s.

The Education Branch continue this month with the pen on hot to get more education after the war. We are seriously thinking of going back to University when discharged and becoming a public Radio Engineer so we can understand those weird formulas they use for figuring out the dimensions of wave guides! If any of you want to get an education, the Canadian Government is certainly supplying the opportunity.

S/L Miller has been moving around the country getting the load on a lot of things and he dishes it out in "A Radar Moving Commission", which will give you a fair picture of what is happening in quite a few places.

COMPASS DISTANT READING, GYRO-MAGNETIC

The standard direction indicators fitted to aircraft are the magnetic compass and the directional gyro, but both have serious limitations.

The magnetic compass for instance, will only indicate accurately in straight and level flight since turning introduces the well-known "acceleration errors". Although filling of the compass bowl with liquid damps out the magnet oscillations which would otherwise make the compass unusable, it also increases the time taken for the needle to settle after it has been disturbed. Thus the P.L. compass takes roughly 30 sec. to indicate course correct to 2° after a Rate 2 turn from North to East. The compass must also be directly visible to the pilot although the cockpit is generally unsuitable magnetically since the undercarriage, bombs, etc., are too close.

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The directional gyro is unaffected by accelerations imposed by the aircraft, but, since no gyroscope is mechanically perfect, it precesses, i.e. its spindle fails to maintain the ideal steady directions.

The pilot normally makes the best use of both instruments by resetting the directional gyro to the magnetic compass at suitable time-intervals. In simple terms, the D.R. Compass goes one better by making a compass correct a directional gyro continuously.

The pilot is not the only man who requires to know the heading, however, since the navigator has at least an equal need while the air barber and several instruments also require accurate indication of the heading. Consequently, the D.R. Compass is designed as a master unit containing a compass-monitored gyroscope which transmits its accurate heading indication to a number of repeaters distributed through the aircraft. The use of a repeater system also allows the master unit to be positioned in a more suitable magnetic site than the pilot's cockpit. It is important to choose a position in which the magnetic conditions are stable. For instance, a site too near a steel tail wheel strut may result in a large change in deviation when the wheel is retracted and this would effectively invalidate any ground swinging of the compass.

General Description

The main features of the D.R.C. are the master unit, the variation setting connector, and the repeaters. In reading the following description it should be remembered that

- (i) The North end of a magnet will point to the North magnetic pole, which does not coincide with the North geographic pole; the angle between the magnetic and geographic meridians at any place is known as the variation.
- (ii) The axis of an "ideal" gyroscope would maintain its direction, e.g., it could be made to point north indefinitely, except for a small effect due to the earth's rotation. In practice, however, every gyroscope suffers from out-of-balance and gimbal friction effects which upset its steady direction and cause wander (precession) of the gyroscope shaft.

Master Unit, Mk. I

A schematic diagram of the master unit is given in Fig. 1. The unit is supported in gimbals on an anti-vibration mounting and is balanced so that the normal position of the pivotal axis of the magnet is vertical. Air dampers are provided to damp the swing of the unit when the aircraft is taxi'd over rough ground or otherwise thrown about.

The bottom cover may be removed by undoing four thumbscrews at the bottom of the instrument, the compass element will then be seen just above the heading scale, on the inner frame.

The bar magnet is free to swing about a vertical axis and is contained in an air-damping box. The magnet, has to control the gyroscope, but, to avoid interference with the magnet movement, the control is shielded for periods of 2 1/2 sec. and the magnet is completely free for 3/4 sec. of each control cycle; this 3/4 sec is roughly equal to one quarter of the free period of swing of the magnet so that the magnet has time to return to the centre of its swing before the commencement of another cycle. At the end of each 3/4 sec. interval a contact, carried by the magnet shaft, is clamped down on one or other of two contact strips so as to complete an electrical circuit which controls the gyroscope.

The gyroscope, which is mounted above the compass element, has its axis horizontal like that of a directional gyro, it runs at 11000 r.p.m. and has sufficient gimbal freedom to stay untoppled in a 75° bank. The bar magnet exerts its control through two small electro-magnets, known as pot magnets, energised through the contact strips. Either pot magnet, when energised, induces eddy currents in a copper disc carried by the

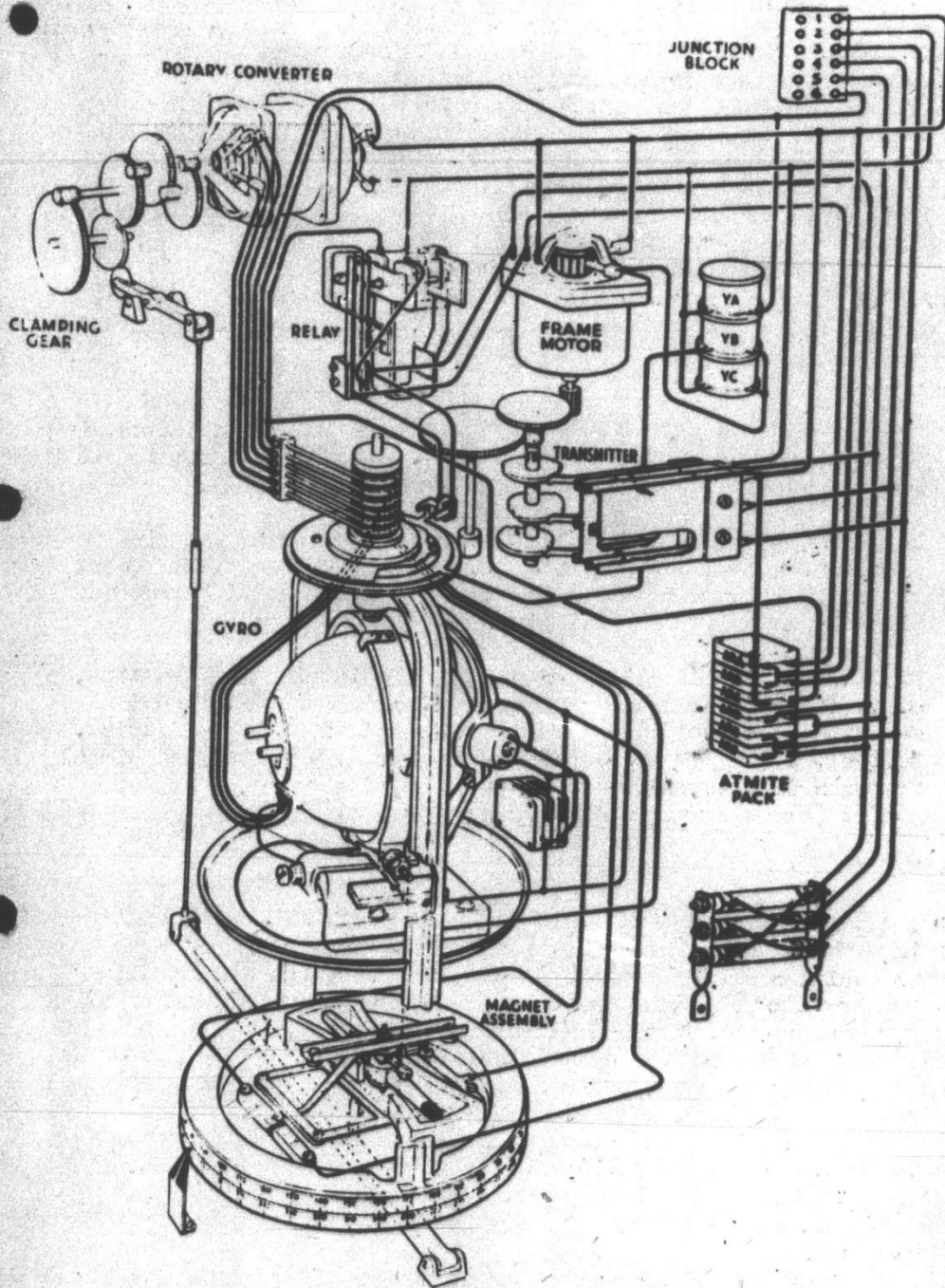


FIG. 5

MASTER UNIT
SCHEMATIC

FIG. 5

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gyroscope motor and the interaction of the eddy currents with the field from the pot magnet tends to precess the gyroscope shaft towards the energised pot magnet.

In order to keep the pot magnets correctly placed each side of the gyroscope shaft they are mounted on a rotatable frame which, through a relay and reversible motor, is forced to follow the gyroscope. This frame is known as the inner frame and it carries the scale from which the heading of the aircraft is read through a window at the side of the cover.

The relay and the frame motor, which drives the inner frame, are carried on the top plate together with a rotary converter which supplies three-phase A.C. for driving the gyroscope.

Briefly, we have a gyro-compass system in which the gyroscope spindle is maintained in an east and west direction. The gyroscope may possibly have an uncontrolled precession of as much as $\frac{1}{2}^{\circ}$ per minute but the magnet, monitoring at 6° per minute, effectively masks this free wander. Alternatively, we may visualize the gyroscope as averaging out the true magnetic heading from a series of magnetic observations, each of which, since the master unit is pendulous, is subject to "acceleration error".

Transmission System

We have seen that the inner frame in the master unit is azimuth stabilized, i.e., the direction of any line drawn on the base of the inner frame will remain fixed in space. There will be relative motion, therefore, between the master unit container and the inner frame when the aircraft turns. This movement, which measures the heading change, is made to drive an M type transmitter housed just below the top plate.

M type transmission, commonly used by the Admiralty, is a very simple and flexible system in which a rotating magnetic field is obtained in a repeater motor from a variation of D.C. polarities on three feed lines. The system does suffer the disadvantage, however, that it is not self-synchronous, as the signals transmitted can only be distinguished inside 30° groups, e.g., 3° , 10° , 17° , 20° , 27° , and 30° signals differ from each other but the 2° signal is effectively indistinguishable from the 32° signal, and 1° from the 4° and so on. Hence a repeater motor is unable to distinguish between 30° steps and if the transmission power fails or a motor becomes sticky the system may become desynchronised.

Desynchronising of repeaters was fairly prevalent in the first models of the D.R. Compass but improvements in detail design, and especially in repeater motor lubrications, have largely eliminated this fault. It should be remembered however, that the D.R. Compass is a fairly complicated instrument and it does require careful servicing; it will not perform indefinitely without attention.

The variation setting corrector is used to rotate the repeater cards relative to the master unit scale, so that the repeaters may show the true heading while the master unit shows the magnetic heading. The transmission, therefore, first drives a repeater motor in the Variation Setting Corrector and this motor drives a further transmission whose phase may be shifted relative to the input transmission so as to allow variation. The U.S.C. transmitter carries such heavier duty contacts than the one in the master unit for it feeds all the repeaters in the aircraft. The repeaters may drive the standard compass dials of the pilot's and observer's repeaters or may stabilise azimuth mechanisms such as those in the Air Position Indicator of the Mk. XIV Bombsight.

REHABILITATION

We have heard a lot about post war plans for re-establishing peace time industries, re-building bombed cities and even for re-building a whole new social world. A great deal of thought and effort is being put into these schemes now because people realize we should have something definite to work on when the war no longer requires our major efforts and we can get down to the job of making our peace time living really worth while. All these plans are designed to make our future more pleasant and easier than before, but no matter how much they accomplish they certainly will not

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provide a bountiful living for each individual without effort on his own behalf.

Now you may not be a bombed out city or a wrecked peace time industry but you have been living a life quite different from that which you lead before joining up and from the one to which you will go back. You will find it necessary to do some personal re-building back into a civvy career and the planning for that career can be done now while you have time to think about it. The rehabilitation schemes being set up will give you the opportunities to put that plan into effect through you own efforts when the time comes.

If you wish to train yourself for a better position or a fuller ability to avail yourself of greater opportunities, Canada has set up a very broad scheme for Educational or Vocational training privileges. Have you earnestly considered yet what you plan doing when you get back, or are you just 'drifting' waiting for chance to decide for you? Ask yourself the following questions:-

How old am I?

What academic qualifications have I?

Am I capable of settling down to study now?

What are my responsibilities now? Married, Dependents etc.

What work would I like to do, or do I know?

Am I capable of training myself or being trained for that?

Should I enter?:-

Architecture and Building -

- Draughtsman
- Carpenter
- Bricklayer

Engineering -

- Civil
- Chemical
- Mechanical
- Aeronautical
- Mining - hard rock, placer, coal

Teaching -

- Public
- High
- Technical

Medicine -

- Psychiatrist
- Surgeon
- Physician

Textiles -

- Weaving
- Dyeing
- Trotting

For those who cannot answer the last few of the above questions, there will shortly be Personnel Councilors on each station to assist in finding out the thing you are best fitted to do, and help you decide. Having decided on a future course of action what is the next step.

The Government of Canada has instituted a means of giving University or Vocational Training to any man or woman who has served in the Canadian armed

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services, and is qualified for same. All qualified for university admission at the time of enlistment, or who can qualify within fifteen months after discharge, may receive this opportunity.

Length of service, in the first instances, is the governing factor in the period of time for which ex-service men or women applying for university training may receive Government assistance. They are eligible for these grants on a month-for-month-basis, for the time they were in the service, providing progress is satisfactory. For instance, an ex-serviceman with two full years in the armed services could receive twenty-four months of assistance. This would mean that he could complete three academic years, (each year of eight school months) with Government assistance.

However, the Government is of the opinion that the opportunity to go through to a degree should be available to the outstanding student. So that this may not be denied him, standards of effort and scholarship being taken into consideration, if at the end of his period of training a student has demonstrated the necessary ability, on the recommendation of the University authorities he may be given assistance to complete his course or if exceptional ability be shown, may even be assisted in post-graduate work. Post-graduate opportunities are available to those who had entered or were about to enter post-graduate studies at time of enlistment.

No student may repeat a year's work for which he had already received benefits, nor may he receive vocational training after benefits have all been exhausted in university training.

The scale of grants provides for payments of £ 60.00 monthly to single men or women and £80.00 monthly to a man and his wife when the ex-serviceman or woman is taking training or completing education; to be paid during academic year.

Additional monthly allowances for one child	£ 12.00
" " " " second "	£ 12.00
" " " " third "	£ 10.00
" " " " (each subsequent child not in excess of three)	£ 8.00

All University fees such as registration, tuition, examination, athletic, etc., are paid, but text, books, instruments etc., must be supplied by the student.

For Vocational training there is a slight difference. These grants in most cases will not be paid in exceptional cases, if the period of service is longer, the grants may be expended sufficiently to complete training provided the full training period does not exceed the length of service.

A RADAR MOVING COMMISSION

Recently I had an opportunity to visit some fellow Radar types in other R.A.F. and U.S.A.A.F. formations in this country and I thought that you might be interested in some of the information I was able to pick up.

My first visit was to No. 12 Fighter Group, which is located near Nottingham. The Group Radar Officer there, S/L Laillaw, very patiently described the Fighter Command organization to me and explained the Radar Installations which they used for their various operational requirements. As my knowledge of Fighter Command was rather scant and out of date, I was very interested in what he told me. Incidentally Fighter Command recently re-adopted their old name instead of A.D.C.B.

At No. 12 Group Headquarters I saw the Group Filter Room and the Group Operations Room. The latter is, I think, exactly like the way Hollywood would picture an Ops. room complete with a huge plotting table which was surrounded by busy little W.A.S.P. plotters, glass enclosed balconies and bags of flashing coloured lights.

Fighter Command has of course, both day Fighter Squadrons and night Fighter Squadrons. The day fighters carry no radar equipment except I.F.F. while the night fighters (usually Mosquitoes) are fitted with A.I. an

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I.F.F. interrogator and several different I.N.F. sets.

The N.F. Squadrons have been fitted with Mk. VIII A.I. but it is rapidly being replaced by Mk. X A.I. Mobility is essential for the Squadrons in F.C. so the Squadron Radar Sections have mobile workshops consisting of three god size trailers; one neatly fitted with test benches, one for stores and one for a huge Deisel power set. Except for being rather cramped for space, these mobile caravans are capable of coping with the Squadron Radar Servicing. However, a Squadron usually takes over a Flight Hut when it arrives on a Station to give the Section more breathing space.

From No. 12 Group I went to the U.S.A.A.F. Station at Alconbury. Like F/L Waters I found that the Americans more than lived up to their famous reputation for hospitality. Although obviously plenty busy, Major Gale and his Officers more than went out of their way to show and explain to me their many interesting Radar gadgets. Last Month Waters gave you an excellent description of H2X so I will not go into that except to say that I was able to go on a 3 1/2 hour flip with it in a Fortress and "I'm sure was impressed yes sur!!" We flew over York and believe it or not I was able to pick out Allerton Park. Never realized there were three lakes in the park before. The castle at Scarborough stood out beautifully. Personally as a navigational device, I think that "Mickey" is hard to beat.

The American Air Force organization is somewhat different than ours, starting at the 8th Air Force Bomber Headquarters and working down, they have the Division which corresponds to our Group, then the Wing and then the Group, (their Group corresponds to our Station), and last of course, the Squadron. A Squadron consists of from 12 to 15 aircraft and usually there are four Squadrons on each Station. The Radar set up is,

- Group(American) Radar Officer - Major
- Squadron Radar Officer - Captain
- Squadron Radar Section - One Technical Sgt.
- Seven Staff Sgts.
- Eight Sgts.
- Group(American) Radar Section - Nine Staff Sgts.
- Nine Sgts.

The Squadron Section looks after all Radar Equipment except H2X which is serviced by the Group Radar Section.

You will note that all of their Radar Mechanics are N.C.O.'s which I think will meet with your approval. However, you probably wouldn't like the idea of turning out for reveille at 0625 hours each cold foggy morning.

In case you are not fortunate enough to visit an American Station I will give you the gen on U.S.A.A.F. slang:

- sack - bed
- pop - gen or bump
- chow - dinner or supper
- sweat out - wait for (this one appears to be a great favourite).

The Americans fit only a small number of aircraft in the Squadron with H2X. These aircraft which are fitted carry two Navigators: one called Radar Navigator and one called D.R. Navigator plus a Bombardier. I asked about finger trouble and learned that they did not have much because their operators receive at least 25 hours air training before they are checked out. This I think is very, very interesting, because I feel that Mickey is far easier to operate than H.2.S.

The Americans are really going to town on Radar photography and I think that we could learn a lot from them on that. They are fortunate in having their sets supplied with remote indicators which are ideal for photography when fitted with a K-24 camera but I think that we could fit remote indicators to our sets. Their H.2.S. maps are really bang on.

In the latest Radar magazine some mention is made of the "Dagle". I was very fortunate in being able to see this set fitted to Fortress. It is also called E.H.I.B. which is abbreviated from "Every House In Berlin".

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You will get an idea of its complexity when I mention that it employs 250 dipoles, has 150 sets of ball bearings and little gadgets like hyperbolic wound potentiometers driven by non circular cams. "Eagle" is just about the last word in Radar Blind Bombing devices.

I picked up some good tips on H2S Trainers while at Alconbury. The Yanks became browned off with having their cities float off the Trainer maps so they cut the outline of the cities out of aluminum, rough up the tops with a file and cement them on the maps. Also they keep their maps up to date based on the formation obtained from their Radar photography. Instead of the track pencil, on the trainer they use a light shining through a small hole in a shield. Finally to avoid that annoying water tank scum they put water purifier in the tank (calcium hypochlorite).

In addition to H2X the Americans carry a high altitude Radar S.C.R.718 since in their bombing technique the absolute altitude must be accurately known.

In passing I might mention that American food is all that it is cracked up to be, gallons of fruit juices, real coffee etc., only the next time I will be there for Thursday which is ICE CREAM day.

My next stop was at R.A.F. Coltishall near Norwich which is one of No. 12 Groups more important Stations. It was here that I had a chance to examine Mk. X A.I. and I will endeavour to describe its most interesting features. It is American equipment SCR.720.

The 10cm scanner sits up in the nose of the Mosie and spins away about the vertical axis at 360 R.P.M. It also has a simultaneous tilt action. There are two rows of switches which select the fixed tilt or the tilt limits. They are marked:

<u>Lower Limit</u>	<u>Upper Limit</u>
-5	-5
-20	+5
+5	+20
+20	+50

The T2R which is known to A.I. circles as the "R.F. Unit", is in a pressurised cast alloy drum about a foot in diameter and about 2ft. long. The Modulator is mounted in the same sort of drum. Instead of a spark gap valve it uses a rotating iron disc which looks pretty but discourages shop radios. Like most American Radar Sets it employs magnetic deflection and has automatic frequency control. The power output is about 40k.w. giving a range of about ten miles. A Unit called the "Synchronizer Unit" does the work of the H2S Rx and W.F.G.

The method of display on the A.I. Mk. X indicator is unusual in that it employs two rectangular screens, on the right screen, the individual traces shift across the screen as the angle of the scanner changes in azimuth so that along the bottom you read the angle in azimuth. On the left hand screen the traces move diagonally up and down the screen giving angle in azimuth across the bottom and angle of elevation along the side.

Previously I mentioned that the night Fighters are fitted with an IFF interrogator. This is an American S.C.R.729 which consists of two boxes; one looks like an IFF set and the other is the indicator. For IFF interrogation, the output is displayed on the A.I. Mk. X. The SCR.729 Indicator is only used for beacon work.

While I was at Coltishall a Royal Navy Firefly came in equipped with A.S.H. That gadget really shook me. It is American equipment designed to be used for either ASV or A.I. on single seater fighters. The amazing thing is that the whole gubbins is compressed into a streamlined bomb shaped effort about the size of 1000lb bomb. ASH was suspended under the Firefly just like a bomb. The scanner is of course in the nose of the bomb with the T2R, Modulator, Receiver, etc., fitted in behind. Inside the aircraft there is only the tiny indicator and a control panel.

From Coltishall I pushed on to No. 100 Group Headquarters. No 100 Group is known as the Bomber Support Group. They give their support in two separate ways; the first is by using Mandrel and other things to jam Jerry's radar and radi control, and the second is by putting up

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specially equipped night fighter Mossies to protect the Bombers. An assortment of heavy aircraft are used for the first job and they are what you might call flying B.B.C. stations. They carry huge 2 K.W. C.W. transmitters which are mounted in pressurised tanks about four feet in diameter and about seven feet high. The alternator used to supply the 2K.W. job is interesting; it is no bigger than a type U and yet it pushes out 18K.W. It was amusing to see a huge 25H.P. motor struggling away to drive one of these alternators for test bench power. These radio countermeasures Kites look like Flying Christmas Trees. Aerials of all shapes and sized project out all over the place.

The Main Stream support Mossies are prize examples of just how much Radar gear can be packed into an aircraft. Just imagine a Mossie fitted with:

- (a) Forward looking A.I. Mk. IV
- (b) Backward looking A.I. Mk. IV
- (c) Serrate
- (d) Gee
- (e) I.F.F.

Plus a few too hush hush items.

The exact nature of individual installations varies with the size and shape of the Navigator. They put him in and fit the boxes around him.

Serrate, incidentally is the general name used for any installation designed for having on to Jerries airborne radiations. It usually consists of a D.F. aerial system an R.F. and L.O. Unit and from there on uses any convenient I.F. strip and indicator, usually that of the A.I.

Some of the Mossies are fitted with A.I. Mk. X to look forward and a beam of Visual Monica to look backwards. No. 100 Group is experimenting with the idea of fitting a small centimetre mirror in the tail of the Mosquito and piping back the output of the A.I. Mk. X transmitter when the nose scanner is looking backwards. Normally the A.I. Mk. X receiver is suppressed during this period, although the aerial continues to radiate.

No. 100 Group has its own Bomber Support Development Unit where some long haired Radar Mechanics dream up new devices to make Jerry unhappy.

I left No. 100 Group early one morning and to travel the sixty odd miles to No. 8 Group took me a little over eleven hours. I had to wait so long at Cambridge for trains that I was tempted to take one of those University Short Courses.

I went straight to R.A.F. Wyton which is No. 8 Group's or I should say PFF Groups key station. It was here that I had an opportunity to see H2S Mark III. The M.F.G., Modulator, Switch Unit and Receiver are essentially the same as Mk. II except the ranges on the Switch Unit are 10, 20 and 40 miles and Receiver I.F. frequency is 45mcs instead of 30 mcs. The indicator type 184 is used, which corrects for height distortion by altering the shape of the PFI saw tooth waveform. The time base for the PFI is triggered by the height marker so that blank circles in the centre is eliminated but Fishpond is not effected.

The Mark III T2R is quite different. First of all the pulse and filament transformers are supplied as one unit. The local Oscillator is mounted in the T2R, and is tuned by a repeater motor control from a special control panel. The Mk. IIIA H2S has the roll stabilised scanner type 71 and provides a track marker as well as a line of flight marker. Mark III H2S does not have automatic frequency control.

They are having a lot of trouble getting good polar diagrams from the 3cm H2S Mk. III scanners. So with the help of some TRE Boflins they have developed a system of plotting the polar diagram of a scanner. About 100 yds. from the Workshop, a parabolic mirror is mounted complete with an aerial on a stand about 12 feet high. On the workshop roof the scanner under test is mounted on its side looking towards the mirror on the stand. The scanner is rotated about its normal axis until it is looking straight at the mirror. The pick up from the parabolic mirror is brought into the workshop by a suitable cable and supplied to a meter. The scanner aerial is fed by a low powered 3 centimeter transmitter. The the scanner is slowly rotated in azimuth and readings taken at the various angles to be plotted on Polar diagram charts. I am afraid it sounds far more complicated than it actually is.

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Their method of improving the polar diagram is to fasten a piece of sheet perspex about 5 inches by 10 inches in the centre of the scanner. The explanation is that the flaphwan distortion due to meparolic properties of the waveguide dalinshaws the inverse migokafim. Or in other words they don't know, but the perspex does cause considerable improvement in the shape of the polar diagram. I had a short flip with Mark III HES and was impressed by its performance as compared to H.2.S. Mark II.

I could not help but be impressed with the tactful yet effective security which is maintained in 8 Group about Obce. For information on this equipment I must refer you to the Concise Details.

All the Lancasters and Mosquitoes coming into No. 8 the P.F.P. Group are fitted with their Radar gear by a glorified Lancaster and Mosquito Base Major Servicing Section, one for each type of aircraft. The scheme is well organized so that the aircraft travel through the hangar production line style. Each Section has two screened experienced crews which give the fitter a thorough Radar test when they come off the line.

At Wyton a few special aircraft are fitted with the American Monica MPS/13. It is unique in its lightness. The total installation weighs only 20 pounds. It runs off 24 volts, frequency 500 mcs., range 200 to 300 y s. When anything comes within range a light flashes and a bell rings. The bell going off suddenly makes the pilot jump thus pushing the stick around causing the aircraft to take evasive action.

I ran into our old friend Sgt. Lashbrook who is doing the same job in that Group as Sgt. Hall is doing here. Lash wanted all the 6 Group Radar gossip. I might be wrong but I thought that I detected a slight note of wistfulness in Lash's voice when he spoke of 6 Group.

The "Berlin" Mossies of the Group are fitted with Loran and they have considerable success with the S.S. Chain. The Loran trailing aerial was found to be impracticable so an inside loaded aerial was developed.

The experts have been considering the possibilities of fitting an extra Loran Strobe Unit to the S.S. Chain. Again because of the cramped quarters in the Mossie, the boys at Wyton are working on a gadget to give them remote switching of Gee R.F. Units since the location of the Gee Receiver is beyond the reach of the Navigator.

At this point it is necessary to stop gadding about and return to Group while brother Crawford recovered from an infected throat. However, there are a lot of strange places left on my visiting list and if you are interested I will tell you about them next month.

New Allocation of Duties .

For the information of all of you who have occasion to contact this Headquarters on Radar matters we give below the division of work in the Radar Branch.

Radar I Extension 41

1. Preparation of Radar plans and organization
2. Investigation of operational failures.
3. Liaison with the following Headquarters Branches
 - (i) Engineer - Radar Installations
 - (ii) Equipment - Radar Equipment
 - (iii) Organization - Radar Workshops
 - (iv) Navigation - Radar Applications.
4. Supervision of service trials of new Radar equipment.
5. Supervision of the Group Radar Servicing Party and the Group Radar Workshop.

Radar II Extension 66

1. Equipment provisioning and supervision of Group Pool
2. Personnel and training
3. All routine Radar Returns
4. Routine Technical and Servicing Instructions.
5. Deputy for Radar I in his absence.

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REPATRIATION

No! We don't know anything about repatriation! All we do know is that all of a sudden ten of our old stalwarts suddenly packed their bags and caught the boat that far home. Our local correspondents will be giving you the details farther aft in the "News" but we would just like to add our Cheerio and Good Luck to the following old timers who have done such a good job of keeping 6 Group Radar to the fore.

- | | | | | | |
|------------------|---|-----------|--------------|---|----------|
| W/O Partridge | - | Middleton | Sgt. Laprise | - | Croft |
| F/Sgt. Brooks | - | Middleton | Sgt. Wood | - | Linton |
| F/Sgt. MacDonald | - | Eastmoor | Cpl. Ennis | - | Croft |
| F/Sgt. Rittburg | - | Croft | Cpl. Smith | - | Leeming |
| F/Sgt. Scott | - | Middleton | Cpl. Clark | - | 1666 HCU |
| | | | LAC Gonick | - | Croft. |

WHAT SCHOOL DAYS AGAIN!

Having wound up the Radar School at Dalton after the last H.2.S. course we were all set to get W/O Ginsberg cracking on making Mark III H2S P.P.I.'s produce the latest thing in pin-up girls, but we were foiled by the sudden arrival of some Wireless Mechanics from Canada.

It was decided to give the new W/M's a basic course in Radar as well as the gen on communications equipment which is in use in this country so they would be able to give the Radar sections a hand if they were not immediately required on W/T work. So W/O Ginsberg, with Sgt. Wally Hill of Linton and LAC Cameron of Leeming as helpers, was despatched to Innsworth to organize courses of one week's duration, and having done this is now giving out with the gen again.

We hope that it will not be long before these new W/T Mechanics will be posted from Innsworth to Stations in 3 Group and that we will be able to "borrow" some of them to help with our D.I.'s. We want to get that pin-up mod going too!!

ONTARIO CLUB

An Ontario Club is being formed by the 3 Group Radar News. The primary object is to get the names and addresses of any Radar Mechanics in Bomber Command whose homes are in Ontario with the hope of forming a Radar Club in that province after the war. Any of you who are interested should forward your names to F/Sgt. Reggie Crines at the following address, who is keeping a record. The 3 Group Radar News will publish a list of the names every month which will be reprinted in our "News of the World" column!

F/Sgt. Reggie Crines,
H.Q. NO.3 Group Radar Maintenance Unit,
RAF Station Newmarket, Suffolk.

No. 61 BASE

61 Base said good-bye to 6 Group this month and became No. 76 Base in 7 Group. We are very sorry that the boys from the training base had to leave our gen group but as they were unable to pick up their stations and transport them to a new location they are still very close to us. geographically and we feel that our contacts with them in Radar matters will still remain fairly close as well. We have arranged to keep publishing their section gen in the "News" so that you can keep track of their boys who D.I. 'em.

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SWITCH-PANEL FOR USE WITH T.S.202.

The matter of H.2.S. accuracy for blind-bombing has often been discussed. However, up to the present time serious limitations in realizing the maximum possible degree of accuracy have affected the full use of H.2.S. as a bombing aid. This was primarily due to the method used to line-up the Range and Height Markers. Up to a comparatively short time ago, owing to the absence of echoes of accurately known ranges, the general practice was to line up the Markers by adjusting their ZERO Controls against TX. pulse.

Unfortunately, owing to unavoidable inaccuracies in the first two micro-seconds of the Timing Exponential Curves, this method introduced possible errors which would be carried up the scales to the operational heights and ranges and thus affect the reliability of the resulting readings. Furthermore, assuming that the early part of the Marker calibrations or the curves were accurate, any non-linearity of tracking farther up would not be readily apparent and at normal operational heights or ranges, any such discrepancy would introduce errors not generally noticed by the operator at the time of a bombing run.

To overcome these rather serious limitations, the T.S.202 was designed. It provides a comparatively simple and accurate source of signals or artificial echoes of known time delays. However the method of employing the unit seemed to cause a good deal of confusion, and unfortunately, the technical instructions supplied seemed to differ from time to time. Perhaps the main trouble was due to the different P.R.F.'s of the T.S.202 and the H.2.S. MODULATOR not matching and the consequent tripping of the modulator relays. However that can be overcome by adjusting the T.S.202 preset to give as nearly 670 p.r.f. as possible instead of 600.

The latest issued instruction manual, which should be incorporated in the H.2.S. section of the Bomber Command Radar Servicing Manual, explains clearly and concisely the most satisfactory method to be employed for lining up the Height and Range Markers using the T.S.202. By following these instructions a high degree of accuracy will be ensured.

However, in the method officially advised the use of pye-interceptor sockets is required. The repeated inter-changing of leads which is necessary with this method can become detrimental to the pye-plugs and much time will be wasted in repeating this process. This was found to be especially the case at Dalton, on the Group H.2.S. Courses, where the procedure had to be repeated on numerous occasions. To facilitate the job, a very simple panel was constructed providing extreme flexibility in selecting Synch Pulse for the Modulator, Markers for the Scope and also calibration pips for lining up the markers. The circuit is shown below.

DETAILS OF PANEL

Three selector switches are employed:-

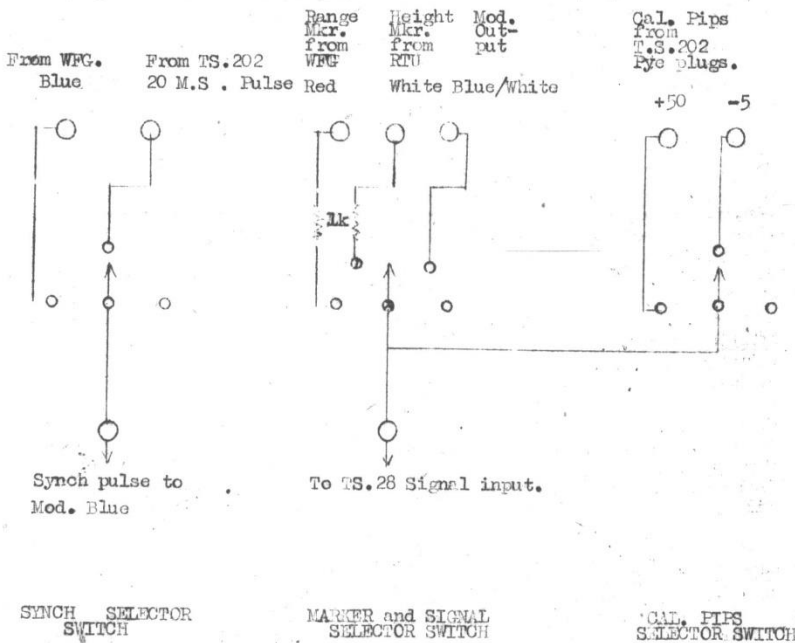
1. Synch Selector - (a) TX-Timer pulse from W.F.G.
(b) 20 u.s. pulse from T.S.202
2. Markers & T.B. Selector.
 - (a) Range Markers (Pye Red)
 - (b) Height " (" White)
 - (c) Mod. Output. (Blue/white Monitor Plug) to adjust T.B. starts.
3. Cal. Pips Selector
 - (a) Positive pips from +50v plug on T.S.202
 - (b) Neg. " " -5v " " "
 - (c) Blank

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It will be seen that we can provide a picture of either the HEIGHT or Range Marker, with or without Cal. Pips, and the Cal pips may be either positive or negative. The Mod. may run at either the W.F.G. p.r.f. or else be triggered from the T.S.202. The Monitor T.28 and the RX-TIMING Unit may be connected up normally. The Monitor T.28 T.B. start may be set to the Mod. output waveform (blue-white plug) or by scooping the TX pulse from the Red eye plug, made visible by turning the H.2.S. suppression switch between two notches to lift the suppression pulse from the RX.

The above panel is suggested for the guidance of those Sections where one is not already in use and may prove of value also to the Sections where a similar panel has been constructed but is not so comprehensive in character.



INDICATOR TYPE 62A

Last month we mentioned the trouble with 6R.91 valve Bases and that we had taken the matter up with higher authority. We have been informed by Sigs 7 at Air Ministry that an investigation has been called and we have sent a number of the defective Bases for the investigators to work on. We should be getting some definite gen on these pesky things soon.

FISHPOND TRAINER

No. 64 Base has developed a Fishpond Trainer, built from odd bits and pieces, which they say is the real thing for showing W/Ops what a kite looks like on a P.P.I. It looks good to us and we are going to pass it along to Command as a trainer mod. We haven't enough copies of the gen to pass to all Stations but for those interested we can make a copy available for a short period during which time you can take out all the gen you need. In addition 64 Base say they are willing to give assistance to anyone who is stuck and needs help in making the thing work.

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H.2.S. REMOTE MODULATOR SWITCH

62 Base has submitted a mod which incorporates a remote modulator switch right in the Switch Unit for use in delayed switching. We hope to get it approved for fitting in all aircraft so that the aircrew do not have to go back to the modulator to switch on.

EASTMOOR SAYS

If you find that adjustment of the Fishpond 10 mile vertical pot has no effect on the trace, check the resistance from the said pot to the relays.

AH! COTTER PINS!

Sgt. Gorrie in the Daily Servicing Section at Leeming and his boys have discovered that a great deal of time and work can be saved by changing the cotter pin in the shaft of the repeater motor with the scanner still installed in the aircraft.

The tools required are: screwdriver, 1; torch, 1; longnose pliers, 1; and last but not least, half-a-dozen cotter pins. The large number of cotter pins are required to avoid making trips back to the section every time one is dropped. The boys have found that after several attempts to insert said cotter pin, the job can still be completed in something like 5 minutes. Is there a Radar Mech. who can change a scanner in this time?

.....EQUIPMENT NOTES.....

LOADING UNITS TYPE 51

Loading Units type 51 reference 10B/16025 have now joined the ranks of controlled items. It may be remembered that way back in June a Bomber Command Modification came through converting A.R.I. 5083 aeriels type 201 to type 329. Included in this mod was the changeover from Loading Unit Type 2 or 21 to Type 51. Since the supply is now limited these 51's are to be allocated through the Group Pools. As stock is accumulated the Pool will distribute these items in quantities sufficient to fit a complete Squadron at a time.

DEMANDS AND EXCHANGES

Week by week it is becoming more apparent that the recent scheme of demands and exchanges from the Group Pool is a most satisfactory arrangement. At least from a Pool stand point it is ideal. Bomber Command and 30MU are advised of our needs on specific days and hence the Pool is now able to re-stock in the latter part of the week. Still, however, individual items continue to come in from Units insufficiently marked but this too is gradually ironing itself out.

SCANNERS

Special care is being taken to keep scanners under cover and any means about rusted items will be followed through to our source of supply.

SPARE ITEMS OF COLUMN 7

Several Units have been enquiring as to the possibility of spare items in Column 7 H.2.S. leads for replacement or test in aircraft. This problem has been taken up with Bomber Command. Although as yet no spares are forthcoming at least the suggestion is in the correct hands. Suggestions such as this to improve or facilitate the method of D.I. by Units are too few and far between these days in spite of the welcome given them.

Incidentally with the C.T.O.'s permission, numerous Col. 7 items can be retrieved from categorized aircraft.

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OUR WAR CORRESPONDENTS.

NO. 76 BASE - NO. 7 GROUP

(Formerly NO. 61 BASE - NO. 6 GROUP)

TOPCLIFFE.

Now that this base has transferred to No. 7 Group, there is gradually less connection with No. 6 (ROAF) Group, but until No. 7 Group Radar gets fully organized, we are dependent on 6 Group in matters of controlled equipment etc. The change over has not made any change in the personnel here, the same lads are carrying on as usual. Here are a few personal notes on life in 7 Group.

Sgt. Hearn, Cpl. Spratt and Cpl. MacDonnell were looking very pleased with themselves the other day. Apparently they are next in line for Canadian repatriation. Lucky Fellows!!! P/O Doug. Hay seems to be in the same category, but doesn't look too happy about it. We hear that he is much more interested in a "discovery" of his down in London. We just hope it works out nicely.

Cpl. "Howie" Steel and LAC Putnam have just returned from leave, looking pale but happy. They say it was all a great success.

The modification connecting a D.R. compass to the 54 trainer, works fine now, and Radar Nav. say it is "bang on" for training.

L.A.C. Schroeder is working diligently on a "Fishpond" trainer to be connected to the bench sets, following the plans supplied by Middleton.

DISHFORTH

Since last heard from, we at Dishforth have welcomed two Wireless Operators to our strength. The two new boys, Cpl. Martin and LAC Booth, are from T...F.

If you want some time off, just ask Keith Middleton how it is done. He came back from Northallerton only to go on two weeks leave, and then at the same time on light duty. He might be back in harness again by Christmas.

Within the last couple of weeks, we have doubled the number of H.2.S. aircraft, and with them we increased our headaches.

We now have our H.2.S. Trainer set up with an A.P.I. Reports are that it works fine. We have just had some "Gen Men" from Middleton St. George down to see the set up, so that they can have one too.

LAC Hartwick keeps everyone up late helping to "gen up" for his trade test. Best of luck Bill, and may your labour be rewarded by success.

WOMBLETON

Corporal Harry Clarke has received his repat. and has returned to the land of Black Horse and Molsons and just in time for Christmas at home too.

Flying Officer Sharp and three mechanics from the Loran ground Station at Danby Beacon paid a visit to the station recently. They had all worked on GEE ground Stations and wanted some "gen" on the airborne side of things. A flip was arranged, and even though some fighter affiliation took place they all enjoyed it. A return visit in the near future by some of the airborne "types" to the ground station is contemplated.

The Signals and Radar Section held a party at Hutton Le Hole during the month. In spite of a shortage of dancing partners a bang-on time was reported by all. May be next time Corporal Love won't be so shy and will invite the red-headed WAAF sergeant from the Control Tower.

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(Our War Correspondents.)

15.

Flight Lieutenant Cunningham, the Station Education Officer, called around at the Section and explained post-war gratuities, clothing allowance, veterans land act, and other good things expected with the end of the war.

LtC Craig and LtC Anderson, two wireless operators from TAF, have joined the Section and are being initiated into the mysteries of Radar.

Corporal Love and Sergeant Kay are having their ingenuity taxed to the limit to keep the H2S synthetic trainers serviceable. However, they are accomplishing miracles and trainer serviceability is improving by leaps and bounds.

-0-0-0-0-0-0-0-0-0-0-

NO. 62 R.C.A.F. BASE

Non - Paid Advertisement

GRAND OPENING

62 RCAF RADAR POOL STORES

We wish to announce the Gala Opening of a Base Radar Pool run exclusively for the benefit of Radar Servicing. We will supply all Radar equipment promptly. Our service incorporates uncrating, initial check, delivery and exchange of all Radar equipment. Other items handled include test equipment and any old junk. We guarantee 24 hour personal service - no problem is too great.

Our Slogan

Service for all - We hope?????

Phone 108 before 10 A.M. - Mondays, Wednesdays and Fridays.

The above announcement ushered in yet another service to the stations in the Base and what with the extra work required to service Radar equipment during the coming months and the loss of personnel due to recent repatriations, there will be many calls made on the facilities thus provided from the hard pressed Radar Sections.

Our aim is to improve the servicability of our Radar Equipment and we feel that the above service and the recent Base conference of Radar and Radar Navigation types will accomplish much to this end.

This Base, which by the way is the largest in the Group having six squadrons totaling approximately 150 aircraft, has been fitting H.2.S. for about six months now and is fast approaching its goal of 100% H.2.S.

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16. (Our War Correspondents)

BASE MAJOR SERVICING SECTION

During the past month B.M.S. has expanded in connection with the tri-weekly technical run. We have acquired the use of half of one of station workshops where a pool of Radar equipment is kept. LAC's Glover and Miles, manhandle the boxes, assemble scanners and run up H.2.S. and Gee sets, thus assuring that the stations in the Base all receive serviceable equipment as replacements.

We have a test pilot and crew here now. Before an accepted aircraft is delivered to a squadron, it is given a thorough air test and a written report on the Radar equipment is supplied by the Navigator to the squadron concerned, a copy being returned to Base Major Servicing. We have found that this is a big help in clearing any snags that may arise.

Cpl. Beynon, in company with several Signals types from this Base, paid a visit to 64 and 63 B.M.S.S.'s last week. He came back with a look of "Wide-open spaces" in his eyes. It seems that compared to our workshops theirs are like a ball park, all the room in the world.

This month we are glad to extend our welcome to LAC's Inlin and Temple who have left the ranks of Tholthorpe to join us at Base Major Servicing.

We had a short visit from W/O Ginsberg and Sgt. Hill the other day. Sgt. Hill is now doing a spell of temporary duty at Innesworth, genning up some new mech's, so we hear.

Cpl. Marcus has just returned from nine days leave. Don't know where he was, but we hear that he spent most of his time recovering from his recent H.2.S. session at H.Q.B.C.

RCAF STATION EASTMOOR

The prospect of return to Canada never before appeared so near, yet so far, as when we at Eastmoor bid Flt. Sgt. Macdonald adieu. In anticipation of his return home, "fac" removed his lady-slaying moustache so that he might greet his happy family still the innocent young boy they had always known.

The prodigal son (LAC Platt) has returned from a hospital in the south, and from his plump contented appearance, we judge that he has been partaking of the fatted calf. Doctor's verdict was "More outside activity after duty." We wonder!!!!

Cpl. Mahaffey, following LAC Platt's example is now passing some time in a hospital somewhere in the south. We wish him a speedy recovery.

There was much "binding" done when 432 mechs were rooted out of their palatial, modified nissen hut, and moved to another point in the station, just after they had done such a splendid job of laying "line" and installing gadgets.

F/S Pinkney has just returned from an extended tour of the dens of iniquity of Glasgow, carrying Cpl. Hayes and LAC Hamilton in tow. Evidently the tour was a success for the happy trio are planning their next quarter's leave together in the same city.

The 6th of November is a memorable day at Eastmoor Radar Section. On that day LAC Estwick put up his Africa Star. Sammy Estwick's career in the Air Force reads like a Cook's tour of four continents, while his pay book is an adventure in foreign exchange.

Sgt. Fawthrop carried a mysterious pleased look on his face when he came back from leave. A look that bespoke some hazardous task, successfully accomplished.

Pauvre

(Our War Correspondent)

17.

R.C.A.F. STATION THOLTHORPE

From our home deep in the moors of Yorkshire, we raise our heads this month as another station who does things the H.2.S. way.

Starting from nil, less than 4 weeks ago we have in that time developed into 19 A/C fitted, installed a bench set in our trainer room, built a bench set in our workshop and installed a synthetic trainer.

Of course it was not as easy as all that, it all called for a lot of hard work and although we have all had an H.2.S. course the installation was quite a different thing.

The various tips given to us by No. 62 Base and the Group Instrument party proved very helpful, in less time than we realized we had a Synthetic Trainer room second to none in 6 Group. It lacks only a good Canadian "shower" to make it a home away from home.

Our Trainer "set-up" changed from one that looked like the hanging gardens of Babylon to a very streamlined effort, where the equipment is arranged to simulate that of the aircraft.

In passing we would like to remind the Editor we are still smiling.

The Radar story of the month is the one about the Radar Mech. who forgot and left a day late on his leave. It was not till the smell of Scottish hospitality touched his brow that he realized his mistake. Hurried letters and phone calls followed and LAC Bob Stuart got his extra day.

One wonders what this war is coming to, first they celebrate F/S Daniels' (Danny) wedding, then there was the party to celebrate "two years" in this country. "Specially" it has been a very busy month.

Recently added to our Radar Section are LAC Forster and Toole. These W/M have been giving us a hand in the D.I. Section.

We would like to tender our "thanks" to an unknown RME Station which so kindly did a mod. on one of our GEE indicators, leaving their calling card but forgetting to put the C.R.T. back. Maybe they have something but give us Radar equipment with a good old Cathode Ray Tube.

R.C.A.F. STATION LINTON.

Base have now taken over one of our workshops to use as a Base Pool for Radar equipment in general, however, our D.S.S. is still operating from there for the time being.

We have been working on various modifications to try and reduce H.2.S. faults due to the late switching procedure, one modification is a switch in the A/B position in parallel with the modulator switch, the other modification is having the scanner rotate with just the L.T. "on" button; both mods have gone in. Maybe we will hear more of them later in an official capacity.

Cpl. Landry is working on another "special" job. This time trying out some of the Base Radar Officer's "peculiar" ideas on Blind Landing equipment.

It seems we are very fortunate in having a Dynatron H.2.S. synthetic trainer. Various people from "Cdn." units have been casting envious eyes at it and are only too willing to trade their Sigmen's but it's no sale. This trainer has caused very little trouble apart from the regular water change. We are however, keeping our fingers crossed. The A.P.I. attachment as suggested by Wombleton is expected to be "Operational" shortly.

Pauvre

18. (Our War Correspondents)

We are all sorry to see Sgt. "Sandy" Wood leave us but since he is leaving for the land of milk and honey, namely Canada, all we can do is wish him the best of luck. A collection was taken up for him and when he gets back home he is going to have "one" for all of us.

Why is it that the majority of boys from here go golfing at Hulford on their day off; it may bear investigating?

LAC's Nickafor and McDiamid were here for a week picking up gear on H.2.S. Trainers and D.I. procedure. By now they should be putting that gear to good use.

LAC Fulton has been away from us for some time it seems that he is now an A.Y.D. instructor. He has tapes to go with it as well -----
Congrats!!!!

LAC Cohen has been posted to Bomb Ballistic unit at Woodbridge.

We are sorry to see LAC Lodge in the North Allerton Hospital. It seems that the blast from a rocket bomb has affected the hearing of one ear.

Besides jittery "Gee" sets here, we also boast of a jittery LAC by the name of Giles, whose wife is expecting a baby.

Our P/S Daniels and Cpl. Sproule were out on a bit of a tour to Leeming and Middleton on November 7th to see how things are done up North.

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NO. 63 R.C.A.F. BASE

This month we take our hats off to three of the best. They are, of course, P/S "Dave" Rittberg, Sgt. "Morrie" Laprise, and Cpl. "Ted" Smith, who have only recently been repatriated to Canada. I think we can all agree that they've done more than their share for the Radar Trade, and, along with the other boys from the Group who were repatriated under the same scheme, justly deserve the break they are getting now.

3½ years is not a short time in a man's life and they no doubt gave up a lot of things at home to pitch in and give the R.A.F. a hand with its then new invention "Radar". Unlike the majority of us, they knew something of the radio "racket" in "civvy street", and I understand some of them received personal letters from Ottawa asking them to come to the rescue, as the R.A.F. was in urgent need of radio men for a special job. They came, and they conquered!!!

We are all aware now that those fellows weren't all the R.A.F. wanted, and as Radar grew and became more vital to Britain's war effort, the R.C.A.F. started a recruiting campaign on a grand scale for "Radio Mechs."; that's where we came in. But our recent repats came to the U.K. in the early days, when, while the Radar equipment perhaps wasn't nearly as complicated as it is today, neither were there very many people who knew a great deal about it. Not enough, at least to give any extensive courses on it, or to write up a detailed "SD" about it such as we have today. Dave, Morrie and Ted, mostly just had to delve down into its guts and sort things out for themselves. Those were the days, too when "Jerry" didn't make life any easier for them, and a leave in London was like hell let loose!!!

Yes siree, those lads are the real pioneers of Radar for the R.C.A.F. and they have done a fine bit of work in this country. It appears there will be no direct replacements for them, so we will all have to work harder, especially as they are no longer around to give us their good,

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(Our War Correspondents)

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sound advice. But let's take off our hats to all of them!!! I'm sure if they thought they had set an example for the lads they left behind in the sections, to make them work harder, and take a greater interest in that work, they would feel justly proud; and well they should!!

The way things go in the Radar Trade without their assistance may have an important bearing on the future repatriation policy for Radar Mechanics, so let's get in there and make it look as though we don't miss them at all. They gave us a grand start over here and it's up to us to carry on and show our appreciation.

RAISE HELM FOR SERVICING SECTION

B.M.S.'s contribution to the Trade Test Board this time will be "Solander" Sollanych, who is jumping up and hopes to take his "A" Grouping with ease.

Sgt. Hall of the Group Test Equipment Party has been up on two occasions to give the boys some gas on the 202.

At last, after many hints from P/O Wilkins that now was a good time to get cracking on an earthing indicator panel for the workshop, the job was done, Cpl. "Bull" Smith found that .2 mfd. condensers caused the lamps to burn too brightly, and consequently, when an earth occurred, the bulb would soon burn out. However, by changing the value of the condensers to .1mfd. this snag was corrected.

R.C.A.F. SECTION LEEKING.

Learning R & I is still staggering slightly from the blow of losing Cpl. "Ted" Smith. He is homeward-bound, you know, and we wish him all the luck possible. Ted's unspoken motto must have been "Benchmark never let the D.S. boys down"; never did Daily Servicing find themselves wanting or waiting for serviceable equipment.

Things looked black for awhile, and the pressure was increasing on Cpl. Williams and L/C Goodwin, but out of the blue, or rather out of the Gee room, came L/C "E" Kellett, tried and true. Now, under the eagle eye of Cpl. Williams, and with a helping hand from Goodwin, our R & I forward line is delivering serviceable H.2.S. equipment with almost the same rapidity and efficiency as before. We will be in the groove again any day now, and the "Smith" serviceability record is worthwhile keeping up.

L/C Cameron has been sent down to No. 3 P.R.C. just to let the "sprog" know what No. 6 Group expects of them.

Cpl. "Bud" James has been endeavouring to get away on leave for three weeks now, but the M.O. catches him and parks him in the hospital every time. Just what the matter is, we don't know, but we suspect it's growing pains. (Note: Cpl. James finally managed to slip away on leave just before Radar News press time. Wonder if the M.O. knows?)

As the Radar men here were going to tea one day, they came across Sgt. McKim floundering around on his back in a mud puddle, about 6 inches deep. After the boys had helped him out they tried to find out how it happened. McKim claims he was pushed, or the wind did it; he was not very certain. We suspect that he has been a Radar Mech. too long!!!

Another bit of news has just been received on Sgt. McKim. He arrived back from a day off spent in Durham, and, looking very haggard this morning, he said, "I met a girl, and boy, could she skate!!"

There has been a great deal of mithering lately about doughnuts in Harrogate; the main recipients being P/O Schloke and P/O Wilkins. Apparently these modernized female American chiropractors still believe in

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reaching a man's heart through his stomach!! Base Major Servicing say that P/O Wilkins lets out a rare old "Call of the Wild" at the mere mention of Harrogate.

VICTORY LOAN

The 7th Victory Loan drive has come and gone. The effort put up by the Leeming Radar Mechs. has left them with nary a tanner for a ha'-pint. The boys knew why they bought the bonds, but the added incentive of our contest, with a keg of beer for the winner must have spurred them on to a record endeavour. No, we weren't successful in winning the contest, but our 85% effort was enough to give us a consolation-prize. Now the question is, what to do with the turkey that isn't big enough to serve all.

Stop Press! Two new Corporals are to be seen around the Leeming Section these days. Number one is our own L/C MacKenzie, who only recently got his hooks; and number two is an old timer Cpl. Borlase, who has spent the last 2 years or more with a Bomber O.T.U. at Lossiemouth. Welcome to Leeming "Corp".

One of our Wireless Mechs-cum-Radar Mech (you lucky people!) has gone back to join his Marconi bashers, and it's now Corporal Melvin. Our regrets and our congrats, Ralph.

Visiting fireman to the section here are a couple of Wireless Operators, L/C's Crowe and Zuck. They're with us, thanks to the Station Signals Officer, to lend a helping hand, and we hope their stay will be profitable to them as much as is to us.

R.C.A.F. STATION SKIPTON

Our Section which has been depleted by re-musters and postings, was sliced down still further with the repatriation of P/Sgt. Dave Rittberg and Sgt. Morrie Laprise. We're all pretty envious of them.

A number of others are close to the end of their "tours", amongst them, Sgt. Bob "Knobbie" Hermanson and Cpl. Roy Inkster, who should be the next to get their repats.

The latest man on this station to tie the martial knot is Al Howe. The lucky gal is a pretty "Yewashia" lass from Harrogate. The party preceeding the affair was a pretty robust one with plenty of good cheer and wassail (of course)!

Now in charge of maintenance here is versatile, chuckling, long-logged, P/Sgt. Syd Radley.

Mac Kerford is ordinarily a good listener and at times fairly loquacious, but when "boat mail", as he terms it, arrives, Mac becomes a very pensive individual. Needless to say the "boat mail" contains news from the one and only.

Mel Melnyk, our W/T Radar Mechanic, hasn't done much pubbing in his life, but he throws the darts as though he were a life-long pub-crawler.

The Skipton Drama Group's new play is, we hear, almost a one-man show. The stage settings and props were professionally designed, constructed, and painted by our own "Frenchy" Perrault. The hours he kept during the construction make it fortunate that Frenchy can do Gee maintenance with his eyes closed.

Our trainer room, which has been in the process of re-arrangement, is now working full time for Gee and H2B for both Squadrons. Thanks to co-operation from Radar 2, we now have a Trainer Type 4B that really works. Two neat-looking stands, each with three compartments, were built to hold the main Gee sets, and can be moved around as well. An aerial loading unit was

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installed on each stand, and the two units connected to a common outside aerial. The trainer was tuned to stud 5 of R.F. Unit type 25, and is placed between the two Gee sets so that either operator can use it. The tables are thus left free for unrestricted use by the Navigators. Credit for this new installation is shared by P/Sgt. Radley, Sgt. Laprise, and Cpl. Godlard.

The present policy of maintaining Radar silence until half an hour before the target is reached, has led to a request by the Air Crews on this station that something be done in the direction of providing a remote switch for the modulator. This has been done to one aircraft and a report is being awaited as to its effectiveness. The mod is very simple, and involves about 2-man hours work per aircraft at the outside, including the modification to the Modulator. The lead from the Monica to the Monica on/off switch at the back of the Navigator's table is cut at the point where it passes the Modulator. To this end is connected a small 4-way W socket (a two-way will do). The other end goes to the Type III V.C.P. via the switch. Here the 4-way socket to the VCP is removed and the two cable ends joined and taped. A hole to take a 4-way W plug is now drilled in the front of the Modulator and two of the pins connected across the Modulator on/off switch. The switch marked "A.R.I. 5122" in the Navigator's compartment then becomes the modulator remote control switch.

There is just one snag to this mod. (There always has to be at least one snag to any mod.) The Monica lead, which is unshielded, now carries 80 volts A.C. and runs so close to the intercom wiring that hum is caused on the latter. It remains to be seen whether or not this hum is excessive, and whether advantages outweigh disadvantages or vice versa. More on the subject next month.

The recent increase in Gee unserviceability at this station has led to the necessity of taking some drastic steps to bring it down again. The number of No Fault Found difficulties has accounted for a considerable percentage of the trouble. We have managed to obtain a type UXK tandem generator, which supplied enough AC to run four Gee sets, and also all the DC required for four type U alternators (one of which is part of the UXK). Thus, three H.2.S. sets and four Gee sets can be run from two Motor-generators. If there is an indicator which has been reported jittery in the air, it can be set off in a corner and allowed to run to its heart's content, until the fault shows up - - or does not show up! While more urgent and obvious faults are cleared up. If you are thinking of trying to get yourself a UXK you will also need a type VI VCP and Choke Box Type I to go with it. C.D. 2896a gives you the gen.

-0-0-0-0-0-0-0-0-0-0-

NO. 64 (R.C.M.F.) BUSE

A conference of Radar Officers was held this month, the main topics under discussion being the movements necessary due to the repatriation of W/O Partridge, P/Sgt. Brooks, P/Sgt. Scott, and Cpl. Inis. The final result of it all is that Sgt. Desrocher moves from Croft to fill a P/Sgt. vacancy at Middleton; Cpl. Patterson moves from Croft to fill a Sgt. vacancy at Middleton; and Cpl. Baldwin leaves the B.M.S.S. to take up duties at Croft by filling a Sgt. vacancy there. This leaves a couple of vacancies outstanding with which action is at present in hand - but more about this next month.

Believing that the Radar News is a magazine primarily for the Radar Mechanics, it was decided to circulate a questionnaire in an endeavour to obtain first-hand opinions as well as any suggestions for improvement. The result was rather interesting and seems to indicate quite clearly that although feeling is divided as to whether more technical gen should be included and whether station achievements should receive more prominence or not, the general consensus of opinion is a desire to see more gen about the whereabouts and actions of the Canadian Radar Mechanics, both inside and outside the Group, as well as more information about the various types

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of Radar gear used by the allied and enemy forces. A similar investigation carried out on the other Bases might bring forth some good suggestions as well as a variety of for or against opinions.

The stepping up in training of radar operators in this base has received a great deal of attention lately, so along with the creation of a synthetic Fishpond trainer and the complete re-organization of the Radar training room, a propaganda programme is about to be launched which we feel sure will go long way in making the campaign a successful one. Propaganda posters of both a serious and humorous theme are already in the process of being painted and in this connection we owe a great deal of thanks to Radar Mechanic L.A.C. Davies for successfully putting the ideas on 'canvas'.

Cpl. Hardy, Cpl. Studholme and Cpl. Borlase arrived in this month on postings from O.T.U.'s where they have spent many long weary months servicing Gee equipment. Cpls. Studholme and Borlase are moving to other Bases in the Group, Cpl. Hardy taking up duty at Croft in the near future.

BASE MAJOR SERVICING SECTION

Due to consistent operations during the past several weeks, it wasn't possible to bring in from the Middleton Squadron the few remaining Lancaster X aircraft to be modified with Col. 7 and Col. 9 H.2.S. and Fishpond. However, the lull of the last couple of days provided the long awaited opportunity to complete the H.2.S. fitting programme and thus we can now report 100% H.2.S. fitted Lancaster Squadrons at Middleton St. George. S/L Bales and F/L Deacon of the Engineering Branch, and the aircraft riggers joined the Radar Mechs in a sigh of relief. The job 'that could not be done' has been finished and we would like to express our sincere thanks to the Engineering Branch, especially, for the fine co-operation that made this job possible.

We are sorry to hear the Cpl. Baldwin is on the move to take up new duties at Croft. We understand a "third" is in the offing - Good Luck "Baldy".

Sgt. Groom is on the mend again after a stay at the "White House". He almost had company in the person of LAC Bill Bretz who took a header from the top of a pile of scanner boxes while straightening out the Base Radar Pool. Yes - he landed on his head - no cracks, thank you!

Some one suggested that Victory was just around the corner due to the fact that morning parades are once again in the order of the day. Could it be that we are marking time between steps?

The boys have been busy during the last couple of weeks in co-operation with the electrical section in installing scanner heaters in the Lancaster X aircraft. Yes - old man Winter has been trying to slow up our scanners.

MIDDLETON ST. GEORGE

The repatriation scheme has hit the Radar sections hard with W/O Partridge, F/Sgt. Brooks and F/Sgt. Scott being on their way back to the land of the Maple. We wish them the very best of luck after doing a real good job for over three years. F/Sgt. Scott and LAC Baldock have just completed a Fishpond synthetic trainer. F/O Winch, the Fishpond Instructor wouldn't take no for an answer when once he conceived the idea of such a gadget. It consists of two units (1) The remote control panel (2) The blip generator with an electronic switch and power supply. Details of construction, along with diagrams and photographs are already at Group Headquarters so that anyone interested can either obtain the gen from there or even better, pay us a visit.

Speaking of visits, we were able to welcome F/O Gamble (Radar Officer)

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and W/C Edwards (C.O. of 420 Sqdn.) of Tholthorpe, who were rather interested in seeing our Fishpond trainer as well as the Radar Training Room. Other visitors this month included F/L Brown - Signals Leader Decliffe, and F/L Solin, Central Navigation School, Rivers, Manitoba, both of whom found interest in the Radar set-up at Middleton.

We offer our congratulations to "Toby" Greer on his recent promotion to corporal.

Sgt. Cairns, well known to Radar News readers for his many cartoons, is now back on the Station again but this time with the Educational Branch. We are hoping that he still might be willing to grace the pages of the News with a few more of his humorous and interesting drawings.

LtC "Jock" Wilson has been laid up with a fractured arm. Besides the fact that we are short of radar mechanics, we wish him a speedy recovery.

AC2 Sheedy, a signals type is now doing his bit in the Radar sections as well as picking up gear on the various radar equipments.

CROFT CLIPPINGS

After successfully installing an intercom system between the two sections whereby the D.S. and the R. & I. can converse with one another without getting their feet wet, F/Sgt. Holtby has now gathered together numerous bomb packing cases and has made a small hut which will hold all the H2S gear except what is necessary for the navigator. The mobile air raid shelter will be fitted on top of the training room and the W.C.'s will now be able to train on Fishpond.

By the time this reaches the Squadrons wedding bells will have rung merrily for Mr. Lamb. We all wish him the very best and all the happiness in the world in his new venture.

Visiting us for a short time is F/C Leakso.

The biggest surprise of the month to us was the departure of "Pop" Ennis who has been repatriated to those far-flung greenish pastures of Canada. Pop had three years over here and should be home by this time.

After X-raying him and finding more than a few old bottle caps, some broken glass and a pair of pliers, the M.O. told Jim Iverson that he had only nervous indigestion and is still fit for at least another few weeks.

Buck Walsh and Don MacKenzie have arrived back after a leave spent in Northern Ireland. They found the U.M.C.A. at Belfast quite superb. Unfortunately Mac turned up a little late as he had stomach trouble from eating canned sardines. We wonder.

Joe Walsh is away learning the high land fling and other Scottish games. Sgt. Des Rochers is somewhere south seeing some skirt. Which reminds us that he has taken one step forward on the wedding march trail.

Dugald Drummond spent a quiet time at a radar class reunion down at York playing the usual radar game of questions and answers and rumour wrangling.

Two modifications have come from Croft to Group Headquarters this month. One being the design of a new type of plywood scanner-cover for the Halifax aircraft - the other the design of a metal clip arrangement which can be fastened to the top of each H.2.S. indicator to hold the camera secure and in place. This method solves the shortage in supply of the brass camera mountings and thus prevents that panic before take-off of switching cameras from one kite to another.

Navigation Radar Officers here have found it very interesting looking over the P.P.I. photographs obtained on recent operations.

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They find that they can obtain useful information about the manipulation difficulties.

The last four weeks have seen 431 Squadron re-arm with Lancaster X aircraft completely fitted with Radar equipment by the B.M.S.S. and flight tested by the Base crew which includes a radar trained bomb-aimer. The Halifax III aircraft replaced were allotted to 62 Base and were moved complete with H2S, Fishpond and Gee installed.

Last minute news informs us that LAC Conick is repatriated to Canada on compassionate grounds.

The old bogey - the cardoflex coupling between the Hercules engines and the gear box - Halifax aircraft - has once more reared it's ugly head. Five cases of broken couplings have already occurred - a couple of these in connection with the Gee alternator. Inspection of the alternators and the couplings as well as checking the loads of faulty as well as non-faulty aircraft has brought forth no light. First of all we are interested to know whether any other units have experienced any such trouble and secondly, if so, have they a cure? All replies will receive prompt attention.

CROFT QUICKIES

In a desire to present one mechanic each month to the Radar News readers, the following is our first effort.

Starting off alphabetically we come to Bill Brigham. One of our staunch Westerners Bill hails from the land of the free, Vancouver. Having been brought up in South Vancouver Bill eventually graduated into South Vancouver High, (the day after he was found making passes at the teacher). After South Van. had taught Bill all that it could about curricular knowledge he proceeded to work in B.C. Plywoods. Latest reports show that the fair sex have now taken over most of the plant jobs and Bill is wondering if it is worth while to go back there (silly fellow).

While he may have lived in Vancouver his heart is really in Druidesia that little island of Northern B.C. where the famous religion the Druids was founded. Bill is past grand vulture of the order and will be glad to initiate any radar mechs. into the mysterious rites of the Druids anytime they have a pub and plenty of liquid refreshment handy.

.....SCREWBALL CORNER.....

LIFE AND HABITS OF THE OHM

by L.A.C. O'Neill, F. 64. Base

To my mind some of the finest qualities of the average human being can be found in the ohm.

I can never think of an ohm without connecting it with gnome, little shadowy figures they are, that is the ohms. Dressed in a pale green tight fitting jerkin style of dress, with a blue cap. The only dashing part of the costume being a long yellow feather stuck in the headgear and draping far down the back of the ohm.

Unlike the ampere who is a big blustering, bluff sort of a fellow in red jeans and velvet jacket, the ohm is a quiet inconspicuous chap. The ampere might be classed as the senior N.C.O. class throwing the stripes around. The volt is a combination of the two. Done out in pale blue and while he has been known to grow to huge proportions he is weak physically despite his size, and is inclined to die off fast. He too is noted for his quietness except at odd times. He usually relies on the ampere to help him over the tough spots on his circuit trips. He could be classed in the electron world as an officer type.

The ohm is the hard worked member of the fraternity, the backbone of the circuits, you might even class him as the guerilla type in this world of electrons. He would probably rate A02 in the Airforce.

But let us look into his life and see how it is that he is classed as a guerilla, let us see what his daily habits and life consist of.

He is a very potent force. Why, where would they be without the ohm in Ohms Law. Old volt and ampere would look pretty foolish without him along. Now the ohms are socialists and work their little homesteads on the honour system. Let me illustrate. The ohm family or race live in spots called resistances. In each one of these spots so many ohms are billeted out. So that if you should pick up a resistance and read 500 ohms on it you are pretty certain to find just that number there. This is all done without any disciplinary action being taken. It is very rare that you find an ohm sneaking off to another 'ome to make an 'ome for an ohm. However enough of that.

The ohm has a definite job of work to do in the electronic world. His operation is guerilla warfare. To wait in hiding until the volt all jauntily dressed out in his Sunday best accompanied by the roistering red ampere enters the resistance or the domicile of the ohms. He then proceeds to lay out the volts in no uncertain terms, so by the time the inspecting party reaches the other end there are definitely less volts than what came in. The number of course depends on the number of ohms present at the doings in.

Sometimes for some unexplainable reason that hasn't yet been fathomed the ohms get tired of their own resistance and move on to another more gaily decorated one, maybe because the colour scheme is prettier. So upon checking it you will find about forty old retainers where you expected to find a family of 15000 strong. Another explanation of this phenomena is that they have gone to visit relatives in the next circuit, but the theory has never been proved.

Then again in reverse ratio there are times when the amperes really do start throwing their weight around and things become really hot. After the smoke and the fire has died away and a count is made of the number of ohm noggins present, you will find they have increased by as much as three fold. This is due to their community spirit and love of battle, as other ohms from neighbouring resistances have dashed over to help in the fray. In cases like this you will also find that despite the efforts of the amperes there are still less volt types than ever getting through. Truly a great nation the ohms.

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LAMENT

by Leeming H.M.S.S.

And so I've wracked my brain,
Declining fortune, also fame,
To think of things to write and do,
For November's issue of the Radar News,
But alas, it is of no avail,
My pen is dry, my mind is Blank,
And so if I admit I fail,
I know you'll say, "That stank!"

SPARK GAP AND ANN ODE

No. 63 Base Anonymous

"Spark" Gap was short of [scribble] so he [scribble] [scribble], who
told him to come over as only her sister [scribble] was at [scribble].
Spark Gap couldn't [scribble] invitation to [scribble] up on her [scribble]'s
couch before a fire, and immediately [scribble] a [scribble] to [scribble].
[scribble] proved a nuisance when Spark Gap turned the [scribble] [scribble] ↓
and began the old [scribble]. At this he [scribble] his teeth and
threatened to [scribble] [scribble] if she didn't go.
[scribble]'s eyes were like [scribble], the soft [scribble] made
her hair glow like a [scribble]. It was then [scribble] 'd up on
[scribble]'s couch that Spark Gap could [scribble] no longer and before
[scribble] could [scribble] the subject, he asked her to [scribble] him
in matrimony.
When [scribble] said "Yes", Spark Gap wanted to [scribble] the
[scribble] and tell the world, but he had no [scribble] and so was
content to [scribble] at the church the next day where they were
[scribble] ed as one.

EMBARRASSING MOMENTS

Definitely Anonymous

There was a story about a local Radar Mech who, having retrieved a seat
in a camp-bound bus, deeply engrossed himself in a book in order not to
give up his seat to a standing W.D. at his shoulder. On looking up suddenly
he saw she was blushing and on looking down he saw a tell-tale bit of
blue shirt tail on his lap. With the book as cover and great embarrassment
on both his and the W.D.'s part he managed to tuck the offending shirt
into the closest available opening. Much to his surprise and further
embarrassment when undressing himself that night, a W.D. handkerchief fell
out of his trousers!!!!

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YOU'VE GOT TO BE GOOD TO BE RADAR

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(a la WESTERN BORS) BY Cpl. Fenton pf
Mildenhall by kindness of No. 3 Group News

I'm not very good at poems or prose,
But M/Hall Mechs are the Radar Mags 'Joes',
I've been detailed to dish out some tripe, so here goes,
For you've got to be good to be Radar,

I remember the days of the old Mark I Gee,
When the afternoons work was the afternoon tea,
Please send us the dear days that once used to be,
For it used to be good to be Radar.

Technical knowledge was not then our goal,
And condensers we thought, were on LIBBY'S payroll,
And a dead short to earth was a kite out of control,
Yes, I once was content to be Radar.

Our secrets to keep, with 'dets' we would pack,
Each piece of equipment we saw on the rack,
If neglected at run-up it would be blown coming back,
Yes, it used to be fun, to be Radar.

Then a Secret Society, the veiled T.R.E.,
Thought up a "Chamber of Horrors" for you and for me,
We were the victims of their "insanities"
It's now not so good to be Radar.

They thought of a maze of valves, cables, and sockets,
That's far more advanced than those 'P' planes and rockets,
They hissed, "That'll take their damned hands from
their pockets",

It's a Martyr's life now, to be Radar.

They stuck all this stuff in the Hally's and Lenos,
The kites became pregnant, from the seeds of these cranks,
And Mechs begged to go Overseas in the Tanks".
Yes, it's that bad I fear, if you're Radar.

But far from content with this State of affairs,
They designed bigger "Jennies" to pull round in pairs,
And all Radar Mechanos, now grow real horse's hairs,
And there's hay in your food, if you're Radar.

Then just as "morale" was beginning to crack
No more room in the Kites for our Radar to stack
Half the stuff we had fitted we had to bring back
And once more it felt good, to be Radar.

Then they called us to 3 Group, to "imbibe and to feast,
Entertained us, and fussed us, but that's quite the least,
For they said we were certs for "Campaign Pry" out East,
Is it really so good to be Radar.

A SLIGHT DIFFERENCE

More embarrassing moments attributed
to 63 Base.

A shy young lady sat next to a distinguished Bishop at a formal dinner.
For some time she hesitated to speak to him, but finally, seeing some
bananas passed, she seized the opportunity to start conversation.

"I beg your pardon, but are you fond of bananas?"
The Bishop, who was slightly deaf, replied, "Pardon me, but what did
you say?"

"I said," replied the young lady, blushing furiously, "Do you like
bananas?"

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I remember the days of the old Mark I Gee,
When the afternoons work was the afternoon tea,
Please send us the dear days that once used to be,
For it used to be good to be Radar.

Technical knowledge was not then our goal,
And condensers we thought, were on LIBBY'S payroll,
And a dead short to earth was a kite out of control,
Yes, I once was content to be Radar.

Our secrets to keep, with 'dets' we would pack,
Each piece of equipment we saw on the rack,
If neglected at run-up it would be blown coming back,
Yes, it used to be fun, to be Radar.

Then a Secret Society, the veiled T.R.E.,
Thought up a "Chamber of Horrors" for you and for me,
We were the victims of their "insanities"
It's now not so good to be Radar.

They thought of a maze of valves, cables, and sockets,
That's far more advanced than those 'P' planes and rockets,
They hissed, "That'll take their damned hands from
their pockets",

It's a Martyr's life now, to be Radar.

They stuck all this stuff in the Hally's and Lenos,
The kites became pregnant, from the seeds of these cranks,
And Mechs begged to go Overseas in the Tanks".
Yes, it's that bad I fear, if you're Radar.

But far from content with this State of affairs,
They designed bigger "Jennies" to pull round in pairs,
And all Radar Mechanos, now grow real horse's hairs,
And there's hay in your food, if you're Radar.

Then just as "morale" was beginning to crack
No more room in the Kites for our Radar to stack
Half the stuff we had fitted we had to bring back
And once more it felt good, to be Radar.

Then they called us to 3 Group, to "imbibe and to feast,
Entertained us, and fussed us, but that's quite the least,
For they said we were certs for "Campaign Pry" out East,
Is it really so good to be Radar.

A SLIGHT DIFFERENCE

More embarrassing moments attributed
to 63 Base.

A shy young lady sat next to a distinguished Bishop at a formal dinner.
For some time she hesitated to speak to him, but finally, seeing some
bananas passed, she seized the opportunity to start conversation.

"I beg your pardon, but are you fond of bananas?"
The Bishop, who was slightly deaf, replied, "Pardon me, but what did
you say?"

"I said," replied the young lady, blushing furiously, "Do you like
bananas?"

Pauvre

23.

The Bishop considered a moment, then answered, "It is a curious question, but I have always preferred the old-fashioned night shirt".

Electrons Estatic

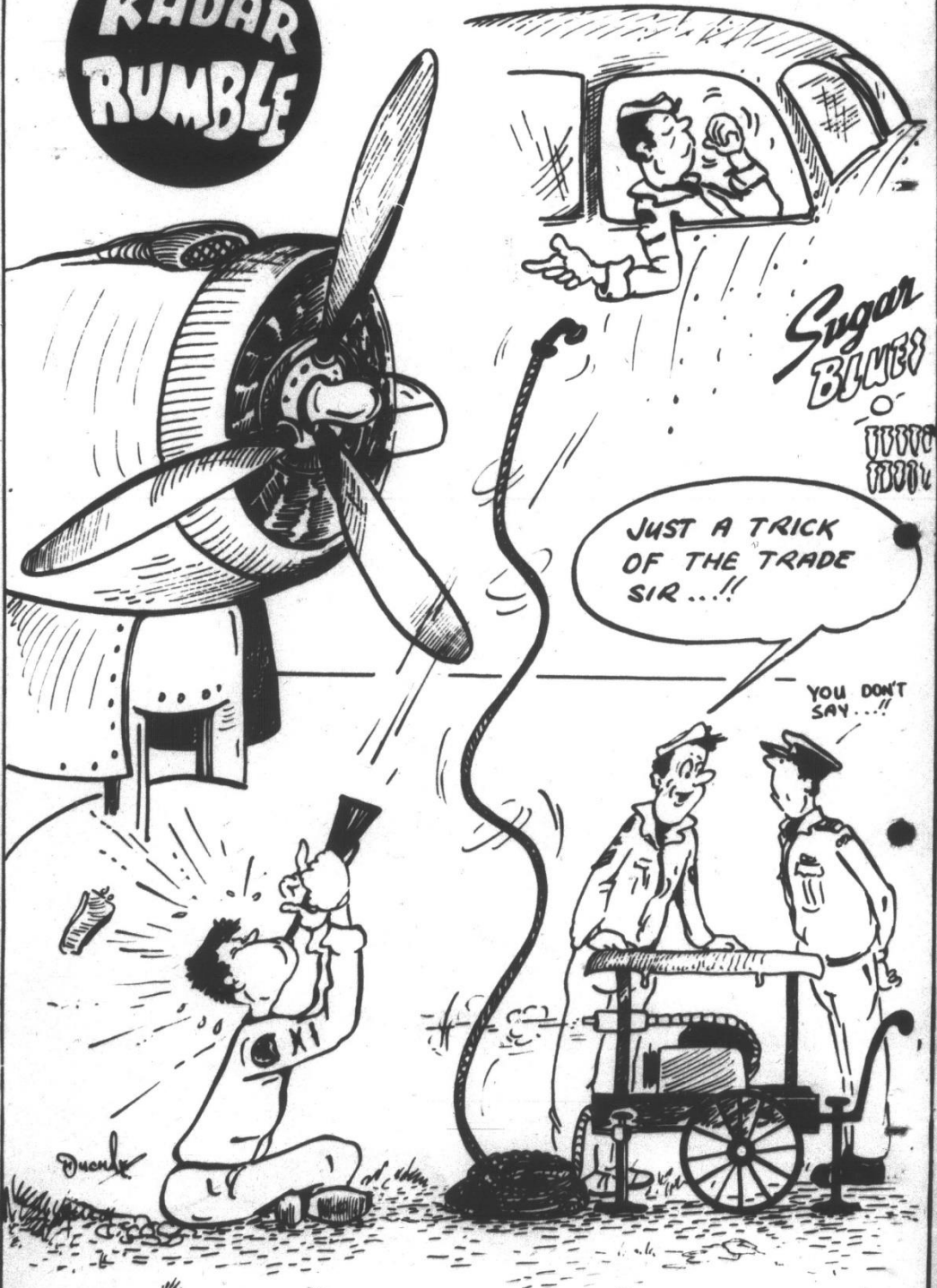
BY L.A.C. O'Neill, F.

Oh I am just an electron hot
A very very tiny tot,
I travel off to valve five,
To keep the grid bias all alive,
Then it is an anoderun,
Round and round it isn't fun
Sometimes I do get shorted out,
By a radar mech, who let 's out a shout,
The language is really awfully vile,
Enough to make a proton smile,
All I do is pull and push,
Getting nowhere with a rush
Oh I wish I was a cathode ground,
I wouldn't have to tear around.

-0

Acknowledgment is made to Cpl. Cleary of Croft
for the original of the Rope Trick cartoon
reproduced in this issue.

RADAR RUMBLE



DECEMBER 1944

BOMBING DIGEST

33-

APPENDIX No. 33 to
R.A.F. FORM 140
H.Q. No. 6 (C.A.F.) GROUP
DATE Jan 45



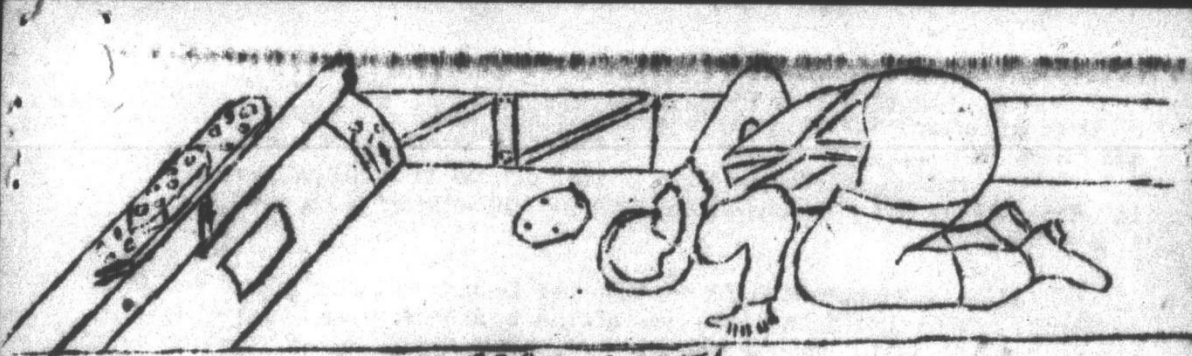
THAT B.A.
WAS A
CLOT...!!

YOU DON'T
SAY...



RCAF GROUP





DONT PRAY, LOOK!

Part I - OPERATIONAL
DECEMBER MANIPULATION FAILURES - NONE

There is one comforting thought, about manipulation failures discovered and jettisoned into the North Sea. They do not damage the bomb doors or roll madly down the runway terrifying those who have landed and delaying those who have not. It must be of great satisfaction to know that these bombs safely established in the mud, hold great peril for all German ships drawing over two hundred feet of water.

424 Sqn. 1. 1 x 1000 lb returned to a diversion base carefully secreted in a crack in the bomb-bay. The Air Bomber made a visual check, but missed the 1000 lb. bomb.

Although manipulation failures have disappeared, there is always someone to carry the torch. The local post-laureate has considered this stubborn persistence worthy of his work;

For want of a check a switch was missed,
For want of a switch a bomb was missed,
For want of a bomb a gun was missed,
The gun shot a tank and the objective was missed.

During December a series of tables were despatched to be added to the small mountain of paper in each Squadron Bombing Leader's paper warehouse.

These tables tell the exact story of the ground coverage by the graticule at various heights. They also indicate the time an object on the ground will require to pass from the front end of graticule to release point. All bomb aimers should be familiar with these figures. They will be of great assistance when the Master Bomber is giving instructions such as, "300 yards from the edge of the smoke". It won't indicate which smoke, but will prevent gross errors in judgement of ground distances from great height, such as occurred at Wanne Eickel. assessment of spread of fires and flares, will be made easier.

* * *

The time intervals can be used for choosing the time of opening of bomb doors and E.T.A. at release point and when to start knotting up the thumb muscle.

The run up is the most vital part of the trip since the main intention is to hit the target and 'flying for flying's sake' will come after the war.

All Air Bombers should realize the importance of the correct wind settings. For incendiaries the use of the true wind + or minus a number of m.p.h. will allow for the considerable cross trail and correct counting of time intervals for the low T.V. loads.

Area bombing is not so true a description of some raids as it used to be. Most enemy cities now have large devastated areas on which hits would be wasted. The markers are now being set on much smaller individual built-up sections and flying in the general vicinity will not be good enough. The same accuracy should be aimed at as in support bombing.

Many raids will be Wanganui and this somewhat academic method of bombing requires the airspeed and heading to be flown exactly as laid down or the enemy will have his spring ploughing done for him. The reply that a field covered with subsoil is a very poor producer of crops is a weak excuse for careless bombing.

Knowing the time required for a flare to travel down the graticule, it would still be possible to estimate correct time of release if flare burns out. The height should be treated as being the difference in altitude of flare and aircraft.

If every light in the nose of the aircraft, inside computer box, selector switch box and bomb door lights should be painted red, night vision will not suffer during the last minute check (which everyone makes).

All run-ups should have strict navigational control. Be prepared before take off to employ Gee, H2S and D.R. to determine release point. Use the bombsight graticule as early as possible to determine the path into the target. The stronger winter winds will give unexpected drifts. An aircraft brought in by pointing the nose towards its flares will require a very large correction at the last and many during the run in.

Part II - TRAINING

The introduction of the Bristol Bombing trophy caused a great interest in practice bombing. The Watermans fountain pen Company is

being approached to offer a handsome gold pointed pen to the Bomb Aimer who can fill out a Consolidated Return properly, and consistently. As soon as we get everyone trained to fill out the present form we will make out a new one and revive interest in the malicious practice of confusing the recorder. There is no sign of a new form being drawn up.

Categorisation of Bombing Crews.

This word has no relation to (beating about the head and shoulders with a stiff stick- WEBSTER) or (smiting hip and thigh- OXFORD DICT.), but is a process designed to give the powers a record of the ability of the bombing crews. It would appear that many crews are too bashful to demonstrate their skill in daylight to the local yokels. They, the crews, prefer to perform at night over enemy territory. As a result of this, we have only 70% of the crews categorized. When a raid goes out it is impossible to say whether the target will be obliterated or 30% of the surrounding country torn to pieces.

SQDN SUMMARY OF GROUND TRAINING HOURS - AIR BOMBERS

Squadron	Total ADF Hours	Total Link Hours	Deal Flying Hours	Infra Red Exercises	See Hours	H2S hours AIR	H2S Hours GROUND	Successful Flashlight Ex.	Astro Average per Air Bomber
408	-	6	-	-	33	(153)	-	-	
415	-	-	-	-	420	283	524	4	
419	N11	25	27.5	N11	633	253	167	N11	2
420	9	-	7.5	-	323	210	100	-	-
424	-	17.7	33.7	-	267	284	59	-	-
425	28	-	16.7	-	283	(543.7)	-	-	
426	-	-	-	-	60	94.5	92.5	-	-
427	-	5	8.5	-	88	240	66.2	-	-
428	u/s	14.5	16	N11	604	(418)	N11	N11	
429	-	2.5	11	-	68.2	143	84	-	-
431	N11	30.4	22	N11	503	248	168	N11	N11
432	-	-	3	-	109	467	251	-	-
433	N11	15	3.5	-	191	(204)	-	-	
434	19	30.5	22.1	N11	503	(86)	N11	N11	
TOTALS	56	119.26	168.15	-	5004.2	3005.8	2294.10	-	6



GROUND TRAINING HOURS.

Squadron	Night Vision	Navigation	Dry Swims	Panel Drills	Map Reading	Lectures	Bombing Up	Blind Bombing	W/T Ground	Bomb Dump	Fuel System
408	-	-	40	13	65	159	-	-	-	-	-
415	-	240	80	-	105	-	-	-	-	-	-
419	-	63	98	-	-	40	-	-	12	11	-
420	39	-	-	3	-	99	-	-	-	25	-
424	-	193	86	-	-	121	-	-	-	-	-
425	-	-	206	-	147	-	-	-	-	-	-
426	-	-	38	42	64	175	-	-	-	-	16
427	-	-	-	386	107	-	-	334	-	61	-
428	-	100	133	62	53	104	-	-	-	-	-
429	-	-	29	-	-	212	47	-	-	27	55
431	-	-	-	-	157	-	58	72	-	-	-
432	-	-	61	-	125	-	-	-	-	-	-
433	-	-	-	-	-	42	-	-	-	-	-
434	27	111	182	121	97	-	-	-	-	85	-

December 1st - 31st.

PRACTICE BOMBING

DfO. 1944	DAY			NIGHT			LOW LEVEL			GRAND TOTAL	
	Sqdn.	Details	Bombs	Crew Error	Details	Bombs	Crew Error	Details	Bombs	Crew Error	Details
408	-	-	-	1	8	95	1	8	73	2	16
415	14	76	231	-	-	-	3	15	141	17	91
419	8	48	182	5	25	144	-	-	-	13	73
420	16	111	242	8	33	195	8	33	250	32	177
424	13	69	258	-	-	-	-	-	-	13	69
425	16	70	191	6	33	172	8	40	173	30	143
426	9	65	263	1	7	228	6	28	108	16	100
427	10	69	172	1	6	136	-	-	-	11	75
428	17	70	218	4	19	186	-	-	-	21	89
429	14	73	239	3	20	263	-	-	-	17	99
431	6	30	242	2	10	192	-	-	-	8	40
432	6	35	231	-	-	-	-	-	-	6	31
433	13	78	180	-	-	-	-	-	-	13	78
434	18	90	209	9	52	228	-	-	-	27	99
GROUP ERROR		207 yds.					GROUP TOTAL			226	1174

HIGH LEVEL PRECISION BOMBING

Washtub Club.

Errors under 150 yds. converted to
20000'

Unit	Pilot	Air Bomber	Height	Crew Error	Nav. Error	Basic Error
429	F/O Cook	F/O Boyd	6000	135	62	71
415	F/L Meats	F/S Gerrie	3000	98	78	69
431	P/O Heaven	Sgt Holmlund	5000	110	50	110
432	F/O Sherlock	F/S Marsh	6000	105	114	110
420	- McMillan	- Etter	4000	125	135	90
428	F/O Roulston	F/S Gibbons	3000	124	126	90
420	F/O Glover	F/O McKinnon	4000	140	140	Nil
420	- McMillan	- Etter	4000	125	135	90
433	- Batty	F/S Gerred	3000	91	71	71
419	F/L Bishop	F/L Best	4000	139	18	141
419	S/L McKinnon	F/O Lilly	5000	124	50	140
419	F/O Collard	F/S McLean	4500	113	97	52
434	F/O Murray	F/S Blastora	8000	119	105	102
425	F/L Titus	F/O Yuskin	8000	105	53	82

LOW LEVEL PRECISION BOMBING

All low level exercises would fit neatly into Soldier's Field
Chicago.

GROUP BOMBING LEADER

S/L G.A. SWEANY D.S.O., D.F.C.

BASE BOMBING LEADERS

No. 62 Base S/L CRUICKSHANK D.F.C.

No. 63 Base S/L CARTER D.F.C.

No. 64 Base S/L MASSEY D.F.C.

SQUADRON BOMBING LEADERS

No. 408 Sqn. . . . F/O MURDOCK

No. 427 Sqn. . . . F/L WILLIAMS

No. 415 Sqn. . . . F/L ATKINS

No. 428 Sqn. . . . F/L RING

No. 419 Sqn. . . . F/L HASELDINE
D.F.C.

No. 429 Sqn. . . . F/L GLASS

No. 420 Sqn. . . . F/L DAVIDSON

No. 431 Sqn. . . . F/L INSTRELL

No. 424 Sqn. . . . F/L CAMPBELL

No. 432 Sqn. . . . F/L DWORKIN

No. 425 Sqn. . . . F/L BOURASSA

No. 433 Sqn. . . . F/L MAHON

No. 426 Sqn. . . . F/L WIEBE

No. 434 Sqn. . . . F/L HUNT
D.F.C.

REPORT ON EDUCATION IN NO. 6 (RCAF) GROUP E Jan 45
FOR PERIOD 1/12/44 to 31/12/44

This report is a record of the Canadian Legion Educational Services and of the R.A.F. General Education Scheme as applicable to R.C.A.F. as well as to W.A.A.F. and R.A.F. personnel.

1. General

The Group Education Officer has been informed by W/C M. Winter, Senior Education Officer, R.C.A.F. Overseas Headquarters that as far as the Canadian Legion Educational Services are concerned No. 61 Base and Stations Topcliffe, Bishforth, Balton, Wombledon which were transferred to No. 7 Group effective 9th Nov., 1944, will continue to be the responsibility of the Group Education Officer No. 6 RCAF Group Sq.

2. Staff

P/O R. Steckley has been appointed to RCAF Station, Leeming.

3. Education Grant - General Education Scheme

The sum of £900 has been allocated for the period 30th Sept., 1944, to 31 March, 1945, for the payment under approved arrangements of occasional lecturers, part time teachers and other services specified in K.R. & A.C. 1 para. 45L. £500 has been authorised and it is expected that the balance of £300 will be adequate to requirements until the end of the period.

4. Station Reference Libraries

Overseas Headquarters have financed reasonable demands for additional books. Bomber Command have intimated that it may be possible to allocate further sums for demands on Form 184 and for Local Purchase before the end of the financial year. The present allocations have been absorbed.

5. News Rooms

All Group stations are displaying charts of topical events and are well stocked with rehabilitation information. Eastmoor has opened a new Information Room which also houses the Library, Leeming has opened a special Information Room for W.A.A.F. personnel and Croft, after further planning and re-arrangement, has found the News Room a most popular place.

6. Discussion Groups

The monthly report for December 1944 show that 26 meetings were held in the Group with an average attendance of 45. Considerable discussion follows the Sunday Evening Forum at Bishforth where the average attendance is 300 and at Eastmoor where the average attendance is 100. The establishment of a Sunday Evening Forum on each Group station would possibly encourage smaller discussion groups on a sectional basis.

7. External Lecturers and Local Educational Facilities

The Leeds Regional Committee for Adult Education has provided lecturers in the following subjects: The R.R.C., Greece, Historic Yorkshire, Psychology, The Future of Germany, The Mastery of Fear, Army Life in India, Political India, Civic Responsibilities, British Foreign Policy, The Far East. Talks on Rehabilitation have been given by Station Education Officers.

(cont'd)

(cont'd)

7. External Lecturers and Local Educational Facilities

Classes in the following subjects were held in December in 6 Group Stations, the teachers being either civilian or service personnel; Handicrafts, (Leatherwork, Sewing, Embroidery and toy making) French, German (Elem., Advanced, Phrases for Air crew) Mathematics (Algebra, Geom., Trigonometry) Physics, Radio, Book keeping, Shorthand, Cookery, Mothercraft, Music Appreciation, Sketching. Personnel are attending York Technical College (Chemistry), Harrogate Technical School (Chemistry), Darlington Technical College (Business Art and Technical subjects), Thirsk Cookery Centre, and York Nursery (Mothercraft).

8. Correspondence Courses

The monthly reports for December 1944 give the following figures:

- (a) War Office Courses - enrolments - 3
- (b) External Correspondence Courses - enrolments - 20
- (c) C. I. E. S. University, Upper School - enrolments - 211

These figures are considered to be satisfactory.

9. Preparation for Return to Civil Life

All available information has been set before personnel. Individual coaching in Mathematics, Science (Physics and Chemistry), English, French, and Latin is being given by Station Education Officers and their staffs. Students studying by correspondence course are also aided in their individual difficulties.

University Short Courses

During the month 93 applications were made and 47 were accepted.

Directed Reading

228 applications were made for directed reading and were either met from station libraries or forwarded to Overseas Headquarters.

10. W. A. A. F. Education

In addition to the facilities provided by para. 7 above Station Education Officers have also approached W. A. A. F. education as a separate activity. Classes in Sewing, Dressmaking, Toy making, Leatherwork, Cookery, Hairdressing and Beauty Culture, Knitting, Art, Dramatics, Mothercraft have been arranged specially for the needs of W. A. A. F. personnel. Three stations made a number of toys the greater number of which were distributed to evacuee children at Christmas parties. Two other stations have established W. A. A. F. Information Rooms and yet another organised an educational tour to Darlington Day Nursery.

11. Hobby Shops

Three stations are developing this educational activity which it is hoped to foster wherever possible throughout the Group.

12. Trade Improvement

At Eastmoor a Job Instructor Training School has been opened with F/L E. C. Jensen as Chief Instructor. During the week of Dec. 18 - 23 one class of Job Instructors graduated. These were drawn from 62 Base Stations and will return as instructors in the Trade Improvement classes on their own stations. Beginning again Jan. 8, classes will continue each starting on the Monday following the latest graduation. Each class is made up of twelve senior N. C. O. 's. This J. I. T. course is a short, intensive, instructor's course and not only fits a man for acting immediately as an instructor in his own trade, but also certifies him as a qualified trade instructor for civilian industry.

(cont'd)

(cont'd)

13. Films

The use of the film for educational purposes is increasing throughout the Group. 16 films were shown during the past month. When the films ordered by the Group Film Library arrive, the use of the film will clearly become more frequent and widespread.

14. Liaison

In addition to normal contacts liaison is effective between:

- (a) Group Education Officer and the R.C.A.F. NO. 5 District Education Officer
- (b) Group Education Officer and external bodies e.g. British Council, Leeds Regional Committee. The Group Education Officer is a member of the Leeds Regional Committee Advisory Committee.
- (c) Group and Station Education Officers with Y.M.C.A. Supervisors.

15. Visits

Visits are planned at the rate of one per month per station.

G. D. Appley
Group Education Officer
for Staff Officer i/c Admin.

December 1944

monthly

Radars

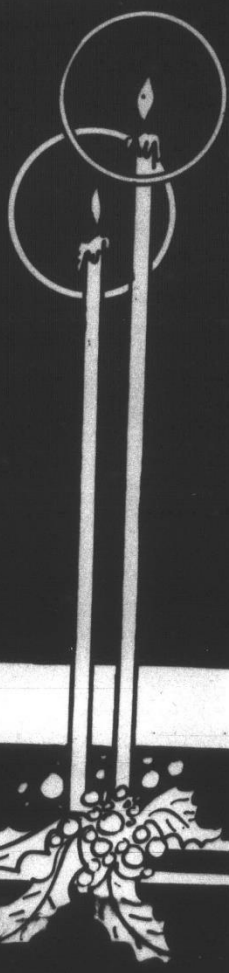
PRICE PER COPY 60¢
H.Q. No. 6 (R.C.A.F.) GROUP
DATE Dec/44

20-3



NEWS

SECRET



NO 6 RCAF GROUP

Pauvre

NO. 6 R.C.A.F. GROUP

SECRET

MONTHLY RADAR NEWS

VOL. 1

DECEMBER

NO. 12

EDITOR'S PAGE

C.S.O.'s CHRISTMAS MESSAGE

At this time of year, it is customary to think of homes, families, Christmas trees and like matters; while there is nothing to stop anyone from thinking, Christmas thousands of miles from home is at best but a substitute for the real thing. It is a poor heart that never rejoices, however, and the real spirit of Christmas is within and can flourish in a Nissen hut as easily as at home. So I should like to take this opportunity of wishing all of you the Very Best of Christmases and the Happiest of New Years. Finally, a word of thanks for the great effort put forward during the past year - it was a thankless task well done. May we put up as good a show in the months to come.

REHABILITATION - ARE YOU GOING TO FARM?

By the terms of the Veterans' Land Act an ex-serviceman may be set up in one of three types of farming namely - (a) full-time farming.

This is for veterans who plan to make a career of farming and who have had practical experience on the farm.

For this purpose he is allowed a maximum grant of \$6000 of which \$4800 is for land and improvements, and \$1200 for livestock and equipment.

The applicant must deposit 10% of cost of land and improvements, or \$480, with his application.

The ex-serviceman's contract calls for the repayment of two-thirds of the cost of land and buildings, or \$3200, over a period of twenty-five years, interest at 3% amortized. This payment amounts to \$194.14 annually and does not include land taxes, improvements, etc., which he may contract himself. The state bears the cost of stock and equipment, up to \$1200, plus \$1120, the difference between cost of land and buildings and what the veteran pays.

(b) small holding. An ex-serviceman may wish to carry on in industry or commerce or agricultural employment and own a home on a small acreage outside a high taxation area. Here he may get the maximum financial assistance or up to \$4800 for land and buildings, terms being similar to (a) above.

(c) small holding (coupled with commercial fishing)

A veteran who normally will follow the commercial fishing trade will be allowed a similar small holding to (b) above and the additional grant, \$1200 for fishing equipment.

A fourth method of financial assistance to farmers is included in the Veterans' Land Act. Where a veteran already owns land but requires funds to resume farming operations he may receive advances up to 50% of the value of the land or a maximum of \$4400 to pay off a mortgage, buy livestock and equipment or effect improvements. This will be a loan at 3% interest. If an advance for livestock and equipment only is desired the total may not exceed \$2500 or 50% of the value of the land.

PAWRE

2.

Resale

The Act forbids the sale, assignment or other disposition of the property by the veteran within a period of ten years following the date of his establishment unless the full cost of the land, improvements and chattels is paid. In other words, the conditional Government grant (\$2320 in the case cited above) may be realized by the veteran only after ten years performance in meeting settlement conditions and terms of contract.

The conditions of sale, repayment, and resale in connection with small holding establishments are the same as above. Expenditure for chattels in small holding establishments, other than a commercial fishing enterprise, ordinarily would not exceed (Approx.) \$500, to \$600.

There is nothing to prevent a veteran securing a farm or small holding of greater value than \$4800 provided he is in position to pay the excess cost in cash at time of establishment.

The veteran may select his farm or small holding in any location in Canada, but the farm must be such that, in the opinion of the director of the act, it offers a reasonable opportunity for successful rehabilitation.

A RADAR ROVING COMMISSION (CONT)

With a pile of railway warrants about half an inch thick, I started out on my travels again about the middle of November. The first stop was at R.A.E. Farnborough. The Radio section of R.A.E. is generally concerned with the development of communication equipment, leaving airborne Radar to T.R.E.

There is a very comprehensive museum of enemy radio equipment at R.A.E. The German sets do not show any special improvement in circuit design but Jerry's component designs are really 'bang-on' and in many cases superior to our own. His sets are usually built in cast alloy chassis and are constructed with detachable units to permit easy servicing. Evidently the German aircrew do most of the D.I.'s and if a set is not up to scratch, it is whipped out and a new one put in. The mechanics work in a super R. & I Section. The Italian sets are very flashy-looking but poorly designed and constructed. The Japanese sets were very compact but apparently cheap copies of American sets.

I saw one of the Flying Bomb transmitters and it was very evident that Jerry has not wasted much money on them. The M.F. coil was wound on what appeared to be, the inside of a toilet roll!!!!

I paid a quick visit to the Radio component testing section of R.A.E. All components used in the radio gear of the R.A.F. are checked by this Section and if they stand up to the tests, are given type approval. Unfortunately, manufacturers are not always able to obtain type approved parts and consequently, we have A.M.O. Defect Reports and things. Before components are given type approval, they have to stand up to very rigid tests. They are put through cycles of freezing, damp atmospheres, very hot humid atmospheres, sprayed with salt water, depressurised to 50 to 60,000 feet, covered with fungus growth, stretched, bent, twisted, squeezed and given over-voltage and over-current tests while all this is going on. When you see these tests you wonder how a type approved component could ever fail, and the only apparent explanation is that, try as they may, it is not possible to develop tests which exactly simulate the conditions met in the Service. The valve bases used in the Gee Indicator Type 624 were type approved, for example, but it is one thing to fit VR91 into a loose valve base and another to fit it into a base which is mounted under a C.R.T.

Pauvre

3.

The Ground Radar Section of R.A.E. has developed a clever method of eliminating permanent echoes from ground Radar P.P.I. sets. The principle is to delay one time base of echoes and subtract it from the following one. Thus, permanent echo signals are eliminated allowing the moving echoes to come through. In order to delay a complete time base, a tube of water with supersonic crystals at each end is used. The time required for the time base echoes to travel through the water is adjusted by varying the length of the tube and so arranged to be 180° out of phase with the permanent echoes of the following time base.

My tour included a visit to No. 80 Wing Headquarters. Operationally No. 80 Wing comes under 100 Group and is concerned with the ground equivalent to Mandrel etc. To cope with the rush requirements of No. 100 Group, there is a de-luxe workshop at No. 80 Wing. It is really a small factory complete with all the necessary tools and machinery to manufacture Radar gear from scratch. The work which is given to this workshop usually has the P.M.'s personal priority behind it, so if they require anything in the way of tools or components, they have as good as "got it".... In conjunction with the workshop, there is a laboratory where Serrate devices are designed.

My next stop was at R.A.F. Barkway, which is the monitoring station for the Eastern Gee chain. I had never had a opportunity to visit any part of the Gee ground organisation, so I found this station particularly interesting. In the Control Room, there are about six glorified Gee sets, each built in the form of a console. These sets are crystal controlled and permanently locked to the "G" pulse of the Master Station. To monitor one chain, four such sets are required with a W.A.A.F. watching the tube of each. The first examines the whole chain, using what would correspond to our Main Time Base. The other three check the phasing of the B, C and D Stations respectively, using an extra fast strobe time base. The W.A.A.F.'s continually watch the slave pulses on this calibrated time base and keep the phasing correct to the fourth decimal place of a Gee lattice unit. If a slave station drifts off its correct phasing, the operator corrects it with a Remote Control to the slave station which, of course, may be a 100 miles away. Phasing corrections must be carried out for the particular slave transmitter tower used on the slave site and similarly, for the receiving towers used on the monitoring site. The course settings for code phasing work are made at the slave stations themselves and then the monitoring station takes over control for the finer adjustments.

At B.D.U., Newmarket, I saw the type of Radar van which will be used in the latter War theatres. A Bedford chassis is used with a neat, covered-in box behind. It will be fitted with a 6 h.p. P.E. set, which will drive two type "U" alternators and one type "KK" generator. No. 3 Group is having great success with G.H., after months of thorough scrounging. B.D.U. had one set of the Mark II version of G.H. and 3 Group is eagerly awaiting the production output of this equipment. I understand that G.H. Mark II has a more powerful transmitter and the indicator is designed to eliminate the 25, 30, 35 ambiguity problem. B.D.U. has made an installation of a remote H.2.S. indicator fitted with a K24 camera to produce better H.2.S. P.P.I. photographs. The remote indicator is made from a modified Fishpond indicator.

Pushing north Edinburgh way, my next stop was at No. 18 Group Headquarters of Coastal Command. Operationally this Group covers the area bounded by Northern Scotland, Iceland, Norway and Denmark. With the liberation of France, Germany lost her French U-boat bases and consequently, Jerry was compelled to move his U-boats to his own northern bases. For this reason, No. 18 Group has become one of the most important Groups of Coastal Command.

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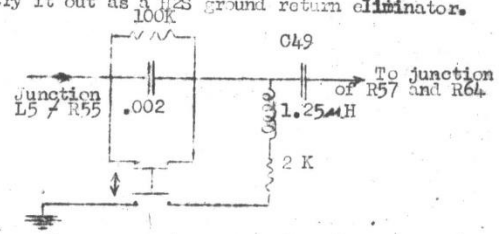
I was shown the 18 Group Operations Room, which is underground like those in Fighter Command. They tell that these are built underground to enable the operational staff to "get down to it!!!" Basically, the work of No. 18 Group can be divided into two main categories (a) Anti-U-boat warfare and (b) Anti-shipping warfare. Each type of operation requires patrols and usually striking forces. Apparently, Coastal Command believes in having a great variety of aircraft types. In No. 18 Group, for example, ten different types of aircraft ranging from Spitfires to Sunderlands are used.

For patrol work, Radar is all-important, and Coastal Command seems to prefer American Radar gear. ASV equipment now runs up to Mk. XV!!! These consist mainly of a number of variants of several standard English and American types of gear and are not all in use at one time. The most popular models are Mk V, which is the American A.S.G., Mk. VIII A which is the American Dog I and Mk X which is H2X.

Lucero or Rebecca is used with British centimetre gear for use with A.S.V. beacons, Babs and I.F.F. interrogation, and American SCR 729 is used to do the same job with American centimetre gear.

Direct sea returns are the curse and headache of Coastal Command. A sea return attenuator circuit has been developed which operates on the principle that the signals of a sea return is essentially a square wave and if a short C.R. is put in after the second detector, this square wave will be differentiated and greatly reduced. The circuit of this attenuator is given below in case you may wish to try it out as a H2S ground return eliminator.

- Components required
- S.P.D.T. Switch 10F/10338
 - Resistor 2K 10C/9090
 - Resistor 100K 10C/1968
 - Choke 1.25mH 10C/24



I certainly do not envy the Coastal Command Radar mechanics who are on boat Squadrons because I went out in a dinghy to a Catalina moored in the Birth of Tay on a windy day and believe me, it isn't any fun trying to climb out of a tossing dinghy into a tossing 'Cat', both tossing out of phase. Imagine going around in a dinghy to do D.I.'s!!!!!! One redeeming feature is that the boats are fitted with a P.E. set or Auxiliary Power Unit eliminating the necessity of floating out a P.E. set. This particular Catalina which I boarded was fitted with A.S.V. Mk. VIII and we could pick up a beautiful picture of the Tay Railway Bridge. Mk. VIII is a compact 3-centimetre job and the presentation is vertical time base moving across the screen as the scanner rotates in azimuth.

The work of Coastal Command has become more difficult now that German submarines have got on to the idea of sticking a pipe up through the surface to bring air down to the submarine making it possible to run the Diesels and charge the batteries underwater. However, good operators with good sets can still pick up a signal produced by a few feet of this pipe at reasonable distances.

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RADAR IN OTHER GROUPS

No. 1 Group

No. 1 Group is experiencing growing pains for with the addition of three new Squadrons and the addition of third flights to others, the strain on the poor radar techs has been so great that the fitting of H.2.S. has had to be restricted. So you see ~~them~~ have their troubles too!!!

A.C.I.T. serviceability fell below its early level and remains there, but the technical defects are being slowly ironed out.

No. 12 Squadron has nearly completed the fitting of Lucero and the training of mechanics and crews is progressing.

No. 3 Group

The 3 Group News has come out with a very swish cover on the Xmas number and an attractive binder has been supplied in which subsequent numbers can be kept. We only hope the war doesn't last long enough for the 3 Group boys to fill the binder for it looks to us as though it will hold at least a hundred copies, and at one News every two months, it adds up to a long time.

The G-H fitting program is progressing favourably but the supply of equipment is holding things up and some stations are working with only one spare set. Tuddenham and Whiteford are the latest recipients of G-H and Mopal is under way. Except for a couple of Squadrons which are completed the plan is to have a few kites of each Squadron fitted and to increase the numbers as the equipment arrives.

Fitting of Carpet II is proceeding in Nos. 15, 149 and 218 Squadrons by Station personnel under the supervision of T.R.E. specialists.

No. 4 Group

No. 4 Group has started a News, the first issue being the December number.

Experiments are being made with desiccators for modulators to attempt to overcome the problem of arcing due to dampness. No. 45 Base is fitting containers filled with Silica Gel crystals in the modulators of one flight of No. 406 Squadron. The containers are home made, they are tubular, approximately 3" X 1 1/2" of fine gauge mesh with solid bottom and removable top and fit in the back of the modulator alongside V5.

No. 4 Group have also put up a modification to incorporate a wooden scanner well cover in Hallies but we think we must have been first with the one developed by Croft.

No. 44 Base is completing a combined Base Workshop in a 'J' Hangar from which fitting will be carried out. One Radar workshop however will be used for B.M.S.S. centimeter work. W/M's are employed in fitting, checking acceptances and modifying H.2.S. Units and all Gee installations are completely carried out by them. All W/M's at Helms have completed a comprehensive Gee course and it is intended to employ them in rotation on B.M.S.S. so they will acquire a practical knowledge of Radar.

Lucero has been fitted in a Squadron at Driffield and tests have been flown on the ground beacons. The ground equipment appears to be the main snag and 4 Group is doing some development work on this part of the equipment.

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No. 5 Group

Trials and experiments on Mk. III H.2.S. are proceeding at Coningsby. A new type of scanner has been produced by T.R.F. and air tests on it have been encouraging. In the meantime further tests are being made with the existing scanners in an endeavour to raise their efficiency. Several ideas have been investigated, the latest of which shows considerable promise.

5 Group is going heavy on the fitting of Loran and expects to have the whole Group fitted with it soon. They seem to favour Loran in preference to H.2.S.

Mk. III H.2.S. serviceability during October for 85 sorties was 88.2%.

S/L Branson who was 5 Group Radar I for a long time has gone home to Canada and S/L Perrin formerly at H.Q.B.C. has taken over the job.

No. 8 Group.

Approximately 100 Mossies were fitted with Loran at M.S.S. Upwood during October. Serviceability of this equipment is reported to be very good with only 14 definite technical failures in 542 sorties. The original aerial difficulties have been largely overcome by the local design and production of an aerial loading unit coupled to an internal aerial.

A Loran auxiliary strobe control is being made and fitted in 128 Squadron. This Unit provides a duplicate set of course and fine controls which can be switched into the circuit alternatively to the two existing controls in the indicator. This means that two co-ordinates for any target may be set up simultaneously, one on each set of controls, and heading to the target should be facilitated.

After some altitude troubles with H.2.S. in Mossies in 129 Squadron these have been countered by changing to the pressurized Mossie and the introduction of a new R.F. box, the TR.3523. Both changes have produced good results.

Boozers is being fitted in Mossies but this program is slow due to a breakdown in the supply of aeriels.

8 Group are working on a mod to switch R.F. units type 25 and 27 to avoid changing the units in flight.

No. 100 Group

A screen has been developed to protect the magnetic compass in A.I. fitted aircraft from the transmission effects of L.T. II. X in particular. A trial installation is to be carried out and if successful all aircraft of the Group will be fitted retrospectively.

100 Group is also working on a mod to switch Gen R.F. Units.

As part of the 141 Squadron training program the Navigators have been carrying out routine D.I.'s, in particular re-arming, to which special attention is being given by the Station armory section.

3 Navigators also spend considerable time in training lectures and in Radar Workshops getting the gen on the many Radar equipments used.

NO. 5 RADIO SCHOOL - CLINTON, ONTARIO

Did you ever hear of a place called Clinton? Well it is now known as No. 5 R.S. and according to an article entitled "Target for Tomorrow", in the R.C.S.P. Radio Training Circular No. 12/44 they are now giving forth with some advanced signals and radar courses which are very different from the old Mark II ASV and Mark IV A.I. courses you got there in the good old days.

These courses are officially called "supplementary courses". They are open to Signals and Radar Officers and Wireless and Radar Technicians and designated S.O., R.O., W.M., and R.M., courses for short. So far, only the S.O., and W.M., courses are in progress. It is hoped that Radar courses may be started before the end of 1944.

The S.O. courses are at present 17 weeks long and the W.M. courses are 15 weeks long. The length of the Radar courses has not yet been definitely determined, but they will be of approximately the same length as the Signals courses; in fact, several sections are common to some or all courses.

The school staff has drawn up training syllabi in sections, each covering specific equipments or techniques. In this way, the greatest flexibility is achieved since sections can be added or deleted as required to meet the Service requirement and to permit training in accordance with the latest development.

The W.M. courses are composed of three sections - first a five weeks course in Basic Radar Technique, followed by six weeks on the latest communication and I/F equipment and finally four weeks on special airborne equipment which is on the secret list. S.O. courses follow the same sequence with two additional weeks spent in studying problems of Signals and Radar organization and administration.

Radar Officers will commence with a six weeks course in advanced Radar technique followed by ten weeks or more on late type radar equipment, students specializing in ground or airborne equipment as required. Radar Officers will take the same two weeks organization and administration course as Signals Officers.

Instructions on these courses is of an advanced nature. It is assumed that all students are competent in their work when they arrive at the school. The object of the courses is to provide a thorough practical training in the latest types of equipment to be introduced into the service so that this equipment can be utilized at maximum operational efficiency from the time that they are installed in stations or in aircraft.

As the courses deal with advanced types of equipment and techniques considerable time is spent in development of the theory involved in the operation of the equipment. However, the courses are essentially practical and carefully designed to proceed from familiar principle to the new concepts necessary to understand the latest developments.

As the courses are designed to turn out people who know their stuff, time and money cannot be wasted on those who cannot absorb the gem, so there are plenty of exams. First they start with an entry exam which is a four hour paper on radio theory!!!! This is to assess the level of technical knowledge possessed by the students so that the instruction on the first stage of the course can be adjusted to their needs. However, students take into the examination room any radio reference books they wish so that it doesn't sound too bad. Then after five weeks on the S.O. course and six weeks on the R.O. course a bar exam is held to test out the students' knowledge on the first part of the course. If this exam is failed, it is

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the chop for the student and he goes back to his unit. Further examinations are held at the end of each section of the course and there is a final exam for graduation.

Selection of personnel for the courses is made from lists of personnel recommended through command headquarters. Personnel may apply to attend the course through their immediate superior officer, who will forward the names of those he considers suitable through his C.O. or A.O.C. Normally, only applications from Officers who have served a year or more in the field and mechanics of warrant or N.C.O. rank (with 'A' Group) are considered. The intakes are ten Signals Officers every seventeen weeks and twenty-five Wireless Mechanics every five weeks while the Radar intakes are expected to be ten to fifteen Radar Officers every fifteen weeks and forty to fifty Radar Mechanics every six weeks.

So you can see from the above that some of the boys at home are getting some real running up at the old Radar Mech factory at Clinton and no doubt all you old graduates of the same place wish you were back there too!!!!!!

ONTARIO CLUB republished from 3 Group News.

There has been some signs of interest in this idea and requests have been made for more Gen on the policy. After the war...when all good Canadians have returned to their homeland.....they will no doubt welcome a meeting with some of their old pals of the "Radar World War". The intention is not to form the club now in England, but to collect names of chaps interested so that they can be contacted by post in the future, and notified of any meeting which may be convened.

Send in your names and full postal address to 3 Group Radar News, RME Newarkot.

Here are a good few names that we have received so far.....

- F/S Bert James 69, Sackville St., London, Ont.,
- Cpl. Sid Solley, 148 Indian Bl. Crescent Toronto, Ont.,
- LMC Penny Penrose, 150 Caladonia Bl., Toronto, Ont.,
- F/O R.C. Clarke Orillia, Ont.,
- F/S Jimmie Stark Paisley, Ont.,
- Cpl. Steele 249 McRoberts Ave., Toronto, Ont.,
- Sgt. R.E. Roberts South River, Ont.,
- F/S S.J. Johnson Kenfrew, Ont.,

ACKNOWLEDGEMENT

We wish to give the 3 Group News the full credit for the origin of the cartoon reproduced on the back cover. We thought the idea was sufficiently universal to Radar to warrant doing a little pilfering and asked the Group Artist, Sgt. Duchak to reproduce it for you to see. Incidentally Sgt. Duchak is also the man who designed and produced the cover.

TECH TIPS

FISHPOND TRAINER.

Middleton started the ball rolling by turning out a gadget which would manufacture a synthetic aircraft return on the Fishpond III. This is a very good effort and has evoked considerable interest both in and out of the Group. Now Skipton has come along with a modified version of this trainer using two valves less and as this does the same job as the Middleton trainer but is less complicated and therefore easier to build we are publishing the gen on it below.

Both trainers employ essentially the same idea in that they are composed of:

- (a) A signal generator which supplies a positive signal to the P.P.I., C.R.T. grid and which has variable delay so that changes of range can be simulated.
- (b) A variable P.R.F. multi-vibrator actuating a relay which feeds the signal to the P.P.I. By varying the speed of the multi the signal can be moved around the I.I.I. to simulate changes of bearing.

The main difference between the two trainers is that Middleton used the main A.2.S. sawtooth waveform to trigger the signal generator and by means of three valves produced the variable delay positive signal, while Skipton starts with the 20u sec. positive pip from the modulator pye violet and use a single valve 'Skiptatron' to accomplish the same thing. The multi-vibrator circuits in each trainer are similar except that Skipton has used smaller components to save space and have managed to mount the whole unit, including the power supply, on an old Gee power supply chassis.

SIGNAL GENERATOR

V.1 in Fig. 1 is a VR.65 operating as a 'Skiptatron'. The input is the 20u sec pulse obtained from the modulator pye violet. The variable length square wave produced in the screen and cathode circuits (see Fig 2) is controlled by the potentiometer P.1. The cathode output is differentiated to obtain the signal pulse and this pulse is fed through a set of the multi-vibrator relay contacts to the output pye plug and from there to the Fishpond pye black by T-plug so that line of flight and normal signals can also be applied to the P.P.I.

V.2 and V.3 are CV.118's in a multi-vibrator, potentiometer P.2 controlling frequency. With the speed of the multi-vibrator synchronized to the scanner speed the azimuth position of the synthetic signal on the P.P.I. remains fixed, when the multi-vibrator runs faster or slower than the scanner the synthetic signal will move around the P.P.I. anti-clockwise and clockwise respectively.

The relay in the cathode circuit of V.3 is a high resistance type, the B relay in the Power Unit being satisfactory. This relay closes every time V.3 draws current and the pair of contacts in the output circuit of V.1 transfer the synthetic signal to the Fishpond P.P.I. Another pair of contacts is wired so as to short out the relay coil and thus return the multi to the condition where V.3 is not drawing current and the relay is open until the cycle is repeated.

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POWER SUPPLY

An old Gee power supply has been used but any power supply providing about 300 volts H.T. and 6.3 volts L.T. should be satisfactory. It might be advisable to include a voltage stabilizer on the H.T. line because if the H.T. varies so will the frequency of the multi and the signal will shift on the P.P.I. as the H.T. voltage fluctuates.

CURE FOR NON-STRIKING MODULATORS

Mildenhall has found that one reason the modulator does not strike on these cold damp mornings is that the retaining cord on the CV.85 (spark gap) becomes a conductor when it is moist and provides a shorting path to the chassis via the cord, springs and retaining bolts.

The cure is to substitute for the existing cord retainer a plastic valve retainer (10AB/312C) with rubber straps.

Monitor T.28

The Monitor Type 28 is a very good scope but Linton say that it can be made into a really wizard one with some slight modification. You remove the C.R.T. and with the aid of VCR 97 base and socket you make an extension lead so that a VCR 97 can be used instead of the original VCR.138. No other changes are necessary but the thing can be prettied up by obtaining an old Monica III Indicator in which to mount the 97.

SKIPTON RESPONSE TRAINER.

Since the preceding gen on the Skipton trainer has been typed it has been found that the value of the VI cathode resistor is critical if correct synchronization is to be obtained. It is therefore advisable to use a 25K pot instead of the fixed 10K resistance so that the value can be adjusted in operation to obtain synchronization.

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EQUIPMENT

DUFF STUFF

Plenty has been written and more than plenty has been said in the past few weeks about the mounting numbers of 'duff' items sent to the Group Pool for exchange. Now-a-days we go to our cold bed counting ourselves to sleep with T2R's. In one recent week the figure reached 41 with Power Units running second.

Along with this the Operational unserviceability assumed a new high. We felt it would be interesting to compare these weekly defect reports with the A.M.O. 869/43 defect action and in turn compare the defect A.M.O. with the actual article in for exchange. Lo and behold only 4 T2's had any action taken on them and much to our dismay there was no notification on the labels to tell which were the four.

Items should be labelled as to UNIT, U/S COMPONENTS, and A.M.O. ACTION TAKEN.

YUPPI!!!! These condensers C.309 and C.301 in the Power Unit Type 239 are now sent to M.A.P. along with the A.M.O. action copy. BUT --- The deficient Power Unit is sent in for exchange to the Group Pool ONLY provided that the Unit is marked to the effect that it is deficient this item and that A.M.O. action No. so-and-so has been taken on it.

SEVEN COL. 7 H.2.S. CONNECTORS

Last month we mentioned that we were trying to obtain spares of Column 7 connectors. They are here now and are being allocated on the basis of two complete sets per Base.

Other suggestion such as this are welcome.

LOADING UNITS TYPE 51

Now that Middleton St. George has their full quota of Loading Units Type 51 the balance if any and when they are available will be allocated first to Linton Base and finally to Leeming.

Delayed switching of H.2.S. At Kiltale-Switch Unit Type 274

During the month the first run on the Switch Unit Type 274 was passed on to Units. The new switch Unit is used for progressive switching-on of the modulator to prevent unserviceability due to surge voltages. This is accomplished by governing the input 80 volts A.C. to the transformer in the modulator by applying it in stages of 60 volts then stepped up to 70 volts and finally 80 volts. Further information is given in this Headquarters letter 6 C/S.434/2/Rdar dated 16th December, 1944. Therein is a forerunner explanation of the new unit pending the publication of the "gukka" Bomber Command modifications.

Since 20 yards of Dumet 4 are necessary per aircraft it can be readily seen that a tremendous quantity of cable will be needed to satisfy all H.2.S. aircraft in Bomber Command. Hence it is the B.M.S.B. advantage to start placing demands now for Dumet 4 so that when their type 274's come through their supply problem will be more or less solved. Besides this of course there are the two pin W sockets Ref. 10H/400 used on either end of the Dumet 4 and a two pin W plug Ref. 10H/389 on the modulator itself.

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Advice has been received that initial distribution of the Type 274 Units will be made immediately and that all Column 7 cables, plugs etc., are to be demanded locally. Supplies of Type 274's are such that all Bases should be completed by the end of January, 1945.

BITS AND PIECES

The Group Pool has a limited number of each of the undermentioned items for distribution so get your bids in early-----

<u>Resistors</u>	10C/11984	-	Type 228
	10C/11985	-	Type 229
	10C/11986	-	Type 230
	10C/11987	-	Type 231
<u>Connectors</u>	10H/5070	-	Mains Geo
	10H/6504	-	Type 1801
<u>Power Unit</u>	10KP/470	-	Type 195
<u>Junction Boxes</u>	10AB/6331	-	Type 222
<u>Monitors</u>	10T/500	-	Type 28
<u>R.F. Units</u>	10D/1015	-	Type 24
<u>Test Set</u>	10S/130	-	Type 88
<u>Valves</u>	10E/105	-	V.R. 92
	10E/121	-	V.U. 120
	10E/149	-	V.R. 65
	10E/389	-	V.R. 501
	10E/392	-	V.R. 135
	10E/CV. 6	-	C.V. 6
	10E/7738	-	V.R. 21
	10E/9779	-	V.R. 35

1/c IQ RADAR EQUIPMENT POOL

H.Q. Group Pool has been asked to chip in a few odds and ends to the Radar personnel in 6 Group, maybe further afield, as we understand that Radar News goes places. Well, we are gradually getting Base Pools trained into the mysteries of Equipment routine, such as making out Repairable Tags etc. We still have a way to go yet, but are glad to report progress, and who knows but that some day we will have some very efficient Equipment Assistants amongst the rank and file of Base Pools.

We hope you like the new system of Group Pools, making out Form 674, for equipment issued. We do not doubt the ability of those concerned, to make them (The Forms), out correctly, but we do know that the Red copies of Form 600, which in the past have been accompanying the equipment, have had a very mysterious way of disappearing at inopportune times. Then Group Pool gets a blast from the SEO of the Stations concerned, when they get the Blue copy and there has been no Red copy turned in to stores, to correspond. So under the new system, we attach the signed copy of 674 to the Red copy of the 600, and it is sent direct to the SEO - results, no blast, we're out from under. Oh yes, we like to get out from under, as well as the rest of the "erks".

In conclusion, Group Pool would like to thank the Radar Personnel of 6 Group for their cheerful co-operation in making our job a very pleasant one, and wishing one and all a Merry Xmas and A Very Happy New Year.

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BASE BOOST

HQ NOTES

6 Group Radar has been asked to contribute their 2 bits worth to the Radar News. We find this a bit like getting ataste of our own medicine having raked nearly every other section over the coals for not contributing in the past. However, we have accepted the challenge by submitting the following:

With the addition of a test gear party, skip ered by Sgt. Bud "over" Hall and staff LAC Toole Sirett, it became necessary to carry out extensive renovation in the limited space available. The front room was converted from an office into a radar mechs paradise with red and green lights twinkling from neatly spaced test panels. Interior decorating done with delicate shades of cream and green rounded off a job well done.

Mad Hatter Merry-go-round

Riding along a road one day,
Came our Bud Hall in spirits gay,
When suddenly with quite a bump
He stopped right up against a stump,
Miss T.S.28 was heard to say,
"There's something wrong I cannot play",
And as for Mr. 202
All he could say was "Quite a' do",
Now Mr. Hall felt very sad,
Then suddenly got very mad
For, realizing that mod had forgotten to trip,
Shouted, "How can I navigate without a blip".
How any similarity between living and dead
Is purely coaxial and not to be read
So let the moral on you fizz
Because you may think this the end - Ah so it is!!!

Professor Ginsberg, our erstwhile mentor is home again from Innsworth after showing the W/T boys the finer points of Radar. Some very fine assistance was rendered by P/Sgt. "Wally" Hill, Eastmoor and LAC "Jimmy" Cameron, Leeming. We understand while down there a certain party got off his course mistaking a W.A.A.F. billet for a "posh" hotel. We still haven't been able to get the address.

LAC Sirett is back for a rest having returned from a very strenuous leave in the land of the shamrocks. Judging by the snazzy pictures he brought back the Irish Colleens must have something on the ball. Maybe we are just jealous not having had a chance to get in on that 25 quid.

There was a bang up signals party held at Green Hammerton on the 8th December, with a good representation from radar personnel. Among those present were F/L Crawford and F/O Brash, 6 Group H.Q., F/L Waters and F/O Schlote, Leeming, S/L Hoodspith and F/O Homishen, from Linton. Among the rank-or types were W/O Ginsberg, Sgts. Hall, Howarth and Shepperd and a good time was had by all (W.D.'s?).

We are still wondering who was taking a fix on who at Sgt. Shepperd's "gen" classes for W.D.'s, especially since on W/O Ginsberg's return he decided it best to temporarily scrub the effort. Hm! is Sheps free Red?

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Evidently knowing all the answers is better than knowing all the questions.

Footlight note: With the strenuous social life going around Group of late W/O Ginsberg has concocted a mod which consists of wiring a megger to the boys bed to get them up in the mornings.

Another triumph for the Prof.

You will no doubt be glad to hear that Jimmy Brooks has arrived safely in Canada. When he was leaving he said the second thing he was going to do when he got home would be to take off his pack, unfortunately the wire had no confirmation of this.

Since one of the "informal" sessions at the local temple of "Drine - women and "Tildley moor bar #1 at", Sgt. Al Howarth has been voted the most eligible pub-partner by the W.D.'s, for his musical entertainment at the ivories. We predict big things for our boy-wonder.

NO. 76 R.C.A.F. BASE

L.A.C. Johnson has developed a mod which will make it unnecessary to remove the plugs from a Mk. 5 WCP when doing Gec D.I.'s. A six pin plug replaces the red D.C. outlet, and the lead from the P.M. set is just plugged into this. A relay mounted inside the W.C.P. cuts out the engine alternator. This Mod. is being submitted in detail to Warber Command for approval.

Another Mod. has been thought up by Col. Steel. This consists of a small light on the front of the R.F. units type 24 and 25. This light indicates the type of unit inserted, and gives a positive indication that 80 volt A.C. is reaching the gear set O.K.

Sgt. Fred Shirley is welcomed to Topcliffe from No. 1 L.F.S. at Hemswell in No. 1 Group. Possibly he will replace Sgt. Horn when he is repatriated.

F/L "Larry" Gillies is away enjoying himself on leave somewhere down near London.

L.A.C. Putnam and L.A.C. Hawley are back on the job again after a sojourn in sick quarters.

A Fishpond synthetic trainer has been completed, following the Middleton design. This gives very realistic blips closely resembling aircraft returns, but gives some trouble due to the breakdown of some of the second-hand bits and pieces which had to be employed for lack of more suitable components. However, we think the design itself is good, and will give excellent results when some better parts are obtained.

L.A.C. Murray Thomson has been doing wonders with our old Siemens H.2.S. Trainer, so that it now works every bit as well as the Dynatron trainer. This was accomplished by rebuilding the head I.F. similar to that in the Dynatron; and readjusting the coupling of the tank coil in the modulator.

L.A.C. Clowes is now sporting his "A" grouping, making this section 100% now.

During the recent roaring great fire in a hangar here, we are told that some of the local Moths, were seen toasting marshmallows!

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R.C.A.F. STATION WOMBLETON

During the past month, aircraft have been continually coming and going from the Station causing much changing of equipment and grief to Radar Mechanics. We have had Mk. II, Mk. III and Mk. V Halifaxes, Mk. III and Mk. X Lancasters on the field at the same time. However, it now seems to be definite, that we are going to convert to Lancasters.

Two more mechanics have joined the exalted ranks of the "A" groupers. LAC's Van Norman and Hartwell passed the last trade board at York. It is unfortunate that LAC McCusker was in the hospital, or we would probably have had a complete "A" Group Section now.

Congratulations are in order to Mac McCallum who now has his arm weighted down by two hooks.

Corporal Love and LAC Connolly have returned very fit after a leave to the Isle of Man.

R.C.A.F. STATION DISHFORTH

Starting off on the right foot the boys of Dishforth wish you all a Merry Xmas and a Happy New Year.

We all hope to celebrate over the festive season and if all goes well we assure you that more than scanners will be going around.

The boys have been working very hard lately (no sarcasm), as there have been many change-overs from Mk. V to Mk. III Hallies. Good reports from Radar Nav have been their reward.

Spring fever has entered our section or someone is taking interior decorating to heart. Paint has made a remarkable change in our section office and if you wish information on the procedure, Office hours are 0800 Am to 5 Pm, phone Dishforth 10.

We had the pleasure of having W/O Ginsberg paying us a visit a few days ago. It looks like English weather suits him well and may we add our congratulations to those already said for his excellent work in connection with instructing the boys on H.2.S. courses.

Leave seems to be in the air a bit and some of our boys will be on the way soon. Our dear Sgt. Kennedy and LAC Shaw have Xmas and a rendezvous with fate. Who is Fate? That's what we intend to find out.

Ho shoots! He scores! You're right, hockey is in the air again and we have two Radar representatives, McCaffery and Studholme. The first practise was at Durham a few days back and there was plenty of zigging where zagging should have been. However boys, watch for future news as we have a smashing team in the making.

A newcomer at the Radar Section is G.L. Studholme who formerly specialized in O.T.U.'s.

DO YOU KNOW THESE CHUCKS AT HOME IN SPADING MOOR - 4 Group

Cpl. G.R. McMillan	(R.133159)	from Vancouver
Crd. Reg Gamble	(R.126306)	from New Brunswick
LAC Bill Baillie	(R.173390)	from Hamilton, Ont.,
LAC Wally Nelson	(R.139823)	from Unity, Sask.

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NO. 62 R.C.A.F. BASE

Another month rolls by and we are still "Winning the war", as hard as ever. This month, emphasis has been placed on modifications.

This subject has been given quite a bit of attention when Bomber Command introduced those nice Radar Servicing Manuals. Well now the Base Pool Stores, which had attempted to bring up to date all the new equipment, as it came in from Group Pool Stores, has decided that wherever practicable, not only the modification pamphlet, but the "bits and pieces" necessary to complete the above would be sent out together to the Station Radar sections. This policy should certainly help to relieve that "sinking-feeling" at the introduction of each new modification in this Base.

BASE MAJOR SERVICING SECTION

Mods, Mods and more Mods - there should be a law agin 'em! That's the theory going around B.M.S. these days. The reason for this uproar - our Base Radar Officer has launched a campaign to make us all Mod-minded and we'll admit he is doing a pretty good job of it.

No doubt everybody else is experiencing the same delights, fitting the "variable speed scanner" mod, as we are now. We understand that the "remote switching" Mod, for the modulator, which was developed by Linton, will be coming out shortly too, in a slightly revised form. Since this latest mod-clean-up, B.M.S.S. is turning out completely modified A/C. Base Pool has a production line in operation with two mechanics doing nothing but mods.

Last month we did 33 acceptances on Y type A/C and 4 Majors. The majority of the acceptances went to Tholthorpe and it shouldn't be long before they are completely fitted H.2,S.

No sooner does Sgt. Hill return to B.M.S.S. from his duty at Innsworth than we say good bye to him again. This time for good. We all wish him the best of luck in your new job at East Moor. "Walley".

We are sorry to say that Cpl. Bill L. Clarke "L" for Lorar" the W/T man who was doing his stuff with Gee here has been in the hospital for the past 3 weeks and is now at North Allerton. Bill's report papers came through while he was in "dock" and we hoped that would put him on his feet again, but evidently the "shock" was too much for him. Hope to see you around again soon Bill.

We had a short visit from a newcomer to 6 Group this month, he's Cpl Watts by name. He was only been with us a couple of weeks and is moving in to take up permanent residence at Tholthorpe.

We want to know why it is that 64 Base still requires the help of 62 Base's LAC Fraser who is at 20 M.U. fitting Col. 7 to their A/C. Having trouble boys?

Leave this month went to Cpl. Beynon, LAC's Glover, Boughen and Wright. We hear that Ted Beynon and some of his cronies went to Ireland and not because their mothers came from there!!!

R.C.A.F. STATION EASTMOOR

To remedy stiff necks, developed owing to side mounting of the S.U. on the synthetic trainer, Mech's of Eastmoor adapted an old Gee indicator mounting. Bomb Aimers training on the equipment find the new horizontal

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mounting. much less of a strain on their "sterno-mastoid" and on their nerves.

Fishpond moisture difficulties have been overcome "we hope" at Eastmoor by the addition of a fabric covering over the face of the indicator to repel any water which might trickle into that "lanolin-filled in-or-tube - covered, 4 k.v. lead-socket."

The Eastmoor shop mechs have found plexiglass tags, plus grease pencils provide, an efficient method of keeping track of equipment from D.S.S. to record book.

On November 13th and 14th the Eastmoor mechs went operational! They reached the "Target area" at approximately 18.30 hours and without further ado, descended in two waves, upon chicken dinners. We are happy to report no losses, and target completely devastated.

Visiting us on this happy occasion, and for nine days following, while F/O Semuk took his leave, was F/L Martin and his wondrous collection of stories. We, of Eastmoor, would like to thank Mr. Martin for a most stimulating time, and for his very welcome presence. We also wish him the very best in his new job as Station Signals Officer. At the same time we wish F/L Duncan, who has been transferred to Wombleton, the best of luck in his new position.

Since the last issue of Radar News, Eastmoor has welcomed Cpl. "Johnny" Fellows, and we now hear that F/Sgt. Hill is once more to be with us. A hearty welcome to both of you. We are sorry to be losing Sgt. "Koppy" Koperson to Linton.

Cpl. Heyes, we hear, is to desert the airmen's mess for the aristocracy of the Sergeants, and we haven't even had a chance to become accustomed to calling him "Corporal". Congratulations!

LAC Thomson has found a novel way of saving taxi fare from York. We do not know whether it was "wine, women or sauerkraut," or a combination of all three. In any case we think an "ambulance" is rather an ominous vehicle in which to return to camp.

R.C.A.F. STATION THOLTHORPE

With H.2.S. being the main topic with Radar mechs, these days, far be it for us to change the subject, and we feel proud in announcing that even though we were the last station in the Group to get H.2.S., we now have 35 aircraft fitted, with new ones coming in every day. It has been a hard struggle, as it was new to both "us" and the Bomb Aimers. Several times we had out little difference of opinion but we have now reached the point where everyone is happy. We have put in many long hours with it and at times wondered if H.2.S. was worth it all; of course we were handicapped by a shortage of "Jennies" but with the arrival of 2 new ones our D.I.-times has been considerably cut. Incidentally F/O Gamble lost a pint to one of the boys over the jennies.

The best social news we have this month, is about Cpl. Perwon who has left us to return to the land of "milk and honey". Paul is an old timer coming overseas with the original Radar Mechs. He was due to go back with the boys who left a couple of months ago, but due to an unfortunate "boob" in his records he was passed up. But when the mistake was corrected Paul received a rush call to report to Warrington within 2 days... he made it in one!!! Maybe he wanted the other day for a few fond farewells - who knows?.

With LAC Rankin and Desislats getting their 'A's' at the last trade test we can now boast of 100% "A" Groupers.

It was noticed that every Monday morning a certain Radar Mech. LAC

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Bryndilsen by name, would take along a large can of water when starting on D.I.'s. We never questioned him and George, being the strong silent type, never said what he was doing and so one day we shadowed him! Upon entering the kite we noticed bubbles rising from the scanner. Going up front we found George nonchalantly D.I.'ing a Gee with one hand while the other was switching the scanner "off and on". George claims that it does a better job than "Rinso".

Now we don't want to turn the Radar News into an advertising sheet, but if the wintry weather is getting you down or if you are all suffering from "flat feet", "Hard of hearing", or any one of the hundred things that Radar Mechs suffer from, just write in for a trial sample of MacDiarmids Little Power Pills. Mac is in charge of all British sales and claims these pills will do "anything". He neglects to say, however, whether they do it "to you", or "for you".

INTERROGATION: This old subject has raised its head again. With the view of improving the results obtained from it, this station has started a program of educating Bomb Aimers, Navigators and W/Ops (Air) in the art of "describing" faults on Radar equipment.

F/Lt. Foley (Radar/Nav) has helped us in completing a set of 22 pictures in which we have attempted to portray all the common faults which occur while H.2.S. set is in operation. By doing this we hope to be able to get the B/A to describe his difficulties more clearly, thus helping us to reduce those "No Fault Found" cases.

R.C.A.F. STATION LINTON

F/Sgt. Daniels has put his name on the dotted line of the contract that will get him home in the very near future.....He Hopes!!!!

Cpl. Jerry Fulton paid us a visit whilst on leave - he must like the Yorkshire climate.

Another distinguished visitor to come and see us on November 23rd was F/O Wilkins of B.M.S.S. (Leeming) or should I say No. 63 Base. Speaking of Leeming, aren't F/O Schlote and Wilkins tired of getting doughnuts and coffee in Harrogate?

F/O "Johnny" Cowan who was with us for a time has been posted to P.E.F. - we wish him luck down that way.

The results were rather disappointing on the "Blind Landing" experiment Cpl. Lanry was working on. However, it had its compensations as F.C. learned a few things about "resonant - cavities".

Our A.P.I. attachment is all installed and working, our thanks go to the instruments section for a fine job, and to Wombleton for a good idea.

There's a mystery attached to Linton. During the past 3 weeks LAC Hopper has been going into York with a suitcase and then disappearing into the rain, only to emerge again, in time for the 10 o'clock bus back home. And we notice he has quite a list to "Stbd," or "Port" depending on which hand he is carrying "his" suitcase. It looks like the boys in "153" are going to have a wizard celebration this Xmas.

More wedding bells can be heard in the distance - LAC Atkinson is putting on the "ball and chain" in February. The lucky lady hails from London.

What is LAC Baldwin going to do with the "matched-set" of rings he sent home for? The attraction in Leeds, no doubt?

PAURE

Linton operational types: Cpl. Landry, L/C Wilson and L/C Woese, while working on the H2S, released a load of incendiaries on to the deck. It seems that there were a couple of "short circuits" involved.

If you want to know anything about sten guns, etc., see F/O Hornishen, who has just been on a short "defense" course!!!

NO. 63 R.C.A.F. BASE

BASE MAJOR SERVICING SECTION

We now boast 100% "A" group section since our old friend "Solonoid" Sollanyoh won his "A" Group in the recent trials test battles at York. Well done, old man-- Well done!

F/Sgt. Prior has decided to stay with us another year. We wonder if it's the Yorkshire weather that Al likes or could there be another reason. Time will tell.

63 Base went into a huddle recently and after the smoke had cleared it was decided that the control unit type 47 should be mounted behind the bomb aimer on the skin of the aircraft. This was to be universal throughout the base. It was then suggested that the control unit type 477 be mounted on a small bracket, the bracket being fixed to the aircraft skin, thus if any adjustments to the control are necessary you simply unscrew it from the bracket rather than remove a portion of the a/c every time a unit goes u/s.

Some of the base boys were seen recently beating their heads against the wall, the reason being that the first Lancaster air-craft has arrived here and is in the process of being fitted. These lincs seem to be O.K. but it leaves one wondering how the H.S. is supposed to work when the "lead fitting" Joes only put half of them in and miss the odd trays here and there.

Cpl. Bull Smith is once more a happy man now that the B.M.S.S. have a van of their own again. A certain light came into his eyes when he was told that D.S. had relinquished the custody of the old original "Angel" to us. He's not even disheartened by the fact that it has to be cranked on these cold frosty mornings.

The personnel of B.M.S.S. has undergone further changes since the last issue of the News. L/C Watson Battick was posted to No. 15 Radio School to act as instructor, and we all wish him the best of luck on his new capacity. L/C Johnny Felt has returned to Skipton, and in his place we have Bill Trew-- a tried and "True" radar mech who saw a good deal of service with Coastal Command. To complete our roster, came Jack Grainge who has been doing a good job in R. & I. at Leeming. We welcome these two recruits to B.M.S.S. and hope that their stay will be a long one.

R.C.A.F. STATION LEEMING

Leeming Radar is pleased to announce the birth of The Mighty Wurlitzer H.2.S. bench set. Brain child of L/C El Kellett and brought into this world with the help of wet-nurse Cpl. "Big George" Williams. The set is wired for everything but sound and lights up like a Christmas tree. All the panels are of burnished Dural with the VSC and Heading Control Unit recessed so as to be flush with the front. The console is at a lower level and has four switches and four colored lights which

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control the test gear. These switches are in the D.C. line and when closed actuate relays in a panel mounted on the wall switching 80v AC to the 202 the 28 or the AC meter, and 24v D.C. to the DRC. Mounted neatly below the console is a compactly designed switch unit for use with the 202. This panel receives indirect lighting when the 202 is switched on. Now that the "Wurlitzer" is completed Williams and Kellett threaten to take it down as it was only created for the Christmas season.

"Fatty" Moss the Mr. Five-by-five of the W.T. section on loan to D.S. for three months has returned to his first love. His brief excursion in Radar was an experience for both of us. By way of replacement "Rosy" Rosenplat a wireless op. recently returned from T.I.F. has been assigned to the Servicing establishment. Frank Crowe and Jim Zuck also Wireless Ops have been with the R. & I. section for a couple of weeks. They were formerly employed at SHQ in the cabin and both consider their transfer a good break. The R. & I. regulars have been giving them the gen on H.2.S. and both of them have dug right in with soldering iron and pliers.

The regional emergency blood transfusion unit paid its regular quarterly visit to 63 Base and as usual the Radar section contributed to a man. In order to maintain our 100% record Cpl. George Ropchan who suffers from low blood pressure had to argue the M.O. into accepting his donation.

Thursday evening Nov. 16th saw base major servicing, R. & I., and Daily Servicing Sections setting out on combined operations. Objective: Womald Green: The Red Lion Hotel. Like all good raids reconnaissance was first done by Cpl. George Williams and LAC Ed Kellett and Art (gotcha beat by a pint) Williams. All agreed they did a fine job. The final assault was carried out by no less than twenty-one other ranks and three officers under the leadership of F/L Waters.

Radar tradition was upheld by having things timed so that one???? quick pint could be quaffed before all adjourned to the dining room.

After the meal (you don't want to know what we ate do you fellows?) things really went into high gear. Off in one corner glaring across the table at each other, could be seen Art (gotcha beat by a pint) Williams and Cpl. R.J. (that's what you think) Smith, really doing themselves justice.

Holding the centre of the stage all evening, however, was one Doug (Junior) Camper, making some beautiful passes at several American WACS. We must admit later in the evening he was getting plenty of assistance.

We hear whispered around that F/O Bill Schlote had been seen quietly sipping a whiskey. Wonder if that was to soothe his wounds since up until that time he thought he had the monopoly of all things that were "gold bars" on their shoulders. But of course not, since then he has been seen making several wild dashes to Harrogate.

Even F/O Art Wilkins, the only man in 6 Group apart from F/O Dud Brash who has taken the Charles Atlas course twice and had his money refunded, had a big pint in his hand.

"Sonny" Waters did several good impersonations of a former well known character on the station. In between times while reaching in his pocket to buy a drink, we distinctly heard him murmur, "sure gotta go down and see the Black Widow soon". We don't get it?

The party/literally staggered to a close when a few of the more sober types (Sgt. McKim floored the boys by staying strictly sober) rounded the gang up to negotiate Ed Kellett's ten minute trek to the Station.

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F/Sgt. "Al" Prior showed a remarkable memory, when he kept insisting there was still a pint of beer left on one of the tables.

Well, all the Leeming boys have to say, "here's to bigger and better parties".

P.S. The writer would still like to know what became of the nine gallon keg F/O Schlote drew from NAAFI at Victory Loan time.

The Change in Command

There are a few faces here at Leeming that have taken on a temporary glow of crimson and the rest of the gung have voiced their congratulations. Our NCO establishment has now been brought up to par with Bill McKim hoisting a crown, Bud James taking the shadow from his third and R.J. Smith lugging two new tapes on his sleeve. Our congratulations to all three of you. We know you'll do well.

That's only the beginning though because Flight McKim and Sgt. Bill Corrie have voiced their intentions of accepting any repatriation offer that may come to light. And who wouldn't when it means going home.

The Radar Nav instructors at Leeming are happy again after six months of being trainer-less. That's right, we finally have been favoured with a 541 and are happy to say that, after a few teething troubles, it is working as we've never seen before. The R.&I boys hope it'll stay that way and thus save them the cost of aspirin.

STOP PRESS: We offer our congratulations to F/Sgt. Prior and LAC Milton; these two have announced their engagement.

R.C.A.F. STATION SKIPTON

The latest mech to join the leathercraft class is Cpl. Roy Inkster. Members of this group are Dave Grieverson and Johnny Felt. The latter two seem to be "teacher's pets". An invitation to a swell feed to those two star-pupils helped teacher-pupil relationships no end.

J.R. "A" group "Cheshire" has started a new speech fad around the station with "call the M.O." as his theme expression.

Sampling some Scottish firewater on leave together are musicians Charlie Denham and Sandy Morris.

By the time this appears in print a party and dance held by the Radar sections will have been either a terrific success or one godawful fiasco. To date it has given the executive one big headache.

Those new Radar vans are Andy Cook's pet hates. The word "abortion" is the mildest term which he and other mechs compelled to drive them apply to said trucks.

The radar section is easily the section to contribute most of the cultural and entertainment life on the station. Charlie Denham leads the station band and Sandy Morris is one of its stars. Nick Nickerson is a prominent member of the Discussion Group and has acted as its chairman on several occasions. Johnny Beard is the chairman of the Bendig Club, ably assisted by Charlie Goddard. Johnny is also on the library committee and on the station entertainment committee. On the station entertainment committee is Moe Aspler who is also chairman of the music group, a member of the Airmen's mess committee, a member of the P.S.I., plus a few others. Another member of the Station entertainment committee is Johnny Perreault who also is stage manager of the Dramatic Group. Also very prominent in the Dramatic Group is Bill Hodge. And now the latest Station effort, the Swing Club includes Al Kolberg, Andy

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Croft and Harold Brown on its committee. Beat that!

Congratulations are in order for LAC Cheshire and LAC Kerfoot, who have joined the ranks of the "A" Groupers. Judging by the rumours going round, these two loyal members of the electronic fraternity are feeling justly proud of their efforts. The local branch of this fraternal order of the future now boasts 96.5% "A" group membership. Perhaps there is some truth in the saying that "nothing succeeds like success".

We are glad to welcome to our fold LAC Allen, recently arrived from No. 1 Group. Allen is no mere spig, having been knocking around the Mother Country now for two years or more. We hope he returns from the land of the shamrock, where he is spending his leave, refreshed and inspired by some of that unrivalled Irish hospitality.

F/Sgt. Radley has been seen lately going around the workshop followed by time constants and wave forms of various shapes from the super streamlined Veronica Lake types to the common garden variety. After the smoke and flames had finally subsided, he emerged triumphant with his own version of a Fishpond trainer. It now awaits only a little streamlining before going into permanent use in our trainer rooms. We present the "Gen" in the technical section for those interested.

NC. 64 R.C.M.F. BASE

For some time now we have been looking forward to the arrival from Canada of the first H.2.S. modified Lancaster X aircraft. Well, she arrived this month amid fanfare and trumpets but alas, we found to our surprise that the column 7 cables were missing. A conference called between those concerned decided that the aircraft should be brought up to the operational standard of the other Lancaster X aircraft and then returned to Canada to help the manufacturers there to solve the many production difficulties. We are grateful to our Canadian aircraft production "Joes" for the mods. included to date, and we feel that the problem of cables is mainly one of supply which will likely be straightened out in the near future - we hope!!!

The supply of Lancaster X's has permitted Croft to start converting their second squadron and no doubt by the time this has reached the press, we will be completely "Lancasterised".

We would just like to assure you "Hally" fans that if you see objects shooting past you at a great speed, that they may not be Jerry rockets but probably Canadian Lancs.

We understand that this month's Bomber Command Signals Newsletter has a lot of useful gen on Radar training rooms. We won't say anymore on the subject as we have already received the blast from several unmentionable sections of the Radar world.

Congrats: To Ted Callard who is sporting new Corporal tapes.
To George Fisher who came away from the latest T.T.B. unscathed and with an "A" grouping.

Casualties: LAC Torrance recently parted with a couple of front teeth while stringing a Lenc A/C. He took great pains to have the physog. fixed in time for his nine day journey to the Happy Hunting Ground up in the Highlands. Yep, they have some tough 'dishes' up that way according to Torrance.

Sgt. Groom finally managed to escape the hospital. A relapse prevented his leaving last month as reported in the "News".

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New Stores Policy.

No. 64 B.M.S.S. stores is now going into high gear. As well as handling all column 9 equipment it will be taking care of test equipment, various items in short supply, and all components required throughout the Base for the purpose of carrying out all Class A and B Bomber Command Radar modifications. The idea:- fewer man hours lost in store bashing and a more efficient and uniform system of knocking over these pesky mods.

R.C.A.F. STATION MIDDLETON ST. GEORGE

We are glad to welcome Sgt. Desruchers and Opl. Paterson late of Croft, who have taken over the D.S.S. for the Ghost and Moose Squadrons.

LtC's Turner, Halsey, and Batchelor, who have spent many weary radar servicing hours at various C.F.U.'s have recently joined our ranks to give us a hand in the radar sections here. Having managed to cope for so long now inspite of personnel shortages, we could hardly believe our eyes when we saw three live radar mechanics struggling through the mighty gates of Middleton.

Enjoying a spot of leave at the moment are Opl. Brimacombe and LtC's Weir and Holgason - destination unknown.

LtC Alex Kraptal is spending his time these days at North Allerton Hospital. We understand (and hope it is true) that all his troubles are behind him.

The latest gen from the Canadian front is that F/Sgt. Scott, recently repatriated is now enjoying 30 days leave. Lucky fellow. Also, letters from F/Lt Able indicate quite clearly that he is not exactly sorry that he answered yes on the repat. questionnaire. He tells us that after his 30 days leave he ended up at No. 5 Radio School, Linton, and is supposed to be taking a course on centimetre gear. Incidentally, he also informs us that they have given them the choice of staying in or joining the R.C.A.F. reserve!! What a choice!

F/Sgt Fletcher of H.Q. Fighter Command and F/Lt Tester, 12 Group Fighter Command visited the sections during the month. It seems that their car broke down - actually just petrol trouble - and so they decided to get some gen about the Bomber Command Radar sections set-up, while they had the opportunity. Naturally, they went away quite impressed and when last seen were heard to be muttering something about remastering.

Latest to receive his repatriation papers is Opl. Paterson, who when interviewed by our roving reporters, said, - quote: "Don't be silly, of course!" - unquote.

Congratulations to Bill McArthur on receiving his third. Mac is now the right-hand man to Sgt. Walters in the R.&I. section.

This month saw LtA.C. "Geoff" Eggleton move on to No. 15 Radio School, Cosford, to take up instruction duties there. He informs us that it isn't quite his idea of being an instructor, but that on the whole he is liking the work.

The Middleton "fishpond" Trainer gen has really been getting around these last few weeks. Recently LtC Baldoock guided the "Treasure Box" down to Command Headquarters where he was royally looked after for the best part of a week. Since his return, a letter has been received from the powers that be, expressing appreciation for "Baldy's" help and indicating that although T.R.E. have a very scientific multi-valve effort almost ready for circulation, it is hoped to establish as an interim measure, the more easily designed Middleton trainer throughout Bomber Command.

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Command call it an ingenious device and we are inclined to agree with them. Incidentally Baldock had a word or two with S/J. Musselman, Comd. of the gen radar unit, and he describes him as a type that if you ask him the time, he tells you how a watch works!!

Radar Operators here are in great favour of the Bomber Command mod. for adjusting the speed of the H2S scanner. They have found it most useful in getting a clearer and better definition on the E.P.I.

R.C.A.F. STATION CROFT

Having given up hope of ever receiving a type 48 Gee trainer, we decided to construct the Riccall Gee Trainer. We would like to add that it is a very satisfactory effort and does the job required, using the strobe markers for timing the signals.

We welcome F/O Lamb after a couple of weeks leave which included by the way, a marriage ceremony. Congrats. Mr. Lamb, and may all your problems be little ones.

It has been learned that since Cpl. Ennis arrived back in our fair land of rivers and lakes, he has (if you are interested - and we think you are), put up his shadow rank and now eats in the Sgt.'s mess whenever he finds he must hang his hat.

Cpl. Hardy who has been spending the last few weeks at Base sick quarters, has finally joined the Croft mid sluggers. Welcome Corp.

Leave has been taking an awful beating these days and to this end we understand Cpl. "Lorne" Burlington has again hit for Edinburgh. Jim Iverson has also snowshoed his way northward. L.A.C. Woodward has returned from touring Lancashire and Durham all on one leave. F/Sgt. Holtby made Bristol his stamping grounds and Sgt. Tollefson took in York, having a splendid tale to tell of the money to be made if you own a London night club. Red McBride looks fit after his leave and Howard Levi reports that Driffield, York and Leeds are still standing despite his determined efforts.

Before another month rolls around, LAC Frank McNeill will also be joining the ranks of wedded bliss.

The newest addition to the Section is L.A.C. Cat Black, answering to the name of Fishpond. While he only has his 'B' Group he is expected to pass his "Mouse test" any day now and pick up his 'A' Grouping.

WINNING PEN PALS

Will Herb Sproule come out of his asparagus patch for a short while and drop us a line? How about those Middleton, mites "Rolly" Desrouchers and "Pat" Paterson giving us the latest gen on fire-fighting. Has Jack Hay lost his right-hand? Will somebody, anybody, drop a line to Burlington - he is only receiving two letters a day. And one person with whom we would like to have a personnel chat face to face is Pop Ennis. He is back in Canada.

CROFT QUICKIES

Not being very well acquainted with the English Alphabet we neglected to put Jerry Blair first in our thumbnail sketches last month.

Jerry hails from the West. Yes - West Toronto, and will sit for hours telling you how fine it is to be out West as compared to East Toronto. He began his education at an early age and by struggling hard graduated from Harbor Collegiate. Before feeling the call of the electronic impulses, he was employed on the Toronto Star.

One of the debonair type of radar mechs. Jerry is very interested in politics, although no one has ever found out which side he is on. Dabbling in Druidism is one of his chief hobbies and he often helps the chief vulture to hand out pamphlets at the end of the meetings.

He is one of the best whodunit slouths we have and can tell who killed who by nonchalantly glancing at the list of characters in the **Frontispiece**. This saves him a lot of time and energy. This extra time is used in handing out the latest gen regarding the war situation as devised by Jerry Blair.

His Radar career took him through McMaster University, a ground course at Clinton, a ground station in Scotland and finally became airborne at Croft.

SKIPTON RADAR GOES TO A PARTY (STOP PRESS)

An event which undoubtedly was a gala affair and ranked as one of the most successful parties ever held on this station, got off to a good start with the station band providing the incentive to action. The WAAP NAMEL was used for the occasion, the floor being arranged cabaret style with a candle on each table, and a pretty tree provided to give the Xmas atmosphere. Streamers were strung across the ceiling. Guests had their names pinned to their tunics on a piece of cardboard cut to the shape of a C.R.T., and no sooner were they labelled than some member of the eagle-eyed crowd would seize them and gaily whisk them away to a table.

The big high-light of the evening's entertainment came when the eight-foot "Gee-box", so ably constructed by Cpl. Hodge and LAC Johnny Perrault, was made to emanate of its mysteries. Suddenly, the screen, which was blacked out by a blanket, came to life in the guise of three happy faces bubbling, beaming or blinking (take your choice) out their welcome to the receptive audience. Their melody was a treat to listen to, and, judging by the enthusiasm of the guests, will be remembered by all present long after Hitler and his lady friends are dead, buried and forgotten.

Another feature of the program which brought down the house with roars of laughter, was a mock briefing by P/O Lamb, whose take-off of an R.A.F. Intelligence Officer was true to type. His impersonations of Navigation, Flying Control, and Met types and of a Squadron Commander, doing their briefings were equally comical.

Other items included several songs by Val Ständen, one of our bouncing, unquenchable M.T. drivers, whose voice brings back romantic memories of days gone by, also a contest to see who could feed fastest, beer by the spoonful, or was it to see who could imbibe the awful stuff fastest by the mouthful by the spoonful - or vice versa - anyway, there were prizes for those who had it poured down their necks.

Guests included the C.O., S.Ad.O. C.T.O.; S.N.O., Signals Officer, Squadron Navigation Officers, Bombing Leaders, Signals Leaders, and H2S Leaders as well as 15 W.D.'s from Group and 15 WAAP's also our old co-worker and friend, P/O Gumble from Tholthorpe.

All agreed unanimously that it was the best party they had attended for a long time, and we feel very fortunate in having the necessary talent in the Radar section to put over such an event. The entertainment committee, presided over by LAC Brown, did a remarkable job with the material means at their disposal. Credit is due in a great measure to the untiring efforts of Cpl. Hodge (although he did almost miss the party by falling asleep), who composed the script for the lyric, and worked so hard to create the "electronic atmosphere". Gord Patrick, our genial YCA supervisor, was a great help in different ways, and Charlie Denham and his team put the final touches to a perfectly glorious evening.

LOOSE SCREWS

DIAGNOSIS OF RADAR EQUIPMENT by L.A.C. O'Neill, P.

The following are a few quick and helpful hints on how to diagnose remnants of radar wrecks.

First, quickly and quietly look over all the leads making sure that the necessary things bobbs go to the necessary places and those that don't belong are absent. Next turn on the switch and stand well back and wait for things to happen.

Those Radar mechs who hopefully expect the gear to jump up and dance a jig or mumble out of the C.R.T. "Any goom choom" will be sadly disappointed. This type of set has been scrubbed by T.R.E. as being a little too radical for this day and era.

We can watch hopefully for pretty pictures, green lights and other mysterious fauna of the unknown to appear. When eventually we come to the conclusion that to-day's "Marvels and miracles of science" have been indefinitely postponed we must start looking for the way of it all. In short we must sleuth for a clue.

The radar mechanic must immediately decide whether or not his power is there. The quickest and most convenient method determining this is to place the thumb on the anode of the half-wave rectifier and the little finger on the chassis. If the power is there the average radar mechanic should know about it immediately. There may be the odd sprog who will argue that this does not ascertain the correct voltage. But he will find that after a few trials by this method he can quite easily discriminate between 1800 and 1700 volts at the first touch. The same method can be used on the full wave rectifier but it is advisable to use the tongue in testing as the voltage is lower and you can get a more sensitive reading.

Having found the power unit is working the radar mechanic must remember this fundamental rule. IF THE POWER IS NOT GETTING THROUGH IT MUST BE GOING SOMEWHERE ELSE.

The disappearance of power is usually caused by the "Weejes". The Weejes are distant members of the gromlin family and are noted for making their nest on filaments of valves where it is warm, and thereby causing the valve to become defunct.

These Weejes have a favourite game of catch-em, which resembles rounders. That is, as the electrons go streaming by they catch 'em and toss them gently off the leads down to the chassis where they spread around in no end of confusion. A good Radar man should be able to scoop up these electrons before they spread out and throw them back into the doings, but failing this other methods must be used.

The fundamental method is to pick up the set about eight inches above the table and then quietly but quickly release it. This usually has the tendency to bounce the Weejes off the wires and the electrons can roll merrily on their way.

Failing this the next step is to scare them. There are many ways to do this. One ingenious radar mech sent protons along the leads in place of electrons and they successfully got by the Weejes who were

busily looking for electrons.

However, if they are still bothered with "nils electronious cathodius" (lack of electrons on the cathode), you must call in the witchcraft M.O. radar, airman for the use of 44/6572, every section should be issued with one.

He will inscribe red, white, and green (in that order) chalk marks around the set on one side and will set up a small altar. The mechanic will put up burnt offerings of parts of old transformers, resistors, and condensers. The W.D. (not to be confused with W.C. or other forms of witches who are categorised in the Air Force Manual as W.D.'s), will then mutter numerous prayers in the Weejian language. On the other side of the circle an offering of honeydew, sliced beetroots liberally grised with butter will be placed. This is a very tasty dish that is very palatable to the gourmet Weeje. The tribe will then come out of their nests and will gather around the feast after the W.D. has mumbled the correct words of grace.

Now comes the time for the radar mechanic to remove the set smartly before the Weejes have the chance to climb back in again. If however, the set is not removed smartly or the Weejes are not lured out of their nests there remains but one procedure.

A tag must be obtained and attached to the set. Upon this you write prognosis negative and the set is then transferred to group H.2. The authorities here have many powerful witchcraft doctors who have much more powerful spells and potions, and will have no difficulty in getting the Weejes removed.

The electrons will then travel unimpeded upon their necessary journeys.

"PCME"

A mechanic from 62 Base, so it's said,
Walked through the camp with no hat on his head,
The C.O. said "Here,
Can't do that ther 'ere!"
Gave him jankers and seven days C.B. instead!
(With apologies to LAC Stretton)

ALBERT AT LISSETT

There's an R.A.F. Station at Lissett,
That's famous for fresh air and fun,
Where t'almighty 'P' Staff at 4 Group,
Sent Ramsbottom's Radar/Mech son,

Now a bright little lad, was their Albert,
In Glengarry and tie, quite a swell,
With Radar/Mech's badge above t'elbow,
and a V.R. under t'eagle as well,

There was nowt to like about t' section
The workshops were cold, damp and small,
In fact due to t'explosion,
One no longer existed at all,

So seeking for something to warm him,
He scrounged into ruins next door,
Where t'workmen had big coke fires burning,
With fags, wads and char galore!

Now Albert had heard about t'workmen,
How efficient and speedy they were,
And to see 'em all resting so peaceful -
Well! Albert was shaker to t'core.

So straightway the brave little fellow
Not showing a morsel of fear,
Went and borrowed a blower from t'workshop
And blew it down t'foreman's big ear.

You could see that t'foreman didn't like it,
For, giving a kind of a roar -
He grabbed hold of Albert by t'collar,¹
And booted him out through t'door.

Now Albert's pal, who had seen the encounter
Was a tough guy from over t'"Pond"
A man from Wide Open Spaces,
Who for overseas service'd been "Gonged".

With one mighty shout this big fellow
Grabbed aerials "Type 90" by t'score
And took Radar types from their diggings
And led 'em to t'battle next door.

So up came t'Bods and the workmen,
Intending a terrible clash
The "Tough Guy", grabbed t'foreman by t'whiskers,
And tore off his dirty great "tache.

Now Albert who'd started this trouble,
Laughed loud and long at t'fun,
But the afore-mentioned "P" Staff at 4 Group,
Had earmarked this son of a gun.

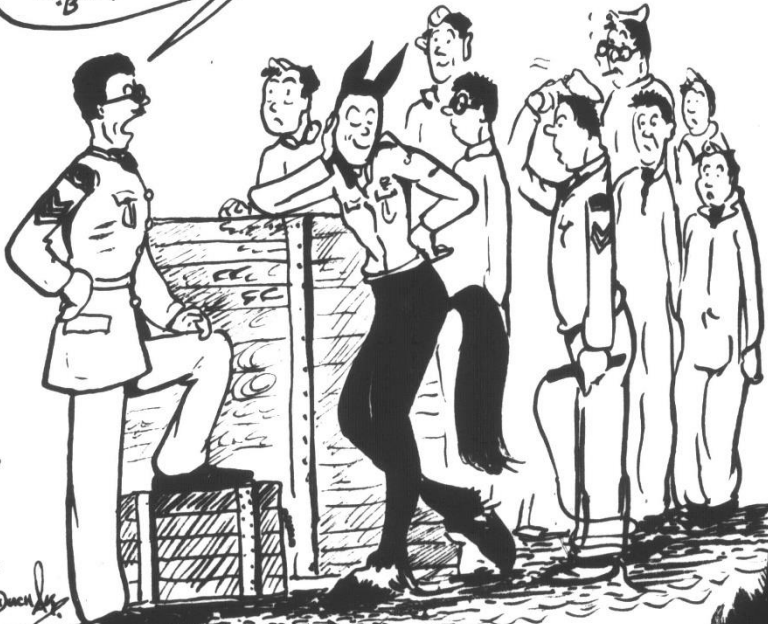
Now resplendent in topee and khaki,
Albert's antics and fun now have ceased,
'Cos, they've gone and posted our Albert,
To t'farthest point of Far East,

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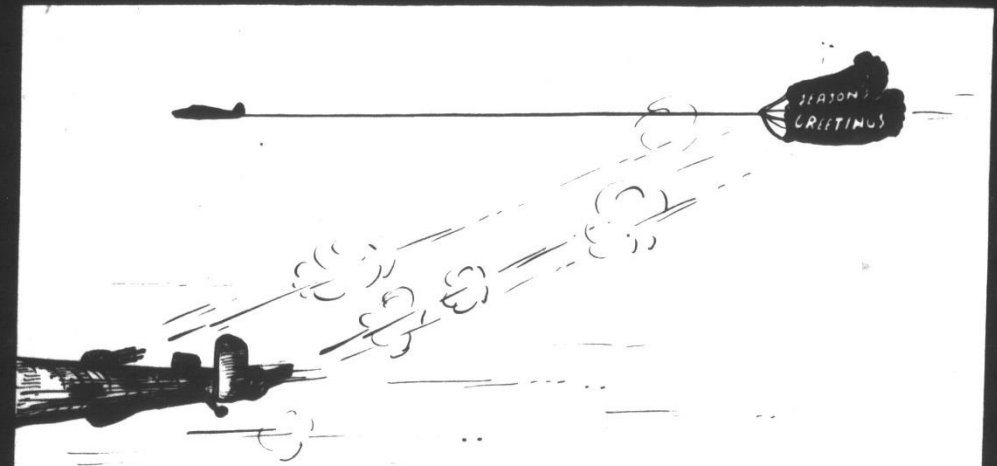
SONG OF A D.I. MERCHANT by LAC O'Neill, F.

I around the perimeter plod,
Just another working "bod",
Steering Jennies through snow and rain,
Wishing I was home again,
Pulling here, pushing there,
Enjoying immensely the Yorkshire air,
Working far into the night,
On some recalcitrant kits,
Oh to be with R. & I.'s,
Warm and dry, the lucky guys!

WHO IS THE MECH-
THAT PULLS THE
GENNY AROUND
"B" FLIGHT ...?



Duch



APPENDIX No. 11 to
 F. 1001 40
 (G.A.F.) GROUP
 DATE Jan 45



Gunnery ENCOUNTERS

SECRET

Pauke

SECRET

From:- Headquarters No. 6 (R.C.A.F.) Group.

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Date:- 7th January, 1944.

Ref:- 66/S.660/1/1/Trg.

SUMMARY OF ENCOUNTERS WITH ENEMY AIRCRAFT

During the month of December, 1944.

REPORT NO. 20.

During the month of December 1944, Lancaster and Halifax aircraft of No. 6 (R.C.A.F.) Group had 48 known encounters with enemy fighters, 18 of which developed into attacks.

The following claims appear to be justified:

- 5 DESTROYED:- 2 by 426 Squadron.
- 1 by 433 Squadron.
- 1 by 434 Squadron.
- 1 by 427 Squadron.

PROBABLY DESTROYED:- NIL.

- 2 DAMAGED:- 1 by 431 Squadron.
- 1 by 424 Squadron.

3. Ten different types of aircraft were encountered by our bombers:

<u>U/I T/E</u>	<u>U/E S/E</u>	<u>F.W. 190</u>	<u>Me. 210/410</u>	<u>Me. 109</u>	<u>U/I</u>	<u>JU. 88</u>	<u>Me. 110</u>	<u>JET</u>	<u>FORTRESS</u>
8	8	7	5	5	5	4	3	3	1

4. The Hun again attacked our aircraft mostly on the homeward journey and from quarters.

P.T.O.

Pauvre

4. Cont'd

ATTACKS FROM	LEVEL	ABOVE	BELOW	TOTAL
QUARTER	14	9	13	36
ASTERN	1	5	4	8
BEAM	-	1	1	2
BOW	-	-	2	2
AHEAD	-	-	-	-
TOTAL	15	15	20	48

8 on the outward journey.

10 on the target area.

30 on the homeward journey.

5. Discrepancies have occurred in the Gunnery and Signals reports on the use of Fishpond. Gunnery Leaders must check their Combat Reports (questions No. 8 and 9) with the Signals Leader's Operational Fishpond report and ensure that both coincide regarding the use, serviceability, and/or reaction of Fishpond equipment during fighter attacks.

6. Comparatively, more enemy fighters are opening fire on our bombers than previously. Although no great damage has yet been suffered, Gunners must be most alert and crews must check their search procedure and improve it, whenever possible, so as to enable the Pilot to carry out good "Combat Manoeuvres" before the Hun has a chance to open fire.

P. A. Faguy
 (P.A. FAGUY) Squadron Leader,
 for Air Officer Commanding,
 No. 6 (R.C.A.F.) Group,
 ROYAL AIR FORCE.

Pauvre

DETAILS OF OUTSTANDING ENCOUNTERS IN DECEMBER, 1944.

Night of 6th December, 1944. Operations to OSNABRUCK.

Halifax "Q" Serial No. M.Z. 417 of 433 Squadron encountered an unidentified enemy aircraft on the homeward journey while flying off track at 17000 feet, on a course 273° T at a position 52:52' N - 07:20' E.

The Rear Gunner saw an amber light at 400 yards on the starboard quarter level against the dark sky. As a safety measure he ordered to corkscrew starboard and the enemy aircraft followed through two complete corkscrews. At the beginning of the third corkscrew, he opened fire with 200 rounds and saw the enemy aircraft explode and go down in flames. Thirty seconds later an explosion occurred on the ground and was seen by both Gunners and Flight Engineer. This aircraft is claimed as DESTROYED.

The Rear Gunner, F/Sgt. Clarke, who trained at No. 3 B & C, 82 O.T.U. Dalton Battle School and No. 1659 H.C.U. fired 200 rounds without encountering a stoppage.

COMMENT:-

A prudent Air Gunner who, before opening fire, ascertained that he was being attacked by an enemy fighter and not just followed unintentionally by one of our own bombers. Excellent show.

Night of 6th December, 1944. Operations to OSNABRUCK - (426 Squadron)

Halifax aircraft "W" Serial No. L.W. 209 had two encounters with JET propelled aircraft, believed to be Me. 163's, on the homeward journey, while flying on track at 6000 feet.

1st ENCOUNTER.

While flying a course of 274° at a position 52:34 N - 07:05 E, at 20:05 hours, the Mid-Upper Gunner sighted a Jet of flame on the port quarter down, at 500 yards. The Rear Gunner was able to make out the outline of an aircraft, presumably a Me. 163, when it came up on the port quarter level, and ordered "corkscrew port". He immediately opened fire and numerous hits were registered as the enemy aircraft closed in from 500 yards to 200 yards dead astern, when it flipped over on its back, burst into flames, and dived straight down, trailing smoke.

As it was entering the clouds it exploded and parts were seen to fall away from the explosion by all members of the crew. This aircraft is claimed as DESTROYED.

2nd ENCOUNTER.

Ten minutes later, the Mid-Upper Gunner sighted a reddish flame coming up through the clouds, at approximately 2000 feet, on the port quarter down. The flame came up level to the bomber and then curved towards the tail. At 500 yards the flame seemed to have changed colour and was white in the centre with red "fringes". The Rear Gunner then made out the outline of a single Jet propelled aircraft, which he believed to be a No. 163. Immediately ordering "corkscrew port" he opened fire as the Jet aircraft closed in on a "curve & pursuit" attack.

P.C.O.

Pauvre

2nd ENCOUNTER / Cont'd.

Although numerous hits seemed to have been scored the enemy aircraft closed in to 200 yards and opened fire, breaking away to starboard, quarter down at 100 yards.

The enemy aircraft with the Jet apparently fully opened went straight down through a hole in the clouds and exploded on the ground. Debris from the explosion were seen flying through the air by all members of the crew. This aircraft is also claimed as DESTROYED.

The Rear Gunner, F/Sgt. Pierson R. who attended No. 9 B & G, 22 O.T.U. Dalton Battle School, and No. 1659 H.C.U. fired 700 rounds without encountering any stoppages.

COMMENT:-

These two attacks, with the enemy aircraft opening fire and closing in on a "curve of pursuit" attack do prove that we are fighting off JET Night Fighters. Excellent show on the Rear Gunner's part.

.....

Night of 6th December, 1944. Operations to OSNABRUCK.

Lancaster aircraft "U" Serial No. K.B. 808, of 431 Squadron, encountered a JU. 88 at 20:00 hours, on the homeward journey, while flying off track, at 16000 feet, on a course 278° T and at a position of 52:35 N - 08:00 E.

The aircraft was sighted by the Rear Gunner at 500 yards on the port quarter level. The Rear Gunner gave instructions to "corkscrew port" as it began to close in towards the stern. Both Gunners opened fire at 300 yards range. The enemy did not return fire and was seen breaking away on the starboard quarter down, with one engine on fire. It went into a steep dive and was lost in the clouds. This JU. 88 is claimed as DAMAGED.

The Rear Gunner, F/O Superjia, fired 200 rounds and the Mid-Upper Gunner, F/O Corvel, fired 100 rounds without encountering a stoppage. Both Gunners trained at No. 1 A.G.S., 82 O.T.U., Dalton Battle School, and No. 1664 H.C.U.

COMMENT:-

Good Show!

.....

Night of 15/16th December, 1944. Operations to LUDWIGSHAVEN.

Lancaster aircraft "J", Serial No. K.B. 762 of 419 Squadron was fired at by a Fortress II, on the homeward journey, while flying on track, at 17000 feet, on a course 282° T, at a position 49:19 N - 07:55 E.

The Pilot sighted the Fortress on Port Bow slightly above. No immediate action was taken. The Fortress made a slow turn to starboard, positioning himself dead ahead, at the same time both starboard waist and Rear Gunners in Fortress fired a short burst. The Fortress started to corkscrew and the Lancaster climbed to Port. The Lancaster aircraft was holed in the nose on the starboard side and Bomb Aimer wounded in the right foot.

None of our Gunners opened fire on the Fortress.

Cont'd

Pauvre

- 3 -

ENCOUNTERS / Cont'd.COMMENT:-

The Fortress Gunners would probably not have opened fire, had the Lancaster turned away. Pilots must turn away from other friendly aircraft, when they are closing in on them because of their faster speed, if they do not want to be taken for an attacking Hun.

.....

Night of the 31st December, 1944 - Gardening Operations.

Halifax aircraft "Y", Serial No. N.R. 257, of 427 Squadron, was attacked three times by a JU. 88 in the Gardening Area while flying at 5000 feet at a position 59:06 N - 10:15 E.

The Rear Gunner first sighted the enemy aircraft flying on a parallel course, at 600 yards on the Starboard Beam. The Mid-Upper Gunner ordered "corkscrew starboard" as the fighter came in to attack from 400 yards, slightly up on the starboard quarter. Both Gunners and fighter opened fire at the same time. The fighter followed the bomber in the corkscrew and broke away at 100 yards by crossing from port to starboard bow down. Order to resume course was given.

The fighter was then seen to cross back to port beam down, climbing to attack and opening fire from port quarter at 500 yards. Corkscrew port was given by the Rear Gunner and both Gunners opened fire at 400 yards, closing at 100 yards. As the enemy aircraft broke away to port the Mid-Upper opened fire again and strikes were observed on the wing of the enemy aircraft by the Pilot and Flight Engineer. "Resume course" was then given.

The enemy aircraft then orbited out to port, crossed above to starboard bow, dropped back, and came in firing from starboard quarter slightly up at 400 yards. The Mid-Upper gave order to corkscrew starboard and both Gunners opened fire. At 150 yards, the Engineer and both Gunners saw strikes on the fuselage and wings of the enemy aircraft which dropped away below astern in a shallow dive and struck the water. A large splash in the sea was observed by all members of the crew. This JU. 88 is claimed as DESTROYED.

At the time of these attacks the moon was on the port side, with slight haze below.

During these three attacks both Gunners fired approximately 1000 rounds each with the Mid-Upper encountering two link stoppages in the upper guns.

F/O Thackeray, Rear Gunner, trained at No. 3 B & G, 24 O.T.U., Dalton Battle School and No. 1659 H.C.U. P/O Millward, Mid-Upper, trained at No. 3 B & G, 82 O.T.U., Dalton Battle School and No. 1659 H.C.U.

COMMENT:-

A persistent Hun who found more than a good match in a good well trained crew.

.....

PAUVRE



Duclos

**HAPPY
NEW YEAR!**

REVIEW OF

NAVIGATION

DECEMBER

APPENDIX No 24 to
R.A.F. FORM 640
H.Q. No. 6 (R.C.A.F.) GROUP

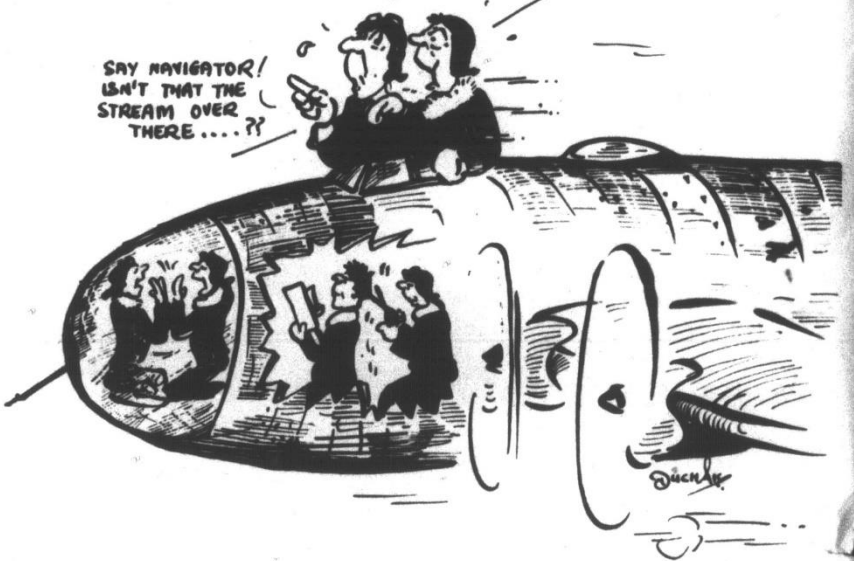
1944

SECRET

DATE Jan 45

OH...!! DON'T WORRY - SKIP!!
WE'LL GET HOME OKAY -
WE'RE TAKING A SHORTCUT!

SAY NAVIGATOR!
ISN'T THAT THE
STREAM OVER
THERE.....??



RCAF GROUP

ECRITURE PALE

NAVIGATION REVIEW - DECEMBER 1944.

This month has brought to light a number of logs and charts which indicate a serious decline in the quality of navigation which this Group had considered as its own standard -- a standard which, while not as high as could be hoped, was at least a capable average and could be referred to unreservedly as "operational." However, upon reviewing some of the work of the past month, it is evident that there is an appalling lack of effort on the part of many navigators and that they are ignorant of many of the fundamental rules which, it had been hoped, were standard procedure on all squadrons. The following points are brought out as an indication of the state of work now being turned in, and all Station and Squadron Navigation Officers are urged to read, mark, learn and inwardly digest them so that they can take stock and put their houses in order immediately. They apply to all ranks, from Sergeant to Flight Lieutenant.

- (1) CHARTS - Much of this work is below AOS standard; lettering is scrawly; numerals are often illegible and, in many cases, too faint for future reference; tracks are still not being drawn in coloured pencil in some cases; some navigators are not boxing concentration times - a point which has been brought out on several occasions; not enough care is being taken to mark symbols clearly and accurately. A navigator's chart should be a graphic record of the whole trip, capable of quick and easy interpretation by anyone qualified to understand it and should contain sufficient information to be of use as evidence in a Court of Enquiry. Many charts recently examined would not only be useless in such a court, but do not even reveal the position of the aircraft in that area which should claim the navigator's closest attention, that of the territory 100 miles either side of the target.
- (2) LOGS -- Many of these are falling far short of the required standard and may be described as organised chaos. No attempt is made to maintain uniformity in recording necessary information, many navigators holding to their own individual "style" which, needless to say, is not good enough. Flight plans are not being completed - these should include all Magnetic Courses and all ETA's; wind velocities are not even being boxed in some cases and too often are in the wrong column, with heights and areas completely omitted; too many logs have unexplained gaps, with two and three lines unused, and, worst of all there are still many cases wherein the navigator has neglected to fill in the complete line when altering or setting course, thereby ignoring one of the primary rules of log keeping learned at I.T.S. There are still examples of the use of the letters DR rather than the proper symbol; still some navigators altering course from nowhere at all, and it is regretfully admitted that a few navigators are even altering course without revealing what that course is !!!! An odd isolated case has the navigator writing his log in longhand rather than lettering the entries. In general, too many logs are incomplete, hastily assembled accounts of a dangerous bombing mission preserved for posterity only through the intercession of a generous Lady Luck.
- (3) TRACKS AND TIMING - The foregoing remarks are an indication of the navigation that might be expected from such records, which, in a word is POOR. Fundamental rules, such as making snap alteration to track when more than five miles off; checking course every 20 minutes, especially after a major alteration; finding W's over periods of not less than 20 minutes, and finding bombing winds within 50 miles of the target are too often ignored, with the result that there have been cases wherein aircraft have been many miles from the stream at concentration points and have bombed early or late due to insufficient checking of ground speed. DR positions are a rarity, instead of being, as they should be, the navigator's main guide between fixes. This last fact is due to another fault for which there is no excuse whatever - failure to plot air positions, failure to reset the API, or in the event of API failure, not carrying a manual airplot, especially where it is most useful i.e., 100 miles either side of the target.
- (4) LOG MARKING - All logs examined by Headquarters had been previously "marked" on the Squadron from which they originated and check marks, comments and suggestions noted thereon were compared with the findings of Group markers.
/There was.....

Ecriture Pâle

There was considerable disparity between them. Either some checkers are ignoring the standard of log marking laid down for the Group or else they have chosen to minimise the errors and omissions of a personal friend so that his record will "look right." This is a foolish practice and does more harm than good for it glosses over faults which, if permitted to persist and accumulate, may result in future negligence of a serious nature. Such summarising as "Good trip, you could check your G/S oftener", or, "Good effort, try to be a little more careful in plotting fixes next time" have been appended to logs which were later found to contain every conceivable error that a navigator can make. Facts such as being 20 miles off track crossing the continental coast; failure to check the compass every 20 minutes; failure to plot sufficient air positions; failure to make snap alterations; failure to check G/S and omission of complete data when altering course have been permitted to pass without any comment whatsoever. This kind of marking is of no help to anyone and should be rectified immediately. All checkers should use the approved marking form and use it intelligently and conscientiously with the object of pointing out every error and omission as forcibly as possible so that a navigator may learn from his mistakes and not be satisfied to just "get by." A great improvement in log marking throughout the entire Group will be expected.

Wind Finding

From an analysis of Squadron logs and charts it has been found that navigators work entirely too hard at finding winds, too many winds in fact up to the English Coast. On logs over the Continent however, there are generally not enough and, in too many instances, the last found wind, which is the bombing wind, is determined in an area just inside the continental coast. These same navigators have recorded fixes after determining their "last" winds and it appears that these have been used for nothing more than a track check when they could have been used to good advantage for checking ground speed and revising wind tendencies right up to the target area.

With present Gee coverage, navigators should be able to obtain a fix and a good up-to-date wind just prior to turning onto 40 to 60 miles homing leg into the target. As has been pointed out before, this is the most important wind to be found on the entire trip and if determined accurately, is the best possible one that the individual navigator can use for his Gee homing, for bombing and for the first legs out of the target. Let's have more winds near the target and fewer over England !!!!

Concentration Plots

The plot for Karlsruhe December 4th 1944, is an example of poor timing and track keeping. As can be observed from the plot there is no real concentration of aircraft. The average width of the stream to the target is 15 miles. However, aircraft were as much as 28 miles off track to the target and 35 miles off track on the return journey. Although the found winds were in excess of the best forecast winds, with present Gee range navigators should be able to cope with a wind shift such as was experienced on this trip. If navigators had left the concentration points on time, it would not have been necessary to waste so much time on the last leg in to the target.

Dusseldorf, December 24th 1944. This plot shows the concentration achieved in daylight when using a single formation. Track keeping for this raid was good, however, due to late take-offs, the raid was approximately 5 minutes late. This was due to several aircraft taking off after set course time.

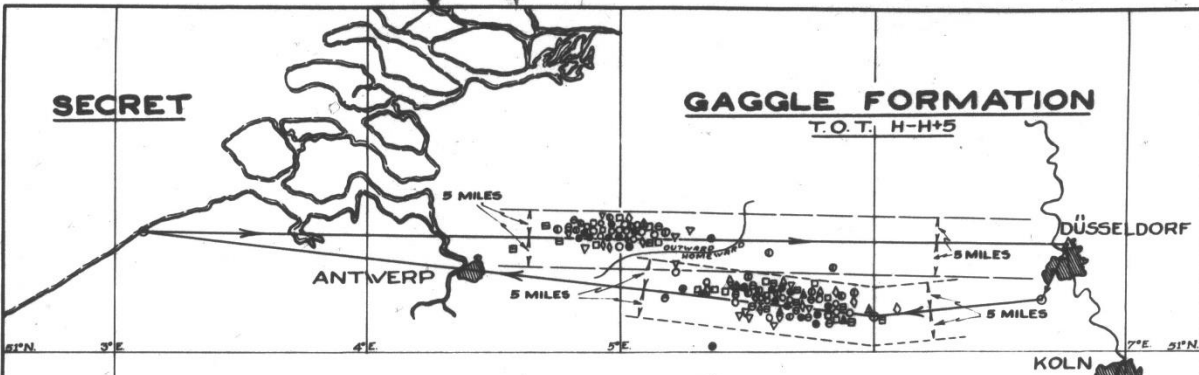
Timing

For some time, bombing reports have been coming in with the notation "WIND CHANGE" listed beside timing failures. With very few exceptions, this is no excuse at all and in future will not be accepted as a reason for bombing early or late. Wind changes are to be expected and it is the navigator's responsibility to see to it that he is constantly up to the minute on these changes; /to interpolate.....

SECRET

GAGGLE FORMATION

T.O.T. H-H+5



**N8 6 (R.C.A.F.) GROUP PLOT
DÜSSELDORF**

24 DEC. 44

SQUADRON SYMBOLS

- 408 - Squadron - ○
- 415 - " - ●
- 419 - " - □
- 426 - " - ⊖
- 428 - " - ▽

- 431 - Squadron - ◇
- 432 - " - ⊕
- 434 - " - ⊖
- 425 - " - ⊞
- 420 - " - △

CONCENTRATION DATA

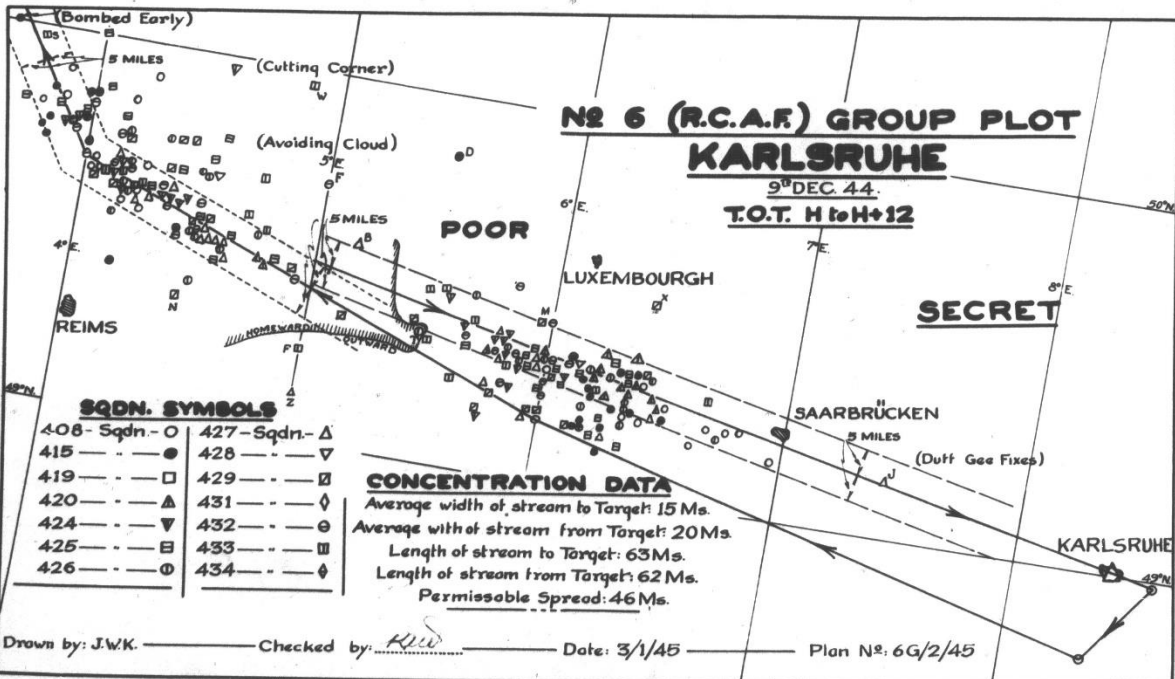
- Length of stream to Target: 23 Ms.
- Length of stream Homeward: 32 -
- Permissible Spread: 21 Ms.
- Average width of stream to Target: 6 Ms.
- Average width of stream Homeward: 8 -

Drawn by: J.W. Kressler Checked by: _____ Date: 2/1/45. PLAN N° 6G/1/45.

**N8 6 (R.C.A.F.) GROUP PLOT
KARLSRUHE**

9th DEC. 44.

T.O.T. H to H+12



SQDN. SYMBOLS

- 408 - Sqdn - ○
- 415 - " - ●
- 419 - " - □
- 420 - " - △
- 424 - " - ▽
- 425 - " - ⊖
- 426 - " - ⊕
- 427 - Sqdn - ▽
- 428 - " - ⊖
- 429 - " - ⊞
- 431 - " - ◇
- 432 - " - ⊕
- 433 - " - ⊖
- 434 - " - ⊞

CONCENTRATION DATA

- Average width of stream to Target: 15 Ms.
- Average width of stream from Target: 20 Ms.
- Length of stream to Target: 63 Ms.
- Length of stream from Target: 62 Ms.
- Permissible Spread: 46 Ms.

Drawn by: J.W.K. Checked by: *R.W.* Date: 3/1/45. PLAN N°: 6G/2/45

SECRET

to interpolate future winds and their resulting ground speeds and to make any necessary adjustments required to bring the aircraft to the next turning point at the concentration line. Not enough advantage is taken of the possibilities which may be achieved through changes in airspeed. Very few legs, even the one into the target, are less than 50 miles in length and temporary increase or decrease of 20 m.p.h. will often gain or lose as much as 1½ minutes if action is taken in time, i.e., at the beginning of the leg.

It is appreciated that navigators would have an easier time making the required 4 hour if they were permitted to adjust their own time in hand from point to point, but since these adjustments would necessarily be individual, and therefore scattered, concentration would suffer considerably. Concentration points and their times must be adhered to in order to maintain the maximum protection from fighter cover and window.

TRAINING

Since timing and track keeping have taken such a beating this month, a lot more practice is indicated for a good many navigators in order to bring them up to the standard expected of them.

Dry runs and speed-up exercises are ideal for this purpose and if carried out conscientiously and TO THE CLOCK will assist greatly in the attainment of proficiency in handling navigational instruments and in the systematic performance of the various operations required. It is felt that a good many navigators "slow down" considerably when in the air and so it behoves them to be so well prepared by constant practice on the ground that their air work will become automatic instead of laboured.

The plotting of air positions should become a "second nature" to every navigator; the taking of a fix should call for its definite use of it in some respects, either as track check, ground speed check, or for determining a new wind. Course checking by reassembling the angle presented by a series of air positions is an excellent indication of how well the pilot is adhering to course. A measurement between air positions will give an accurate F.T.S. which should be used for future calculations. When approaching the target, a navigator should be satisfied that he has determined an accurate bombing wind, is right on the button in regard to ground speed and that he is prepared to take an air position or re-set his FPI when bombing takes place. Too many navigators are obviously in a state of confusion when nearing the target, and frequently forget to record all information required of them. It is natural that a certain amount of physical and mental strain will be experienced on all operations, but, in order to minimize its effect upon navigation, the navigator must be so trained that he can do his work in spite of it. His procedure should become routine and this routine can only be developed through constant practice. Navigation Officers should determine the amount of practice required by each individual navigator on the Squadron and should detail the amount of training to be carried out and see that results are forthcoming.

LOG-KEEPING

The system employed for marking logs called into this by navigators is as follows:-

- (1) Timing
- (2) Track keeping
- (3) Log Form
- (4) Winds
- (5) A.T.I.
- (6) Navigation aids
- (7) Estimate of the trip

/One copy.....

Paure

One copy is returned to the Station Navigation Officer and one copy to the Squadron Navigation Officer. A summary under the above headings is made for each squadron and any navigators whose estimate is below average, i.e., "fair or poor" should have the mistakes in the trip pointed out by the Station Navigation Officer and the proper training instituted to avoid a repetition.

The errors in navigation found during the month were:-

- (1) The average timing error for the Group was .95 of a minute in comparison with .59 for the month of November. The causes attributing to this increase were:-
 - (a) not checking the H.F.T. target on the last leg.
 - (b) Waiting too long time which could not be recovered.
 - (c) Too far off track and using the 40° method to get back on when the 22° method would have cut the timing error.
 - (d) Being late along the route and not cutting corners or increasing airspeed.
- (2) Track keeping was wholly good. There is the odd case showing up where the navigator is finding himself off track too often and making too many alterations which is cutting down his D.R. accuracy and putting his timing out.
- (3) Log form is improving. Log the proper H.F.T. callouts and altimeter setting. Check callouts every 20 minutes and "log in" at every half hour. On no account leave out turning points and H.F.T.'s in the track area. Log Call bombing time used.
- (4) With few exceptions all air speed callouts are being logged for time and the 20 minute interval is found to be ideal for accurate D.R.
- (5) Too many navigators are still not plotting in correct lines and plotting their positions for a check of course. Only one in twenty check T.S. by distance between air positions. Off setting and resetting is a common practice now.
- (6) The daylight re-nav. time is the H2S - there is definitely not as much use made of this aid as should be the case. The longer targets are being to make the navigation team wish more time had been spent on it. Keep in form by making a point to navigate home from the shorter targets on H2S. This means that navigation must be kept up by the navigator and not by the Bomb Aimer alone, as has been the case too often.

/Hours of.....

PAVURE

	<u>HOURS OF DRY SWIMS</u>		<u>SPEED UP EXERCISES</u>	
	<u>DECEMBER</u>	<u>NOVEMBER</u>	<u>DECEMBER</u>	<u>NOVEMBER</u>
408	268.00	186.00	298.00	110.00
426	110.00	257.00	282.30	130.00
420	127.00	227.45	32.15	42.00
425	252.00	272.00	227.00	189.00
415	113.00	268.00	116.00	172.00
432	254.00	349.00	144.00	322.00
427	121.30	99.30	138.30	103.30
429	101.00	193.00	127.00	268.00
424	227.30	217.45	92.00	85.45
433	79.25	151.45	61.15	45.15
419	320.00	480.05	123.00	314.50
428	156.00	279.00	170.00	323.00
431	219.00	339.05	385.00	316.05
434	<u>458.00</u>	<u>584.00</u>	<u>351.00</u>	<u>636.00</u>
6 GRP, TOTALS				
FOR DECEMBER	2806.25		2547.30	
6 GRP, TOTALS				
FOR NOVEMBER	<u>3483.55</u>		<u>3457.25</u>	

DRY SWIMS AND SPEED UP EXERCISES

During the month of December 434 squadron put in 458 hours for dry swims and 351 hours for speed up exercises. This total of 909 hours for 434 and 604 hours for 431 puts Croft far in advance of any other station. Stations whose totals are far short of the above figures should go over their organization for carrying out this training with a view to using up spare hours to advantage.

It is to be noted that hours put in by bomb aimers working with their navigators are not to be added to the navigators time and are to be left out of the G.N.2.

/Bombing.....

PAURE

BOMBING

The analysis of 1601 bombing times is recorded below. The percentage of aircraft bombing in the correct T.O.T. has decreased 8.5%. The increase in aircraft late on the target is 3.6% and early 5.1% in comparison to last month's figures.

SQUADRON STANDING	SQUADRON	PERCENT BOMBING IN CORRECT TOT	PERCENT MORE THAN 1 MINUTE LATE	PERCENT MORE THAN 1 MINUTE EARLY	AVERAGE TIMING ERROR
1	424	74.8%	10.9%	14.3%	.72 mins.
2	429	70.7%	18.3%	11.0%	.72 mins.
3	428	69.6%	23.8%	6.6%	.73 mins.
4	420	59.4%	20.8%	19.8%	.76 mins.
5	425	64.9%	16.7%	18.4%	.86 mins.
6	415	60.8%	19.2%	20.0%	.90 mins.
7	419	68.9%	18.9%	12.2%	.98 mins.
8	434	68.0%	18.7%	13.3%	.99 mins.
9	431	65.8%	20.3%	13.9%	1.00 mins.
10	432	64.9%	22.8%	12.3%	1.07 mins.
11	426	58.1%	16.9%	25.0%	1.07 mins.
12	408	58.7%	23.9%	17.4%	1.10 mins.
13	427	63.8%	20.9%	15.3%	1.17 mins.
14	433	57.6%	25.0%	17.4%	1.18 mins.
6 SQUADRON AVERAGE		64.7%	19.8%	15.5%	.95 mins.

/Sample Log and Chart.....

PAUURE

SAMPLE LOG AND CHART

Squadrons should have the 6 Group sample log and chart before receiving this review. It had been intended to have this out about December 1st but many difficulties had to be overcome for photographic reproductions. It is suggested the sample be put up in the navigation sections in order that the new navigators will get an idea of the log form required. It is taken for granted that there will be comments made on certain points but any navigator turning in work that embodies this log form and accurate navigation will have no worries.

BOOBS

It has been the policy lately to call in two sets of logs for each operation. It is rather amazing how a squadrons poorest effort of the month can be included but in the case of 427 squadron for the raid on Duisberg, December 18th, 1944 it actually happened. Two aircraft were eight minutes late, one eleven minutes late and one aircraft may have the honour of starting a new raid warning by bombing 27 minutes late. It will be noted that this is an exceptional case and no reflection is cast on the good work the squadron has performed during the rest of the month. On the same target 429 squadron had one aircraft 8 minutes late and one 10 minutes late.

BOUQUETS

62 BASE

P/O Mahoney of 415 squadron Eastmoor turned in a fine effort on Duisberg on December 18th, 1944.

- (1) Timing within 30 seconds on the target.
- (2) Track keeping was very good.
- (3) Log form was good.
- (4) Winds taken at 20 minute intervals showing height and area.
- (5) A.P.I. u/s but a manual airplot carried for the entire route.

F/O Gladding of 415 squadron did very nice work on Opladen December 28th, 1944.

63 BASE

F/L Rolfe of 424 squadron shows the proper log form and neat chart work on the operation on Trois Dorf December 29th, 1944. His timing on the concentration points and the target were particularly good.

63 BASE

On December 26th Leeming and Skipton squadrons were detailed to operate at very short notice; target, route and the necessary Gen were very late in coming in and the tactics conference was called 1 1/2 hours before time of take-off. It is appreciated that most crews must have taken off late; that navigators must have had very little time if any in which to prepare their flight plans and that with few exceptions it was necessary to boost the airspeed and cut large corners from the proposed route, in order to make the H hour. Furthermore, take-off was made through a pea soup fog in most cases, and a weather diversion was expected on return. Realizing the resulting inconvenience to navigators particularly, it is with sincere admiration that we say, "Good Show 63"!

/64 Base.....

Pauvre

64. BASE

428 SQUADRON - OPLADEN - 28.12.44

An exceptionally good effort was turned in on the above target. The following points were observed:

- (1) Timing was within 30 seconds on the target.
- (2) Track keeping was good.
- (3) Q.F.E. logged, altimeter setting logged. Z checks adhered to. Flight plan and all turning points completely filled in. E.T.A.'s were checked.
- (4) Winds were 20 minutes apart and accurate.
- (5) Course line shown on the chart. A.P.I. offset.
- (6) Good use made of navigation aids.

Our compliments go to F/O Richey and F/O Monette for a good show, keep it up.

LIAISON VISITS

During the past three months, several members of 6 Group squadrons have made liaison visits to O.T.U.'s and have turned in well written, comprehensive reports on their findings. These visits were made to No. 24 O.T.U. at Honeybourne, and No. 22 O.T.U. at Wellesbourne-Mountford where our representatives made a thorough investigation of the standard of navigational instruction being carried out and in turn, provided the O.T.U. types with up-to-date gen on our own policy. Such liaison visits are extremely beneficial to all concerned, as they give the training units information about present operational requirements, and provide us with sufficient data upon which to base any suggestions for improving the efficiency of the pupil navigator. Our thanks and compliments are extended to all officers who have contributed to these fine reports.

WHAT ARE THE QUALITIES OF A GOOD NAVIGATOR?

Reproduced below, with a few alterations and additions, is a form which is in use in 5 Group. It is suggested that all 6 Group navigators use it to check their own standing.

A good navigator may be summed up as one who works hard all the time, uses his intelligence constantly and makes a conscientious effort to be on track and on time throughout every operation.

Do you satisfy these requirements? To assist you in answering the first question, below is a self analysis chart for you to complete. Be honest with yourself in answering these questions.

SELF ANALYSIS CHART

QUESTIONS

- (1) Do you always work to a system and a regular time interval?
- (2) Do you always make a "snap" alteration of course immediately you ascertain you are off track over the continent?
- (3) Do you check your ETA's regularly?
- (4) When coming into Gee range do you always believe the first Gee fix you obtain and act on it?
- (5) When no fixing aids available, do you always obtain a D.R. position every 15 minutes?
- (6) Do you always "home" on your Northeastern latitude lines as instructed?

7. Do you.....

Pauvre

- (7) Do you always check your compasses every 20 minutes?
- (8) Do you always find a w/v over the ideal period of time, i.e. between 20 and 35 minutes?
- (9) When necessary do you always dog leg or alter IAS so as to arrive at each turning point exactly on time?
- (10) Do you always log Q.F.B., Altimeter Setting, and Nav. Lights On and Off?
- (11) Do you always plot an air position every six minutes; draw in course lines and check T.A.S.?
- (12) Do you always find a bombing w/v and convert it to "Indicated"?

This is by no means a comprehensive list, but if you answer all the questions frankly, you will obtain a good assessment of your own ability. If you can say "Yes" to only 70% or less, you are below average; 80% you are average; 90% and above you can consider yourself a good navigator.

Make a note of the points on which you lose marks, then rectify them immediately.

SUMMARY OF RADAR NAVIGATION

OPERATIONAL

H2S

Once again, all targets for the Group during the month were within Gee range and unfortunately this still seems to reflect on the operational use of H2S. During the early part of the month the serviceability rate was quite poor thus affecting the monthly totals but this improved somewhat towards the end of the month. For instance on two occasions, the 5th and 6th December, the percentage difficulties were nearly 15%.

During the month of December there were 1790 sorties with a total of 200 difficulties. This is 11.17%, an increase of about 1% over last month. Of the total number of difficulties, 46 or approximately 1/4 of the total, were due to faulty manipulation. It is interesting to note that the No-Fault-Found difficulties dropped from 35 last month to 23 this month but the fact remains that there was a corresponding increase in the manipulation faults. This fact necessarily reflects on the H2S operators and it is felt that the situation could be quite easily improved if a serious attempt were made to investigate each difficulty.

Radar Navigation Officers must take a keen interest in all reported H2S difficulties. These will be reported to the Radar Navigation Section the day following each operation and it is the duty of the Radar Navigation Instructors to investigate each difficulty with a view towards eliminating a recurrence of all manipulation faults. Special instruction in this matter were issued to all stations in the early part of the month.

It is quite surprising the frequency with which operators report "No range marker" or "poor range marker". This is undoubtedly poor manipulation in the majority of cases and Radar Navigation Officers should check these to see that proper manipulation of brilliance and contrast are being observed.

Another common difficulty has been a sluggish or frozen scanner. This has been caused by the extremely cold temperature at which the aircraft have been operating, combined with the late switching procedure and perhaps the present tuning procedure.

/One station.....

Pauvre

One station has carried out some research on this problem and they have more or less come to the conclusion that the above are the factors contributing towards sluggish scanners. They have experimented with the following tuning procedure and found it very satisfactory. The station also claims that aside from minimizing scanner difficulties it also obviates difficulties with respect to lost range markers and radial gaps.

PROCEDURE

- (1) Scanner left in the "on" position.
- (2) Turn gain fully up, then back to a small $\frac{1}{2}$ gain.
- (3) Tuning knob fully clockwise.
- (4) Turn contrast fully down.
- (5) Turn Brilliance up to get diametrical scan and then back until the scan just disappears.
- (6) Turn Brilliance down ONE more notch.
- (7) Turn up contrast until you get a pebbly effect on screen and the brightest range marker.
- (8) Tune to maximum signal on first tuning point.

(NOTE: - Maximum signal will not be obtained until the P.P.I. is free of radial gaps)

It is recommended that this procedure be given a try-out by all stations.

Two new modifications are in process of being incorporated into the H2S. The first is a 5 position Modulator switch unit which will be positioned in the navigators position. The object of the new switch unit is to switch on the modulator gradually (in three stages) and it is believed that this will minimize the number of difficulties that have been caused by the late switching procedure.

The other new Modification is a scanner speed control unit. The purpose of this unit is primarily to solve installation snags but it may be used by set operators to speed up the scanner when it has become sluggish in extreme temperatures etc. Instructions regarding these modifications will be sent to all stations.

LOGS AND CHARTS

Another series of Bomb-aimers' logs and charts have been examined during the month and the general impression was not a particularly satisfactory one. There is considerable room for improvement in this respect.

There is definite evidence of a reluctance on the part of crews to use H2S within Gee range. There were very few reported cases of operators not switching on their H2S sets but the best possible use, in many cases, was not made of the set once it was switched on. There were very few cases where operators even attempted to check the identity of the target or the accuracy of the markers by means of H2S.

Crews are still using Gee instead of H2S on the route home from targets. This is contrary to instructions and should be stopped immediately. From the time the bombs are dropped until the homing procedure to Base is started, H2S should be the only navigational aid, except where an emergency calls for the use of Gee.

/H2S Photography.....

Pauvre

H2S PHOTOGRAPHY

During the month copies of Bomber Command Photographic Instructions were issued to all Photography Sections within the group. These new instructions deal with the subject of H2S Photography and all Radar Navigation Instructors are advised to borrow the Photography Sections' copy of the instructions until such time as additional copies can be obtained.

Sufficient interest in H2S Photography has not been taken by Units within this group. H2S Photography is an operational commitment and this fact should be impressed upon crews. On occasions where 10/10ths cloud conditions exist over a target, or when conditions were poor for F.24 flash-light photographs, H2S photographs are the only means of assessing the accuracy of a bombing attack. They also assist in the assessment of other attacks. The essential requirements of H2S photography are detailed in the above mentioned Bomber Command Instructions and these should be studied in all details.

The quality of the photographs submitted in the past has been quite poor, a very small percentage of them being plottable. The chief cause of photograph failures seems to be due to manipulation difficulties of H2S for good photography of the P.P.I. In this connection, it might be pointed out that chief fault appears to be a lack of sufficient contrast between the responses and the P.P.I. screen itself. A fair percentage of the photographs submitted would have been good plottable photographs if they had not been blurred by too much contrast. The average operator has a tendency to set the H2S up with too little gain and too much contrast, whereas if the reverse action had been taken the result would have been a good photograph.

However there have recently been some very good photographs and they are worthy of mention here.

<u>427 SQUADRON</u>	<u>426 SQUADRON</u>	<u>424 SQUADRON</u>
F/O Gordon - Hanover	F/O Norman - Hanau	F/O Campbell - Hanover
F/O Horton - Hanau		
Sgt O'Keefe - Hanau	<u>429 SQUADRON</u>	<u>432 SQUADRON</u>
	F/O Bullen - Hanover	F/O Kendrick - Hanover

RADAR OPERATIONAL REPORTS

Sufficient care and accuracy has not in the past been given to the completion of these reports. These reports are used by this Headquarters and by Bomber Command for statistical purposes and if the reports are not complete or are completed inaccurately they present an inaccurate picture of the squadrons' own record. It is, therefore, essential that Station Navigation Officers ensure that those responsible for completing these reports, do so in every detail.

GEE

December has seen some further changes in the Gee programme together with a few interruptions in the normal programme. The Channel Chain has ceased to operate. Due to an accident there was difficulty experienced with the Eastern Chain. Finally, the "C" slave on the Ruhr Chain ceased to operate, was finally resited and new charts issued all in record time. This chain with the Resited "C" slave station is known as the Cologne Chain and should give satisfactory coverage of the Ruhr and Western Germany.

In the near future sheets of the London-Berlin plotting series should be available with the lattice lines of the Cologne Gee Chain superimposed on them. These should prove to be a time-saver to the navigation team.

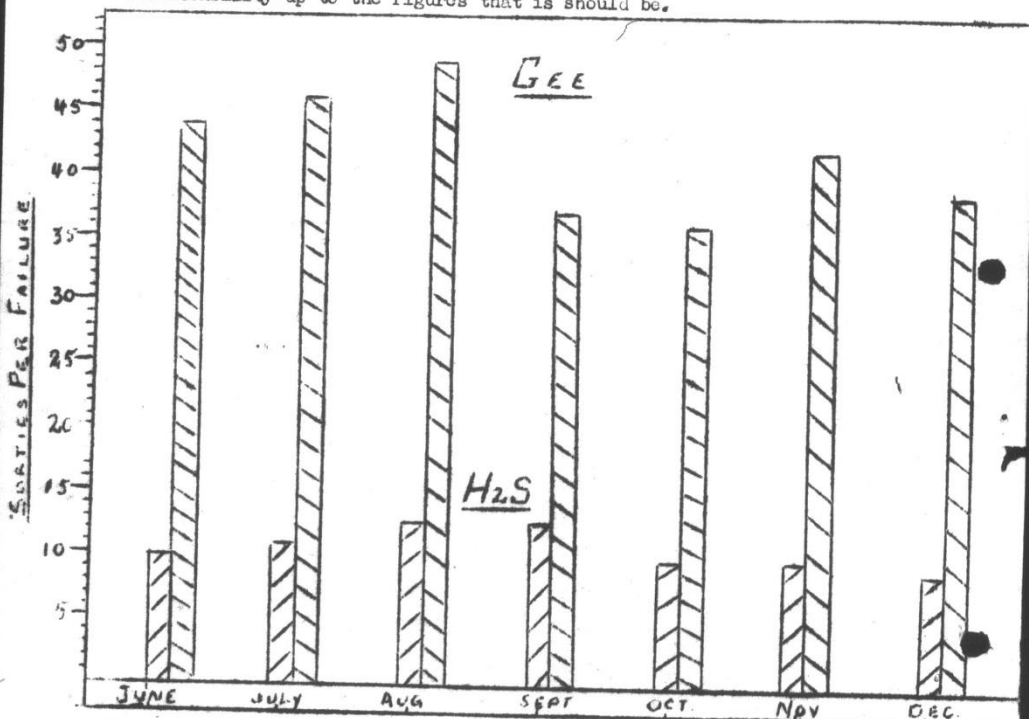
/Serviceability*****

Pauvre

SERVICEABILITY

During the month there were 1895 sorties and a total of 49 difficulties. This is 2.60% of the total number of sorties, an increase of .19% over the previous month. Of the total difficulties, 5 were due to manipulation and 3 were No-fault-found difficulties.

Reproduced below is a graph showing the gee and H2S serviceability for this group for the past seven months. It tells fairly well, it's own story and when one considers that approximately 25% of the H2S failures are due to Manipulation difficulties, it is obvious that a good deal can be done by the Radar Navigation section to bring the serviceability up to the figures that it should be.



TRAINING

H2S training on the Squadrons has shown a considerable increase during the month and all concerned are to be commended for the fine effort they have shown. The weather has not been particularly good for air training and most fine days saw operations in progress. However, in spite of this air training increased by over 500 hours from 1257.00 hours to 1787.00 hours.

The emphasis has been placed on Blind Bombing and good results have shown up in this direction too. There were 2385 blind bombing runs (air) completed during the month as compared to 528 runs during the previous month. Squadrons put in a total of 1668.30 hours training on the H2S trainer alone of which 931.55 hours were practice in blind bombing. In addition 1053.20 hours were spent in dry swims. However, it would seem that this tempo is really necessary for there are still 161 crews listed in category "B" that must be moved up into the fully trained category. So the order of the day should be - keep pushing and get these crews trained!!!

Pauvre

Two new H2S cross country routes came into effect during the month. These routes were designed primarily for practice in blind bombing procedure and mining procedure and should provide ample opportunities for this sort of training.

Training of crews in the use of the H2S camera is the joint responsibility of the Radar Navigation Instructors and the Photographich personnel. Plenty of opportunity should be given to both the navigators and bomb aimers to practice taking photographs on the H2S trainer and in the air on training flights. Each individual photograph should be assessed locally and the faults pointed out to the H2S operator in order to eliminate as far as possible the number of photograph failures.

for *Redmond*
(A.M. OGILVIE) Squadron Leader,
for Air Officer Commanding,
No. 6 (R.C.A.F.) Group,
ROYAL AIR FORCE.

6C/S. 814/2/Nav.
10th January, 1945.

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- Nos. 1659, 1664, 1666 Conversion Units 2 each
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- Headquarters, Nos. 1, 3, 4, 5, 7, 8 (PFF), 91, 93 Groups 1 each
- N.T.U., R.A.F. Station, Upwood. 1 copy
- Nos. 22, 24, 82 & 86 O.T.U.'s. 4 each
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January 1945

monthly

Radars

NEWS

SECRET

APPENDIX No 27
R.A.F FORM 27
H.Q. No. 6 (R.C.A.F. GROUP)
DATE *Jan. 45.*

NO 6 RCAF GROUP



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EDITOR'S BIT

CASUALTY

Unfortunately, friends, F/L Crawford returned from his quarterly leave slightly under the weather and thus is under the care of the local M.O. for the next few days. It has, therefore, fallen upon us, the Radar subs. & standins, to attempt to carry on in his place and to try and give you your copy of the Monthly Radar News which will line up as closely as possible to as high a standard as in the past.

We join you in wishing F/L Crawford a very speedy recovery and hope to see him soon again behind the big desk in the Castle.

CONGRATULATIONS

Some of you have probably heard already about S/L Miller leaving us for greener pastures, down Bomber Command way, but for those of you who haven't, we would like to let you in on the big news item regarding his promotion to the rank of Wing Commander. Wing Commander Miller, one of the originals at Headquarters No. 6 Group, fought all the Radar gremlins and guided the entire Group radar development from the date of the first aircraft installation.

We are indeed sorry to see him leave us, but he can truly be assured that wherever his work may take him, our good wishes for continued success will always be with him.

NEW POLICY

Due to the fact that the Radar News was fast becoming a publication the size of Life Magazine, and was therefore, putting a rather heavy strain on the office staff at Group Headquarters, it was decided to attempt to reduce it to a size containing approximately 15 pages, without if possible, losing any of its informative gen.

A quota of pages for each issue has been allocated as follows:-

Headquarters 6 Group comment	1 page
Technical gen	2 pages
Equipment Notes	1 page
Base and Station Notes:	
Gp. Trouble Shooting Party	1/2 page
No. 76 Base	1 1/2 pages
No. 62 Base	2 1/2 pages
No. 63 Base	2 pages
No. 64 Base	2 pages

The technical gen is to be submitted separately and you can be assured that every bit of constructive technical information will find its way into the News - quota or no quota.

CANADA - RADAR AND YOU

Since donning the Airforce blue as a Radio Technician back in the spring of '41, the Canadian Radar Mechanic has been right in the thick of things. You have represented your country in almost every theatre of war and under every fighting command. You have contributed largely to the improvement in design and technical efficiency of the Radar equipment in use today, and thus, have left your mark on the German war industries wherever they may be found.

It all means simply this. You have changed from your civilian jobs, - bankers, clerks, salesmen, etc., and have, after a process of concentrated training, developed into first-class mechanics and as such are a credit to

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2. that great Dominion of yours.

But, it does not end there. No! There are yet two great problems to face and to master. The second one, "what are you doing about post-war plans", depends a great deal on the successful conclusion of the first, which obviously is the problem of defeating a still formidable enemy on the continent.

With regard to the first problem, there is no doubt in the minds of anyone that you CAN do the job, but rather it boils down to the fact of just how best you can go about doing your particular part of the crushing bombing offensive. You cannot be satisfied with anything less than maximum efficiency and so to that end, let us take stock now as to how best we can achieve this desired goal.

The second problem is likewise very important to you as well as to your country. You do not expect or cannot expect that a job will be handed to you on a platter as soon as you put on that checkered suit and flashy red tie again. True, the people concerned at home, are laying the foundation for all-out employment, BUT, you must be prepared to pull your weight and so ease the burden of the less fortunate unskilled and untrained men. Yes, we definitely must use our spare time in organized self-preparation for the post war job. Remember, that if you are prepared to accept your responsibilities and to that end work to prepare yourself for your future, success and post war happiness are there for the taking.



THE VETERANS INSURANCE ACT

Description: The Veterans Insurance Act provides for life insurance for veterans of this war. It is similar to the Returned Soldiers' Insurance Act of the last war but with certain improvements. Principal features of the Act are as follows:-

Who is Eligible?

1. Normally, any ex-service man or woman may take out this insurance within three years of being discharged or within three years of the Act coming into force. Draftees and Veterans Guard are eligible as well as active service volunteers.
2. The widow or widower of a veteran is also eligible to take out this insurance during the same period, provided the veteran has not taken the insurance.
3. Any person, other than a veteran, who is in receipt of a pension under the Pension Act is eligible within three years of the date of award of the pension.

May Not Be Taken in Service:-

This insurance may not be taken out while still in the Service.

Amount of Insurance:-

Insurance may be taken for \$500 or any multiple thereof up to but not exceeding \$10,000.

How Insurance is Paid:-

On death of the insured, payment will be made of an amount not exceeding \$1000. The remainder will be paid either as a life annuity or as an annuity certain or guaranteed for 5, 10, 15 or 20 years, at the option of the insured.

No Medical Examination:-

No medical examination is required. This is the outstanding advantage in comparison with ordinary insurance. However, in certain cases, applicants who are seriously ill will not be eligible for the insurance.

Benefits Not Assignable:-

Insurance benefits paid are not assignable nor subject to the claims of creditors.

Beneficiaries :-

The Act stipulates that (1), where the insured is married, or is a widow or a widower or divorced or unmarried with children, the beneficiary shall be the wife or children of the insured, or some one or more of such persons.

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(2) Where the insured is unmarried, or is a widow or a widower or divorced, and without children, the beneficiary shall be the future wife or the future ~~wife and children of the insured.~~

(3) Where the insured designates more than one beneficiary, the insured may apportion, and may at any time reapportion, the insurance money between or among them as he sees fit, and in default of any such appointment, the insurance money shall be paid to the designated beneficiaries surviving the insured in equal shares.

(4) Where a designated beneficiary dies in the lifetime of the insured, his share may be apportioned to one or more other beneficiaries, and if this is not done, the share will be divided equally among surviving beneficiaries, if any.

(5) Where the insured does not designate a beneficiary, or where all of the beneficiaries die within his lifetime, the insurance money shall be paid to his wife and children in equal shares or if the insured survives his wife and all his children, and there is no contingent beneficiary only the amount of the premiums paid in, plus 3 1/2 per cent interest per annum will be paid into the insured's estate.

Contingent Beneficiaries-

(1) The insured may designate as a contingent beneficiary a grandchild, parent, brother or sister of the insured, or such other person as may be prescribed, to whom the insurance money or any portion thereof shall be paid in the event that the insured at the time of his death is unmarried or is a widow or a widower or divorced, and without children.

(2) Where the insured survives his wife and children, the insurance money shall be paid to the contingent beneficiary or beneficiaries, if any, but in default of the designation of a contingent beneficiary, or in the event of the death of all the contingent beneficiaries within the lifetime of the insured, only the amount of the premiums paid in plus 3 1/2 per cent interest per annum will be paid into the insured's estate.

(3) The same provisions for reapportionment of shares among contingent beneficiaries apply as in (3) and (4) under Beneficiaries.

Premium Rates:-

Premium rates are somewhat lower than commercial rates for the same non-participating kind of life insurance. In the case of a 20-year-old veteran the rate will be \$1.74 monthly per \$ 1,000 on a 20 year pay policy, whereas the commercial rate would range from \$1.83 to \$2.00. A 40 year-old veteran will pay a monthly premium of \$2.74 on a 20 year pay policy, compared with a commercial rate between \$2.89 and \$3.06.

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After duly considering the pros and cons, it has been decided not to mention that F/L Carstairs has come to No. 6 Group Headquarters to pinch hit for F/L Crawford who is in the local S.S.Q.

Interviewed by the Radar reporter, as to how he liked this part of the country, Mr. Carstairs was heard to mumble "S'all right".

However, the types around here are worried by a strange apparition at half hour intervals dashing to S.S.Q. with a thermometer in his hands to take the big boss's temperature.

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EQUIPMENT

NECESSITY OF IT

One of the chief difficulties in supplying Bases with controlled equipment items, particularly with regard to Modifications, is the determining of the allocation priority. Due to manufacturing difficulties, and the demand far exceeding the supply, Bomber Command are usually in the position where a comparatively few items must be distributed among numerous Groups. We receive ours. In turn a further allocation must be made within 6 Group.

One must first attempt to get some indication of the likelihood and volume of further supplies. When this indefinite figure is tentatively arranged we are then ready to look for a likely Base. Dependent on the number of items received and a further more or less steady flow, it is wise to complete one Squadron at a time. Particularly in cases where the modification affects the aircrew operator. This is in order that a general briefing to aircrews on the item will cover all the aircraft in the Squadron. Following this, if the supply position has not eased any, it has proved advisable to then continue to fit Squadron by Squadron until one Base is completed.

Originally the Base chosen for the initial fitting is one that is not tied up with other mods, or has had a hand in the development of the item in question or willing to carry out initial test, or a myriad and one little points which when collected, point to a specific Base.

Mistakes are made in allocation, particularly when Bases or other sources do not keep us in the picture. When this happens we try to correct them as quickly as possible to alleviate confusion. However, there are times when a sudden switch in policy or the conversion of a Unit to another type of aircraft further confuse the issue and a re-adjustment must take place all around. Usually some one Unit is disappointed. It is to the Group's advantage as a whole that changes are made. We try to keep the stock rolling out to you. So when you find an Indicator with an old strobe unit, remember your allocation was made on your figures. Or if you find a Switch Unit Type 274 or a Type 51 Landing Unit above your requirement -----remember some other Base had to wait until you were supplied before their supply came through.

THE IMPORTANCE BEING UP TO DATE IN AMENDMENTS

Has your AP2557A been amended to date by Amendment List I issued June, 1944?

Confusion has been caused recently by Units when taking AMO A869/43 Defect Report action on Gee, quoting incorrect diagrams and components in AP 2557A. This is due to the fact that the AP has not been amended to date.

It is wise to check AP and SD amendment lists carefully.

WORTH KNOWING

Sets - Petrol Electric 42y/800

These may only be obtained through the Group Headquarters Pool.

Engine Spare complete 42y/810

or

Test Set less Trolley 42y/850

These may be obtained by normal exchange procedure at the Unit.

The authority for this is Bomber Command letter BC/S.24031/12/E,4 dated 10th December, 1944.

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TECH TIPS

SHORT T.B. ON P.P.I.

Several queries have been received regarding short time-bases on the H2S P.P.I. The following procedure is suggested as a guide to determining the causes of short scans.

(a) Determine faulty unit by substituting for either W.F.G. or Indicator with a known good unit, also check amplitude of the Sawtooth waveform at the 4-way plug into the indicator with the trace in its horizontal and vertical axis. The peak to peak amplitude of this sawtooth should be 25 volts, as measured on T.S. 28.

(b) If the fault lies in the Ind., check to ensure that the C.R.T. is not at fault. The sensitivity of C.R.T.'s in some cases, has been found to vary so much as to give scans differing by nearly $\frac{1}{2}$ " in length.

(c) Check tappings on transformers T.651 and T.652, and if necessary adjust for correct length of trace.

(d) If W.F.G. is the cause, the fault can usually be tracked down to excess feedback in the Base-Boost circuit. Altering the 100K Resistor, R.544, will correct this condition. The above item is discussed as numerous cases of this type have occurred, and the common practice seems to be to alter the W.F.G. resistor value, rather than to first determine the unit which caused the short T.B.

TEST SET 28 FOR GEE SERVICING

In addition to its normal use for H2S work, the T.S. 28 has been found most useful for servicing Gee Indicators. Apparently this application of the monitor is not generally known, due perhaps, to the fact that it is intended to be operated from a 20 U/S square wave. However, by choosing suitable trigger points, the T.S. 28 can be used to advantage on the Gee bench, giving a locked time-base on all ranges of time-base speeds.

There are several trigger points available. Only a few will be mentioned:-

1. Anode V.18 - gives 500 cycle T.B.
2. Grid V8 or screen V9 } 250 cycle T.B. } out
3. Grid V9 or Screen V8 } 250 cycle T.B. } of phase

The 500 cycle source is useful for scoping all the divider waveforms. The T.S. 28 is found superior to a modified Gee indicator due to its minimum loading affect. Hence the divider grids may be scoped without upsetting the calibrations. Even the crystal has been successfully scoped.

The 250 cycle T.B. is preferable for more general work on Gee, as it avoids any overlapping of traces when scoping the B or C timing waveforms.

NOTE: When scoping any pulse in the B or C timing periods, it will be found necessary to use the appropriate phase for triggering, e.g., it is desired to scope the C pulse in V.11 Screen. Trigger pulse should then be V9 grid, and conversely when scoping any waveforms in the B period, use V8 grid. The wide range of T.B. speeds provide greater flexibility for studying all waveforms from the crystal oscillator down to the final sawtooth, than will be found with a modified Gee Indicator used as a scope.

FISHPOND TRAINERS

Nearly every section is having its "Teething troubles", on the particular Fishpond trainer it is constructing. Most of these troubles fall into two classes (a) Pulse generator.

(b) MV.sync. control

The two main types of pulse generators are the Middleton type and the Sipton type. The Group types would be a pulse that requires no valves. Where? The Height Marker pulse of course, - ready made and waiting to be used. The main H2S set being on a bench, the height marker would not.

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normally be required, and its scale could be used to check the F.P. calibration rings.

To further reduce the number of valves used, a transitron can be used to control the relay, or a spark-gap switch charging thro' a CR used to switch the relay.

To synchronise the relay to the scanner, the new scanner speed control will be found useful in conjunction with the Trainer Sync.

G.S.P.'s Note:- A barrel of beer will be awarded to the brain who submits plans for a trainer which uses no valves.
(with apologies to A.M.O. A /1046-43)

SKIPTON SAYS

We had a visit from S/L Howard of No. 7 Group who seemed interested in the 3 valve Fishpond trainer effort. He thought it quite possible to use electronic switching for the trainer instead of a relay. This suggestion was passed on to F/Sgt. Radley who now has a circuit for electronic switching designed. If this works we can expect further improvement in the "Skiptatron", mentioned in last month's Radar News.

6-6-6-6-6-6-6-6-6-6

Leeming's Cpl. 'Bull' Smith says:- if the strap in the strap-wrench wears out, use the metal sheathing from an old cable. It does the trick.

6-6-6-6-6-6-6-6-6-6

A.M.O. 1943

A.1046. Recognition of Meritorious Technical Improvements in Commands.
(Res. Inventions 42743/F.4 - 21.10.43)

1. To encourage personnel, both service and civilian, in Commands in devising technical improvements in equipment, it has been decided that an A.O.C.-in-C. or A.O.C. a command shall be empowered to make awards up to £15 in each case where, in his view, an idea has resulted in a technical improvement in equipment or in the use of equipment.
2. To ensure that a uniform standard is applied in each Command, the A.O.C.-in-C. or A.O.C. a command, is to take into account (i) the novelty of the invention or improvement, (ii) its utility, (iii) the extent of its use, and (iv) any out of pocket expenses incurred in making the invention.
3. If the inventor is dissatisfied with the award, he may request that the matter be dealt with under the provisions of K.R. & A.C.I., para.862, clause 9.
4. In such an event the award already authorised will lapse.
5. If an A.O.C.-in-C. or A.O.C. a command, considers that an invention or improvement merits an award greater than £15, either because of its great usefulness in his command or because of its probable usefulness elsewhere, he is to refer such cases to the Air Ministry and the Ministry of Aircraft Production Inventions Awards Committee, by forwarding particulars to the Secretary, Ministry of Aircraft Production (C.9(b)), Harrogate.
6. Details of the device for which the award is made, and of the amount awarded, should be sent to the Secretary, Ministry of Aircraft Production (C.9(b)), to ensure the application of a uniform standard, and to A.O.C.-in-C. and A.O.C. commands for information.
7. Payment of an award is to be made through the unit cash account, to which a copy of the authority of the A.O.C.-in-C. or A.O.C. a command should be attached.

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problems. F/O MacIntosh was mistaken for a D.R. as he came over on the "One Lungar". - Mac is sporting a luxurious moustache these days, and it appears to be evolving into one of the "handlebar variety". F/O MacGregor reports that things are going well over at Scarborough. It was generally felt that the Conference was worth while, and agreements were reached on the problems brought forth.

R.C.A.F. Station TOPCLIFFE

With the new equipment supply situation here, there are now some interesting two day runs down to the South. Cpl. "Howie". Steel, and "Putt" Putnam are still on the "Wanted" list by the Nottingham police after their last stop-over.

The Radar-Nav. boys are throwing a party for the benefit of the local Mechs. next week. Other Nav. sections might take note.

Sgt. Gord. Hearn recently had a hot conflict with some vagrant chimney sweeps who put the section fires out. Sarge, was last seen beating a hasty retreat.

The "Vampires" are here again after blood. The lads here don't look as though they have any blood, but they are going to try.

Cpl. Spratt, George Pimm, and F/O Neff flew low over Middleton in a Hallie III the other day. They could see the Mechs down there "panicking" around the marshalled aircraft. We might have stopped in for tea, but considering that dirty letter received from "Tommy" Blythe around Christmas we decided to ignore these Middleton Types.

R.C.A.F. Station DISHFORTH

A most successful Christmas party, comprising Radar Nav. and Radar personnel, was held at a prominent local "pub", everyone was happy - get what I mean - as Music, laughter, drink and eats advanced on the evening, finally rolling into song and so passed another grand memory of an evening at Dishforth.

Sgt. Kennedy is back from his leave in London where he apparently had a most enjoyable time.

LAC Shaw spent an enjoyable Christmas with his parents in London. Scotland absorbed LAC Campbell for nine days, Edinburgh being his main objective. For skating enthusiasts he recommended Dunfermline, where he spent many a pleasant hour.

The station activities at the festive season were well organised and lively. Everyone, I am sure, had a grand time. High praise went to the decorators of the airmen's mess and they did much by their efforts to add to the Christmas Spirit. The excellent dinner was served in grand style.

We offer our congratulations to LAC McCaffery who now boasts two "books". The hockey season finally got under way, maybe you know that we didn't. Our first two games resulted in defeats. Linton were our conquerors on the first occasion, and Leeming in the second game. Our next game is against Middleton and we hope to make a good showing. Keep an eye on that puck, for it's going to change course one of these days.

I am sure that to all readers of last month's Radar News, the article "A Radar Roying Commission", proved very interesting. Speaking for Dishforth, we look forward to more with keen interest.

Boob of the Year!

At the festive season, F/O MacIntosh was greatly surprised to find Sgt. Kennedy back so early from lunch, "for a change", especially as there was free liquid refreshment dispensed at the Sgt.'s Mess. Apparently Sgt. Kennedy was ignorant of this fact, and has been lamenting his error ever since.

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R.C.A.F. BASE

After a bang-on festive season, things have settled down to a normal routine again. Although the Christmas dinner was super-de-luxe, nobody suffered from indigestion.

The big mystery of the Christmas is what happened to Ken Hall on the night before Christmas Eve. It seems that he went to bed with his clothes on, and got up at 0600 hours to take them off. It must have been very powerful stuff.

Also, where did Len Connelly get the ladies shoe? Len refuses to talk. We are sorry to lose LAC McCusker, who has been repatriated to Canada on medical grounds. Best of luck and a safe journey home Mac.

This month our red carpet has been rolled out for Cpl. Munro who comes to us from B.M.S.S. at Topcliffe. Cpl. Munro has been in England for about two years, most of which has been spent on an O.T.U.

Word has been received from Cpl. Harry Clark, formerly of this section and recently repatriated to Canada, that he has arrived home safely and is now busy enjoying ice creams, steaks, etc., etc.

Jock Grant, Sandy Connelly and Bert Smith, have returned to the Station after spending Hogmanay in Scotland. They report a disgustingly sober time.

Snow shovelling has become the popular sport at this winter resort, in the hills. Cpl. Love has been out on the runway learning the mysteries of this highly technical work. As Radar Mechanics were not trained for this work at Clinton, he is considering starting a course on it for all Radar Mechanics.

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NO. 62 R.C.A.F. BASE

B.M.S.S.

This month 62 B.M.S.S. had the honour of fitting Gee, Loran and S.B.A. in a Liberator belonging to Air Marshal L.S. Breadner, C.B., D.B.C., A.O.C in C., R.C.A.F. Overseas. We don't know officially why 62 Base were the "chosen people" but we all have our theories and strangely enough they are all just about the same. As no provision was made in the A/C for any of the equipment, trays had to be designed, made up and fitted.

The greatest difficulty encountered was the power supply. Very few American A/C are fitted with engine driven alternators. They use D.C. generators which in turn run Invertors supplying the A.C. The acquisition of an Invertor involved a number of phone calls and a trip to an American Bomber Base by P/O Priestman, where incidentally he met some of W/C Miller's American pals. The installation was completed shortly after Christmas and everyone heaved a sigh of relief when the crew took the kite away.

Several 63 Base notables including S/L McLean, Base Signals, F/L Waters, Base Radar and F/L Gregg, Learning Station Signals, paid us a visit a short time ago. We sincerely hope they managed to pick up a few helpful pointers!

LAC Kirby is working on his Second Skipton trainer, the first one with a few modifications worked quite well. It has been handed over to Tholthorpe and is going to be fitted to their Trainer Type 54.

Repositioning of Gee in Y type A/C is under way in this Base now. All A/C leaving B.M.S.S. are modified. We haven't had any reports from the Navigators yet, but it looks like a big improvement.

On Jan. 12th Linton and B.M.S.S. combined to have their semi-annual Radar Party. Thirty-three beds boarded a crew bus for the Alice Hawthorne in Nun Monkton where they consumed innumerable pints and had an excellent chicken dinner. Singing was led, enthusiastically if not very tunelessly by Pete Landry, "Oakie" to you and Sgt. Kopperson. The party broke up about 11:00 and some people are still wondering who it was that started the rumour that you had to take your own irons!

We're sorry to say good-bye to LAC Letellier this month, he's gone to join

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forces with 64 Base.

R.C.A.F. STATION EASTMOOR

New among the mods is LAC Swazie, who has been posted in from Linton. Good show! Good show! With the sudden influx of scads of mods, we welcome any modification in the way of personnel increase. We are beginning to think H.2.S. is like the pair of socks which were mended so often there was none of the original article left.

LAC Hainsworth and wife are expecting an increase in personnel. We are anxious to discover what the establishment calls for. The posting should arrive by publication date.

FLASH! We are to lose LAC Weigand to Middleton Base. Good luck on your new station. Tsk! Tsk! First/^{time} we had our establishment up to strength in 3 months too. We knew it was too good to last.

Two of our lads, LAC Hainsworth and Cpl. Vibert are bolstering the Station Hockey Team. Hainsworth, of course is in goal, and Vibert on left wing or centre. We tied last game. If we tie we can win.

When last seen, LAC "Bernie", Rosenberg, was buried in a mass of gears and eccentric coms, producing a mechanical one per second switch to trip the relay on our "Skiptatron".

R.C.A.F. STATION LINTON

Maybe someone can figure this one out for us. On a recent X country exercise the navigator and Bomb Aimer of a 408 A/C swear up and down that they picked up the Isle of Wight on their H2S at a range of 145 miles. They were over the Bristol Channel at the time.

Someone down here started a panic about H.2.S. interfering with the Marconi and W/O Ginsberg and Group party came rushing down one P.M. and it seems that the Marconi aerial is picking up the R/F modulated by the PRF. No one else has complained of interference since, so it can't be that bad.

Those terrible men Schlote and Wilkins, were down here again and went away genned up on how the remote modulator switch modification has been done by Linton. Thank gosh all our A/C are modified with this and the variable speed mod.

Another visitor here was F/L Hefner from Farnborough, to get the gen on how Bomber Command work as far as Radar is concerned.

It is reliably reported that LAC Atkinson is definitely getting hitched on the 3rd of February.

R.C.A.F. STATION THOLTHORPE

Like all the stations in the Group H2S is keeping us all at Tholthorpe on our toes these days. After a few difficulties obtained in the air over a period of time, it became quite obvious that air tests would be necessary and so Base did all the arranging and the air tests are now in full swing. To date it is felt that these have been very successful to all parties concerned and consequently several difficulties have been ironed out.

During the last couple of weeks we have introduced a new system for interrogation, having a separate table for all Radar equipment. Three men handle the complete interrogation, one taking the results of "Gee" one the H2S and one the Fishpond. We feel that this is a much better system than the old one and that this more thorough system should aid us considerably.

Our Hangar party consisting of newcomer Cpl. George Watts and LAC's Herby Roane and "Simon" Legris are busy at present with inspections and the new H2S mods., and their progress has now reached the half way mark in the latter. Incidentally we extend a welcome to George and hope his stay with us at Tholthorpe will be an enjoyable one. We are also progressing with the repositioning of our Gee from left to right of the Navigator's table. The aircrew boys seem to be quite happy about this one, as the position of the "Gee" has been a bind to quite a number of them. At present our "brains trust" is hard at work trying to find a remedy for damp modulators. Several ideas have been put forward on the subject but none of them as yet tried practically. We have one gen idea about to be tried and expect to have some more on this subject next month.

An orchid goes this month to our officer P/O Gamble who will hereafter be wearing an Oak Leaf beside his C.V.S.M. by virtue of the fact that he was "Mentioned in Despatches" in the King's New Year Honour List; this for his

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work while at Skipton before coming here.

In line with our first paragraph on air testing, it seems that one of our air-minded corporals, Bill Hurst by name, had obtained all the necessary equipment to become airborne and proceeded to get on with the job of testing the super gen equipment. Only one thing stood in his way, in order to get airborne, he had to get into the kite on the ground, which should have been the easiest part of the trip, but not for Bill, he in some manner managed to pull the rip cord of his chute and immediately the rear hatch became blocked with silk. Sheepishly and with red face, Bill gathered the folds of silk in his arms and carried it to the chute packers instead of carrying out his intended air test.

Sgt. "Dazz" Round and Cpl. Denny Utley are seen a lot on the bus travelling to and from Leeds but are never to be "ogled" in the city itself. Wonder what the attraction is and where they live. Did you have a good Christmas boys?

Newcastle was honoured by the presence of no less than six of the boys over New Years.

NO. 63 R.C.A.F. BASE

No. 63 Base

This Base is now right up to its neck in the process of converting to Lancaster I's. The policy is to convert 'A' flight of both 424 and 433 Squadrons at Skipton first, then B flight of these Squadrons, and finally 427 and 429 Squadrons at Leeming. All this will be done (supposedly) by the end of January, both these target dates as we well know have a knack of slipping by, and it seems this case will be no exception.

We had hoped to turn out all the new Lancs completely modified with remote Modulator switches and repositioned Gee Indicators, but the first few have passed out without either, owing to the supply position of Switch Units Type 274, and the fact that our Engineer staff didn't get details of the Gee repositioning mod. in time to manufacture the necessary parts. However, more recent Lanc. acceptances have been done, and as Skipton now have the necessary "gen", and the required pieces, they will be modifying those first few retrospectively. Since the new "kites" are coming with Gee aerials type 329 and landing units type 51, they'll be right up to scratch as regards Radar Column 7 modifications, and we intend to keep 'em that way.

Base Major Servicing had a long lull (one acceptance and a couple of majors between Dec, 3rd and Jan 3rd) and a 3-day stand down for O.I. duties but they are now paying the inevitable price. Since 3rd Jan. they have had 18 Lancasters in! Many of these new aircraft, besides stringing the necessary leads for scanner speed control and remote Mod. switching, and remounting scanner heaters etc., have their F/P cables curled up in neat coils and tied to the Modulator tray. You know what that means! Not to mention a couple of major cable troubles on the Col. 7 already installed. So they've been burning the midnight oil, and P/O Wilkins is thinking of putting on a pukka night-shift to keep up with the other trades. At one point they were so far behind that they had to borrow IAC's Barclay and Cameron from Leeming R. & F. and IAC Allen from Skipton. These types are still with them, and the situation is rapidly improving. We expect they'll be ahead of other trades any day now.

F/Sgt. Prior of B.M.S.S. is now away on leave, but wait 'till he returns!

We wish to welcome a new officer into the Base. He is R/O "Tommy" Lamb, who arrived from Croft recently to double-bank F/Lt Waters, (are they really going to repatriate that guy?). One comment already heard, "You can learn all he knows, Tommy, in 3 hours".
B.M.S.S.

We "Bascites", have designed ourselves a scanner holder which holds 8 scanners all at once. It's made of $\frac{1}{2}$ " angle-iron and does a wizard job of keeping the d--n things off the floor. The overall dimensions of this

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holder are 6' x 4', so you can see that it isn't enormous by a long shot. We're sending a couple of photos of it to Group, but if you want to see how good it really is, we suggest you come and visit us at R.C.A.F. Station Leeming.

The Base boys "Holiday" came to an abrupt end just after New Years, when Lancasters started appearing in large numbers. At the present moment, the main hind seems to be that these critters are either fitted Col. 3 or Col. 9. That is, they either have leads, etc., missing, or they're fitted with H.2.S. boxes!

After many vain attempts, LAC Johnny Sollanych managed to get the new Interference Unit Type 3 to give railings that are really locked with the Gee signals. One of our Navigation types expressed a desire for signals that fade the way they'd o on Ops. The only place we know of to get 'em that a'way is to go on Ops.

R.C.A.F. STATION LEEMING

"News for Focs by Focs". (Through the courtesy of the Gee Room wallahs), After a nasty meeting of the board of directors, the above was decided on as a suitable title for our contribution to the Radar News.

Firstly, we have found that coal mixed with coke throws more heat per square foot on a person than any other mixture tried up to date, (except perhaps, whisky mixed with whisky!) This was discovered after arduous research, and we are passing the tip on to you chaps who are finding the weather somewhat severe.

No Gee Room is without its copious quantities of u/s Gee sets. We have a fine selection here. Is there anybody who wants to trade one perfectly duff Gee set for one in A-1 condition? (so do we), if there is such a screwball, please write to the R.C.A.F. Leeming Gee Room, and we will do our best to arrange a swop for one of the former types.

I think at this point it might be a good idea to introduce the members of the staff. Beginning alphabetically, we have (on my right) LAC David Golberg. ("Dave" to the boys, and "David dear" to the females). Sterling character. Then, there's LAC Arthur Williams, known affectionately to the boys as "Artur". Sterling character! Also, LAC Martin Sawyer, ("Mart" to the boys, and god knows what to the girls.) And lastly, yours truly, LAC Jim Cameron (known to the boys as "D.C." and not known to the girls at all s'help me.) -----character!

Well, I guess that's enough for now, fellows, so until the next issue "Bong soir". No social news this time; we just ain't sociable this month.

Daily Servicing Section

Here we are on the air again, but this time it is going to be much like the B.B.C., a lot of nothing. It was snowing hard in the Straits of Dover today, and like all the rest of Yorkshire, we received our share of it. We are now trying to figure out which is the worst type, the white stuff from above, or the A.M.O. action stuff, also from above. We are trying to dig ourselves out of both, and between the two of them, we seem to be doing a lot of shovelling.

While we are on the subject of weather, we immediately think of the Douglas genny, and the difficulty we have starting it in the morning. We are of the opinion that this is the only station in Bomber Command that still use them, but if we are wrong, we are open to suggestions of any nature which might help us start the motors. The fellows on Daily Servicing are getting cheesed with cranking the genny fast enough for another bloke to do the D.I. If anyone has the odd Norman that they want to exchange for a Douglas, just whisper in our ear and we will come a-runnin'!

At present the R & I boys here are quite happy about the conversion to Lancs, due to the fact that it has caused a cancellation of modifications to Hally III's, (all mod. kits have been requisitioned by B.M.S.) However, the feelings of D.S. on the subject, resulting from a Gallup poll, are 100% unprintable, and we expect that R & I will hold the same opinion once they start working on the Lancs. I might also mention that D.S. is spending many hours in research, trying to discover the secret of the system shown on the back cover of the Nov. Radar News. They seem to think now that their spare moments would be better spent practising high-jumping, as this should prove of great value for getting into the side door of Lancasters.

Leeming is still staggering from the news that another of their Mechs. is to take the big step and convert from single man to spliced. Spring must

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be here. Cpl. MacKenzie is to be married in February. We offer our heartiest congratulations to the happy couple on their engagement.

It is with regret that we report that LAC Ron Forde has been confined to hospital for the past three weeks. We extend all our best wishes for a quick recovery.

R.C.A.F. Station SKIPTON

Newcomers to Skipton during the past month are LAC's "Baz" Allen and "Red" Hall. Baz had spent the last 27 months in No. 1 Group, while Red had the misfortune to be stuck at an O.T.U. for a similar length of time.

The latest favourite leave area seems to be Ireland, and the latest members of this section to visit the Land of the Shamrock are Andy Cooke and Mac Kerford. These two Anglophiles(?) must have found it a pleasant change.

The latest section "do" was a swell dinner at the Red' Liben, Wornald Green. Our Radar Officer, F/O Burton was host, and the chicken and turkey were very much appreciated by all the Mechis. An incident which "McLatch" McLaughlin has failed to explain satisfactorily, concerns a bit of a cut around his eye!!

The new name for LAC Charlie Denham's station orchestra is "The Skyliners". The band, which now numbers eleven men, has made rapid strides forward recently and is extremely popular throughout the Group.

The Station Swing Club, which we mentioned in the last issue of Radar News has turned out to be a terrific success. Chairman Al Kolberg, and librarian Harold Brown are justly proud of their new achievement.

F/Sgt. Radley, recently returned from a well-earned leave, has some new ideas for his Fishpond Trainer.

Skipton says:- The biggest difficulty around Skipton these days is trying to D.I. the new Lancs between circuits and bumps. They fly on yesterday's inspection and never seem to be out of the air long enough to have another one done. Someday, maybe they'll get tired of circuits and bumps and start using these kites on Ops., then we can revert to our old, normal Hally routine of D.I.'s. We'll welcome that day, too.

=====

NO. 64 R.C.A.F. BASE

A recent change in Radar policy implies that it might be a good idea, if future Canadian manufactured Lancaster X's were built around the radar gear. The latest idea includes the installation of Loran, as well as HES Mk. IID, Fishpond, and Gop in aircraft No. 855 before being returned to Canada. The big headache, is just where to put it all, and F/L Carstairs and F/O Lankso have been spending many puzzling hours over the odd few quarter inches left to their disposal.

B.M.S.S.

The section put out the welcome mat again this month - this time to receive F/O Bill Lankso, who has very capably taken over from F/O "Mike" O'Neill.

We regret to report that Sgt. Groom still holds down a bed in North-allerton Hospital. He is definitely "brassed off" with "women in white", having been in dock for over three months now. Hurry up and get well "Groomy".

LAC Fisher formerly of the section is now Pte. Fisher G.W. of the USAAF as he recently transferred his talents to the care of "Uncle Sam". No doubt George will soon be sporting the three stripes of a technical Sergeant. Nice work if you can get it, George!

We are glad to be able to say that LAC "Red" Torrance can stop singing, "I'll never smile again", as he now sports four new pearly white "store" teeth to replace those lost in action last month.

MIDDLETON ST GEORGE Passing of a Hero

Everyone in 6 Group has followed the events of the "Rhur Express" with

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great interest. Being the first Canadian Land X, she came to 419 Squadron about a year ago and was used as a sort of 'guinea pig', for radar installations.

In the course of her history she was modified for Boozer, H2S and Fishpond, as well as the old reliable Gee. The H2S installation was quite a headache due to the lack of column 7 cables, but the hard work put forward by all the mechs brought forth several modifications. Most important of which was the new wooden scanner-well cover.

In due course more Canadian built Lancs. arrived and it was necessary to convert the Halifax crews. Again, the Rhur Express was chosen, many were the bumps that she endured, but in time, all 419 Squadron was converted and she was cleaned-up, polished and coaxed into becoming operational.

Slowly but surely the indicators appeared on the fuselage until the total of 47 sorties was reached. On return from her 48th trip, her luck failed, and she overshot the runway, caught fire and burned.

In closing, it might be added, that very seldom was it necessary to change the radar gear in the late Rhur and her operational reports were always "hang-on". She remained faithful to the end and her last radar report can be expressed in one word - 'perfect'.

The boys of the section here feel very proud of F/S Scott, recently repatriated, who has been awarded the B.E.M. for outstanding radar duties while at Middleton.

Congratulations are also in order to "Cy" Walters and "Rolly" Desrouchers on their promotion to F/Sgt.

We welcome Cpl. Murray from T.R.E. - the exchange for LAC Calder who went to T.R.E. last month. Also LAC's Letellier and Weigand have arrived in from 62 Base, so now we are only three men down - oh happy day.

GROET CLIPPINGS

Croft radar is now under new management with the arrival of F/O "Mike" O'Neill (what, another O'Neill?), who is taking over from F/O Lamb. We extend our good wishes to F/O Lamb in his new job at 63 Base.

LAC O'Neill the scribbling scribe has arrived back from leave a happily married man. This is really getting serious, men!!

Bill Taylor and Loggins have just returned from nine playslappy days of celebrating hogmanay with a wee drop of highland dew. and drinking or eating haggis. or whatever it is you do with that stuff.

Our Buck Welsh spent a nice quiet leave with his brother at Salisbury. F/Sgt. Gemma is spending a much looked forward leave with his wife. Phil Charron who lost his voice and needed a little hospitalisation to return it to normal, has hit for the big smoke where he will be meeting "Pod" Bendus. Someone should warn The Hammersmith Palais of this invasion.

Any radar mechanic who is in Sunderland, Durham, Newcastle, Aberdeen, Edinburgh, Glasgow, or Loch Lomond, should keep a sharp look out for Jerry Blair who may hit one or all of these spots on his impending leave. Dick O'Toole has also headed for the land of the heather.

It is hard to imagine the grief that has overcome Don Mackenzie since his Christmas Spirit was lost en route. Jerry Blair was found consoling him with latin phrases at four in the morning the day following the tragedy.

To close, our thanks go out to Herb Sproule for answering our pining pen pals. There will be more requested next month when the boys have finished their Christmas thanks-for-the-parcel letters.

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Loose Screws

MORE CORN

Atlas Jr. -(proudly) "Have you heard of our new method of fastening the Radar News pages together?
We just take them down to the workshop and drill holes through them."

Visiting Radar Type (nonchalantly) - "Yes - yes - looks like H.Q. Group on the bit again!"

Top Secret - A FEW NOTES ON "ASHCAN" -

(by L.A.C. Frank O'Neill) - Croft

In answer to numerous requests from my readers, all four of them, being myself, our radar officer, the editor of this monthly blat, and the guy who sleeps below me, (I make him read it), I am going to append a few notes on "Ashcan".

As you probably know, "Ashcan" is so secret only a few general pieces of information can be released at this time.

A fact that is not generally known about ashcan, is that it was more or less accidentally discovered. A junkman, who calls around to T.R.E. for odd bits of salvage every Friday sharp at 10.00A.M., (the time element here is very important, and the reader will do well to remember it), picked up his usual quota and stopped off at his house to have his usual cup of tea.

His two year old son, who is interested in all types of science and is known throughout the scientific world for his thesis on "Why an electron", pulled a few units off the salvage van.

A short while later he connected these various parts together, and lo and behold, ashcan was born.

T.R.E. instantly took up the idea, added twenty-five condensers, thirty-two extra resistors, six pulse leads and drew up a list of modifications to be added when the set had reached the squadrons. By this time the reader will have gathered the fact that the secret of ashcan is that it picks up everything. One can readily see that such an instrument can have multiple uses in civilian as well as wartime life. Looking into the future, one can prophecy no home will be without one. In short, it is the invention of the century, a boon to mankind.

In recognition of his services the inventor has already received a post graduate course at the Little Snoring school of Kindergarten, and it is expected he will receive the freedom of Great Snoring.

The circuit of ashcan is simplicity itself. The main principle uses the well known theory that a sphere has capacity. This sphere is stretched, pulled, and eventually ends up as a cylinder with an even greater capacity. To make sure that there are no stray oscillations, there is a new principle used here in which we use the screw circuit, called, "the trapper lidalon."

The returns or pick-up, are now taken down to the incinerator valve and after mixing with the output of the symphobile, by means of a delayed trigger action shot single baralled through the double shot gun circuit. This is followed a few seconds later by the other barrel. As the bewildered reader will readily see this leads to a spherical pellet reversible electronic tour of the stages and will take us into the thromatron. Here lies the guts of the whole action of ashcan.

Here thrombosis takes place, and one can now pass over the next step which is elementary, being merely a simple superhetrodyne, and from there to the output and as we didn't have time to go into this, the reader can work it out himself.

I hope this has cleared up a few difficult points that may have arisen.

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If any more information is needed please send me a self addressed envelope, enclosing ten shillings to cover mailing charges, and I will be glad to answer any of your more difficult problems.

The Case of the Lost Spirits

by LAC O'Neill - Croft

This is a tale of a Radar tot,
Who received a bottle of you know what.
He picked up the parcel his face abeam,
His lips a-trembling, and his eyes agleam.
He carried it back with caution and care,
And on his bed he placed it there.
Then he gingerly unwrapped the lot,
His thought all centered on that "spot".
But alas, alack, Oh woe and despair,
There were no signs of spirits there.
The labels were there all intact,
But the bottom of the crock was cracked.
The moral of this is best unsaid
Never wrap whiskey in new-made bread.

x-x-x-x-x-x-x-x-x-x-x

Overhear during a stormy session in a Base Sigs. Office:-

Base Radar Type:- (pounding the desk) - "We'll improve the ---
serviceability if I have to go on D.I.'s
myself!"

Base Sigs. Officer:- (quick like a fox) - "G'wan now chum - when
you last did a D.I. there was only Gee &
I.P.F. to worry about.

Note:- The rest of the conversation was not quite intelligible:

zxxzxzxxzxzxxzxzxxzxzxx

Through the Key Hole

Radar II - "What's wrong with 64 Base Radar news - its late clam?"

Sub for Radar I - "Call me 'Sir' when you speak to me - this
is a Squadron Leader post".

m-m-m-m-m-m-m-m-m-m-m

STOP PRESS FLASHES!!

ALL the best to F/O "Doug" Hay who has left HMSS at 76 Base, 7 Group
and has joined forces with our Group. Recently posted to Skipton, Doug
is now attached to 64 Base for Radar duties.

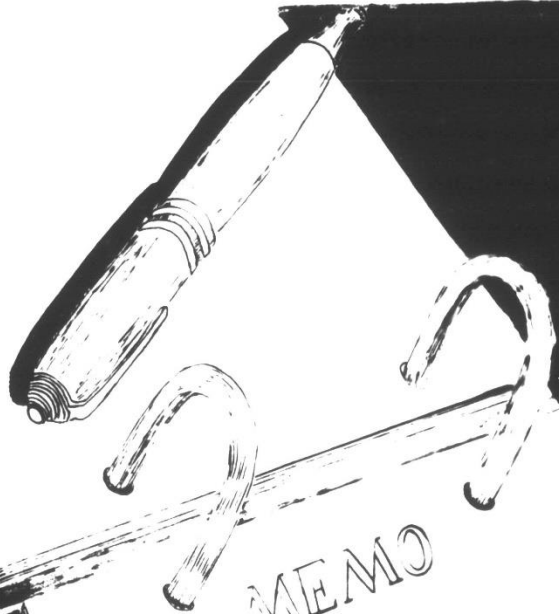
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REGRETS

We agree the printing job on the cover is not up to the usual standard.
The shortage of time and paper will not permit to re-run the Jacket for
this issue.

HHHHHHHHHHHHHHHHHHHH

Circle



MEMO

Radar Mechs!
Remember "Achtung, Radar"

How can you improve
your F_2S survivability
?

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JAN 1945

APPENDIX No. 233 to
R.A.F. FORM 540
HQ. No. 6 (R.C.A.F.) GROUP
DATE June 45

REVIEW OF Manibutions

SECRET



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NAVIGATION REVIEW - JANUARY 1945

The table below reveals the percentage of aircraft bombing out of the Group T.O.T. for the month of January, 1945.

The two attacks on Salzburg on the night of 28th January are not included, due to a diversion, and the figures available would not represent a true picture.

<u>TARGET</u>	<u>DATE</u>	<u>% OF A/C OUT OF GROUP T.O.T.</u>	<u>REASONS</u>
Ludwigslawen	2nd January	3%	
Nurnberg	2nd January	4%	
Hai over	5th January	1%	
Hannau	6th January	2%	
Munich	7th January	20%	Winds strengthened in target area. Four squadrons only on this operation.
Strasbourg	13th January	7%	
Salzburg	14th January	3%	Veering and weakening of the wind in target area. Four squadrons on this target
Grevenbroich	14th January	8%	
Magdeburg	16th January	1%	Using poor found winds.
Soles	17th January	1%	Using poor found winds.

CONCENTRATION PLOTS

Discussed in the navigation summary are two concentration plots. The plot for Hannau on January 6th, 1945 shows a good concentration whereas the Magdeburg diagram of January 16th, 1945 is a poor example. The reason for the poor effort on Magdeburg is due to the wind slackening off. Some navigators forecast the change and were able to make up the loss of time which increased the spread of the stream.

TRAINING

Even though the targets attacked during January have been longer the timing error has improved. It must be remembered that on Nurnburg and Munich, only 419, 428, 431 and 434 squadrons operated and in the case of an increased timing error, it is influenced by these few targets.

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	<u>JANUARY</u>	<u>JANUARY % IN T. O. T.</u>	<u>DECEMBER</u>	<u>COMMENTS</u>
429	.39 min.	76%	.72 min.	Good
427	.45 min.	73%	1.17 min.	Good
419	.46 min.	71%	.98 min.	Good
432	.56 min.	66%	1.07 min.	Good
433	.68 min.	85%	1.18 min.	Good
420	.75 min.	62%	.76 min.	Steady
425	.71 min.	69%	.86 min.	Steady
426	.80 min.	64%	1.07 min.	Improving
408	.90 min.	63%	1.10 min.	Improving
424	.94 min.	68%	.72 min.	Slipping
434	1.00 min.	61%	.99 min.	Same
428	1.20 min.	53%	.75 min.	Poor
415	1.20 min.	66%	.90 min.	Slipping
431	1.40 min.	58%	1.00 min.	Poor

The figures for the two attacks on Stuttgart on the night of 28th January are not available, due to diverted aircraft.

REPORT ON THIS MONTH'S LOGS

Summary of logs marked by the Group Navigation Officer for January, 1945.

- (1) Timing has improved slightly even though longer targets were more prominent than in the previous month.
- (2) The percentage of aircraft getting off track by more than five miles over enemy territory remains too high.
- (3) The following errors in log form are still persistent:-
 - (a) NOT logging Q.P.F.'s.
 - (b) NOT logging altimeter settings.
 - (c) NOT logging magnetic courses.
 - (d) NOT logging Z checks.
 - (e) All turning points do not have the next course etc. logged.
- (4) Not enough A.P.I. readings are taken. Course lines not shown on the mercator. I.A.S. checks lacking.

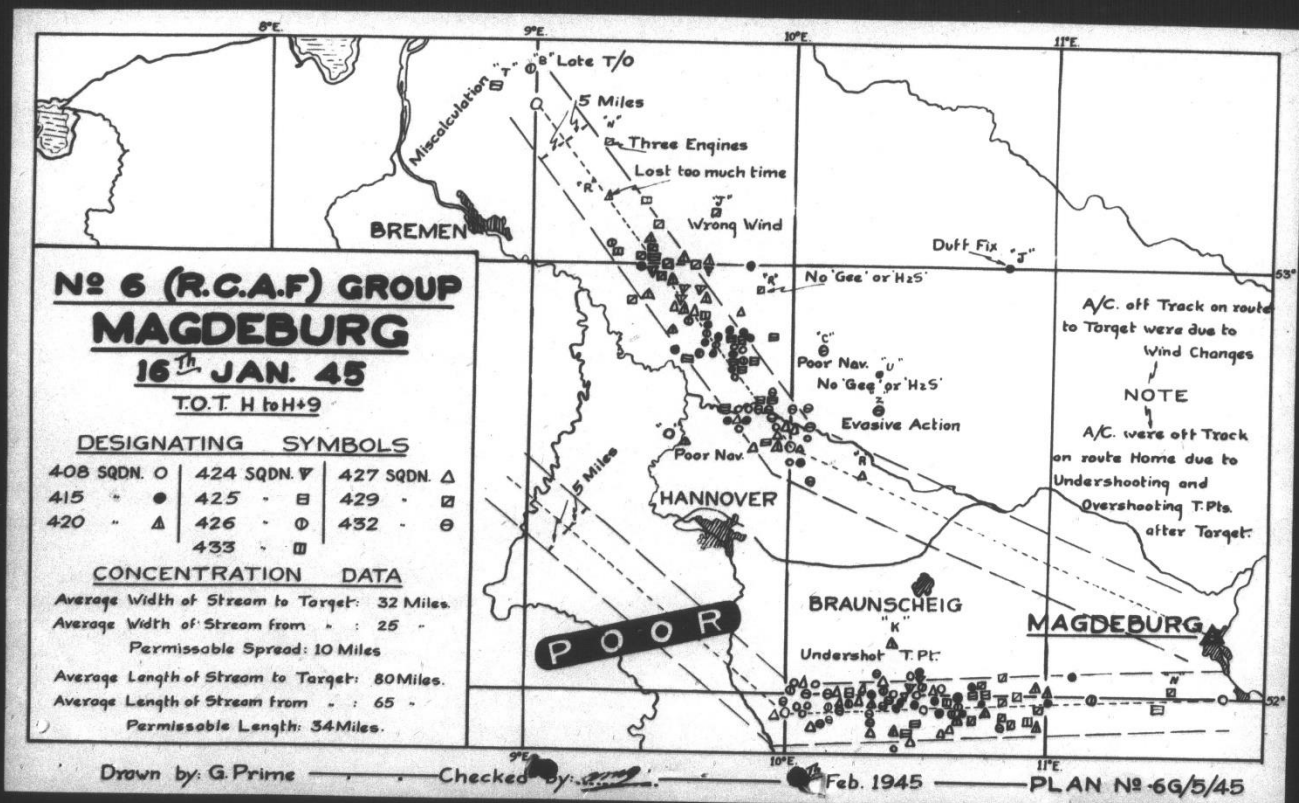
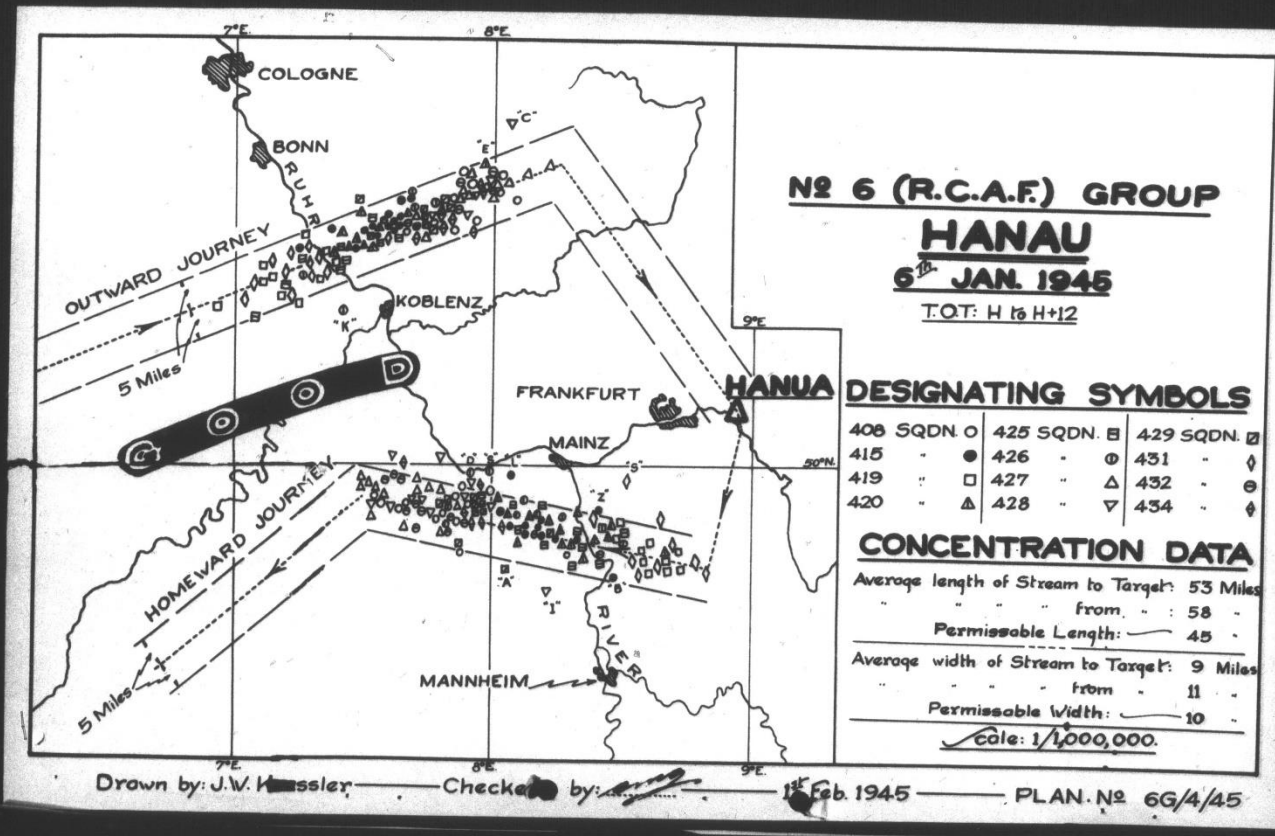
As a whole the log form and chart keeping has improved somewhat, however, there is still room for improvement and the above points should be stressed until they become automatic for each navigator.

STUTTGART ATTACKS - 28th JANUARY 1945.

The results of timing and last found winds analysed so far, show that the timing on the target was invariably late. This fact is due to the veering and strengthening of the winds. The average last found wind was 030/62 for the first attack and the broadcast bombing wind was 340/25 m.p.h. The average last found wind for the second attack was 033/67 m.p.h. in relation to a broadcast bombing wind of 360/25 m.p.h. The average target area wind found by P.P.F. was 053/64 m.p.h.

The navigators are to be commended on the great improvement shown in the accuracy of their last found winds. 89% had a last found wind within 10 degrees of the Group average. 85% had a wind within 10 m.p.h. of the Group average. All last found winds were at operational height and found in the area 6 to 8° East.

/OPERATIONAL WIND FINDING.....



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OPERATIONAL WIND FINDING

The navigation conference of January 24th, 1945 was benefited by a report on last found winds given by D.R. Hopkins of Operational Research No. 6 (R.C.A.F.) Group Headquarters.

The analysis was made for Ruhr targets attacked during the month of December 1944. The points brought out showed that:

- (i) Last found winds were being found too far back from the target.
- (ii) The average vector error was 17 m.p.h. which should be reduced.
- (iii) In a comparison between broadcast bombing winds and average last found winds, there is little to choose under present conditions but if the winds were found closer to the target and with more accuracy, the comparison should be reviewed as to which method would produce the best results.

GROUND TRAINING

SQUADRON	DRY SWIMS - HOURS		SPEED UP EXERCISES HOURS		TOTAL
	Jan.	Dec.	Jan.	Dec.	
425	417.00	252.00	332.00	227.00	749.00
408	336.00	268.00	349.00	298.00	685.00
427	309.30	121.30	246.00	138.30	555.30
419	321.30	320.00	231.45	123.00	553.15
426	272.30	110.00	248.55	282.30	521.25
429	43.00	101.00	467.00	127.00	510.00
415	374.00	113.00	132.00	116.00	506.00
432	344.00	254.00	150.00	144.00	494.00
434	227.00	458.00	224.00	351.00	451.00
431	251.00	219.00	164.00	385.00	415.00
428	107.00	156.00	189.00	170.00	376.00
433	210.20	79.25	132.20	61.15	342.10
424	219.00	227.30	85.50	92.00	304.50
420	163.50	127.00	32.20	32.15	196.10
TOTAL	3675.40	2806.25	2984.10	2547.30	6659.50
GROUP AVERAGE	263.00	200.00	213.00	182.00	476.00

The minimum total of dry swims and speed up exercises is now laid down as 600 hours per squadron per month, effective 1st February, 1945.

/LAST FOUND WINDS.....

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LAST FOUND WINDS

For the period 1st - 16th January, a record has been kept of the last found wind for each aircraft on each operation. The percentage of last found winds which are not considered good enough to be converted to a bombing wind are listed below for each squadron. The following mistakes were found in classifying the winds.

- (i) Not found at operational height.
- (ii) Found too far back from the target.
- (iii) Over 30° or 10 m.p.h. out from the Group average found wind.

<u>TARGET</u>	<u>TOTAL WINDS</u>	<u>GROUP AVERAGE WIND</u>	<u>NUMBER OF DUFF WINDS</u>	<u>PERCENTAGE</u>
Nurnberg & Ludwigshaven 23rd January	198	024/53	27	13%
Hanover 5th January	175	002/35	19	11%
Hansa 6th January	179	009/34	16	8%
Saarbrucken 13th January	136	111/45	25	19%
Grevenbroich 14th January	133	071/45	26	19%
Merseberg 14th January	50	055/31	19	38%
Zeitz 16th January	46	312/27	12	26%
Magdeburg 16th January	107	309/38	34	31%
	<u>1024</u>		<u>178</u>	<u>18%</u>

SQUADRON PERCENTAGE OF DUFF LAST FOUND WINDS

<u>SQUADRONS</u>	<u>PERCENTAGE</u>	<u>STATIONS</u>	<u>PERCENTAGE</u>	<u>BASES</u>	<u>PERCENTAGE</u>
408	18%	Linton	= 16%	62 Base	= 18%
426	14%				
420	18%	Tholthorpe	= 16.5%	63 Base	= 15%
425	15%				
415	27%	Eastmoor	= 21%	64 Base	= 19.5%
432	15%				
427	11%	Leeming	= 14%		
429	17%				
424	20%	Skipton	= 15.5%		
433	11%				
431	19%	Croft	= 21.5%		
434	24%				
419	18%	Middleton	= 17.5%		
428	17%				

/Referring to.....

Paure

Referring to the Stuttgart raid, it will be noticed a decided improvement has resulted, due to an area being laid down for last found winds and also the stress put on wind finding following the navigation conference of 24th January.

CHECK ON E.T.A. HOMING ON A LATTICE LINE.

During briefing, plot a position say 50 miles back from the release point on track. Note the co-ordinates of the lattice line that will be crossed at this position. The flight plan ground speed will give you an exact time to be at this position. After getting on the homing line which is generally the last turning point into the target, the predetermined co-ordinates of the opposite lattice line are set up and when it comes in it is then known you are 50 miles distant to the release point. The time is noted and compared to the planned time and an adjustment is made in airspeed to make the required E.T.A., providing the actual time at the position is within 2 minutes of the planned time either way.

FOR EXAMPLE

Use R.S. chain Frankfurt Sheet.

Target is 5111N 0652E.

Release point is 2.0 miles back from the target.

The last turning point into the target is 5010N 0550E position E.

Position E to release point = 84.8 miles.

Plot a position on track 50 miles back from the release point (pos'n Y)

Home down R.S. chain C = 37.95

The B co-ordinates at position Y = 4.44

H hour release point = 2300 hours

Flight Plan G/S = 200

Time at Y should be 2245 hours. After turning at position E on the homing line the B = 4.44 is set up and when the signal comes in the time is noted to be 2246.7 or 1.7 minutes late.

The new ground speed for the leg E to the release point found from the best wind before turning at E = 209 m.p.h. Owing to being at position Y 1.7 minutes late, the last 50 miles has to be covered in 13.3 minutes or a G/S of 225 m.p.h. is required or an increase of 16 m.p.h. over the D.R. G/S.

Using the Appleyard scale on the Dalton Computer, put your I.A.S. on the inner scale opposite the T.A.S. on the outer scale. Opposite 16 on the outer scale which is the increase in G/S, you read off 12 on the inner scale or the increase required in indicated airspeed.

The Station Navigation Officer at Skipton has forwarded a report on the progress of the new navigators on the Station.

The Group Navigation Officer finds reports of this nature very enlightening and will welcome comments at any time.

Pauvre

BOUQUETS

F/O Schollar of 429 Squadron was on a liaison visit to 24 O.T.U. commencing 31st January.

The report received was very concise and the training well covered. The Station Navigation Officer at Honeybourne was pleased with the visit and the manner in which it was carried out.

Best Logs of the Month

Outstanding examples of good log and chart form have appeared during January and special mention goes to:-

F/O Taylor	428 Squadron
F/O Milne	429 Squadron
F/L Bronson	427 Squadron
F/O Joyner	419 Squadron
W/O Yard	432 Squadron

BROADCAST WINDS

429 Squadron have sent in a report on broadcast winds for Mandeburg - 15th January 1945. They were able to send back 15 winds and the navigators found it did not interfere with their routine in any way. There is no doubt these winds proved a valuable aid as well as being a check on the individual's own found winds. In one case, an M.P.P. was found from a single position line and a forecast broadcast wind which enabled the navigator to bomb in his correct T.O.T.

FORMS

Forms required by the Group Navigation Officer.

- G.N. 2 - Monthly progress report on navigators.
- G.N. 13 - Individual navigators screening report to be presented to the G.N.O. by the navigator concerned upon being screened from operations.
- G.N. 4 - Monthly Gee Training Summary.
- G.N. 6 - Recommendation for the award of the 2nd class navigators certificate.
- G.N. 11 - Gee Operational Report.

Information required by letter form

- Weekly summary of A.P.I. failures
- Weekly summary of D.R. compass failures
- Navigation failures
- Liaison visits
- Recommendations on the navigation team of each crew recommended for P.F.F., required the 5th of each month.
- The best log and chart of each squadron each month.

PAURE

- 7 -

Information required by signal for each operation

- (1) The squadron average last found wind.
- (2) The lat. and long. of the squadron average concentration in and out of the target.
- (3) Navigators' timing.
- (4) The wind vector error for each navigator.

Information required by Special Despatch Rider

Concentration Diagram as laid down.

The above reports will be under the supervision of the Station Navigation Officer.

The following forms will be completed by the Station Radar Navigation Officer and a copy forwarded to the Station Navigation Officer.

- (1) G.N. 14 - Weekly Radar Training Summary
- (2) G.N. 8 - H2S Blind Bombing Runs to be sent in on crews under training.

GROUP BROADCAST WIND VELOCITIES

It is the intention of this Group to contribute to a greater bombing accuracy by applying a last minute broadcast bombing wind velocity. For this purpose, Station Navigation Officers are to ensure that five efficient navigation teams are chosen from each squadron. These crews are to be known as permanent wind-finders and are to be listed in priority, so that the best crews will be assigned to early times of broadcast.

The degree of priority is to be assigned to each crew by the Station Navigation Officer who will pass the list to the respective Squadron Signals Leaders. Squadron Signals Leaders are to ensure that each wireless operator is fully conversant with the method and form of transmission of the navigators' found wind velocity and that he understands, as well, the form the Group bombing wind will take.

As soon as the battle order has been drawn up, the Station Navigation Officer is to make a note of all wind-finders included. The Station Navigation Officers concerned will then be contacted by the Group Navigation Officer who will assign a number of these crews and, according to priority and the squadrons' T.O.T., will allot each aircraft a given minute based on H. hour, as well as a datum height to be used by the wind-finders.

The wireless operator must transmit and repeat once, the wind velocity passed to him by the navigator. It is most essential that the wireless operator transmit exactly on his allotted minute. If this is not possible, he is not to transmit at all or he will be interfering with another wind-finder and hence neither message will be deciphered. To ensure correct timing, all wireless operators are to use the last Group broadcast timing signal, prior to their transmission, as a check.

The "N" form signal will include a special note giving the area in which the navigators are to find their wind velocity and will also give the height for which the Group Broadcast Bombing Wind Velocity will apply. Navigators who are at different heights than the heights given, must be briefed to apply a met. correction to the broadcast bombing wind sent out. The "N" signal will also verify the datum height to be used by the wind-finders.

/The message.....

Pauke

The message form to be used by the wind-finders will include the height at which the aircraft is flying, subtracted from the given datum height and the true wind velocity found. Thus, with a datum of 65,000 feet, the navigator of an aircraft flying at 20,000 feet, upon finding a wind velocity of 25000, will pass the following to his wireless operator:- 452500. It will be noted that no area is included, but it is understood that the area is as briefed.

Group will then contact Upper Air Met. at Bomber Command, who will apply an area correction to the average of all found wind velocities. Group signals will be notified to pass this Broadcast Bombing Wind Velocity at H. hour minus 5 minutes. The message will not include height and will be prefixed by an X. Therefore a Group wind velocity of 30540 will be sent as X 30540. This will always be a True Wind Velocity. If the wind velocity is over 100 m.p.h., 500° is to be added to the direction.

All navigators are to ensure that this wind is reduced, if necessary, to an indicated or Mk. XIV wind velocity, corrected for height and used for bombing.

NOTE:

These broadcast bombing wind velocities are a 6 Group activity only and are not to be confused with the regular Bomber Command broadcast wind velocities.

Navigators will note the following points decided at the Navigation Conference of 24th January, 1945.

1. Every navigator is to read G.N.I.'s very thoroughly upon arrival at a squadron and thereafter at regular intervals. A record of these readings is to be kept.
2. Bomb Aimers and Navigators are to share the same timepiece.
3. Bomb Aimers will log A.P.I. reading with every six as has been laid down in G.N.I.'s.
4. The use of the astro compass to be used in conjunction with the directional gyro should be impressed on all navigators and captains.
5. Cross country routes are being revised in G.N.I.'s. The present routes are in order until advised to the contrary.
6. The homing procedure on the A.P.I. out of the target will appear shortly in G.N.I.'s.
7. When only a few squadrons operate on a target that affects their timing error, a note will be added to the monthly summary of timing, explaining the error.
8. T.N.C. will pass the positions where aircraft can cut corners on route to the target to make up time. This information will be passed by signal.
9. Station Navigation Officers are to use the suggested form for plotting the navigators' bombing error. This work is to be done by Bombing Leaders.
10. Short cross countries in the local flying area could be used to advantage on A.P.I. homing etc. and no clearance for routes would be necessary.

/True airspeed.....

Pauvre

11. True airspeed found between air positions with no change in course would be more accurate to use with winds found off the A.P.I. and T.A.S. found by using the computer, would be more accurate used with track and ground speed winds.
12. Static vents should be checked before each operation and the flexible tubing be checked so that there will be no deviation of static pressure.
13. The Station Navigation Officer is to look over Bomb Aimers' logs at regular intervals to satisfy himself the work of the Bomb Aimer is up to standard and is being used by the navigator.
14. Upon recent surveys of logs, the following points are observed and steps should be taken to see that lectures are inaugurated to overcome these weaknesses.
 - (i) Timing at concentration points is invariably early and time wasting is delayed until too close to the target area.
 - (ii) Too many errors in track keeping are occurring from duff H2S or Gee fixes, showing poor co-operation in the navigation teams.
 - (iii) The log form is improving, but the following points are still weak:-
 - (a) Q.F.E.'s in a few cases are not being logged and the Q.F.E. for all aircraft varies, showing either the altimeters are not all up to standard or not enough care is taken in the correct readings. Altimeter settings after becoming airborne are not logged in many cases. There are several instances of found G/S being logged in D.R. G/S column instead of in main body of log.
 - (b) Compass checks and Z checks are not done regularly enough. Magnetic courses should be included in the flight plan and logged at all turning points.
 - (c) One of the weakest points in log form is the lack of E.T.A. checks for the target and entries in the log for courses etc. in the target area.
 - (iv) There has been a decided improvement in taking winds 20 to 35 minutes apart and showing the height. However, there are still some navigators taking too many winds, especially during the early part of the trip when their time could be used to better advantage on checking E.T.A.'s and timing at concentration points.
 - (v) An exceptional weak point is not putting in course lines and checking T.A.S. between air positions. More air positions should be plotted regularly.
 - (vi) Very few examples have shown up of logging the H2S "ON" after passing the point of Radar silence. If it is turned off, there are very few cases of any results obtained. The Gee range should be practically the same for all aircraft but such is not the case.

/The result.....

Paure

The result is that the check on E.T.A. target is poor and no wind is found close enough to the target to be used for a bombing wind. Since 1st January, 18% of all last found winds are duff.

- (vii) Not enough D.R. positions found when no fixes are available.
- (viii) There are still many navigators not plotting and using the release point as distinguished from the aiming point.

R A D A R

OPERATIONAL

Operationally, the month started off with a bang and saw the return of our first series of long distance targets for some time. Some of the more distant targets visited during the month include Nuremburg, Hanover, Munich, Merseburg, Zeitz and Magdeburg.

H. 2. S.

During the month there were 1229 sorties with a total of 108 difficulties. That is approximately 9% and a slight increase again over the previous month. Manipulation faults dropped from 2.5% to 1.3%.

On the 14th of January, 64 Base despatched 53 aircraft to attack Merseburg. Twenty of these aircraft were detailed as "backers-up" for P.F.F. and were to bomb blindly on H2S. The overall results were fairly satisfactory. However, a much better effort could have been made by some of the crews detailed for blind bombing. The actual target was a factory area just south of the town of Merseburg. Instructions were to bomb on the 5 mile circle or alternatively on a distance and bearing from HALLE. Those crews who used the 5 mile circle method claimed excellent results and had little difficulty in picking out the target. Those who used Halle as a reference point claimed good results. The run into the target was excellent for H2S, although the route generally was not a good H2S route.

Logs and Charts

It has been very interesting to note the increased interest in H2S taken by crews generally, with the advent of the more distant targets. The standard of work turned in during the month has improved considerably, although maximum use is still not being made of the set as a navigational aid. It is most essential that Bomb Aimers be impressed with the fact that they are each a member of the navigation team and that they are responsible for track keeping. It is their job, not merely to take and plot fixes, but to keep a constant track plot of the aircraft's position and when it appears that the aircraft is deviating from the required track, to notify the navigator.

From the logs and charts analysed during the month, several points have come to light.

- (a) Many Bomb Aimers are not using D.R. in conjunction with their H2S work. A navigator's D.R. position should be used to identify the first response after switching on the H2S. Divider D.R. should be used through blank area.

//(b).....

PAURE

- (b) Bomb Aimers are consistently neglecting to log the time of "H2S Modulator On", A.P.I. readings, T.M.G.'s, alterations of course and E.T.A. turning points.
- (c) Navigators are still using Gee on the route home from targets, whereas instructions have been issued that H2S is to be the only navigational aid except in the case of emergency.

H.2.S. Photography

There has been some slight improvement in H2S photography during the month, but the results are still far from satisfactory. Aside from the actual manipulation difficulties (which are considerable), there are three main difficulties which must be overcome.

First, there have been a number of occasions when all available cameras have not been carried and, of the ones that have been carried, there have been too many occasions when no attempt was made to take a photograph of the P.P.I. in the target area. There is certainly no reason why every available camera should not be carried and there are very few legitimate reasons why no attempt should be made to take a photograph in the target area.

Secondly, instruction in camera manipulation has more or less been concentrated on the Bomb Aimer, whereas with present requirements the navigator will more often than not be the crew member who takes the photographs. All stations are therefore requested to give both navigators and bomb aimers the necessary instruction in camera manipulation.

Thirdly, there have been occasions when the incorrect time of taking the picture has been recorded. There is definitely no excuse for this.

During the month there were distributed to all stations a series of P.P.I. photographs showing various manipulation and technical H2S difficulties. This set of photographs is not yet complete and others will be distributed as they become available.

Also distributed were a series of 13 photographs taken by various crews in the Group during the attack on Hanover on the night of 5th January. These were a reasonable sample of the type of H2S photographs that have been taken by crews in this Group and it is hoped that these, together with the critical summary that accompanied the photographs, will help to improve the general standard of H2S photography.

Distributed to the various stations were copies of extracts from Part II, Section 7, Bomber Command Photographic Staff Instructions. This deals primarily with Radar Navigation instructions concerning P.P.I. photography and all Radar Navigation stations are advised to thoroughly digest its contents.

GEE

During the month there were 1306 sorties with a total of 31 difficulties. This is 2.3%, which is a slight improvement over last month.

Some interesting developments in Gee have occurred during the month. Increased enemy interference on the Continental Chains has been reported during the latter part of the month. The interference seems to have taken the form of numerous spurious pulses which are quite similar to our own. Several navigators reported that the "duff" signals were larger and thicker than the genuine ones and that there was considerable difficulty in distinguishing the genuine from the "duff" signals. All stations are requested to report fully on these chains on the Radar Operational Reports.

/On the night.....

Pauvre

On the night of 16/17th January when Zeitz was the target, three stations in the Group took photographs of the Gee Indicator showing the nature of the enemy interference. Some very good photographs were received and the stations concerned are to be commended for their prompt and good effort.

The Ruhr Chain has come back into operation again on R.F. 27/56/1/8 and is to replace the Cologne Chain. All Cologne chain charts are therefore to be withdrawn.

TOTAL H2S TRAINING PER SQUADRON

Summary of H2S Training for January

SQUADRON	TOTAL HOURS TRAINER	GROUND HOURS BLIND BOMBING	DRY SWIM	SET TIME AIR	BLIND BOMBING RUNS
408	158.00	98.00	52.00	188.15	89
415	395.00	132.00	62.30	94.50	39
419	129.00	75.00	227.00	60.45	51
420	133.15	73.15	71.30	150.15	245
424	49.10	54.40	4.30	150.30	165
425	209.30	144.00	130.30	122.45	175
426	100.40	54.20	71.00	167.35	114
427	54.40	37.30	121.30	135.40	215
428	129.40	77.20	248.00	40.30	66
429	63.30	37.10	101.00	154.10	442
431	204.00	87.00	236.00	60.00	61
432	317.00	112.00	111.00	91.10	124
433	84.50	63.50	21.00	93.00	152
434	199.00	100.00	260.00	62.00	59

TRAINING

Ground training on the squadrons has maintained a good pace during the month. As of the 22nd January, total hours spent on the H2S trainer and hours spent in ground H2S blind bombing practically equal the figures for the entire month of December. However, air training has taken a slight set-back during the month, which is more or less to be expected due to the poor weather conditions. Both total air hours and air blind bombing hours have shown a decrease over last month. H2S categorization figures, however, have shown some progress during the month. As of the 29th January, the Group figures were A 37, B 175 and C 205, which compares as follows with the figures for the end of December, A 54, B 201 and C 188.

Considerable.....

Pauvre

Considerable training has taken place during the month in H2S photography. It is essential that navigators as well as bomb aimers, be given adequate instruction and sufficient opportunity to practice on the trainer and in the air.

BOOMBING TIMES ANALYSIS

SQDN.	% WITHIN 1 MIN. OF TOT	% EARLY	AVERAGE TIME EARLY	% LATE	AVERAGE TIME LATE	
403	63%	17%	1.7 min.	20%	2.9 min.	
426	63%	16%	2.0 min.	21%	2.8 min.	
415	66%	6%	1.3 min.	29%	3.8 min.	
432	66%	11%	1.5 min.	23%	3.0 min.	
420	62%	21%	1.7 min.	17%	2.9 min.	
425	64%	14%	1.6 min.	22%	3.0 min.	
421	66%	12%	2.7 min.	22%	2.6 min.	
433	85%	5%	1.5 min.	10%	5.5 min.	only 39 sorties
427	73%	1%	2.0 min.	26%	3.0 min.	
429	76%	3%	1.3 min.	21%	3.0 min.	
419	72%	10%	2.2 min.	19%	6.4 min.	longer targets
428	53%	21%	3.0 min.	26%	3.6 min.	"
431	56%	26%	3.7 min.	18%	4.5 min.	"
434	72%	18%	3.6 min.	11%	3.1 min.	"
GROUP AVERAGE	66.3%	12.9%	2.2 min.	20.3%	3.6 min.	

It will be noted that all aircraft are given a specific minute to be on the target.

Out of 1220 sorties for January 1945, 89.6% of all aircraft were in the Group T.O.T. 3.6% of aircraft were early. 6.8% of aircraft were late.

Average time early = 1.9 minutes
Average time late = 4.3 minutes

C/S. 614/2/Nav.
26th February, 1945.

[Signature]
(L. H. OGILVIE) Squadron Leader,
for Air Officer Commanding,
No. 6 (R.C.A.F.) Group,
ROYAL AIR FORCE.

(Distribution List - over)

Pauvre

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DISTRIBUTION

Nos. 62, 63, 64 & 76 (R.C.A.F.) Bases	1 each
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Radar
NEWS

Nº 6 RCAF GROUP ✱



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APPENDIX No. 76 to
R.A.F. FORM 140
H.Q. No. 6 (R.C.A.F.) GROUP
DATE 14/2/51 1.

NO. 6 R.C.A.F. GROUP

SECRET

MONTHLY RADAR NEWS

VOL. 1

FEBRUARY

NO. 2

EDITOR'S BIT

The month of February has proved to be a very active and interesting month for 6 Group as far as Radar is concerned. First the introduction of H.2.S. Mark IIC with the roll stabilized scanner and all, commenced at No. 62 Base on the receipt of Halinax VII aircraft modified to take Mk.IIC. Next, the ground work was laid for the conversion of H.2.S. IIB to H.2.S. IID on Lancaster aircraft of the two Skipton Squadrons in 63 Base. Finally, the necessary modification leaflets along with the equipment, were issued to No. 64 Base for the trial installation of the Fishpond Filter Unit T.189 to be carried out on the No. 428 Squadron Lancaster X aircraft.

As these programmes came upon us all at once, the greatest problem has been one of supplying all the required equipment, with the Indicators type 184A being the most difficult to obtain.

The situation was eased considerably by the able assistance of Sgt. Gartner and W/O Coates, the Bomber Command gen merchants on roll stabilized scanners and the modification of the P.E. sets to service them, as well as W/O Fairbotham and Sgt. Jamieson who have been so capably running courses of instruction on H.2.S. Mark IIC at Linton for the benefit of both Nos. 6 and 4 Group mechanics.

What W/O Fairbotham doesn't know about the T.184A Indicator and the application of same, is considered not worthy of note, and we should like to express here our sincere appreciation for all the help given by these Bomber Command Radar experts.

RADAR PROMOTIONS

The big white chief received his extra ring this month and is now known affectionately as S/L Crawford. Incidentally, he is sure taking a long time to get over that chest trouble, but the last report received stated that the local M.O. threatened to tie him to the bed, if he caught him trying to get out again. Keep trying Al, we're pulling for you.

Another promotion this month was one received by our good friend Budzak - the No. 62 Base Radar Officer, who now answers the 'phone as Flight Lieutenant Budzak. Congratulations Walter.

CENTIMETER COURSE - T.R.E.

F/O's Lamb and O'Neill, W/O Ginsberg and Sgts. McArthur, Koperson and James attended a weeks course on Centimeter technique at T.R.E. during the early part of the month. According to a survey taken on their return to the Group, the general opinion was that the course was "bang-on", especially the work in the lab., but that the mathematics side of it was rather more confusing than amusing.

As a play by play description of the course contributed by Sgt. James of Leeming Station, appears elsewhere in this issue, it is best that we refer you to that write-up, rather than to attempt to give you further information here.

Pauvre

2.

P.P.I. PHOTOGRAPHS

You probably recall a small item of interest in one of the previous issues of the Radar News which mentioned that a little research work was being carried out regarding the possible use of a remote Indicator for taking H.2.S. P.P.I. photographs.

Well since then, a good deal of development has taken place, and the Group Trouble Shooting Boys working in conjunction with S/L Crawford successfully modified a couple of Fishpond Indicators to do the job quite satisfactorily.

The two Indicators were in turn passed on to Nos. 62 and 63 Bases for trial installations in screened aircraft. After considerable delay, mainly due to poor weather conditions, cross country flights have been carried out at both places, and the results have more than satisfied the original claims.

At long last it seems that a solution may be obtained whereby P.P.I. photographs will mean something more than just a blurr on paper.

Although further trials and experiments are necessary before the final story can be told, it is desired to give credit to not only the Radar types at 62 and 63 Bases, but also to the Engineering and Photographic people for their active co-operation in making the job so successful to date.

RADAR POWER SUPPLIES

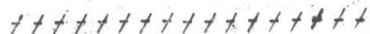
We don't mind admitting that we have been doing a little work in the interest of Radar servicing as well as in your interest, regarding the Division of responsibility of the aircraft power supply.

With the co-operation and approval of the Group and Command Electrical officers, a ruling has been given which provides that the electrical sections will ensure a supply coming from the alternator, by checking at the A.C. input to the V.C.P. on daily ground run-up.

Radar sections are therefore responsible from the V.C.P. onwards - but one word of advice here - you must co-operate closely with the electrical sections so that each section understands not only the responsibilities of the other, but also just what is required to be certain of a smooth running system. The main point here is that the A.C. plugs may be left off the V.C.P. and only a close understanding of the problems which you can expect will arise, can possibly prevent this from happening.



We acknowledge with thanks the splendid artistic contributions for this month's issue from L.A.C. Davies, No. 64 B.M.S.S. radar mech. We think, and we believe that you agree with us, that they add a great deal of colour as well as interest to the Radar News pages.



R E M E M B E R - This Publication is - S E C R E T

Pauvre

3.

RADAR IN OTHER GROUPS

NO. 1 GROUP

The serviceability of A.G.L.T. seems to vary considerably from month to month again dropping from 83.4% in Nov. to 72.6% in Dec.

The main faults can be localised as due to
(a) H.2.S. u/s (b) Components u/s

Lucero has been used with considerable success and No. 626 Squadron is also now in process of fitting.

An effort is being made to solve the shortage of Radar Mechs by the training of several R.C.O.'s - W.E.M.'s and W.O.M.'s at No. 15 Base.

NO. 3 GROUP

Although C-H equipment is still in very short supply - all squadrons are now fitted to some extent. Some sections converting Gee Indicators for use with B-I, thus relieving the equipment supply a little.

Water beach progressing satisfactorily with the fitting of H.2.S. IIIA and most of the teething troubles have now been overcome.

NO. 4 GROUP

Lucero having been incorporated into No. 466 Squadron of Driffield Base has given considerable satisfaction. The greatest trouble experienced seems to be with the condenser C² in the transmitter Unit. Driffield Base types are willing to show around visiting Radar bods. as long as the necessary arrangements are made in the usual manner.

Halifax III's and Halifax VI's received this month modified to take H.2.S. Mark IIC. Helme and Pocklington radar mechs putting in long hours in order to fit the aircraft as quickly as possible. The time element together with lack of servicing equipment may necessitate the locking of the roll stabilized scanners in some cases.

NO. 5 GROUP

Extensive experimentation has been carried out with H.2.S. Mark III with the idea in mind of putting to test its value as a blind bombing device. The training programme was stepped up in order to completely familiarize set operators with the equipment. The equipment itself received the greatest attention by the selection of the most efficient units from the available H.2.S. boxes for embodiment into one aircraft installation. These tests proved that the scanner was a definite weakness in the equipment and after further test and experiments it is believed that the perfect scanner has been found which greatly improves the presentation obtained on operations.

Loran now fitted throughout Nos. 53 - 54 - 55 and 56 Bases. Navigators carry a screwdriver for the setting of dividers in the air. Experiments have successfully been carried out by using the 27 feet forward suspension of the P.R. 1196 aerial and suitable loading Unit.

NO. 8 (P.M.F.) GROUP

No. 8 Group also successfully experimenting with a fixed aerial for Loran, using a fully tunable loading Unit. The new aerial reduces signal noise ratio up to 75% under most conditions, since good signals are obtained at low gain. Photos of the screen are being taken over Europe showing relative positions of ground and sky waves on Sweep Speed 1 & 2 which may be printed in order to assist inexperienced operators in signal recognition.

Pauvre

4.

ENEMY RADAR vs ALLIED RADAR

Because the "Battle of Radar", is so interwoven in practically every land and air battle being fought to-day, it is inclined to be taken for granted or ignored altogether by many of us. Further, it always has been - and still is - of such a secretive nature, that few really realise the extreme importance of this particular section of warfare against aggression.

Let us discuss for a moment, a few of the more common pieces of enemy equipment together with the countermeasures designed to nullify their importance by the efficient technical geni of Great Britain, and the United States. It will be appreciated that it is not possible at this time, to go into much detailed discussion of this equipment, but a few generalities will probably give you a rough idea of the importance of this work.

Some important early warning devices long used by the enemy are (1) Frya, for long range, but which does not provide height of raiding aircraft, (2) Wurzberg, for short range, which measures range, bearing and height (3) Giant Wurzberg, - the same as Wurzberg but with greater range and increased accuracy, and (4) Dagsschloss, an aircraft plotter, but considered incapable of measuring altitude.

Regarding Frya: it is a standard Radar equipment of the German aircraft reporting service. Consists of a cabin housing the operator and some of the Radar gear, and has two frames above and forward of the cabin, which are supported one above the other on struts. The frames are covered with wire mesh to act as a reflector to the aerial dipoles which stand forward of the frames. A third narrow frame is mounted above for recognition of friendly aircraft (I.F.P.). The whole apparatus is capable of rotation on its base. Operates on a carrier frequency of about 120/130 mc/sec. (Wavelength about 2.4 meters) peak power estimated at 10 kilowatts. Effective beam width about 20°. Range, varying up to 190 miles on later types, is presented on a CRT - the bearing of an aircraft sought by rotating the apparatus until the reflected pulse produces a maximum response on the C.R.T. and is read on a scale connected with the turning mechanism.

WURZBERG: was originally designed to operate on a nominal frequency of 560 mc. Consists of a 9 feet diameter solid paraboloid which acts as a reflector to a small aerial dipole mounted on a stem protruding from the centre of the bowl. The paraboloid can be elevated and the whole apparatus (including the cabin) rotated on its turntable. The effective beam width varies up to 19° in the later types of the equipment. The beam is directed by manual movement of the paraboloid for bearing and elevation, until the signal response on a C.R.T. is at its optimum, the data being read on visual scales connected with the turning mechanism. The range of a detected aircraft is displayed on a C.R.T.

GIANT WURZBERG: is a central Unit of G.C.I., also used in aircraft Reporting Service. Consists of a 24 feet diameter paraboloid of open girder construction covered with wire mesh. A small aerial dipole is mounted and probably rotates on a stem projecting from the centre of the paraboloid whilst another small aerial system is erected on top and is reached by a fixed ladder; the latter aerial receives recognition signals from the night fighter. The paraboloid can be elevated through gears and levers by a motor, whilst another power facilitates the rotation of the whole apparatus, including the cabin. Owing to the size of the reflecting paraboloid, an aerial dipole fixed in its focal plane will produce a very sharp beam of effective radiation of about 1/2° width and therefore the area of sky seen at any moment is small. This disadvantage has been overcome by using a "split" technique, whereby the aerial dipole, instead of being fixed, is rotated slightly off the axis of the paraboloid

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but still in its focal plane, so causing the beam to rotate around the principle axis of the paraboloid. The rotating beam gives increased area of scan, greater accuracy of direction and an indication of the way it is off the target.

JAGDSCHLOSS: uses a very large horizontal aerial array, very high electric power and a presentation something like the Allies P.P.I. The aerial array is continuously rotated. In the main aerial, the dipoles are about 40 inches long, with a spacing of just slightly less, which would give a wavelength of about 2 meters. The dipoles are of the broad band type, about 8 centimetres in diameter, the band width is about 30 mcs. The main array is horizontally polarized. The I.F.F. array is a simple broad band aerial designed to work with the German I.F.F. (RUCE 25A).

The Allies, as can be expected do not allow free and easy use of this early warning equipment and so a brief word on the countermeasures taken against them is best given here. Airborne Mandrel equipment which was at first used on a small scale throughout the main force, and now concentrated in ten squadrons in Bomber Command, is principally responsible in looking after the Freya and Jagdschloss early warning devices. Being a jamming device, it is used in such a way as to lay down a jamming screen of protection for main force aircraft and thus effectively discourage the accuracy of these particular types of early warning equipment.

Carpet II is an airborne jammer designed to interfere with radar equipment of the Würzburg type. The equipment can be set to sweep a particular band, and on the reception of a signal, the automatic sweep is arrested and a noise modulated signal is transmitted on the received frequency.

In conclusion, we should like to say that although this is but a brief start, we will attempt to bring you further "thumb-nail" sketches of the various radar equipment, in future issues.



WOES OF MECH. & I. MERCHANT

In comes the Mech with a tale of woe,
It's flashing, tripping, will not go,
All day long I slave and sweat,
Over this supposedly, faulty set.
With pliers and iron in my hands,
My muscles stand out like knotted bands,
I test it here, and scope it there,
No sign of a fault anywhere.
And so I give it an O.K. check
Swearing softly at a clueless mech.
Two days later, the same tale of woe,
It's flashing, tripping, will not go.

by L.A.C. F. O'Neill
R.C.A.F. Station Craft.

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EQUIPMENT

These issues affected by the change over from H.2.S. IIB to IIC or IID are having their own equipment problems these days. Aside from the fact that the Indicators T.184A are controlled by Headquarters Bomber Command, there are certain items which are obtained through normal unit stores procedure. These latter items, although not controlled, are apparently in short supply and so far I.O.R. demands raised by Units concerned have produced only moderate results. Tuning Units type 207A fall under the "hard to get" heading but it is hoped that the supply of this item will shortly improve.

Speaking of I.O.R. demands, it is well to remind you here that I.O.R. means Immediate Operational Requirement, and therefore must not be abused by rendering demands of this nature for every type of item required. But when you do raise an I.O.R. demand, you should use it to the full extent by continually keeping a check on the situation at your Unit Stores. This can all be stated simply as "play ball with Equipment and Equipment will play ball with you".

Yes, Switch Units T.274 are scarce. We are doing everything possible to obtain sufficient to modify all the Group aircraft - but the supply is very sticky and the latest allocation is that Group will only receive a quantity 45 per month for the next couple of months, when at that time the situation is expected to improve somewhat.

Action has been taken with the Radar Equipment people at Command to obtain a few Power Units T.651 and Junction Boxes T.231 for the conversion of the H.2.S. trainer T.54A so that it can be used with the Ind. T.184A. The G.T.S.P. has given this problem a well thought and no serious obstacle is envisioned.

A.M.O. 1869/43 - Defect Reporting

Sorry follows - but we feel that this subject must be brought up again mainly because there has been considerable controversy at Units on the value of defect postagrams.

The story has been pretty well explained in "Achtung Radar" (remember?) but we might add that conclusive proof as to their value is the fact that quite a few replies have been received of late from Air Ministry Sigs. 7. The main point is simply that you must keep the defect reports coming, for until the number of failures received by A.M. exceed the number expected for any one particular component, no action will be forthcoming. When action is started, don't expect miracles, for the next big problem is usually that of manufacture and supply of the required equipment.

Another point is that replies from A.M. generally quote an R.T.I.M. that is not held by Units. The reason for this is again simply one of supply of equipment, and Command will not release an R.T.I.M. until the equipment position is such that it can take care of your demands when you raise them. Again when you have the R.T.I.M., demand only for your requirements so that the demands of other Units will also be realised as well as those for yourself.



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One final word on this subject (we hope). Part X of A.M.O. A869/43 specifically asks what modifications to circuit previously incorporated, and it is most important that you do not ignore this particular section as it may have a decided bearing on the cause of the fault. It is obviously necessary for you to quote the R.T.I.M. number of the modification to make it clear to those concerned at AM., and in this connection it is hoped to supply all Units with a complete list of the corresponding R.T.I.M. numbers for all Bomber Command Radar Manual Modifications.

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CENTIMETRE TECHNIQUE COURSE

by Sgt. James, - Leeming

"What bents me", said Ginsberg, "is how he knows just which blackboard to rub off!"

He was referring to Dr. Huxley, the mathematical physicist at T.R.E., who spent three lecture periods filling, rubbing off, and re-filling blackboards with incomprehensible calculations for the bewilderment of six Radar representatives from 6 Group and eight assorted types from the Fleet Air Arm and R.A.F. units.

The course lasted six days, Classes began at 9 A.M. with a break for lunch from 12:30 until 1:45 and final dismissal was at 6.

The morning was divided into three periods with a space from 10:15 - 11:15, which was designated for study, usually used for the perusal of the morning prints. A few determined characters remained immersed in their Waveguide Manuals, but the majority used this period to come up for air. Another lecture followed the study period, and Jane had to be hidden away in the Magnetron Manual while the mysteries of hollow tubes were laid bare. What happens in them things shouldn't happen to a dog, believe me!

The afternoon began with another lecture followed by a short break for tea and sandwiches. (the tea is very sweet and the spam sandwiches are highly recommended). A lab period, reminiscent of those at University, rounded off the day. (The experiment in the far left-hand corner of the lab, the one with all the lights, is a honey!) For those who like using Log tables and drawing graphs, this period is tops.

The final day began with the usual lecture. Following it, the class was shown movies on A.C.I. (T), Lock Follow, A.S.V. Mk.XII. In the afternoon, accompanied by a lecturer, a neat re-haired gal of about 24, the class travelled to an R.A.F. Home associated with T.R.E., where the latest Radar developments are given their initial installation and test in aircraft. There we saw several bench sets in operation, ranging in variety from the American S.C.R. 720 and A.S.H. to the latest British 3 cm. gear.

This course on Centimetre Technique, in the opinion of the majority who attended it, is a MUST for anyone with a Ph.D. in Physics:-----otherwise, you've pretty well had your time!

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STOP PRESS FLASH

F/L "Sonny" Waters has just received word of his repat. Good luck and Good Sailing "Sonny".

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SWITCH UNITS TYPE 207B

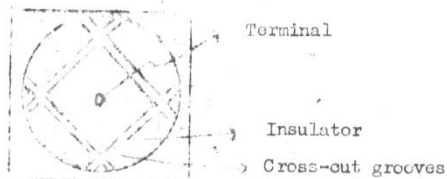
There seems to be considerable confusion over the modifications to Switch Units T.207B as regards the position of the B and C switch. The G.T.S.P. have tried to iron out the difficulty in consultation with W/O Fairbotham of the Command Radar School who has suggested the following procedure:

- A - earth bottom end of 10 mile zero Pot.
- B - switch in C position when using Ind. T.162.
- C - switch in B position when using Ind. T.184/184A.

BREAKDOWN OF FILAMENT AND PULSE TRANSFORMERS

Filament and pulse transformers continue to be a great source of trouble around the Group. L.A.C. Rudak, Skipton's H.2.S. bench man, claims to have had considerable success in the prevention of this fault by a simple but sound mod.

Moisture in the T2R will quite often cause arcing across the filament or pulse transformer forming a carbonized path which if allowed to build-up would eventually result in breakdown of either transformer. Thus, when arcing is first observed by the D.I. party, the T2R is brought into the workshop, the carbon path is removed, and with a hack-saw a rectangular groove $\frac{1}{8}$ " deep is cut in the insulator around the terminal in the following manner.



This then provides an insulating gap, also a path for any accumulated moisture to circumvent the terminal itself.

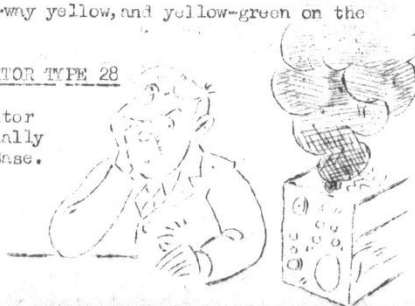
INDICATOR TYPE 184A

With Indicator Type 184A, there is one important modification which should be done before the initial run-up.

Pin 17 of the 18-way yellow is connected to -300v from its internal power pack. Coming in to the indicator on pin 17 of the 16-way cable via yellow-green of the tuning unit 207 is +300v stabilized from the receiver. This, then puts 600v across the anode load of $\frac{1}{4}0\Omega$ in the Rx and will cause the resistor in the anode load to burn. The modification is to remove lead connecting both pins 17 of the 18-way yellow, and yellow-green on the tuning unit 207(A).

MODIFICATION TO IMPROVE FOCUS OF MONITOR TYPE 28

In the present wiring of the Monitor type 28, VCR138, A1 and A 3 are internally connected and taken to pin 10 on CRT Base. However, in some of the recent



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VCR 138's it has been found that A3 is connected to pin 5 causing a bad astigmatism and consequent defocussing. The following modification has been found successful, by the test-gear party, to cure this fault.

- (i) remove leads from pin 7 (metallising and pin 14 (A 1))
- (ii) connect pins 5, 7 and 10 externally and join to junction of R.37 and R.38.

REPEATER MOTOR DRIVE COTTER PIN

No doubt many of you have experienced broken cotter pins in the repeater motor drive. The coupling is loose and considerable strain is put on the pin itself, eventually breaking this pin. Topcliffe have solved their trouble by drilling a larger hole in the coupling and replacing the cotter pin with one of the larger and stronger type.

NO. 63 BASE SAYS:-

For those who have found that the correct setting of the saw-tooth phasing potentiometer (VR500) for the bright-up circuit in the Waveform Generator is usually fully clockwise and then some, IAC Ed Kellett, of Leeming's R. & I. Section, has found that putting a 5K resistor in series with VR.500 and R.563, puts the correct setting at about the centre of the potentiometer. This allows for an easier adjustment of the bright-up phasing control, instead of setting it fully clockwise and then trying usually in vain, to get it approximately right with the P.P.I. Radial Adjustment on the Switch Unit.

Cpl. "Bill" Smith of No. 63 Base Major Servicing Section has produced a power-driven megger which is very useful, but not original. His set-up utilises a Scanner motor mounted on a board beside the megger and run from the bench D.C. supply. The megger is quite a load on the motor, but a gearing-down system has overcome this difficulty and the whole shebang works fine. R.M.S.S. are finding it very handy for checking cables on the new modifications, and it would seem possible to use it in aircraft as well, when snags are encountered on R.2.S. cabling.

R.C.A.F. EASTMOOR OFFERS THE FOLLOWING "GM"

When fitting IIC equipment, P/Sgt. "Wally" Hill says careful tracing of leads is required as some near the R.T.U. are short deal ends.

When set is switched on and a spot only appears on the screen try interchanging the 2-6 pin leads on the well stabilized scanner.

The 6 H.P. Douglas P.E. set 4ZY/1000 with the 62 Base Electrical Officer's modified suction pump, works quite satisfactorily on IIC or the Scanner, but causes a pulsating trace on Geo.

L.A.C. Swayzie has discovered a source of H.2.S. - P.R.F. interference on the Marconi. Apparently a space between the ferrule and seating on the W.297 plug (Mod. to T2R) could not be closed by the collar on account of excess Lanolin in the plug, hardening during the recent cold snap. Arcing happened to occur in the plug, the radiation escaping through the space.

SCANNER COVERS

When the Lanc X was first modified for H.2.S. the Middleton boys designed their own scanner cover which was a great improvement on the inverted bath-tub effort at that time. The mod. was submitted through the usual channels and approved by H.Q.B.C. for use in Lanc. X aircraft, with the assurance that possibly a Command mod., would be issued. However, something went wrong somewhere and action is now in hand to find out whether or not a Command mod., has been issued.

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The Skipton boys while in the process of converting to Lancaster I's took one look at the old bath tub (in the aircraft of course) and decided this was not for them. A trip to Middleton convinced them even more, and so they too have submitted the full story with diagrams with the hope that Command will approve it as a mod. for all Lanc. aircraft.

The plywood cover for Halifax aircraft as submitted by R.C.A.F. Craft, has been approved by Command as a mod., which can be incorporated on Halifax aircraft throughout the Group. As 62 Base will likely retain Halifax aircraft for some time yet, the mod with the necessary diagrams was passed to them for incorporation in their aircraft if so desired.

FISHPOND TRAINERS

Since the time that the Middleton boys first pushed out the story of constructing a synthetic Fishpond trainer, many hours have been devoted by the mechs throughout the Group on ways and means of improving upon it.

Skipton offered up the "Skiptraten" which is a very satisfactory three valve effort, and now the Linton boys come along with their version which uses the Phantastron circuit of the Fishpond Indicator modified to provide a sharper return. A second valve is introduced which is simply an inverter and amplifier, the output being used to trigger the Fishpond range marker circuit.

We understand that the trainer is a very neat effort and we hope to print the full story along with the circuit diagram in next month's issue.

Incidentally, word was received this month that the T.R.E. Fishpond trainer will likely be available within a few weeks. It is understood that this trainer works in conjunction with the H.S. trainer T.54, which may be a bit of a drawback. However, more about this when we have had a chance to see just what it does and how it does it.

TOPCLIFFE MEN MERCHANTS BUSY AGAIN:-

A mod known locally at Topcliffe as "Charlies Headache" can now be published. It is designed to facilitate D.I.'s by eliminating the need for removing any plugs from the V.C.P. during a D.I. Also, to avoid dragging the jenny leads through the kite, a plug, wired to take the power from the jenny, is mounted near the rear escape hatch, so that it is only necessary to start up the jenny and plug in the jenny lead to the remote aircraft plug. A small junction and a switch in the Navigators position enables either a Gee or an H.S. D.I. to be carried out without changing V.C.P. connections.

The main mod. consists of a small 6-pin plug added to the upper right hand corner of any V.C.P. A relay, energized from the jenny D.C. supply, and located in the V.C.P. is wired so as to automatically feed the jenny D.C. and A.C. supply to the V.C.P., while at the same time breaking the A.C. supply when the jenny is running. As soon as the jenny stops,

the relay is re-energised, breaking the line from the remote aircraft plug and automatically completing the normal aircraft A.C. and D.C. supplies to the V.C.P.

The mod has been passed on to Command and it is understood that the people there think favourably of the whole idea.

Cpl. "Howie" Steel of 1659 H.C.U. - came out with a mod to the Gee R.F. Units. It consists of a small light (V.C.P. green type) hooked to the 6v filament and mounted on the front of the R.F. Units, along with a marking of the type - either 24-25-27. Provides for better identification of R.F. Unit as well as a check on the A.C. volts.

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BASE BOOST

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HEADQUARTERS TYPES

With Mark IIC and IID H.2.S. being introduced into the Group this month, the Trouble Shooting Party has been busy trying to keep ahead of the game.

Sgts. Shepherd and Howarth not only took in the W/O Fairbatham course at Linton during the early part of the month, but they have also been spending a good deal of time working hand in hand with Sgt. Gartner in order to get all the gun on the roll stabilized scanner. W/O Ginsberg was otherwise engaged - he spending his time ginning up on centimetre principles at the T.R.E. course. On his return, the "Pif" looked much the worse for wear - but claims it was due to the strain of following Dr. Huxley's 'simple' mathematical explanation of "impedance concept in wave guides" condensed to 13 blackboards. We are wondering if the 48 in London just after, didn't have something to do with it.

The Group Test Gear Party now have a corporal in their ranks with Lloyd Sirett now sporting two stripes. We offer congratulations on his well merited promotion and are looking forward to a real "do" to wet them properly.

W/O Ginsberg has been seen wearing his zoot-suit around H.Q. block since his return from T.R.E. He claims it helps him feel up to his new job as Radar II in the absence of E/O "Bud" Brush who is away for a well earned 9 days leave.

PASTY TITLES

Sgt. "Shop" Shepherd has just returned from a leave in Scotland. He evidently didn't realize that Scotch comes from Scotland or else he believes in being well prepared, for we distinctly heard a gurgling sound emanating from his suitcase as we waved him on his way.

Sgt. "Bud" Hall has just left us for a 9 days leave. Look out London - you're due for a beating (wonder if our M.T. section approves?)

Miss W. Mary Dempsey, the capable compiler of the Radar News, found herself strictly behind the 8-ball the other day, having gone on a dry off with Radar II's key. This caused no end of consternation among our officers, and we doubt if our Mary will try that one again.

NEWS PROJECTIONS.

According to news received by W/O Ginsberg, P/S "Jim" Brooks spent over five weeks on leave followed by the choice of a discharge or that of coming back. Apparently most of the lads chose the former and several were posted to Trenton to await discharge. Latest word, however, indicates that Jim is now at Glington taking a thirteen weeks course. He has not yet heard from P/S Scott or any of the others, but expects to meet them there when the next course begins. According to Jim, most of the men on the course are completely cheered, and some are even of the opinion that 6 Group wouldn't be such a bad place to come back to.

W/O Partridge, the ex-Middleton D.S.S. i/c has received his discharge.

E/L "Stan" Able ex 64 Base Radar Officer,



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has completed a course at Clinton and has been posted to a station somewhere in Canada.

Will any one who has heard from any of the lads back home, please submit the pen to Reder News, so that it can be published in future issues for the interest of all concerned.

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NO. 76 BASE

No. 7 GROUP

BASE MAJOR SERVICING SECTION

With the welcoming of February this section has begun to blossom forth according to 7 Group plan but Sgt. Fred Shirley devouring large quantities of aspirin, is wishing that "Spring" would have been a little late this year".

Cpl. MacDonnell has been missing all the fun but gaining extra quills with a brief stay at Canadian 19th General Hospital. He has now gone off for a short leave.

"Mac" McEachern who has been chasing faults in the Dalton Gee Training room wanders why the Gary only goes over to inspect the place when a certain M.T. Driver is on the job.

Cpl. Don Murray, after a brief stay at Millloton, has joined our small band. He is a former Ground Tech who is now busily absorbing the "on" on airframe gear.

Errol Schroeder wanders off alone on his by passes but returns with a very self-satisfied look. We wonder, how deep still waters do run!!

Two W/Ops, McWhite and Mitchelmore who recently joined the section, are a little perplexed by the men with whom they are deemed to associate.

TOPCLIFFE HIT-BITS

At the moment F/O Doug Neff suffers from a bad attack of spring fever - the trade of interior decorating reveals itself as one with great possibilities for radar wacks.

We feel that the basic petrol ration "obtained" by the above will see him headin' for the tall timber as occasion allows.

L.A.C. Herb Hawley, who is on his way to God's country (in the East) was given a reusing send-off via the Ripon "Ship" by a dozen members of the inner circle - Good luck Herb - wish we were going with you. .

The recent quest for starting instructions - for Douglas L200W Jennies, would be appreciated by the damaged and bewildered heads of the section especially by L.A.C. Spicer who was recently attacked by a particularly violent one.

Since 8 pseudo van drivers are complete with licenses we still can't quite explain the close association of two certain Waaf drivers. Could Tommy Clowes and Tabby tell us?

A Middleton type of Fishpond trainer is in use on one bench trainer and working quite satisfactory. A Skipton type using the Ht. marker is also under construction and let try-outspoint to success, To hold R.F. Units in place with ease and prevent damage caused by falls from the

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stowage unit, we have fastened across the front of the stowage unit a piece of elastic cord - formerly used on Mk. II I.F.F. aeriels. This does away with the necessity of locking the units via the locking pins - an awkward job at best. This has been L.A.C. Pimms contribution to the Radar world.

Our two synthetic H.2.S. Trainers continue to pile up the hours. The old one sure is suffering from wearing out of parts. However, until a replacement is possible our L.A.C. (Okanagan kid) Murray Thomson, continues to Mod., and prod it into serviceability.

Cpl. Willie Mears is again about to enjoy his well-earned(?) leave - the glint in his eye may mean nothing since we hear a certain Doris is off to Aldershot to entertain a Canadian soldier!!

NO. 62 R.C.A.F. BASE

This has been one of the busiest months since we first started converting to VI type aircraft.

First, the building of the Fishpond Trainers designed by Linton and B.M.S.S. mechanics using some of the features of both the Middleton and Spinton machines, to provide what seems to be the closest yet, simulation of the real thing as seen up in the air by the wireless operators.

Finally, the introduction of the Mark IIC complete with Roll-stabilized scanner and all. This started off with a bang by the arrival unexpectedly of 23 Halifax aircraft complete with Col. W. R. Russell's modifications to the IIC.

With the help of W/O Coates and Sgt. Gartner from Bomber Command, test equipment was designed and manufactured by B.M.S.S. Bench sets were changed at each station and training was organized and started by Bomber Command's W/O Fairbotham and Sgt. Jamieson, at Linton; the classroom and test rig being accommodated in Radar Pool Stores.

As fast as the equipment began arriving, B.M.S. mechanics modified, tested and delivered the boxes and a fitting program was started simultaneously at Easthor, Linton and B.M.S.S. Introductory lectures were then given to the Radar/Nav types and a start made on aircrew training.

Snags appeared in plenty and it was necessary to originate several modifications which are on their way to Command now. In the meanwhile a detailed information ^{document} prepared by W/O Fairbotham is being used and should help considerably in coping with present problems.

62 BASE

So you think H.2.S. Mark IIB is pretty complicated stuff eh, well brother you ain't seen nothin' yet. It all happened a couple of weeks ago, suddenly someone said "62 Base is going to have H.2.S. Mark IIC", the next day we had it in more ways than one. This was the first Base in Bomber Command to fit IIC, although 4 Group have the equipment now, and the problems it has presented have been innumerable.

The first five aircraft arrived before the equipment and unfortunately had to be issued to the squadrons unfitted. However, to date ten aircraft have been fitted here and there are being finished by the Squadrons.

Shortly after receiving the first A/C, W/O Fairbotham arrived at Linton from Bomber Command, complete with IIC bench set and roll stabilized scanner,

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and set up shop in Base Pool. He has been running a three day IIC conversion course for 62 Base and 4 Group Mechanics, so far L.A.C. Stretton from B.M.S. is the top man on the course, running away with a mean 100%.

The boys in Base Pool are having a lot of fun these days too, after completing all the necessary mods. on Mark II equipment they found that 50% of it had to be demodded for use with IIC.

P.E. sets have presented a major problem. To D.I. a roll stabilized scanner a vacuum pump must be provided to operate the gyro. The pukka motor driven pumps were very slow in coming from Bomber Command, so the Base Electrical Officer was consulted and he produced a temporary effort using a IX generator as a motor to drive a Pesco A/C vacuum pump. The motor and pump are mounted on a 42Y/1000 P.E. set and the whole thing is mounted on a 42Y/800 trolley. The mere mention of P.E. sets in the presence of "Slim" McLaughlin enlarges the lives of everyone within a 1/2 mile radius.

Cpl. Ted Deymen thinks all V.U. personnel must be colour blind. How else, he says, could anyone colour code the red cable green and the green cable red.

We had a visit from 100 Group this month in the person of P/O Gray. He said he had heard such a wonderful line from the 6 Group C.S.O. and the 62 Base Signals Officer when they were down there, that he had to come up to see for himself how B.M.S.S. really worked. Incidentally, he was much impressed.

R.C.A.F. STATION LINTON

Station Radar is now experiencing the thrill of fitting Mark IIC H.2.S. in four new aircraft, sub-let to them by base Major Servicing. Bags of snags but our motto is still "non-panicum est".

Cpl. Utley is back from a wandering leave with his sister in Scotland. He is looking well so she must have been a restraining influence on him.

P/Sgt. Daniels, Cpls Lantry, Vennes, Cherney, Longwell and LAC's Hopper and Arz are now experts on Mark IIC, H.2.S. after a short course at Linton sponsored by Command.

"Chiefie" McKay returned from London Sunday with his report, safely tucked away. It provided a wonderful excuse for a "do" in York and all his boys gleefully co-operated. His leaving will be tough on the section but like all good airmen he has achieved his ambition. We begin to suspect the grounds for his report, though, because for a sick man, "Chiefie" did away with a very healthy amount of beer that night.

At last Radar R. & I. can boast of a proud father. LAC Giles rushed home to Newcastle on Feb 10th to find a nine pounds of son and heir howling for his Pappy. Needless to say, the top two buttons of Gordie's tunic were groaning under the strain.

L.A.C. Atkinson, our confirmed hermit has finally thrown in the towel. The wedding took place 3rd February, in London after LAC Kid Wilson, the best man, had managed to push the happy bridegroom into the church. LAC's Mays, Weesen and Raby were on hand to see that the knot was well and truly tied. Now that Cpl. Gourlay and LAC Atkinson have safely passed the big hurdle and LAC Hal Baldwin has set his date, we uneasily wonder who the next unfortunate will be.

After a five day Centimeter course at Great Malvern, Sgt. Kopperson has gone on leave to collect his scattered wits and sooth his shattered nerves.

PAUPE

15.

R.C.A.F. STATION THALTHEAR

Movements on this station last month have been like Jenny tracks in the snow: few and far between.

Cpl. Utley and Cpl. Gourlay are now enjoying the relative advantage of a transfer from Thalthear to Linton and vice-versa.

F/O Gamble is taking a well earned rest down in the sunny (we hope) south.

A relocation of four, namely, Cpl. Craig Reid, Cpl. Roy Rollins, LAC Desislots and LAC Macgillivray have gone to get the gun on why it is called the "Isle of Men".

LAC's Bourdonnais, Rankin and Lawson recently returned from leave spent in the snow drifts of South Wales, reporting the weather cold, their welcome warm. Cpl. Watt spent his leave in Scotland. Enough said!

Leeds, Bradford and Huddersfield still seem to be the Mecca of the devout.

F/O Scrutton, formerly of 432 Squadron, Eastmoor, is our new Fishpond expert and expects to spend many happy hours showing the aircrew boys how to play "Fighter-Bomber" on our new Stretton train (or is it Linton train!!).

Preparatory to releasing the Gee from our custody, we had a few W/T types in who learnt all about Gee D.I. in one easy lesson under the guidance of Sgt. P.S., a graduate of the Eastmoor School of Job Instruction. Sgt. P.S.'s motto is now "If the learner hain't learned, the teacher hain't taught".

One of the boys remarked on leaving: "Anyway, there are a lot of switches!"

Re reports:- Sgt. Round says he has one foot on the gangway, but an H.2.S. set on the other.

LAC Passet had the unusual experience of having the aircraft in which he was D.I.ing the H.2.S., suddenly fold its legs and buckle down. As the aircraft was running up, he made a bee-line for the closest door. Unfortunately he was slightly injured and is spending a few days in hospital, but we all look forward to seeing him back with the all gang shortly.

R.C.A.F. STATION EASTMOOR

The biggest news of the month was hearing about H.2.S. Mark IIC. We had never heard of it when "Swish" 432 Squadron had received several aircraft ready for IIC. Wow! this is a crash programme what'am'a crash programme!

Our first reaction was unprintable. When he saw the roll stabilized runner, F/O Senak was heard to mumble the cry of the famous Ki-Ki bird. A race then developed. Would the equipment reach us before we had a couple of mechanics trained on the gear? LAC's Hamilton and Estwick made the grade just under the wire. Cpl. Thompson and LAC Hainsworth took the next 3 day course while Cpl. Vibert and LAC Haire followed close behind.

To date we have fitted three aircraft, flown two, with good results on one and fair on the other. We expect bags of bugs the first week or so and hope to have a few tech. tips before press time.

Congratulations to LAC Hainsworth upon the birth of a bouncing nine pound 'pollio'. Naturally, cigars were passed around. We don't know whether it was the cigars or not but shortly afterwards LAC's Estwick, Prizak, Platt, and Bishop passed into sick bay in twos and threes. LAC Prizak was in twice but fortunately all are out now excepting LAC Bishop to whom we wish a speedy recovery.

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NO. 63 R.C.A.F. BASE

Congratulations would seem to be in order for our Base Major Servicing Section. Between January 3rd and 8th February, they accepted no less than 44 Lancasters for Skipton, and we reckon that is no mean accomplishment. They had to work hard, and they had to work long hours to do it, but the results are worthy of the effort. Skipton are now completely equipped with Lancaster aircraft, and these aircraft are all modified Col. 7, including Gee aerial type 329 and aerial loading unit type 51, Gee indicators repositioned into the Navigator's table, Scanner speed Control unit type 477, and remote modulator switch unit type 274. Owing to the short supply of 274's there are a few aircraft without them, but the Base boys modified the Modulators and strung the required lead in all the kites, so that all Skipton have to do is connect the unit up when they get them. -----Good show, B.M.S.S.!

You may imagine our Base Major mechs. are having it soft now, but, (yes, there's a but) they aren't. They're running up all the new sets they can possibly lay their hands on. The purpose of this is two-fold. Firstly, we expect to see loads of new Lancasters landing at any minute, for Leeming, and we want to have as much gear as possible waiting for them; and secondly, the Base boys "want" to keep in the working mood so that they'll be able to breeze through Leeming's Lancs. the way they did Skipton's.

Then again, you may think that the boys at Skipton are having things pretty easy with all their aircraft modified for them, but they aren't either; or rather they won't be. They're getting in substantial supplies of Tuning Units type 207A, mounting trays, and connecting cables so that they'll be able to be sent to R.2.S. Mark IID in short order when Group get them some Indicators type 184. According to all the latest rumours from way down Allerton way, the indicators are practically on their way too. The IID installation is a high priority job, and Skipton won't have much time to themselves until it's done.

Don't worry, No. 63 Base is kept hopping on Radar too!

F/O Lamb, who has just returned from the Centimetre Technique course at T.R.E., is now on attachment to No. 6 Group Headquarters for a few days to see how things are done down there. We hope he enjoys his stay and profits by the bird's-eye view of Radar afforded him.

How to keep from getting old;--- Just ask F/L Waters when he's going home!!

BASE MAJOR SERVICING SECTION

Among the many and varied types who have been in to give us a much needed hand with the Lenc. acceptances, has been one "Modulator", Zuck, a Wireless Operator on loan from Station Signals. This guy can modify more Modulators in one hour than any other man in 6 Group.

After reading much on rehabilitation and post-war employment, a well known character at 63 P.M.S.S. has been seen selling oranges, lemons, etc.. It appears that our fruit magnate has quite a time getting his shipments in so that they don't clash with those of the local canteen. In this way he receives 1d. extra per fruit and makes a handsome profit.

We understand that wedding bells are in the offing for our own F/Sgt. Pri r. We extend our congratulations and wish you a happy married life Al.

R.C.A.F. STATION LEEMING

"Leeming goes to a party". The target (Red Lion, Wormald Green) had

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been "trilled" before, and therefore no HFF T.I.'s were needed this time. Learning R. & I. and D.S. sections turned out in strength. B.M.S.S. were given an invitation to join in the fun, but they declined with the exception of P/O Wilkins and P/Sgt. Prior. (Could it be that the Base boys have a no high-hat on us since commencing to work on Lancos) Also present were P/O Lamb, (you might say it was his coming-out party as far as Learning is concerned) and P/L Waters, as well as our own P/O Schlote.

Things were slightly different this time, with American Army nurses conspicuous only by their absence. Maybe they got word that we were coming? Once is enough even for Americans, apparently. Also P/O Schlote was unusually quiet; even coming back on the bus. He claimed he had a cold coming on, but we're still wondering.

The highlight of the evening was a mustache judging. The Daily Servicing men all made a bet some time ago as to which of them could grow the best mustache. Come Judgment Day (or night) and there were only 4 contestants, Cpl. Benson, LAC's Barrie, Guy, and Milton. The efforts put forth by these men were scrutinized very closely by the selected judges, and even handled with a view to appraising the texture, but a decision could not be reached. They were deadlocked. Finally it was decided that a female judge should be called to test for "Kissability". To the rescue came LAC Douglas "Junior" Crumpler with a sweet little innocent(?) A.P.S. Lieutenant. She refused to test for kissability, but gave the final decision to LAC Milt Milton, (the decision was bound to be popular). Cpl. "Buck" Benson was a close second, but fair hair doesn't show up well against a background of pink, does it, Buck?

Another quiet individual was Ed Kellett; he seemed to have lost that beautiful voice of his. Perhaps he feels in the background since he learned that Frank Sinatra has been drafted into the armed forces! P/S Prior stayed strictly sober, strangely enough. Or could it be that he was thinking of the fatal day, March 24th? Ain't love grand? Congratulations, "Al" and "Ed".

Anyway, all in all, it was a wizard party, and we are unanimous in raising our glasses to "bigger and better parties more often".

"NEWS FOR FOODS BY FOODS"

Grandford still seems to be No. 1 and favourite "day off town" for some of our boys. "J.C." Cameron has been down that 'a' way several times these past few weeks. He says her old man runs a pub; guess that reason is as good as any.

Marty Sawyer drifted down there not so long ago - sort of following up connections made at Xmas time when everyone was merry, jolly and such. His beef is that too many other jokers seem to know more than he does about what happened at Xmas time.

Artie Williams was finally persuaded to go on leave before the end of the quarter. To top off all his waiting, he had to lose most of a day getting one of those medical chits before he could leave the camp. However, we saw him get started at last over several of the best in the "Vic" in Harnegate.

Dave Gallery has been busy scheming and planning to see and do Ireland come next leave. If he makes it, we must hold an interrogation on his return and get the report that reputed Utopia.

R.C.A.F. STATION SUTTON-ON-SALE

The latest members of the Sergeant's Mess are Roy Inkster and Buck Moore. Showing them the way around that bar is Knobly Hermanson, who now sports a crown above his three heels. Since a certain Officers' Mess lance, Knobly is seriously considering the idea of changing his tunic for that of an erk, Drinking and getting paid for it appeals to him immensely.

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Wilfie Black and Johnny Felt are now in the N.C.O. class, having hoisted a couple of tops each since the last issue. Both Wilfie and Johnny Beard have gone overboard for Bradford and its pubs, while Dave Grievason and Johnny Felt have taken it upon themselves to prove to the members of their hut that the citizens of Metherby are hospitable and its beer is potent.

A welcome letter from Sgt. Morris Laprise arrived on the Station the other day. Morris went home about four months ago and is now stationed in Alberta.

Andy Crook is now on the Messing Committee and this gives him an excellent opportunity of looting off some steam every week. Incidentally, Andy surprised many an expert on the station by winning the duplicate bridge tournament.

The swing club run by Al Kolberg and Harold Brown has met with still more success. The club is now very much appreciated by a great number of people around here.

X?X?X?X?X?X?X?X

NO. 64 R.C.A.F. BASE

BASE MAJOR SERVICING SECTION

This month saw the completion of a Loran installation in a Canadian built Lanc. To those who are familiar with Lanc I and III's with Marconi W/T, this may seem to appear as a pretty soft touch but the Lanc X's with the Bendix W/T littered all throughout the navigators compartment, the big difficulty involved was to find available space for the Loran receiver. This was solved by repositioning the Gee V.C.P. and placing both it and the receiver under the Bendix Radio Compass Receiver rack. The Indicator was positioned as shown in B.C. Mod. 102. The trailing aerial was tapped into by a double-pole, single throw switch mounted on the left outer corner of the Weps's table within easy reach, making the operation of switching in either the W/T or Loran a simple matter.

As yet we haven't any detail about its operational merits, for it is new to the aircrew types as well as ourselves, so more about this later.

Lately the boys of this section have been undecided whether they should classify themselves as B.M.S.S., or an M.U., the reason being that the last half dozen Lancs on arriving here have been found unmodified for Col. 7 as well as Col. 9. As this has been a fairly common occurrence, it hasn't dazed us much but when two of these were found on arrival to be blisterless, cableless, and just plain radar-less from tip to tail it set us to wondering what 62 Base's body, who is supposedly stringing cables and stuff for 64 Base at 20 M.U. (Ref Radar News Dec. Issue) is really doing. Or is that the \$64. question??

At long last Sgt. Green, ("Groovy") has left the confines of Northallerton Hospital to be repatriated home on Medical grounds, although not fully cured yet. For the umpteenth time said Sgt. has sworn off Bacchalian pleasures, and assures us that early summer will find him soaking up bags of sunshine at the family's summer home. We all wish him the best of health in the immediate future.

LtC "Cookie" Cook just returned from a "Cook's tour leave" looking very wan, having covered Liverpool, Leeds and Manchester on the way to Torquay.

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L.A.C. George Wiers who has recently returned from a liquid leave in Elinborough and Newcastle once again assures us that Scotland holds nothing for him on Sundays. As a result, he has offered to trade places with any Daily Servicing type, since our Base has become a veritable M.U. However, we have appreciated the help of three repeat type Sgt. W/T Mechanics who are waiting for a boat home. They have been diligently learning the skilled art of stringing new kites.

L.A.C. Al Charon, the Base Gee King, has been seen soaking as many as eight Gee sets at once. Incidentally, all sets installed at 64 B.S.S., both Gee and H.2.3., are run for five solid days on the bench before being sent out on Squadrons. How are you other Bases combating this "equipment adolescence?"

R.C.A.F. STATION MIDDLETON ST. GEORGE

Cpl. Murray's stay on this station was all too short, we certainly wish him luck and happy days at his new station Topcliffe.

L.A.C.'s Lotellier and Weigand are now fully settled here, and from all reports they like M.S.G.

Cpl. Patterson is now sporting his long awaited third - congratulations "Pat".

F/S. Desrochers, returned from leave recently, adding more mystery (as far as the boys here are concerned), regarding a certain girl in Newcastle - and his intentions.

Hope that F/O Dug Neff of Topcliffe, was able to cope over the week end, as a few of his valuable assistants were seen in a certain town during that time, and they sure had the holiday spirit - names on request.

Sgt. McArthur, spent a week at T.R.E. recently, along with F/O "Mike" O'Neill of Croft, taking lectures on cm. gear.

Visitors recently were F/L Roche of Ferry Command mail service, and Sgt. Blair from Cranwell, both showing keen interest in RADAR, as outsiders.

L.A.C. Weigand is at present in hospital, suffering from 'flu, hope to see him up and around soon.

F/L Myer of H.Q.R.C. carried out a liaison visit to the Station the latter part of the month and took in the L.M.S.S. and Station R. & I. sections as well as the Radar training rooms. We know he went away happy, for at the least he took away with him some Bendix gear to be used for some of his test-gear experimentation.

While servicing a set of Gee, taken from a Liberator of the USAAF LAC "Jock" Wilson noticed that the signals gain was about 75% greater than he had seen on the bench before. After searching for a reason he found that the cathode of the video amplifier in the receiver was connected to earth. As an experiment this station installed a similar set in one of its aircraft, and the report from the navigator on operations was encouraging to say the least. He was able to pick up a pulse on the Rhine chain. When no other navigator on that trip saw the pulse, and on R.F. unit 25, he was taking fixes, while using much less than the usual gain. The chief advantage seems to be that this mod increases the signal only, and not the grass, therefore giving a much better ratio.

Loran is fitted in one aircraft of 419 Squadron. The trips up to now have been a little short to give us any real gen as to how it will work. Once the aircraft get out of "gee" range we will get a better idea of the performance.

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CROPPY QUICKIES

The big news this month is the forthcoming signals party which is taking place at the Craft Sea sometime this month. All types and characters of signals personnel are invited. The next issue will reveal all the details.

The leave situation has slowed up somewhat until the start of the next quarter. Don McKenzie has moved off in the general direction of Glasgow. Where else would a man with a name like that go anyway?

Harold LeMay is nursing a strained stomach at Northallerton and should be on sick leave by the time the Radar News is out. Various Radar Mechs are now checking their aches and pains and weighing up this sick leave angle.

Hewam Levi and Joe Walsh payed flying visits to a cousin and Brother respectively who have just returned from Holland and Belgium and from the stories we hear, Brussels is some place!

The latest clue to this repatriation business is brought out by Sgt. Lullifson who is using astrology to fix the date. "I see by the stars Tolly" will give you the latest gen. Our McFae is singing pianissimo these days "Oh where oh where have my little teeth gone, oh where oh where can they be".

Brighton bound Becker is heading in that direction. Jim hopes the weather will be warmer down there.

We are wondering what the Wombleton lads teach the aircrew. The other day one of their kites was diverted to our station. Jerry Blair and John McEdward were pushing the Jenny past the kite as it was "revving" up. What was their surprise when one of the Wombleton types stepped out of the kite and hailed them, said he "Say! our air pressure is low, would you mind bringing over your machine and boosting it up for us?". The look on Jerry's face received is left to your imagination, and so back to our walls and a few "Huzzah Stalins".

WANTING TEN MILLS.

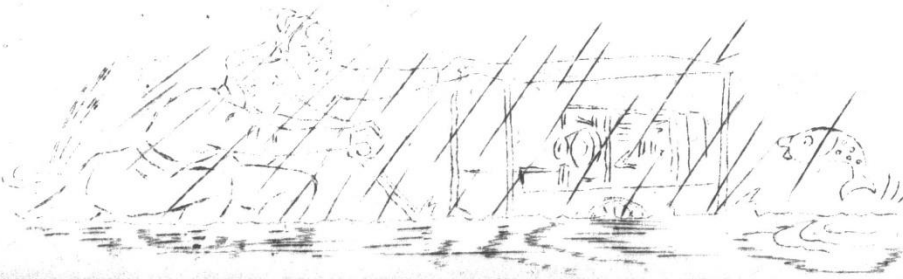
Will Lloyd Christoff, if he is still around No. 6 Group, drop a line to his old man's side-kick Phil Charron?

CROPPY QUICKIES

This month brings Cpl. Fred Dennis into the spotlight of our thumb nail sketch of the month. Fred hails from Preston, according to him the best little town in Ontario. Just to help those from the west, it is situated near Hamilton. An ardent sports fan before getting tied up in the radar racket, Fred played a lot of basket-ball and rugby, worked for a motor firm in Preston. The lad has ambitions of owning his own, someday.

Coming to Clinton via technical school he arrived over here in the fall of '42 and got in some jenny-pushing hours in five Group.

Fred is now one of the R. & I. boys. He has changed his athletic pursuits from Rugby to dancing. Darlington Debs and Newcastle dolls all know our Fred as a premiere dancing master.



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LOOSE SCREWS

Overheard before the Leeming Party:-

Ed. Kellett: "Is "Lanby" (P/O Tommy Lamb) coming to the party?"

F/O Schlote: "No, I wouldn't trust her with you wolves!"
(in a dreamy mood)

Topcliffe pass the following for your approval -

Armourer to Radar Mech: "Why the big smile pal, going on leave?"

Radar Mech. to Armourer: "Nop- but the Sarge is!"

+./+./+./+./+./+./

New heights in interrogation were attained by L.A.C. "Put" Putnam 1659 H.C., when on his enquiring from a Navigator as to the condition of the H.2.S., received the reply, - "Don't know!! but the Toronto Leafs beat the Rangers 3 to 2"....

DOING THE DAILY D.I. GRIND

by L.A.C. F. O'Neill
RCAP Station Craft

The Radar mechanics will find that sometime during his daily sojourn at the Section, there will arise a problem that has to be faced by all men with a stout heart and a brave front.

Mind you, the problem doesn't arrive very often, but when it does, the R.M. should be fully prepared for it. In short the problem of D.I.'s

It is well at this point to explain that the symbols D.I. do not stand for "Daily Inconveniences" or "Dinking Institute". Oh no! they stand for, well, they just stand for D.I.'s.

So sometime after you have had your "coop of tea" and checked in around 10:30 A.M. and chiefie pleads with you to go out on D.I.'s (that is after you have lost the toss), you can feel content, knowing that you have a working knowledge of what he means.

Of course D.I.'s are not what they were back in 1942 when all signals personnel had to take their turn at not only inspecting their own equipment, but also the pigeons. One who has never D.I.'d a pigeon, examined their feathers, their landing gear, their take-off and landing speeds, has never really felt the full joy of a daily inspection.



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However, regretfully in time we lost the pigeons.

One still feels that something has been lost to the signals sections since the pigeons have gone. I miss their happy companionship or drinking bouts at the "Dropped Quarter" and their hearty laughter at the jokes that we all told.

But back to D.I.'s. If it is at all possible you must always remember to have your companion (you know, your mate), push the jenny. This can be done in devious ways, tying a shoe lace, looking for non-existent sixpences that haven't been dropped, and dozens of other methods that the sharp mechanic will pick up in a few turns around the perimeter track. One of the best methods is to develop a bad back or callouses on the heels.

By this time, you will have reached the first kite. Now by still using the bad back and your head, you will be able to convince your fellow companion (I cringe at the use of the word 'friend'), that it is his turn to crank the blanket, -blank pardon me - the jenny. If at the end of thirty minutes turning there is no joy, the quickest and easiest solution is to disconnect the belt, and turn the alternator over by hand. A good mechanic will have no difficulty in turning it over at the required RPM.

Now comes the biggest problem of the day. - that of getting into the kite. On looking through the door you can always find the plane cluttered up with flight mechanics, riggers, instrument men, armourers, and the subsidiary trades. Why these men are even allowed near the kite, is a complete mystery to the RADAR mech. But there they are, and if one is to carry on with the D.I. Procedure, they must be cleared out.

The quickest and most novel method to do this is to let loose a loud bellow from the door, "N.A.A.F.I. UP" then step back quickly, or one will be trampled in the rush. Due to the acute shortage of staff these days, this method must not be used more than twice on the same kite, or there will be an even greater shortage of personnel, than at the present time.

Sometimes the cables will not be carrying the necessary power. Here again your companion can be very useful by acting the part of a lead between the alternator and the V.C.P. The best method of approach on this delicate subject, is to say casually, "Here chum, hang on to this and this". Failing to get his co-operation, one can use his powers of concentration. It is remarkable what the powers of concentration can do, if used in the right direction. One must really concentrate, and in time the electrons can be induced to flow into the V.C.P. without the aid of leads. This method of course takes time to acquire.

Now comes the actual D.I. procedure. I have known RADAR mechanics, who had no need to use jennies or power, but just used their imagination. That is, they would imagine what should be on the screen, and there it would be. They fixed no end of faults by this method. They have long been repatriated home, and are now back in Canada resting peacefully in institutions where all radar mechs will eventually wind up.

If after turning on all the various switches and pressing all the odd buttons that clutter up the aircraft, and eventually a green streak appears somewhere in the equipment; then turn it off immediately and sign the 700 - after all during these wet and windy days, that is all that can be expected of one set, and you are very lucky to get any response at all.

You now continue on to the next kite, and go through the same procedure, but by this time ops have been scrubbed anyway. So your best bet is to return to the section, and make your day's wages by tossing shillings with chiefs, always making sure of course, that you are using your two headed coin.

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"THERE GOES OLD WIENS AGAIN —
ALWAYS CLOWNING,"

MAR. 45

APPENDIX No. 180 to
R.A.F. FORM 140
H.Q. No. 6 (R.C.A.F.) GROUP
DATE April 45

180.

REVIEW OF Navigation

HELLO NAVIGATOR...
HOW DO YOU LIKE
NAVIGATING
THE GAGGLE...??



RCAF GROUP

SECRET

REVIEW OF NAVIGATION - MARCH, 1945.

OPERATIONAL

The month of March has seen an almost maximum operational effort on the part of 6 Group, having undertaken 22 bombing raids in 31 days.

Ten of these operations were "gaggles", so that for almost 50% of the time, the responsibilities of upholding the Group standard of navigation this month fell to a handful of picked crews. These navigational teams of Pilot, Bomb-Aimer and Navigator are to be commended for the fine spirit of leadership which they have shown. For, while in some cases, timing was not all that could be desired, it is appreciated that the restrictions placed upon the leaders were considerable, and their responsibilities heavy.

A comparison between night operations and gaggle is impossible from a navigation standpoint, as the former represents the results of individual effort, while the latter is the work of one or two crews determining the results for everyone else. Individual squadron timing and position-errors are, therefore omitted from all gaggle totals.

A glance at the summary below shows that with the exception of three raids at the beginning of the month, namely, Chemnitz, Hemmingstedt, and Dessau, a very good standard of navigation was maintained throughout March and even with the inclusion of these operations, a substantial improvement was made over the results of last month. These figures are encouraging indeed, and it is interesting to note that if the three above-mentioned raids were excluded, the months averages would have been:

Timing Error	Mean Pos'n Error	% out of oval	% more than 1.5 min. off T.O.T.
.7	4.3	29.6%	10.9%

TIMING

A comparison between 12 night operations made in March with 16 for February shows a reduction of the monthly average timing error by 40%, which is a significant improvement. The operations on Chemnitz, Hemmingstedt, and Dessau were excluded from the comparison. The Zweisbrucken operations were also excluded from the comparison because of the large percentage of aircraft bombing out of the oval. The percentage of aircraft bombing out of the oval was 41% for February and 89% for March.

TRACK-KEEPING

This item also showed marked improvement over last month's figures, dropping from 8.06 miles to 5.3 miles and the percentage of aircraft out of the five mile ovals was reduced from 44% to 35%.

WIND VECTOR

This figure, based on all 22 raids, improved from an error of 14.3 m.p.h. to one of 13 m.p.h. Two raids on Hamburg and one on Dessau produced the greatest vector errors, due largely to difficulties in fixing, and, but for these operations, the average for the month would have been 12 m.p.h. which is a mark to shoot for in the future.

All these items, which are the essence of operational navigation, have been firmly taken in hand and Bas. and Station Nav. Officers are to be congratulated for their efforts in stressing and re-stressing their importance to all crews. The figures tell the story.

SQUADRON STANDING

In spite of the fact that 429 Squadron was stood down operationally for the last half of the month and is therefore assessed for its work, or, 8 night operations, it achieved a very fine record throughout and wins top place hands down. 431 Squadron improved from 10th place last month to 2nd place in March, while 415 Squadron which attained 3rd place was 6th last month.

It will be noted that the Halifax Squadrons completed 10 night operations and 7 gaggles each, and the Lancaster Squadrons were on 8 night operations and 5 gaggles. The fact that 431 and 415 Squadrons each operating different types of aircraft, attained 2nd and 3rd places respectively, indicates that a fair comparison between Bases is possible.

SUMMARY OF TARGETS FOR MARCH

DATE	TARGET	NO. OF A/C	AVERAGE TIMING-ERROR (minutes)	% MORE THAN 1.5 MIN. OFF T.O.T.	% WITHIN GROUP T.O.T.	MEAN POS'N ERROR. (Miles)	% OUT OF OVAL	WIND VECTOR ERROR (m.p.h.)	GROUP AVERAGE WINDS
1.3.45	Mann	198	Gaggle						
2.3.45	C. L. A.	100	1.1	14	92	8.0	91	24.1	315/58
5/6.3.45	Cherbourg	100	2.0	42	78%	8.6	52	15.3	333/74
7.3.45	Hemmingstedt	97	1.4	32	84%	7.2	67	15.5	259/61
7.3.45	Dussau	68	1.7	28	90.2%	9.2	55	15.2	356/63
8.3.45	Hamburg	87	1.0	18	73%	4.7	52	17.7	356/97
11.3.45	Essen	186	.8	16	91.8%	4.2	51	19.3	005/80
12.3.45	Dortmund	186	.5	10	73%	3.7	22	13.6	005/32
13.3.45	Wuppertal	91	.5	8	67%	5.0	23	11.1	353/19
14.3.45	Zweibrucken	191	.5	5	99.9%	2.6	22	10.0	006/19
15.3.45	Gastrop-Rauxel	69	Gaggle					9.2	315/10 1/2
15.3.45	Hagen	131	.5	4	98%			13.6	247/15
18/19.3.45	Witten	74	1.2	13	100%	3.8	31	10.1	240/25 1/2
21.3.45	Hemmingstedt	108	.8	14	95%	6.2	22	9.2	200/37
21.3.45	Rheine	88	Gaggle					10.6	295/46
22.3.45	Dorsten	97	Gaggle					10.6	316/32
22.3.45	Hildesheim	82	Gaggle					9.5	246/14
24.3.45	Gladbach	95	Gaggle					14.9	265/15
24.3.45	Gladbach	74	Gaggle	Halifax				9.8	163/37
25.3.45	Hannover	92	Gaggle	Leno.				11.1	172/25
25.3.45	Munster	88	Gaggle					14.3	195/19
31.3.45	Hamburg	176	Gaggle					11.0	182/25
				AVERAGE	= 89%			18.0	302/50

STANDING OF SQUADRONS FOR MARCH, 1945

SQUIN.	STANDING	SORTIES (NIGHT)	GAGGLES	TOTAL	MEAN T.O.T. ERROR	AV. TIMING ERROR	% OFF TIME	MEAN POS'N ERROR	AV. NAV. ERROR	% OUT OF OVAL	AVERAGE VECTOR ERROR	POINTS
429	1	8	3	11	.7	.8	16.4	3.7	5.1	26	12.2	24.8
431	2	8	5	13	.25	.9	11.5	4.6	5.8	32.7	15	26.3
415	3	10	7	17	.7	1.0	18.9	3.8	5.6	33	11.5	27.9
428	4	8	5	13	.5	.8	12	5.9	5.8	34	13.1	28.1
427	5	5	4	9	.3	.7	13.6	5.9	4.6	30	12.6	28.3
433	6	8	5	13	.5	.9	18	3.9	5.8	39	12.6	28.4
434	7	8	5	13	.5	.9	13.8	4.9	5.9	36	15	28.7
425	8	10	7	17	.3	.9	15.7	5.8	6.2	37	13.6	29.5
424	9	8	5	13	.7	1.0	17.7	5.2	6.2	32	15.2	30.2
408	10	10	7	17	.4	1.0	16.6	5.3	6.6	40	12.6	30.5
419	11	8	5	13	.5	.8	9	5.4	7.2	45	13.4	30.6
432	12	10	7	17	.6	1.3	21.5	4.6	6.4	33.5	12.2	30.7
420	13	10	7	17	.7	1.0	19.0	5.4	6.0	37.6	12.4	30.9
426	14	10	7	17	.6	.9	11.8	6.0	7.5	38.	11.9	31.0
				GROUP AVERAGE	= .6	.9	15.4	5.3	6.1	35	13.0	29.2

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REPORT ON THIS MONTH'S LOGS

Logs from 428 and 420 Squadrons have been marked at this Headquarters this month. Many examples of good sound navigation have been found, but there have been too many cases where the poor results obtained arise from sloppy workmanship. It is obvious that if some navigation teams can keep their aircraft on track and on time, the others should be able to do the same, barring equipment failure.

Particular points noted are:-

Timing

Timing errors are in practically every case accounted for by navigation errors such as not adhering to Group concentration times, not taking prompt or adequate action to counteract wind changes by altering airspeed, poor track-keeping and overshooting turning points etc.

Track-keeping Generally good. The best track-keepers make frequent checks of E.T.A.'s for turning points.

Log Form

The following errors in log form still persist:

- (1) Not logging Q.F.E.
- (2) Not logging altimeter settings.
- (3) Not logging regular Z and compass checks.
- (4) Not completing log for all turning points especially for last leg or two before the target.

Winds

Generally quite well spaced and quite accurate when compared with Group average. Navigators should find a wind at the target, which, on long trips, may be the last opportunity for some time of obtaining a good wind and may be interpolated for regardless of height changes.

A.P.I.

More use could be made of the A.P.I. in finding regular D.R. positions when beyond Gee range, and also for homing out of the target area. The procedure for resetting the A.P.I. downwind by whole degrees should be more carefully followed.

Nav. Aids

There appears to be good co-operation in most navigation teams in the use of Gee, but there is still not enough use being made of H2S.

In general, examination of Navigators and Bomb-Ainers' logs and charts shows that considerable work is being done, and that with a little more effort a real improvement can be made.

TIMING AND TRACK-KEEPING

This is a graphic representation of a comparison between each Squadrons' navigation and that of the Group average for each of the night operations flown during March. It has been compiled on the point system decided upon at the last Navigation Conference. As will be noted, the Group average is shown as a straight line, and the performances of individual Squadrons as deviations above or below it according to date.

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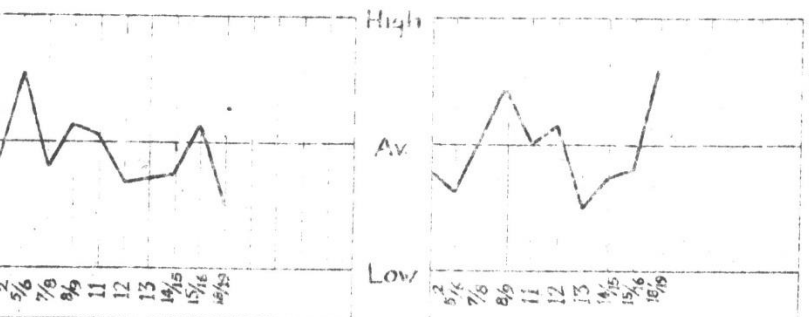
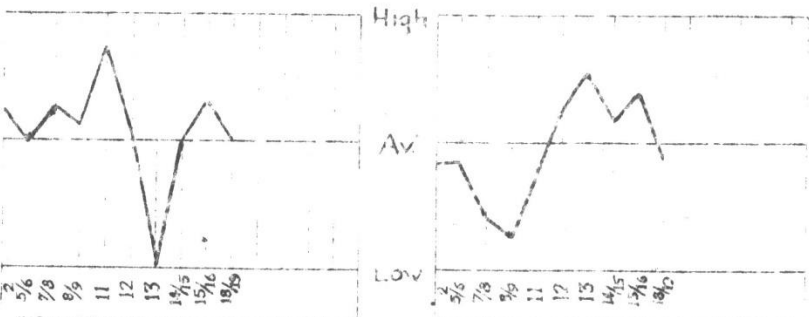
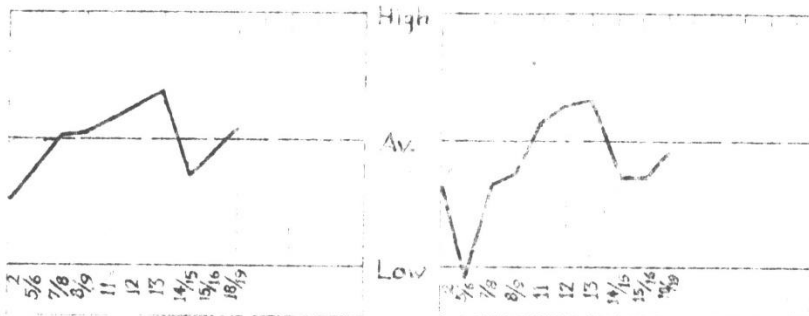
Figure

STANDARD OF NAVIGATION

(MARCH)

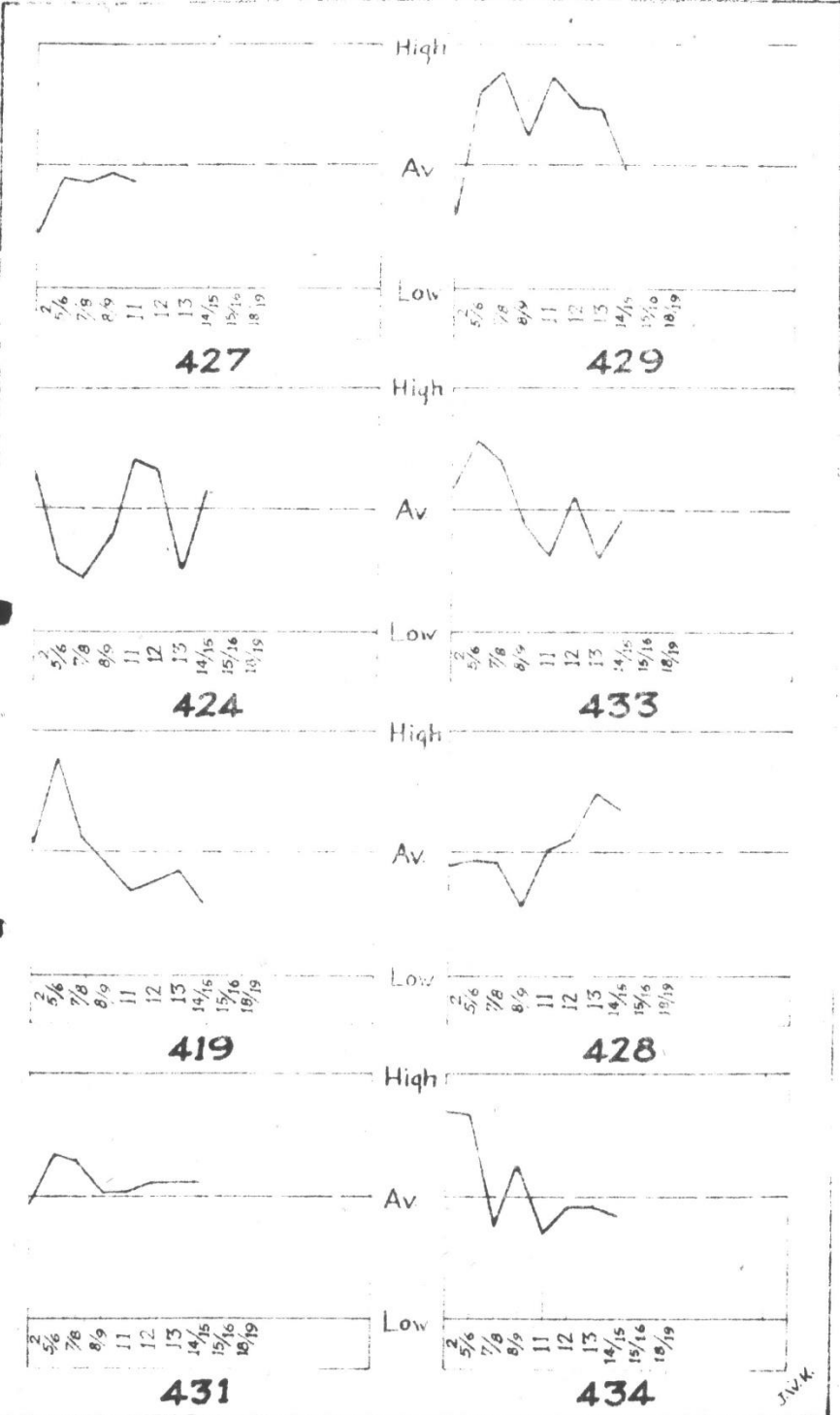
IN SQUADRONS COMPARED WITH GROUP AVERAGE

NIGHT OPERATIONS ONLY



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TIME WASTING

Recently, an investigation was held into various methods of wasting time, with a view to possibly changing our present method. Risk of collision, accuracy, simplicity and other points were considered. The more accurate the method, the shorter will be the stream, and therefore, the less risk of loss by fighters, and the better the bombing. The method must be simple; otherwise "finger trouble" will enter in, lengthening the stream again.

Risk of collision, using the present method, is very low indeed, as proved by actual known losses due to collision, and also to calculations made by O.R.S., No. 6 Group. Even this risk has been cut almost in half by allotting 300 feet height bands.

Since the 60-120 degree method (now in use) is undoubtedly the simplest and most accurate, and since risk of collision is so low (although slightly higher than some of the other methods, it has been decided to continue using this method with the exception that, where defences permit, crews should waste time on that side of track to which they lie the closer.

In certain cases, it may be necessary to use an alternative method, consisting of overshooting a corner, but this will only be used when the 60-120 degree method is impracticable.

It must be stressed to all crews, the importance of wasting time accurately and at the positions laid down, flying at correct height, and keeping a sharp look-out during the time wasting process.

TIMING

Timing, more often than not is the direct result of tracking. If that tracking is good with a minimum of course alterations, the timing will be good also. If poor and erratic, the timing will be uncertain.

To make navigation easier it is essential that the aircraft be on the required turning point at an exact time. This, regardless of past tracking will place the navigator on track where he immediately takes an A.P.I. reading and fix, draws in the course line and notes that the A.P.I. readings fall upon it. Subsequent fixes will allow the exact tracking to be clearly seen. An immediate alteration of course for the next turning point should be made (if the T.M.G. is off, or does not coincide with the required track), thus eliminating what would later require a snap alteration of course. Too often a turning point is over or undershot, but the navigator often logs "DR. position X S/C position Y", and sets course on the original required track using a good last found wind. Later, upon taking a fix a considerable distance off track, it is not known whether it is the result of a poor E.T.A. plus probable turning error, or as is often assumed, that a sudden change of wind has occurred.

If a course correction for the next turning point is made immediately the fixes show the T.M.G. and only small course alterations are necessary. This allows ample time on a relatively straight track for systematic and accurate revised E.T.A.'s, doubly checked from found W/V's and G/S's as measured between the fixes.

OPERATIONAL WIND FINDING

O.R.S.: The following is a report furnished by Dr. J.W. Hopkins, 6 Group

A previous report on the above subject dated 21st January, 1945, surveyed the accuracy with which winds were determined by operational aircraft of this Group on Ruhr attacks during December, 1944, taking as a criterion the last wind found before reaching the target. It was discovered that there was considerable variability in the speed and direction of such winds found by individual aircraft on the same mission. This led to an average vector deviation of 17.3 m.p.h. which was the same as that obtained during the first three months of 1944, when operational W/V had to be determined without the assistance of Continental Geo stations and when only a minority of aircraft were equipped with A.P.F., and hence was considered to be excessive under present conditions.

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One factor undoubtedly increasing the discrepancy between individual "last found winds" was variation in the distance along track at which they were in fact determined. In order to overcome this source of error, the procedure was adopted during February of including in navigational briefing prior to operations a specification of the area in which such winds were found. Station Navigation Officers were also instructed to devote increased attention to ground training in plotting and computing. The present survey, covering all February operations, was accordingly undertaken to investigate the effectiveness of these measures.

The average vector error in "last found winds" for February was 13.8 m.p.h. a decrease of 20% from the December figure of 17.3. Moreover, the former figure comprised three deep penetrations (Bohlen, Dresden and Chemnitz) for which the average vector error was 16.6 m.p.h. If these are excluded in order to make a more direct comparison with the December results, the February average error is reduced to 13.4 m.p.h., an improvement of 23%.

The improvement is reflected in the incidence of individual errors in the two months, which was as follows:-

	December	February
Vector Errors of 10 m.p.h. or more	73%	61%
" " " 20 m.p.h. " "	32%	22%
" " " 30 m.p.h. " "	11%	6%
" " " 40 m.p.h. " "	4%	1%
" " " 50 m.p.h. " "	2%	1%

It would appear that during February, on the average, about 88% of navigators found winds in the areas specified.

In general, therefore, it may be said that a gratifying improvement in this aspect of navigation has been recorded. Considerations of both navigation and bombing accuracy make it desirable that this improvement should be maintained and extended. Thus, in D.R. navigation a vector error of 10 m.p.h. may lead to a timing error of up to 3 minutes in an hour's flying. The use of an incorrect wind setting on the Mark XIV bombsight introduces aiming errors which, in the case of bombs of T.V. 1000 released from 18,000 feet, amount to 175 yards for each 10 m.p.h. of vector error.

The practicability of still further improvement is demonstrated by the results obtained by those navigators selected, by reason of their ability and experience, as wind finders for Group and Command Broadcasts. Records of the broadcast winds actually received from these navigators during February indicate they were determined with an average vector error of 10.4 m.p.h. for areas west of longitude 9°E and of 13.2 m.p.h. for areas east of 9°E. Both of these figures are about 3 m.p.h. below the corresponding average for the Group as a whole.

As might be expected, the quality of wind-finding tends to improve with operational experience. Classification of a representative sample of some 650 individual vector errors according to the number of operations previously completed by the crew of which the navigator was a member give the following results:-

	Number of Previous Operations			
	0 - 4	5 - 9	10 - 19	20 or more
Average vector error, m.p.h.	17.0	14.4	13.4	13.1

On the basis of these figures, Squadron Navigation Officers would be well advised to stress the importance of accurate wind-finding when dealing with freshmen crews. However, the average error recorded, even for experienced crews is, as noted above, still susceptible of further improvement.

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As was noted in the preceding report, the relative bombing errors introduced by setting either the individual "last found winds" or the broadcast Met. "bombing wind" on the bombsight computer require to be investigated. A comparison has therefore been made between the broadcast wind the average last found wind (the latter adjusted by a Met. correction, deduced from the "2330" Met. winds, to allow for the fact that it is determined 20 minutes flying time before the target) for a total of 25 operations during February and the first half of March.

Of the foregoing operations, 13 were directed against targets west of longitude 8°E and south of latitude 52°N, involving only shallow penetrations beyond the range of actual surface and upper air observations made in occupied territory. For these, the average vector difference between the mean last found wind, corrected as described, and the broadcast Met. "bombing wind" was 7.8 m.p.h. On the average, therefore consistent use of broadcast bombing winds in preference to individual last found winds on operations in this area should tend to increase the concentration of bomb fall about the point of aim.

A similar comparison between the adjusted "last found" and broadcast Met. winds for 6 targets involving medium penetration (8°- 10°E, south of 52°N.) resulted in a mean vector difference of 15 m.p.h. As this is of the same order as the error of wind-finding by individual aircraft in the long run, the use of broadcast in preference to individual last found winds (or vice versa) for bombing in this area should have little effect on the average concentration of bombing achieved.

A further 6 operations classified as requiring deep penetrations (west of 10°E. if south of 52°N., east of 8°E. if north of 52°N) gave an average vector difference of 18 m.p.h. between the broadcast bombing wind and the adjusted mean "last found" wind. This again is only slightly in excess of the average error of winds found by individual aircraft in these areas, so there is no appreciable differential effect on the average accuracy of bombing would be anticipated from the setting of either type of wind on the bomb-sight.

Summary and Conclusions.

- (a) The accuracy of "last found winds" has increased by about 2%.
- (b) About 90% of navigators determined these winds in the areas specified.
- (c) The possibility of still further improvement is shown by the fact that those navigators selected by reason of their ability and experience as wind-finders for Group or Command broadcasts recorded vector errors of 3 m.p.h. less than the average for the Group as a whole.
- (d) Winds found by navigators at the beginning of their tour were on the average about 30% less accurate than those found subsequent to the completion of 20 or more operations.
- (e) A comparison between "last found" and broadcast Met. winds indicates that on short penetrations (west of 8°E and south of 52°N.) use of the latter for bombing would on the average tend to increase for concentration of bomb fall about the point of aim. On medium or deep penetrations, it would appear that under present conditions there is on the average little to choose between wind-settings derived from either source as far as bombing accuracy is concerned.

NEW AND SCREENED NAVIGATORS

S/L Hugot has suggested that in the interest of all navigators in the Group, it would be a good idea to publish the names of all new and screened navs. on each squadron each month. In this way, the disposition of friend and relative would be brought to the attention of all concerned.

Accordingly, it is requested that all Station Navigation Officers, submit a list of "movements" for each month, in time for publication in the Review.

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GROUND TRAINING - MARCH

Considering the large increase in operational sorties flown by the Squadrons this month, training hours are well up. The grand total is only 220 less than for February, but the Group average is still below the target of 600 per squadron per month. Extra training required by the conversion from m.p.h. to knots accounts for a fair proportion of this month's training.

425 Squadron is to be congratulated on its fine showing.

Squadrons at the bottom of the list should "get cracking". In this connection it should be mentioned that training in 431 Squadron was hampered by the carrying on of building repairs.

Log marking hours are recorded for the first time this month. The comparison indicates that on some squadrons, more time should be devoted to this work.

SQUADRONS	DRY SWIMS		SPEED-UPS		TOTALS FOR MARCH (Dry Swims, Speed-Ups)		LOG MARKING (Dry Swims, Speed-Ups, Log Marking)	TOTALS FOR MARCH (Dry Swims, Speed-Ups, Log Marking)
	FEB.	MAR.	FEB.	MAR.	(Dry Swims, Speed-Ups)	MAR.		
425	290	380	189	234	614	393.50	1007.50	
408	132	197.30	217	358.15	555.45	143.20	699.05	
432	312	420	181	95	515	161	676	
426	207	195.40	197	337.30	532.40	129.15	661.55	
419	386	381	178.50	194.30	575.30	81.30	657	
434	339	317	400	201	518	115	633	
415	84	317	100	136	453	177	630	
427	247	269	226.30	209	478	150.30	628.30	
424	312.45	286	219.35	167	453	100.45	553.45	
433	278.50	297.45	166.50	123.20	421.05	66.40	487.45	
428	338	258	186	114	402	30	432	
420	189.30	268	11	69	337	75	412	
429	30	31	320	204	235	169.30	404.30	
431	353	72	316	86	158	70	228	
Total	3529.05	3689.25	2938.45	2558.35	6218.00	1863.20	8111.20	
Group Ave.	252.05	263.30	209.55	182.45	446.15	133.05	579.20	

NO. 6 (R.C.A.F.) GROUP NAVIGATION CONFERENCE

22ND MARCH, 1945.

A description of squadrons analysis charts was given by W/O Powell and it was decided that a lithographed copy of the charts are to be included in the navigation Review and in the Monthly Summary.

Group Captain Lane addressed the Conference and congratulated the navigation officers on the excellent standard of navigation achieved in this Group. He also stressed the urgency of solving our most serious problem; that of improving the concentration on the route out of the target.

This point was discussed and it was agreed that since a great portion of fighter opposition is to be expected from the target back to well within our territory, the problem of meeting this opposition with a compact bomber stream, is acute. However, tactical, as well as navigational consideration must be made.

It was suggested that a concentration point should be laid on approximately 20 minutes past the target and as well, on deeper penetrations, a second concentration point further along route be supplied. To enable crews to reach this point on time tactics out of the target area should lay down a relatively slow speed so that aircraft bombing late can by an increase in air-speed catch up with the stream. A low speed would also provide a greater variance of airspeeds and give navigators a better chance of coping with adverse winds.

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It was suggested that whenever possible, Group Headquarters would lay down the corners which may be out to make up time. Station Navigation Officers were told that if this system came into affect they must watch carefully that the crews did not abuse these safety measures. Squadrons are to co-operate by reporting crews which fly at greater than briefed speeds. The concurrence of the S.A.S.O. is to be asked on this suggestion.

Base Weekly Review

The navigation section of the Base Weekly Review to be standardized by the three Base Navigation Officers.

6 Group Squadron Navigation Assessment

It was agreed that the analysis system as previously laid down, be continued.

Group Timing.

A short clarification of the method for keeping timing errors for individual navigators on the Squadron was discussed.

Navigators on the Squadrons are to be credited if better than Group Mean T.O.T.

It was also agreed that the tolerance, .5 of a minute be discontinued.

Navigational Interrogation Forms

It was the general view that the present form now forwarded to all stations would reduce to a minimum the time spent for interrogation of each navigator proving the interrogation is properly organized.

Radar Reports

It was brought to the attention of Station Navigation Officers that the Radar Reports are under revision.

Con. Unit Reports

S/L Johnston of 76 Base agreed that the reports on new navigators were necessary and should continue after 14 days on the Squadron.

A.P.I. and D.R. Compass Failure Reports

The A.P.I. and D.R. Compass Failure Reports sent in by the Station Navigation Officers serve as an independent check for the Group Electrical Engineering Officer.

Form GN. 15

Station Navigation Officers were asked to co-operate in regards to the completion of the GN. 15's including in the monthly report, good work done and a report on boobs.

Concentration Times

It was agreed upon that the present system of laying on concentration points and times on route to target be continued and a greater effort be made to have crews adhere to them.

Time Wasting

Several methods were explained and discussed but it was decided to continue the original procedure of 60⁰ - 120⁰ dog legs.

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Confidential Assessments

Were kept by the Squadrons on each navigator. Any suggestions to the improvement of the old form or ideas as to a new form, should be forwarded to this Headquarters.

Broadcast winds

Station Navigation Officers have been notified that the 6 Group Policy of handling Bomber Command Broadcast wind finding would come into effect when group signals were ready.

It was agreed:-

- On shallow penetration - use broadcast wind.
- On medium penetration - use Group broadcast wind as corrected by upper air met.
- On deep penetration - Bomber Command Broadcast wind.

Note: It has been noted from statistics that the difference between the vector errors of broadcast winds and the last found winds, is very small. Therefore, the latter will be used.

It was also noted, that although the Group average vector error was approximately 14 m.p.h., its vector error incurred by new crews (5 trips or under) were averaged at 17 m.p.h. The solution to this lies in more plotting on the ground.

P.P.I. Photography

Squadron Leader Foley, addressing the conference, thanked all the Navigation Officers for their co-operation with the Radar Nav's in bringing about a considerable improvement in P.P.I. Photography. However, in many cases of failure, it has been chiefly due to the Navigator's ignorance of the P.P.I. Camera operations, and to reduce this occurrence to an absolute minimum, all navigators are to undergo training. It was also stated that all navigators should be fully trained in the tuning of the H2S set for P.P.I. Photography. In the photographic proforma forwarded to this Group the Navigators' part in the success of the photograph should be included. If the navigator has actually taken the photograph his name should be listed, and credited for it.

At Navigation briefings the proper times and places should be considered for the use of H2S, Gee or both.

Bombing

Squadron Leader Vogan suggested that a lecture be given to all Navigators and Bomb-Aimers by the Bombing Leader, pointing out why we are using various wind settings and the wind effect on stick bombing.

A minimum of 15 minutes, before the target, has been laid down by the S.A.S.O., as the time when the Bomb-Aimer should enter the nose to prepare for his bombing run.

Now that the Jettison Goggles have been disconnected, the importance of the Master Bomb switch being on, is to be stressed to all Navigators and this applies especially in cases of emergency.

Navigation Briefing

There was a general discussion on requirements of Navigation briefing and an interchange of ideas and methods used by various Stations. It was agreed that there is often insufficient time after tactics to give a proper navigational briefing and that the need for more information before tactics is acute. The Group N Form is to be sent out as soon as possible, not later than 1 hour before tactics, and if subsequent corrections or additions are required, they will be passed by scribbler. Squadron Leader Judah suggested that a short, concise nav. briefing be included in the main briefing and that an interest in navigation be cultivated in all crew members.

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Training

Station Navigation Officers are to see that Bomb-aimers are given dry swims, on Gee and H2S plotting. A.P.I. readings will be taken and logged every 6 minutes by either navigator or bomb-aimer. The bomb-aimer is to report plotting time separately. Bombing Leaders have been given a form to fill out to indicate whether the error was due to the navigation or to the bombing in practice bombing. In future, the wind to be used on the bomb sight is the Broadcast wind.

A.P.I.

Reference was made to a suggestion from 433 Squadron for homing by A.P.I. A letter, reference G/S.816/Nav. dated 29th March, 1945, was despatched from this Headquarters to all concerned illustrating this method. It was also agreed that the G.N.O. would contact Command Group Instruments to look into the possibility of a position error in the A.P.I.

Training for 2nd Tour Navigators

It was realized that 2nd Tour Navigators were placed at a disadvantage in not having sufficient up-to-date instruction during their non-operation tour. However, due to shortage of crews it was found impossible to allot them an extension of training. With a view to improving the situation it was agreed that the matter be brought to the attention of the G.T.I. by the G.N.O.

Navigation Failures

The Group policy of leaving navigation failures to the discretion of the Station Navigation Officers remains the same. The form Squadron Leader Hugot has devised will be put into effect.

Gee Co-Ordinates for Bombing Times

The P.F.F. System of a timed run from set Gee Co-ordinates was discussed and all agreed it should be given a fair trial. The introduction of this method will depend upon its results.

Bomber Command Squadron Navigation Officer's Course Workshop

The following is a report submitted by Flight Lieutenant Pitts of 408 Squadron:

A course of this kind, I believe, should have been started a couple of years ago. The course as a whole was well laid out and compact (for course number one). With the odd change, which was recommended by the members of course number one, combined with those of the next subsequent course or two, it should turn out to be a course well worth while.

The first course was made up of members from 1,3,4,5,6 and 100 Groups, two Squadron Navigation Officers from each Group. Most of us had a little get together the night before we were due to start on the course, and were rather skeptical, wondering just what it was all about.

However, after getting the introductory talk given by Squadron Leader Tophan, our minds were set at rest and we looked forward to an interesting two weeks. He explained what the course was for, and what they aimed to achieve from it.

The main syllabus of the course consisted of lecturing and lecture technique, section and office organization. On lecture technique, we were told how to prepare, consolidate, conclude and put over a lecture generally. Points to watch, such as, see what mood the audience is in; time of day; see that the audience is at ease and that the lecture is not dragging. All these points have to be watched to make a lecture a success. To see what we ourselves had learnt from these lectures, we were detailed to give a lecture of 15 minutes duration on any subject we cared to choose. Two lectures of 30 minutes duration, one being of a Navigation subject of our own choice and the other a detailed subject pertaining again to navigation. For the fourth lecture we did a mock briefing of 15-20 minutes duration. All these talks were interesting owing to the variety of subjects chosen. This more or less gave us an idea as to the

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method of Navigation used in each group, as well as the major aids and tactics used by the different groups.

All our lectures were assessed at the time by the lecturing instructor, as well as by a member of the course. This helped in the sense that any faults we had could be mentioned and pointed out at the time. I believe for this that we all came away with a better knowledge of putting things over in the form of a lecture.

Another phase of the course was section and office organization. Here, we more or less put together a model section, office and briefing room, incorporating ideas from all present. To make a better discussion of the subject, we all drew a plan (to a predetermined scale, of a navigation section or briefing room. All drawings were then looked at and the pros and cons for each aired. A number of ideas and layouts were seen from these drawings.

Log analysis was also on the agenda. For this we were given logs and charts from one of the Squadrons in 1 Group, to go over and make an assessment of. This was found to be not too successful, and it was suggested that for future courses the officers attending the course from the various Groups bring 2 or 3 sample logs and charts for comparison as to the systems of Navigation in the Groups.

Pre-ops and Post-ops duties were also dwelled on at the course. On pre-ops duties all were pretty well in agreement as to what should be done. However, as far as post-ops duties go, there was quite a variation. It seemed that post-ops is a group matter so no set system was given to us. However, all groups said what there duties were, so a general system was arrived at.

Training was another matter gone into very closely. Method and general training ideas were gone into. We were told or rather suggested a system to use to prepare a navigator for operations upon arriving at a squadron. A quick run over of all he should have learnt at conversion unit, to make all his cross-countries as close to an operational trip as possible, in regards to tactics and so forth. It was also suggested that a close liaison be kept between squadrons and O.T.U.'s in regards to the training of crews. This last was the general opinion of the members on the course.

We also received a general run over in some forms of administration, Law and Discipline; uses of different forms for ordering purposes. A filing system was also suggested, which more or less is similar to the one in use.

Taking the course as a whole, I believe that it was well worth while. It gave the opportunity for the Navigation Officers of all the different groups to get together, air their views and let us know just what each Group, in Bomber Command is doing.

Below is an extract from No. 64 (R.C.A.F.) Base Review No. 27. All navigators should read this very carefully and ask himself what he does in a gaggle formation.

Timing

With regard to timing, the week's most important feature was the failure of the HALBURG attack due to bad timing. This was most unfortunate indeed and considerable measures have been taken to prevent the occurrence of incidents of this nature.

Briefly, the navigation revealed the following weaknesses and it may be noted that these points can apply to all navigators.

- (i) Air Bombers must give Navigators T.M.G. as soon as practical on a new course and immediately it differs from T.M.G. required.
- (ii) Navigators having found two winds from different fixes in the same area are not to use the one nearer the net only because it more nearly approaches the net, but are to investigate the accuracy of the fixes concerned. If it is impossible to determine the more correct fix and no further information is obtainable, it is suggested that navigators D.R. using the mean of the two winds found.

Pauvre

- (iii) Navigators are reminded that the accuracy of visual observations is extremely questionable at height in hazy or cloudy conditions and radar fixes will certainly prove more reliable.
- (iv) With reference to Point (i) above, before receiving a certain T.I.G. showing the aircraft off track or having a track error, if no alteration of course be made, navigators must treat further fixes, if they show the aircraft to be on track, with the greatest possible caution.
- (v) Air Bombers, upon finding that their fixes disagree with navigators D.R. should immediately notify the navigator, who should then investigate the set operator's findings.

It may be noted that subsequent examination of individual navigator's logs and charts generally showed very little navigation done.

As individual navigators must always be responsible for the navigation of their aircraft, even, if following a Gaggle Leader, strict navigation procedure must be kept up, i.e. :-

- (i) Air positions taken every five or six minutes.
- (ii) If no fixes available, a D.R. position must be run up every fifteen or twenty minutes and an alteration to turning point calculated.
- (iii) Winds must be found every twenty minutes and used to calculate main courses and E.T.A.'s. If flight plan courses are flown, the gaggle will trail off track behind the leader.
- (iv) Navigators must endeavour to fly out calculated E.T.A.'s where practical, to prevent cutting corners and subsequent bunching.
- (v) Navigators must set up A.P.I. aiming to release point and must calculate an accurate E.T.A. release point to avoid mis-identification of the aiming point and haphazard bombing of scattered T.I.'s.

BOOBS AND BOUQUETS

The following notes are contributions to this month's Review by individual Squadrons. They are the first offerings of a system now in force, whereby each Squadron submits items of interest, particularly pertaining to operations. Bouquets are published to give credit to deserving navigators, who have made an outstanding show and boobs are recorded without mentioning names, to bring to light the incredible mistakes which can be made and to serve as warnings of the type of navigation to avoid.

CROFT

The high rate of efficiency which can be obtained by a smoothly functioning navigational team is ably demonstrated in the enviable timing record achieved by the crew of P/L V.L. 'Dad' Barr of Vancouver, B.C. The Barr skippered crew was screened following the daylight attack on Dortmund, 12th March, 1945.

Navigator of this truly 'gen' crew was P/O W.L. 'Andy' Anderson of Southey, Sask. His set operator and Bomb Aimer was P/O 'Aitchie' Wawryshyn of Winnipeg, Manitoba.

Off to a shaky start - they bombed eight minutes late on their first sortie - the accumulative adjusted timing error for the next 34 trips was 9.6 minutes, giving them what is believed to be a record average timing error of 0.28 minutes.

Of the total sorties flown, 31 were major efforts; the further East the target the better the navigation. Such distant towns and cities as Dresden, Chemnitz, Munich, Zeitz and Nurenburg were all attacked with 3/10ths of the allotted time on target. A 'ropey' trip to Dresden found this crew bombing one minute late.

Anderson and Wawryshyn refused to let the difficulties of navigating to time in a gaggle spoil their record and kept up the good work and results on four such daylight sorties.

Much of the credit.....

Pauvre

Much of the credit for this fine work is largely due to the high degree of efficiency reached by F/O Wawryshyn, in the operation and plotting of both Gee and H2S. On every sortie he returned with more and accurate H2S fixes - especially on the homeward route than the majority of his fellow tradesmen.

426 Squadron

Bouquet

Castrop-Rauxel, 15th March, 1945.

The target of Castrop-Rauxel on the 15th March, 1945, was successfully attacked and this success was no doubt due to the very good work of the Gaggie Leader's navigator F/O H.W. NEALE.

Timing - bombed .4 mins. early. All concentration points were strictly adhered to. Used very good judgement regarding airspeed, doing only one dog-leg of 3.5 mins. This was exceptionally good as the winds were light and variable.

Tracking - Very good. With a minimum of course alterations, tracking was kept within a 4 mile limit without the use of a snap alteration.

Log Form - Neat and complete with DRC checks and variation settings. T.A.S. checks were made. G/S checks and revised ETA checks made timing reliable.

Winds - taken at proper intervals. Light and variable.

A.P.I. - Used well with vectoring done properly and accurately.

Nav. Aids - Gee and A.P.I. used to advantage.

429 Squadron

Bouquet

Chemnitz, 5th March, 1945.

F/O Thornton - H2S u/s, so he used D.R. and Broadcast winds to bomb on time. When he obtained his first fix on the return journey he was 2 miles off track. Four wind-finders on Chemnitz supplied 16 winds despite heavy interference.

427 Squadron

Boob

Essen, 11th March, 1945.

Several navigators failed to check for type 27 RF Unit with the result, very poor range on Gee and poor timing.

420 Squadron

Boobs

Witten, 18th March, 1945.

One navigator, ignored concentration times and carried seven minutes in hand to the target where he was forced to do an orbit.

Log marked by Group.

According to this navigator's log he was airborne, S/O and took a fix 20 miles from Base on the same minute of time. He is on a course error by 44 taking him still farther from track.

/8 mins. later course.....

Paubre

- 1/ -

8 mins. later course is altered to the flight plan resulting in the time paralleling track 22 miles. Position "B" is missed by 25 miles where a 10 mile dog-leg is done without an ETA for any particular position enroute. Various courses finally brings the aircraft on track over the continent. One hour later a wrong course is given and flown straight for the target where, 19 mins. later, a position is reached of 23 miles from the target and 38 miles from track and 20 mins. before the T.O.T. With many alterations of course time was wasted and without a target R.T.L., bombing was 1.5 mins. late. Obviously A.P.T. was not used intelligently, otherwise these errors would never have been made.

425 Squadron

• Boob

Hemmingstedt, 7th March, 1945.

Pilot observed markers of wrong target and headed for them without telling navigator. By the time that the navigator caught the change in course, nine minutes had been lost which put the aircraft on the target alone seven minutes late.

433 Squadron

Bouqueix

Colgne, 2nd March, 1945.

S/L Mulhull - Geo u/s from Base and Radar silence was in force until about 30 miles from target. However, by making the utmost use of six pin-points and excellent met. interpolation, bombed the target with a timing error of nil.

F/L Boudreau - Completed 7 sorties during this month, one of which was gardening, two of the remaining 6 were razzles, one F/L Boudreau led with F/L De Wolter, as 2nd navigator. According to reports, this was the most successful razzle to date. The leading a/c was forced to give up their position very soon after the target due to heavy flak damage, causing the loss of two motors. On the remaining four sorties, F/L Boudreau, has an average timing error of -.25 mins., average vector error of 8 m.p.h. and an average nav. error of 2.7 miles.

424 Squadron

Boobs

Chemnitz, 6th March, 1945.

One navigator boomed very badly on this trip with all aids in working order and with the full knowledge of what he was doing. Went in and bombed the target at 15.9 mins. early. Action was taken by Officer Commanding 424 Squadron and this navigator was sent to Sheffield and his training time increased to five hours per day on his return.

Another bad boob on this operation, was done by orbiting, to waste time, which is a grave navigational misdemeanor in itself, but this navigator chose the last turning point before the target and orbited for fully 13 minutes.

/415 Squadron.....

Paurre

415 Squadron

Bouquets

F/O Johnnie Wynne - Led first "gaggle" on Mannheim, 1st March, 1945, for the Station. They followed as close to the No. 4 Group formation as seemed advisable, bombing 5 mins. late as ordered by the Master Bomber. The best part of the show was the bombing run which began about 50 miles from the target, leading to 091 true as called for by P.F.F. and continued and bombed on 091 true.

F/O Johnnie Wynne, again leads perfect "gaggle" on Dersten, 22nd March, 1945, timing was within the half minute and perfect leadership was displayed by their Navigation team in policing formation and allowing no aircraft to pass them even after bombing.

Chemnitz, 5th March, 1945.

F/O Alex Kufte - After all aircraft had taken off on set course, Kufte and crew were told they could do so, then, due to several crashes after take-off, the Base Commander phoned and asked that our spare aircraft proceed to the target. They took off 42 mins. after set course time and by careful corner cutting and speed increasing, they reached the bomber stream 0900 East and proceeded to the target bombing at H+2.

Boobs

Chemnitz, 5th March, 1945.

Timing was poor and inconsistent throughout route. They lost Gee early and did not make best use of H2S and API, resulting in bombing 6.4 mins. early. They bombed from 1500 ft. about datum height, pilot claiming he went up to avoid cloud, but no other crews found this necessary.

Rheine, 21st March, 1945.

Although the pilot on this particular crew is to be complimented on proceeding with his hydraulics u/s, and his under cart. down, the navigator was lax in checking E.T.A.'s and resulting in their bombing a T.A.F. target.

432 Squadron

Bouquet

Hamburg, 31st March, 1945.

F/O Roger Hebert excelled in leading the first "gaggle" for the Base. Out of Gee range, it was anything but an easy trip. They started using H2S at the enemy coast where they encountered appreciable wind change. From there to the target, they had to battle increasing and veering winds and with perfect manipulation on the part of the set operator they coped, with no trouble. They led the formation into bombing on the correct bombing lead, releasing their load .4 mins. late of the perfect T.O.T.

Boobs

Zweibrucken, 14th March, 1945.

This navigator was running O.K. to time, but pilot taking matters into his own hands misjudged the distance to T.I.'s, something which is very easy to do at night, and did an orbit 8 miles before the target resulting in their being 2 minutes late.

/Rheine,.....

Pauvre

- 19 -

Rhine, 21st March, 1945.

A 432 navigator contributed to poor crew co-operation by permitting a run-up on the wrong target. He made a late check and explained that "this is the wrong target" just as the B/A released his bombs. Another navigator from this squadron apparently had little to say on a similar experience when, in spite of good Gee checks and accurate D.R., the pilot insisted on bombing a T.A.F. target.

429 Squadron "BEVIN BOYS"

No. 63 Base, having operated quite frequently on mining operations, we feel that it might be well to mention something of the navigational tactics employed by experienced crews on gardening sorties, where careful navigation is required over the greatest diversity of topographical features: ranging from long legs over water to short legs over mountainous terrain, causing sometimes unpredictable and inconsistent wind changes.

The methods used by navigators do not always adhere to No. 6 Group methods used on bombing sorties, but vary with the tactical problems of the particular operation and the limitations of the navigational aids. Starting from base, standard methods of navigation are used. Fixes and single position lines (S.P.Ls) are employed until out of Gee range. If drifts over water are obtainable the altering on drift to maintain track is often advisable. D.R. positions every 15-20 minutes give the navigator quite accurate E.T.A.'s for coast lines and other H2S responses. As soon as H2S comes within range of coasts, an actual fix is obtained or a range gives you a single P/L and thus an S.P.L. Here unidentified responses are used to advantage for wind-finding. Climbing is done on net corrections and careful interpolations. On short legs, track crawling on H2S is sometimes resorted to. Once at height, and approaching the gardening area, every effort must be made to find the correct wind, as upon this position where the mines fall depends.

It can be readily realized that there must be the closest co-operation in the navigational team. The navigator must show initiative in coping with the unpredictable situations peculiar to gardening, be able to analyze what is happening and quickly formulate a plan for future actions. A close check must be kept by both navigator and bomb-aimer upon their instruments, to ensure the maximum possible service.

It is generally felt by the "Bevin Boys" themselves that a crew that can successfully carry out the delicate and important job of gardening must be somewhere above average as a crew.

R. A. D. A. R.

OPERATIONAL

With the advance of the front line, the majority of our targets have been within Gee range. The homeward journey is being used to advantage by H2S operators to improve their skill in net manipulation.

H2S serviceability has shown a great improvement over the previous month, 6% as compared with 9.39% in February. Manipulation failures have shown an encouraging decrease. The manipulation failures for March were .1%. All concerned are commended for achieving this splendid result.

Air tests of equipment have proven a valuable aid in decreasing both H2S equipment failures and manipulation failures. The necessity for an optimum number of air tests is therefore pointed out to all Squadron Commanders.

/In order to completely.....

Pauvre

In order to completely erase manipulation failures on operations, Radar Navigation Officers must ensure that all new crews are thoroughly conversant with the operation of the set.

The H2S Operational log marking performance mentioned in last months summary, has also been found of value on some stations. A copy of the report has been passed to the Radar Officer. He has been able to obtain a more detailed report of the performance of the set during an operation.

The present black-out curtains have proven inadequate for daylight operations. Operators report difficulty in seeing the P.P.I. of both Gee and H2S. Where material has been available, stations have found that by lining the present brown curtain with blue curtain material, a great improvement has been achieved. Squadron Commanders and Chief Technical Officers are asked to co-operate, where feasible, in this arrangement.

Bomb Aimers' Logs and Charts

A steady improvement of log and chart work throughout the Group has been noted. Both Bomb Aimers and Navigators are appreciating the area of their trip which Gee, H2S or a combination of both prove of most value.

The Bomb Aimers' track plots by means of Gee, are in most cases of a good standard. The H2S work, however, still requires improving. All Radar Navigation Officers are urged to bring the H2S work of all Bomb Aimers up to the standards required by this Group for navigational purposes.

The logs and charts of F/L Lehman, 408 Squadron, Chemnitz, 5th March, 1945; F/O Salmon, 433 Squadron, Heiminstdt, 21st March, 1945; F/O Carroll, 428 Squadron, Hannover, 25th March, 1945, and W/O Williams, 419 Squadron, Hildesheim, 22nd March, 1945, displayed very intelligent use of Radar equipment. F/O Greiner, 426 Squadron, the speed artist of the month, supplied his navigator with a fix approximately every two miles on the homeward journey from Wuppertal, 12th March, 1945.

Gee

Gee Operational Reports

All interrogation Officers are again reminded of the importance in filling out these performances correctly. The inclusion of a paragraph from a recent Bomber Command letter will point out the importance of this.

- (a) It has been established by ground monitoring that the jammer, although generally switched on during air activity by any Command does often close down for intervals throughout the activity. Hence, unless the times are accurately logged by the navigators of the appearance and disappearance of the jammer, these reports will persist.
- (b) It was found at a recent interrogation that some navigators tended not to report jamming unless it was sufficiently strong enough to worry them. In order to build up a logical picture however, it is strongly recommended that navigators, at some regular intervals throughout the flight, should increase the receiver gain and search for interference, recording the times and positions at which it is found.
- (c) If the information is conscientiously obtained, it will be possible to plot more accurately the areas which are badly affected. Until the source of the interference is destroyed, this is considered valuable information.

All Station Navigation Officers are urged to forward the Gee Operational Performance to this Headquarters immediately following each operation.

Gee serviceability retained its usual high standard during the month.

/Two new chains.....

Pauvre

Two new chains have been introduced during the month - Metz and Munster. Reports from crews regarding the Metz have shown that the signals were rather weak.

The Munster Chain began to operate from Heavy Mobiles at 0990 hours on 31st March. Crews are asked to give full reports on the performance of both these chains.

Navigators are reminded that the Ruhr Chain will close down with effect from 0700 hours, 1st April, 1945.

With the introduction of the new Chains, Gee coverage of German should prove very adequate. All concerned are to ensure that Bomb Aimers are fully instructed in the operation of the Gee set and the use of plotting charts.

Fishpond

The majority of our attacks were daylight operations during the month. Bomb Aimers and Wireless Operators are advised to make use of the gaggle formation to increase their skill in detecting responses which are produced by aircraft.

P.P.I. Photography

STATION	% OF PICTURES PLOTTED UP TO AND INCLUDING 15TH MAR.	% PLOTTED 15TH - 30TH	% OF PLOTTABLE PICTURES FOR MONTH
LINTON	51.7	73.5	59
EASTHOOR	68.5	77.8	71
HOLTHORPE	45	22.5	33.3
LEELING	73.2	50	64.5
SKIPTON	58.5	73	66.5
MIDDLETON	46.5	73.2	55.5
CROFT	45.5	57.5	50
GROUP AVERAGE	55.5	61	57.1

P.P.I. photography has shown much improvement. During the month of February, only 15% of the pictures were plottable. March shows a Group average of 57.1%. This still leaves much scope for improvement. Most Squadrons show a gradual improvement during the month and are to be commended for the effort put forth. Once again the importance of these photographs for assessing cloud covered targets is pointed out. Neglect in adjusting black-out curtains account for the majority of unplottable photographs. Camera operators are to ensure all light is shielded from the P.P.I. All must ensure the line of flight marker is switched on and the correct heading logged.

/The best pictures....

Pauvre

The best pictures of the month for European targets were as follows:

F/O Bell	408 Squadron	Mannheim	1st March
F/O Pepin	434 "	Dessau	7/8th March
F/O Wissler	424 "	Dessau	7/8th March
F/O McLaren	433 "	Mathias-Stinges	24th March
F/O Finestone	428 "	Hildesheim	22nd March
W/O Leland	433 "	Heide	20/21st March

The best mining pictures were taken by the following:

F/O Evans	429 Squadron	Oslo Fjord	9/10th March
F/O Bondway	429 "	Oslo Fjord	9/10th March
F/S Bowlby	424 "	Kattogat	12/13th March

In this column last month we had F/L Duschonay, 408 Squadron. This should have read F/L Duschonay, 426 Squadron.

TRAINING

<u>H2S</u> Squadron	<u>H2S</u> TRAINER	<u>BLIND</u> BOMBING	<u>DRY</u> SWIMS	<u>LECTURE</u>	<u>PPI</u> PHOTOS GROUND	<u>SET</u> TIME AIR	<u>PPI</u> PHOTOS AIR	<u>BLIND</u> BOMBING RUNS
408	183.15	55.00	49.40	83.00	44	507.45	136	286
415	397.00	102.00	195.00	75.00	94	171.09	44	215
419	442.40	151.15	172.50	183.30	100	222.35	65	106
420	131.30	66.30	85.00	120.00	14	252.50	20	475
424	134.25	50.55	35.30	60.00	0	310.55	99	169
425	139.30	80.35	39.00	109.00	12	263.15	8	341
426	214.10	76.00	102.00	75.45	34	453.55	179	265
427	236.00	82.00	369.15	342.00	27	397.45	135	353
428	370.45	132.25	108.00	190.45	65	239.40	45	290
429	195.30	72.30	100.00	381.00	32	533.10	95	467
431	209.40	102.00	96.00	64.00	72	151.50	53	145
432	480.20	122.20	203.30	80.00	70	175.01	66	297
433	140.10	37.30	57.30	88.00	13	160.28	139	169
434	197.15	103.00	136.00	106.00	70	118.14	66	176
GROUP AVERAGE	248.00	88.08	125.00	139.51	46	282.00	82	268

February was a record month in both ground and air training for H2S. The month of March has eclipsed this previous record and all responsible are to be highly commended.

The results of this effort has been clearly shown in the much higher standard of log and chart work throughout the Group. The percentage of plottable P.P.I. photographs also bears a direct relationship. It is pointed out that the standard of work is still below that required. All concerned are urged, not only to maintain this training record, but every effort be put forth to bring the Radar operator up to the standard required for his present operational duties.

/Gee.....

GEE

The advent of the Munster and Metz has given us greater Gee coverage. All navigation officers are to ensure each navigator obtains maximum practice in the art of Gee homing.

"C" CATEGORY CREWS

At the Radar Navigation Conference held at this Headquarters on 14th March, the following training schedule was drawn up for "C" category crews.

(1) GROUND

(a) Trainer Synthetic

Blind Bombing 10 hours, 2.30 hours before attempting blind bombing in the air.

(b) Trainer Bench

5 to 10 hours when reaching the squadron and 1 hour each successive week.

(c) Dry Swims

A minimum of 15 hours.

(2) AIR

- | | | |
|-----|---|------|
| (a) | Demonstration Nav. | 2.30 |
| (b) | X/C Nav. | 3.00 |
| (c) | X/C Nav. | 3.00 |
| (d) | Demonstration bombing X/C and check on navigational use of H2S. | 3.00 |
| (e) | X/C with 1 bombing target | 3.00 |
| (f) | X/C with 1 bombing target | 3.00 |
| (g) | Bombing exercise | 2.30 |
| (h) | Dual check X/C and 3 bombing targets | 3.00 |
| (i) | Bombing | 2.30 |
| (k) | X/C 1 bombing target and navigational check | 3.00 |
| (l) | Bombing check out. | 2.30 |

Operational time would be taken into consideration for (b), (c) and (e), providing H2S only were used for navigation on the homeward journey. If a combination of Gee and H2S were used, then twice the operational set time is required, i.e. 3 hours X/C may be replaced by 6 hours operational time.

John H. M. Ogilvie
John H. M. OGILVIE) Squadron Leader,
for Air Officer Commanding,
No. 6 (R.C.A.F.) Group,
ROYAL AIR FORCE.

Pawre

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NO. 6 (R.C.A.F.) GROUP SIGNALS FAILURES SUMMARY
MARCH 1945.

APPENDIX No. 150 to
FORM 44
R.C. No. 6 (R.C.A.F.) GROUP

Date of Failure Station Sqdn. & a/o letter Details of Failure DATE April/45 Class as per BCSSI No. 113

1. EQUIPMENT

1st	Linton	426 - "D"	T1155 failed - Starter relay type 8 in P.U. type 35A failed to make contact.	C
2nd	Middleton	428 - "D"	MN260 Receiver intermittent on return trip due to internal short in valve 6L7.	C
4th	Croft	434 - "J"	Transmitter TAI20 failed due to condenser C134 (in filter of PA circuit) shorting.	C
5/6th	Middleton	419 - "U"	BC-461 Aerial Reel Control box counter u/s due to worn drive gear.	C
5/6th	Eastmoor	432 - "D"	T1154 failed due to condenser C13 shorting under load.	C
7/8th	Linton	408 - "O"	R1155/T1154 failed - Starter Relay type 8 in P.U. 35A failed to make contact.	C
8/9th	Tholthorpe	425 - "L"	R1155 failed due to u/s V4 (VR99)	C
8/9th	Eastmoor	415 - "J"	R3090 failed due to u/s V3 (VR135) Filament burned out.	C
14th	Tholthorpe	420 - "B"	R1155 failed due to burned out V8 Valve	C
14th	Eastmoor	415 - "H"	R1155 failed due to excessive solder on C15 terminal lug at cathode of V7 causing short to earth.	B
14th	Middleton	419 - "X"	Aerial winch (110B/216) spindle locking pin on brass gear became loose and dropped out - lost trailing aerial as it could not be reeled in.	C
22nd	Eastmoor	415 - "Z"	V.H.F. failed - insulation on plug 420 broke down. Pin No. 2 (H.T. pos) shorted to earth overloading dynamotor.	C
22nd	Leeming	427 - "H"	R1155 faded out. L.T. brush on P.U. 35A worn out. New P.U.	C
24th	Tholthorpe	425 - "N"	R1155 dead-defective V8. W/Op.(Air) repaired by replacing V8.	C
25th	Tholthorpe	420 - "S"	TR1196 failed due to short in MIC-TEL W.199 plug.	C

2. SERVICING.

8/9th	Tholthorpe	420 - "G"	I.F.F. u/s due to poor D.I.	C
11th	Eastmoor	432 - "Z"	Screech in TR1196 due to loose tel. connection on terminal block.	C
25th	Eastmoor	415 - "U"	TR1196 transmitter channel D slightly off tune.	C

3. MANIPULATION.

13th	Eastmoor	415 - "Y"	T1154 failed due to loose 24V input plug in P.U. type 33A.	C
14/15th	Skipton	424 - "U"	TR1196 transmitter failed. 495A switch in V.H.F. position.	C
16/17th	Skipton	433 - "C"	R3090 on distress. Switched on in error in pilots position. Switch wired off on pre-flight inspection.	C
22nd	Tholthorpe	420 - "L"	S.B.A. reported u/s. No fault found except for noise in power unit. New crew.	C
24th	Leeming	427 - "P"	TR1196 reported u/s. 495A switch found in V.H.F. position.	C
24th	Eastmoor	432 - "C"	R1155 reported u/s. Receiver plug not pushed home and locking bar not in position.	C

...../OVER

Pauvre

Date of Failure	Station	Sqdn. & a/c letter	Details of Failure	Class as per BCSSI No. 113
<u>4. MISCELLANEOUS.</u>				
1st	Linton	426 - "X"	TR1196 aerial shot away.	C
5/6th	Tholthorpe	425 - "K"	T1154 failed due to broken deck insulator. Caused by icing.	C
5/6th	Skipton	433 - "N"	TR1196 u/s - broken aerial lead-in due to icing or E/A.	C
5/6th	Skipton	433 - "V"	TR1196 u/s - broken aerial lead-in due to icing or E/A.	C
5/6th	Skipton	433 - "Q"	TR1196 u/s - broken aerial lead-in due to icing or E/A.	C
5/6th	Skipton	424 - "O"	TR1196 u/s - due to severon aerial lead.	C
5/6th	Eastmoor	415 - "Q"	R/G i/c u/s when turret dead astern due to poor contact on slip rings.	C
5/6th	Eastmoor	432 - "W"	TR1196 failed aerial shot away.	C
8/9th	Tholthorpe	425 - "O"	TR1196 aerial shot off by flak.	C
9/10th	Leeming	429 - "D"	S.B.A. failed aerial lead-in broken due to vibration.	C
11th	Leeming	427 - "S"	Armature of P.U. type 35 seized from bearing fracture - considered due to heavy explosion near aircraft.	C
12th	Eastmoor	415 - "X"	TR1196 transmitter failed due to intermittent break in push to talk lead.	C
15th	Leeming	427 - "A"	TR1196 reported u/s on transmit - no fault found after thorough check.	C
18/19th	Linton	408 - "L"	S.B.A. aerial shot away by flak	C
18/19th	Tholthorpe	420 - "S"	TR1196 aerial lead-in broken off at connection to aerial.	C
24th	Leeming	427 - "T"	TR1196 aerial broke away.	C
25th	Tholthorpe	425 - "R"	TR1196 failed aerial shot off.	C
1st	Middleton	428 - "V"	TAL20 transmitter smoking while tinseling. Valves type 807 found to be soft.	

5. TRAINING.

N I L.

ANALYSIS OF SIGNALS FAILURES.

2609 Sorties - 42 Failures.

Percentage of failures to sorties	- - - - -	1.6%
" " Equip. failures to sorties	- - - - -	0.57%
" " Serv. " " "	- - - - -	0.11%
" " Manip. " " "	- - - - -	0.23%
" " Miscel. " " "	- - - - -	0.69%
Percentage of failures affecting operations	- - - - -	0.038%

.....F/Lt.
(J. Colley)

for Air Officer Commanding.
H.Q's No.6 (ROAF) Group.
ROYAL AIR FORCE.

Date:- 3rd April 1945.
Ref:- 6GP/S.463/Sigs.

Distribution:-

- External - Nos. 62, 63 and 64 (R.C.A.F.) Bases.
No.76 Base.
- ROAF Stations - Linton, Leeming, Middleton St. George, Eastmoor, Skipton, Tholthorpe, Croft.
- ROAF Squadrons - 433, 420, 415, 424, 425, 408, 426, 419, 428, 431, 434, 432, 429, 427.
- Headquarters, Bomber Command.
- H.Q's Nos. 1, 3, 4, 5, 8(PFF), 91, 92, 7, 93 Groups.
- R.A.E. Farnborough.

Internal:- S.A.S.O., G.S.L., Narrative Officer (5 copies).

APPENDIX No. 148 to
R.A.F. FORM 243
H.Q. No. 6 (R.C.A.F.) GROUP

From:- Headquarters, No. 6 (R.C.A.F.) Group.

DATE

April/45

To:- Headquarters, BOMBER COMMAND. (Int. III) 2 Copies.
Headquarters, Nos. 1, 3, 4, 5, 7, 8 (P.F.F.) & 100 Groups ... 1 Copy.
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A.F.D.U. 1 Copy. } To H.O.B.C.
B.D.U., Newmarket..... 1 Copy. } for onward
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431, 432, 433, 434. (Attention Gunnery Leader)..... 2 Copies.
R.C.A.F. Nos. 1659, 1664, 1666 H.C.U.'s. (Attention Gunnery Leader) 1 Copy.
R.C.A.F. Stations-- Linton, Tholthorpe, Eastmoor, Beaming, Skipton,
Middleton, Croft, Topcliffe, Dishforth, Wembleton,
Dalton. (Attention Station Intelligence Officer)
("Gen" Room)..... 1 Copy.
H.Q. No. 6 (R.C.A.F.) Group Confidential Library. (Officers)..... 1 Copy.
Group P.R.O. 1 Copy.
Group Historical Records..... 5 Copies.

Date:- 12th April, 1945.

Ref:- 6G/S.660/1/1/Trg.

MONTHLY SUMMARY OF GUNNERY ENCOUNTERS.

Reference is made to No. 6 (R.C.A.F.) Group "Monthly Summary of Gunnery Encounters" report No. 23, for the month of March, 1945.

2. In Paragraph 5 "Daylight Raids", 6th line from the bottom, delete entirely "early combat manoeuvres (see Tactics Summary)".

P. A. FAGUY
(P.A. FAGUY) Squadron Leader,
for Air Officer Commanding,
No. 6 (R.C.A.F.) Group,
ROYAL AIR FORCE.

Pawure

MONTHLY SUMMARY of

Mar. 1945

GUNNERY ENCOUNTERS

APPENDIX No. _____ to
R.A.F. FORM 148
H.Q. No. 6 (R.C.A.F.) GROUP
DATE April/45



HE WAS AN AIR GUNNER IN THE LAST WAR...!!



Quaker



SECRET

Pauvre

From:- Headquarters, No. 6 (R.C.A.F.) Group.

S E C R E T.

To:- Headquarters, Bomber Command. (Int. III) 2 Copies.
 Headquarters, Nos. 1, 3, 4, 5, 7, 8 (P.F.F.) & 100 Groups.. 1 Copy.
 Headquarters, No. 91 Group..... 11 Copies.
 Headquarters, No. 92 Group..... 10 Copies.
 Air Ministry (D.P.F.) 2 Copies)
 B.D.U. 1 Copy)
 B.D.U. Newmarket..... 1 Copy) To H.C.C.
 H.C. Flying Training Command..... 1 Copy) for onward
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 H.C. No. 29 Group..... 7 Copies)
 No. 24 O.T.U. Honeybourne. (Attention Gunnery Leader)..... 1 Copy.
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 R.C.A.F. Squadrons:- 408, 415, 419, 420, 424, 425, 426, 427, 428, 429,
 431, 432, 433, 434. (Attention Gunnery Leader)..... 2 Copies.
 R.C.A.F. Stations:- Linton, Tholthorpe, Eastmoor, Leaning, Skipton,
 Middleton, Craft, Topcliffe, Dishforth, Wombledon,
 Dalton. (Attention Station Intelligence Officer)
 ("Gen" Room) 1 Copy.
 R.C.A.F. Nos. 1604, 1666, 1659 H.C.U.'s. 1 Copy.
 H.C. No. 6 (R.C.A.F.) Group Confidential Library, (Officers). 1 Copy.
 Group P.R.O. 1 Copy.
 Group Historical Records..... 5 Copies.

Date:- 8th April, 1945.

Ref:- 66/S.560/1/1/Trg.

SUMMARY OF ENCOUNTERS WITH ENEMY AIRCRAFT.

March - 1945.

MEMOR' NO. 23.

During March 1945 Lancaster and Halifax aircraft in No. 6 (R.C.A.F.) Group had 113 known encounters with enemy aircraft, 43 of which developed into attacks (i.e. fighter opening fire). Of those encounters 78 occurred in the Hamburg area on the daylight raid of the 31st March when 28 attacks were carried out on our aircraft by Jet propelled planes.

2. From the combat reports received, the following claims appear justified:

- 6 - DESTROYED - 2 by 428 Sqn. (2 Me.262's)
- 2 by 433 Sqn. (1 Me.410 - Me.262)
- 1 by 431 Sqn. (Me.262)
- 1 by 424 Sqn. (Me.262)
- 5 - PROBABLE - 2 by 429 Sqn. (2 Me.262's)
- 1 by 434 Sqn. (Me.262)
- 2 by 433 Sqn. (2 Me.262's)
- 5 - DAMAGED - 2 by 434 Sqn. (2 Me.262's)
- 1 by 424 Sqn. (J.U.88)
- 1 by 431 Sqn. (Me.262)
- 1 by 427 Sqn. (Me.262)

Claims for the daylight raid on Hamburg being 4 DESTROYED, 5 PROBABLE and 4 DAMAGED.

3.

P.T.O.

Pauvre

- 2 -

3. Cont'd.

Nine different types of enemy aircraft were encountered:

87 Me.262 9 U/I 4 Me.109 1 Me.110
9 U.U.86 6 Me.410 2 F.W.190 1 H.S.219 1 Me.163

195 of these aircraft were encountered over the target area, 23 on the return journey and 4 on the outward journey, attacks being made mostly from quarters.

DIRECTION FROM	LEVEL	NOV	SEAS	TOTAL
SOUTHERN	21	22	23	66
EASTERN	11	10	9	30
BENAH	6	7	2	15
AHEAD	2	-	-	2
TOTAL	40	39	34	113

5. DAYLIGHT RAIDS:

Two months ago Gunnors were warned of the possibility of mass attacks by Hun fighters during daylight penetrations. On the 31st March, in the Benburg area, a section of our gaggle formation had to fight it out with packs of Jet propelled Me.262's and the Gunnors did pretty well too. Of the 78 encounters over or near the target area Gunnors are claiming 4 DESTROYED, 5 PROBABLY and 4 DAMAGED, all Me.262's. This is a highly commendable claim considering that the attacks were being carried out by a 500 m.p.h. aircraft, heavily armed with at least two 30 mm. cannons. Admittedly we lost 5 aircraft definitely due to fighters, but with this experience and still more practical training, Gunnors should be able to put up a better show the next time.

The answer to these daylight fighter attacks is good search, quick recognition, ~~early combat manoeuvre (see Tactics Summary)~~ and opening fire at maximum range, (1000 yards for .5 and 800 yards for .303 Browning Guns). Don't give them a chance to close in. Open fire at fighters attacking our bombers. Think about your plan of action now! Figure it all out with your crew, be ready for all eventualities and when the time comes you'll be able to cope with any situation. Remember "Forewarned is Forearmed".

(J.A. F.GUY) Squadron Leader,
for Air Officer Commanding,
No. 6 (R.C.A.F.) Group,
ROYAL AIR FORCE.

Pauvre

- 1 -

DETAILS OF CASE, DURING OPERATIONS IN FRANCE, 1945.

Night of 15th March, 1945. Operations to HAGEN.

Lancaster aircraft " " of 454 squadron, encountered a He.410 at 12,000 feet while flying on a course 240 T on track, position 51:16 - 06:33 E.

Fighter flares were dropped in front of this bomber. A few seconds later the Mid-Upper Gunner saw a He.410 astern up at 500 yards. He immediately ordered corkscrew starboard and opened fire. The Hun fighter caught fire and crashed to the ground in flames. This He.410 is claimed as DESTROYED.

One minute later the Fishpond operator reported an aircraft on starboard quarter closing in. Corkscrew starboard was given and the Gunners saw an enemy aircraft at 400 yards. They at once opened fire and the fighter broke away.

The Rear Gunner P/Sgt. G.T. Watson trained at No. 9 B.A.G., 82 O.T.U., Dalton Battle School and 1864 H.C.U. The Mid-Upper Gunner /O H. Ellison trained at No. 9 B.A.G., 74 O.T.U., Dalton Battle School and 1866 H.C.U.

COMMENT:-

In the first attack good search, immediate combat manoeuvre and deadly shooting were rewarded by a kill. In the second attack vigilance on the part of the Fishpond operator, combat manoeuvre and quick pick-up of the Hun by the Gunners drove the attacker off.

.....

Day of 31st March, 1945. Operations to RECHEN.

Lancaster aircraft "B" of 451 squadron encountered a He.262 at 17,000 feet while flying on course 035 T in the target area.

The fighter was first seen by the Rear Gunner at 700 yards, on the port quarter level. He immediately ordered corkscrew port and opened fire, and kept firing in bursts until the fighter broke away. It was last seen breaking in two and falling to earth. This fighter is claimed as DESTROYED.

The Rear Gunner, P/Sgt. KUCER, trained at No. 10 B.A.G., 22 O.T.U., Dalton Battle School and 1864 H.C.U.

COMMENT:-

This again proves the advantage of immediate action and deadly shooting, and of not allowing the fighter to get in close.

.....

Day of 31st March, 1945. Operations to RECHEN.

Lancaster aircraft "D" of 436 squadron encountered a He.262 at 19,000 feet while flying on a course 025 T in the target area.

P.T.O.

Pauvre

- 2 -

INCIDENTS Cont'd.

The Hun was first seen on the starboard quarter at 800 yards, flying on a parallel course. He moved up to the beam, range 400 yards and commenced the attack. The Mid-Upper Gunner then ordered corkscrow starboard and opened fire. The fighter closed in to 200 yards before breaking off.

COMMENT:-

The crew was lucky. Gunners are reminded that they must not let enemy aircraft, particularly Jets, move in so close, but must give combat manoeuvre and open fire at extreme range.

.....

Day of 31st March, 1945. Operations to H-3311.

Canterbury aircraft "B" of 417 Squadron encountered a No. 262 at 17,400 feet while flying on course 029 T in the target area.

The fighter was first seen at 700 yards on the starboard quarter up. He appeared to be preparing to attack another bomber but was allowed to get in to 400 yards. The Mid-Upper Gunner then opened fire, and the fighter broke away starboard beam up at 200 yards.

COMMENT:-

The Gunners let this Hun fighter get in much too close, and were lucky to get off so easily.

.....

Day of 31st March, 1945. Operations to H-3311.

Canterbury aircraft "D" of 43 Squadron encountered 2 No. 262's at 17,200 feet while flying on course 030 T in the target area.

This bomber was attacked by 2 No. 262's at the same time from dead astern and the port quarter. Combat manoeuvre was started at 800 yards and both Gunners opened fire, one at each fighter. When the fighter on the port quarter broke away the Mid-Upper Gunner joined the Rear in firing at the fighter dead astern. This fighter closed in to 200 yards, then part of his wing broke off and he fell down to earth trailing smoke. It is claimed as DOWNED.

The Rear Gunner W/O Ish, R.J. and the Mid-Upper W/O Ruthig, V.M. both trained at No. 9 B.M.G. 82 O.T.U., Radon Little School and 1055 H.O.U.

COMMENT:-

Good co-operation between Gunners, and correctly timed combat manoeuvre and opening fire destroyed a fighter and drove off another. Good show.

.....

Pauvre

NO. 6 (R.C.A.F.) GROUP.

ENDING COM LINTON TITCHWELL
LEAVING SKIPPIN CROTT DULTON
MIDDLETON TORCHILL 222

FROM THE

Editor



SECRET

MONTHLY RADAR NEWS

VOL. 2 APRIL NO. 4

TECHNICAL

We apologize for the size of the Technical Section this month but we figured you might like to have all the gon on Mk. III buttoned up in case you have a use for it in some place outside Yorkshire. So Prof. Ginsberg has put all the dope together for handy reference and quite a story it is.

WAVE FORMS

Don't expect to see the waveforms reproduced on the back cover on a Monitor Type 28 or any other scope, we are quite sure that won't happen!!!! But have a good look at these servicability graphs and see how we stack up with other Groups. The graphs are based on the monthly servicability figures published by Command and these in turn are based on the Station Weekly Radar Defect Reports.

It does seem that we know our Gee a little better than our H.2.S. but that our knowledge of H.2.S. is improving. On the whole we think it is a pretty good show but of course we always figure that it could be better. (Yes, wouldn't we!!)

A.M.O. POSTAGRAMS.

It might interest you to know that over 400 Defect Postagrams went through this office in March, divided approximately 300 for H.2.S., Fishpond and 100 for Gee. As a number of these postagrams were of the omnibus type, reporting several defective components, we had more than 400 components go defective during the month.

We think it is a very poor show that we have to buck so many faulty parts and we only hope that our flood of defect postagrams will help the situation out. However, we do think it is a very good show that everyone has co-operated so well in sending in these postagrams and our only comment is, "KEEP IT UP!!!!"

ACKNOWLEDGEMENT.

Eastmoor's LAC Mario Prizek is the man behind the stencil cutter for this month's page headings. It is surprising how many artists we are beginning to find amongst the Radar fraternity,

"WHO'S NEXT?"

-oOo-oOo-oOo-oOo-oOo-oOo-oOo-

Pauvre

NO. 6 (R.C.A.F.) GROUP.

ENDING COM LINTON TITCHER
LEAVING SKIPPIN CROTT DULTON
MIDDLE TO TORCHILL 222

FROM THE

Editor



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-oOo-oOo-oOo-oOo-oOo-oOo-oOo-

Pauvre

2.

RADAR ROMANCES.

We were so startled by the number of Gr up Radar Types getting married these days that we did some research on the subject and publish below the names of our Radar stalwarts who got "I do" for an answer from an English Gal.

NO. 62 BASE.

Linton.

Dec/44 R94310 F/S Daniels to Miss E.E. Palmer of Thorne, Yorks.
Mar/45 R94199 L/C Atkinson to Miss R.E. Wilson of Lenton, England.
Mar/45 R143936 L/C Baldwin to Miss E. Hall of Leeds, Yorks.
Mar/44 R146833 L/C Gilis to Miss A. Stephenson (Ex WAAF) of Newcastle.

Eastmoor.

Oct/44 R250067 Cpl. Fellows to Miss J. Kitch of Midglen New Abbey, ^{Dunfriesshire}
Feb/44 R152219 L/C Hainsworth to Miss E. Price of Swanson, Wales.

The Lthorpe

Oct/44 R92859 Cpl. Gourlay to Miss Margaret MacPherson of Dundee, Scot.

NO. 63 BASE.

Nov/44 R25319 F/L Lamb to Miss Jean Winnifred Harris of London, England
Apr/45 R141387 Cpl. MacKenzie to Miss Betty Butcher of Middlesbrough.
Nov/44 R175095 L/C A.R. Howe to Miss Martin Renee Charlesworth of Hargreave, Yorks.
Nov/44 R142209 L/C T.G. Hall to Miss Flora Iris Davies of Leicester.

NO. 64 BASE.

Middleton St. George.

July/44 C17361 F/L Carstairs to Marjorie Jefferies of Wanborough, Wilts
Aug/44 R98676 Cpl. Packer to May Maistrick of Middlesbrough.
Oct/44 R139480 Cpl. Sparling, to Nora Wilson of Stockton.

Croft.

Jan/43 R90670 Cpl. Harby to Ina McKenzie (WAAF) of Dundee.
Aug/43 R90704 F/S Cerna to Irene Griffiths (WAAF) of Bradford, Yorks.
Jan/45 R128849 L/C O'Neill to Julie Joan Milner (A.T.S.) of London England.

-oOo-oOo-oOo-oOo-

Late flash by post card from a couple of Group Radar Sergeants on leave in Ireland!!!!

Dear Gang !

Is we got fun
OR
Is we got fun?

OOOOOOOO

P.S. We's got fun !!!!!!!!!!!

-oOo-oOo-oOo-oOo-

PAUURE

TIPS FROM OUR TECHS



3.

H2S MK. II D

Since H2S IID and IIC are rapidly taking their places as major items in the main force, it is felt that an article compiling all features, differences and necessary mods. would be profitable at this stage to enable the mechanics, who are unfamiliar with these versions, to more easily convert and maintain their aircraft fitted with these variants. It is realised that an article of this nature must of necessity be lengthy and contain considerable repetition. However, this will be borne in mind and an endeavour made to keep it as brief and concise as possible.

REASONS FOR IID AND IIC

H2S IIB had certain limitations from an operators viewpoint. Chief among these is P.P.I. distortion arising from the use of a slant range picture. This, compared to a ground range map, causes:-

- (a) Bearing errors between targets
- (b) Cramping of near targets on P.P.I.
- (c) Large hole and distortion on 10 mile scan due to ground return.

An additional handicap resulted from the tendency to lose the picture during evasive action, rolling and turning.

To overcome these defects, Mk. IIC has been developed, providing a distortion corrected scan and a roll stabilized scanner. The IID version is similar to IIC, but it lacks the roll-stabilizer feature, i.e. uses the same scanner as IIB. To further clarify the main unit differences the following table is provided. This table has been supplied on the Bomber Command Radar School courses and will be familiar to some.

Types of Mk. II H2S.

A. R. I.	Mk.	SCAN	STAB PLAT-FORM	IID.	TUNING UNIT.	W.F.G.	SW. UNIT	H. C. U.	COURSE OR TRACK	REMARKS
5153	IIA	3	--	162	--	26/27	207	218	C	- Fishpond
5560	IIB	3	--	162	--	26/27	207	218	C	+ Fishpond
5590	IIC	63	26	184A	207A	34/35	207B	446	C+T	Complete
5598	IID	3	--	184A	207A	34/35	207B	218	C	" -New Scanner
*	IIE	63	--	184A	207A	34/35	207B	446	C+T	" -platform only

* Mk. IIE only temporary, pending supply of Stab. Platform, to be added to new scanner.

NOTE:- Either (1) Ind. Type 184 or 184A may be used.
(2) T.U. Type 207 or 207A " " "

H2S Mk. IIC is the final version of the Mark II system operating on a 9 c.m. wavelength.

Pauvre

INDICATOR 184 OR 184A

Differences between it and Type 182 -

- (1) Eliminates bearing errors
- (2) " clamping of close targets
- (3) " hold due to ground return.

These features are achieved by employing a special form of non-linear sawtooth, and by triggering the time-base when the ground return appears, i.e., by the Height Marker. Thus, the hold is eliminated and the P.F.I. centre represents zero ground range, or the ground directly beneath the aircraft.

In the 184 type of Ind. the scan ranges have been changed from 10, 20, and 50 miles to 10, 20 and 40 miles. This has been done so that the P.F.I. will conform with map scales in general, i.e., $\frac{1}{4}$ million, $\frac{1}{2}$ million and million map scales.

Since height affects the difference between slant range and ground range, it is necessary to compensate for different heights. This is done by the distortion corrector control provided, calibrated in terms of 5000' up to 40,000'.

It would be impossible to discuss the circuit action of the Ind. 184 in the available space, but for the sake of completeness, a brief reference will be made in order to better understand the controls and their functions.

The circuit may be generally divided into:-

- (i) Phantastron timing and triggering.
- (ii) Clamping circuit
- (iii) T.B. amplifiers.

ACTION OF CIRCUITS

BRIEFLY:-

The T.B. Amp grids are fed by a charging circuit giving the required waveshape of sawtooth to provide a ground range picture.

The clamping diodes hold the phantastron amplifier grids at a preset level, and normally prevent any signal input from appearing on the grids before a predetermined time.

The phantastron circuit serves to provide the timing square waveform which clamps and unclamps the amplifier grids. The phantastron is triggered by the Height Marker and produces square waves which effectively serve to remove the clamping diodes from the circuit and the T.B. amplifiers can then do their work, thus providing a T.B. which is triggered from the Height Marker.

Another feature is the addition of the phantastron Bright-up square-wave. Hence the effective bright-up is the vector addition of both the original H2S B/Up and the phantastron B/Up. This makes it important to preset the IOM zero correctly and ensure that we get maximum range of Bright-up.

The sloping bright-up feature enables distant returns to appear nearly as bright as near returns and so avoid "swamping" at P.F.I. centre.

In order to facilitate reference to the various mods. a complete list of all official mods. to date is appended, these fall into the following classes:-

- (Column 7.
- (Mods. to Power Unit, Switch Unit, W.F.G.
- (Mods. to Indicator 184 or 184A, Tuning Unit 207A and J.B. 83.

Column 7

Bomber Command Servicing Manual (Section II Part III Leaflet 16).

- Method of converting Lanc. a/c fitted IIB to IID.
- describes necessary cable changes and additions to a/c connector set and refers to necessary mods. to Power Unit and Switch Unit, etc.

SUMMARY OF CABLE CHANGES:-

(a) Power Unit

1. Yellow uniplug (+1800) from P.U. to Ind. 162 not used.
2. Green (-1800) from P.U. connected to Tuning Unit.
3. Green (-1800) from T.U. connected to Ind. 184A.

(b) Modulator

1. Blue (-4KV) uniplug - connected to Ind. 184A.
2. Blue (-4KV) uniplug from Ind. 184A. to Fishpond Ind.

(c) J.B. 83

1. 18way yellow to Ind. 162 not used, instead use spare 18way yellow on J.B.222 and connect to yellow on Tuning Unit.
2. 18way yellow/green from T.U. to Ind. 184A.
3. 18way yellow plug on J.B.83:- --short pins 11 and 12 (xtal current).

S-2-58 - To facilitate checking xtal current - Class A.
Re-routing xtal current via J.B.222 to jack in Tuning Unit.

S/2/20 Power Unit Type 280 - Class C.

Mod. to remove + 1800v supply and to circuit positions of C300 and C301 in 1800V supply.

Switch Unit Type 267B. S/2/40 - Class C.

Converting 10 m. zero to a preset.

S/2/57 - Class "A". Changeover to Nautical miles.

Indicator 184 or 184A.

NOTE:- Some of these mods. may or may not be incorporated in Ind. 184A.

S-2-41 - Ind. 184-C - Damage to C9 due to heat from Resistors.
(Incorporated)

S-2-42 - Ind. 184-C - Failure of Bakelite holder of V17.
(Incorporated)

S-2-43 - Ind. 184-C - Improvement of P.P.I. on 40 mile range.
(Incorporated)

S-2-44 - Ind. 184 and 184A - C - Drill holes for ventilation.
(Incorporated)

S-2-46 - Ind. 184 - A - Thick course MKR.
(Incorporated)

S-2-47 - Ind. 184 and 184A - A - Increase variation of Ht. Tube shift.
(Incorporated.)

S-2-48 - Ind. 184 and 184A - A - 1. Drill holes in cover for adjusting in aircraft.
2. Fit pushbutton switch to front for switching Phantastron screen waveform on Ht. Tube.

Pauvre

6.

- S-2-49 - Ind. Type 104 - A - Improve Phantastron stability.
- S-2-50 - Ind. Type 104 - A - Improves the smoothing of the -300V supply.
- S-2-51 - Ind. Type 104 and 104A - A - Fit Humdingers.
- S-2-52 - Ind. 104 and 104A - A - Replace click wheels on shift pots.
- S-2-54 - Ind. T.104A - A - Replace R846 by lw. 39K.
- S-2-55 - Ind. T.104A - A - Increase sensitivity of CRT deflection plates.
- S-2-56 - Ind. Type 104A - A - Reverse connections to Contrast pots.
- S-2-59 - Tuning Unit 207A - A - Disconnect pin 17, connecting 10-way plugs on T.U. to prevent burning of resistor in -300V stabilising circuit.

W.P.C. 34 or 35.

- S-2-53 - Class "B" - Replacement of V504 by CV108.
- S-2-32 - W.P.C. Type 34 Class "L" - Serial No. T000101 to T00123 inclusive. Incorrect wiring of pins gives no course marker.

NOTE:- The internal link in W.P.C. Types 34 or 35 should be in "Course and Track" position for EK.FIC. The link should be in the Course position for EK.IID.

Cabling Note:-

- 10w cables:- W.P.C. to J.B. 03)
- J.B. 03 to J.B. 222) *
- J.B. 222 to T.U. 207)
- T.U. 207 to Ind. 104)

* Must have pins 5,10,15 connected for Course and Track Mkrs. in IIC aircraft.

SETTING UP IND. 104

Since there is no special publication other than C.D. 0896 which gives an official setting up procedure, it was considered advisable to list the following points, as supplied by the Bomber Command Radar School pamphlet on IIC and IID.

1. Adjust "Range Sync" for stable triggering of phantastron by height marker.
2. Set H. and V. amp. pots. fully anti-clockwise (minimum amplitude) and Scanner on. Adjust "Diodes L and K" controls for stable centre and no squaring or ripple at the edges of the radial scan.
3.
 - A. Height 20,000 ft. "Distortion" 20,000.
 - B. Scanner to give horizontal beam.
 - C. Range Marker to 20 miles on 30/20 scan.
 - D. Adjust "H. amp" till R/M is $\frac{1}{2}$ " from the edge of the tube.
 - E. Scanner ON, adjust "V. amp" for circular R/M.
 - F. Adjust "V" shift, recheck circularity of R/M with R/M set to 10 miles.
 - G. 100/40 scan, check range coverage with R/M. Should be approximately 40 miles.
 - H. 10 and 30 mile zeros, set for zero marker on R/P bright-up. Radial P.P.I., W.P.C. phasing set for R/P bright-up, starting $\frac{1}{2}$ " out from centre of R/P tube.

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4. Check range coverage on 10/10 scan, should be between 9 to 10 miles. If a small ellipse is observed at the centre on this scan it may be reduced by slightly repositioning "Diodes A and K" presets.
5. Check Distortion control. R/M should move in to the centre as setting is reduced and vice versa.

POINTS TO WATCH:-

1. Xtal current should be set for stability with "Ref. volts" preset. Coupling loop adjustment used to vary amplitude of xtal current.
2. An elliptical scan will result in bearing errors, hence ensure that scan is circular.
3. Remember, 10 mile zero not required. Set for optimum Fishpond performance. Repeat for bright-up presets.
4. There may be a tendency toward reduced range, even with the ordinary IIB Scan switching sequence at present in use. Setting the amplifiers to give about 25 miles on the 30 mile scan switch position should give about 9 to 10 miles on the 10 position.
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5. In setting T.B. amplifiers up for correct scan lengths remember to set distortion corrector and height marker both for 20,000'. This will ensure adequate range bright-up for operational use.
6. Remember, the Ind. will not light up unless the Mod. is switched on.

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LINK TRAINER ATTACHMENTS FOR H.2.S. TRAINEES.

The past week has witnessed the arrival of Rack Assemblies Type 121 for use with Link Trainers. Stations will be receiving these attachments in the immediate future for installation. As yet, none of these have been installed in 6 Group, but it is expected that installations will be under way by time this issue of the Radar News is published.

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Briefly, the function of these units is to provide a follower attachment which will permit course and airspeed information to be transferred from the D2 Link Trainer, enabling pilot and navigator to train as a team.

Trainer maintenance men will have no difficulty connecting up the new units as the circuit is quite straight-forward. Reference:- C.D.0896V.

Should the proper connector set be slow in arriving they can be easily made up as they consist of two 2-way cables and two 4-way cables.

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H2S TRAINERS.

There have been several cases of the admiralty Tx in the Scanner Unit giving trouble as a result of "burning" of the leading edges of one of the segments on the armature. This results in intermittent slipping of the crystal heading. A temporary remedy has been effected by simply replacing

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this Tx with the course Admiralty Tx in the Control Unit, as both items are identical and in the course circuit the Tx is only used intermittently for setting course instead of continuously as in the Scanner position.

If the course indicator or the Heading Marker is found to slip, check the tension springs on the Admiralty Tx brushes. Some of these have been found to become weak and result in poor, intermittent brush contact against the armature, this latter condition only being apparent on close inspection.

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THE THERMO METER 42Y/300.

The Avo and Weston meters on A.C. ranges measure the mean voltage and their scales are calibrated in R.M.S. Such an arrangement can only be accurate when measuring a pure sine wave which is rarely so.

The Thermo meter 42Y/300 reads R.M.S. voltages and is not affected by differences in Waveform; this meter then, is the only accurate means of measuring 80 volts A.C. 2000 cps. However, the same R.M.S. value for different wave shapes will not necessarily give the same D.C. output from a power pack, and it is this D.C. output which concerns us most. The best way of setting up your voltage is to pick out the 300 volt line in your H.2.S. set and with an Avo adjust your V.C.B. to give 300 volts on this line. As the above procedure is only possible in a workshop we still have to use our Thermo meters on the flights. Unfortunately this meter is very delicate and subject to overload and can be thrown off calibration very easily. It is not, however, affected by normal changes in temperature and humidity.

The test gear party are calibrating one or more thermo meters for every station against a special sub-standard meter that was calibrated for them by T.R.F. They suggest that these meters be kept in a safe place in your Section and employed only for checking the thermo meters that you normally use on the flights.

POINTS TO REMEMBER WHEN USING THERMO METERS.

1. They should not be left on for any length of time.
2. They must be handled carefully at all times. Do not leave them lying in the back of a truck or on top of a Jenny; there is a special container on every Jenny for carrying them. Some Stations have made special racks for carrying them by using springs from C.R.T. packing cases which act as shock or anti-vibration mountings.
3. Meters used on flights should be checked daily against the sub-standard kept in the section.
4. The sub-standard must be kept in a safe place and used only for checking other meters. It should be checked regularly by the Test Gear Party.

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METERS.

If you are interested in the insides of your Avo's there is a good collection of gen to be found in A.P. 095H Vol. I Section 2 Chapter 1, entitled, "Testmeters C, D, R, F, and H".

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Meggers are dealt with in Chapter 4 which is entitled "Insulation Resistance Testers". Incidentally any of you know what "silicon carbide discs" are used for?

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WORKSHOP POWER SUPPLIES.

What would you think if, on one of these bright and sunny Yorkshire mornings, you arrived at the Radar workshop at your usual time 0700 hours(?) and on pressing the 'ON' buttons controlling the M.P. meters the results were bags of knocking, graining and nil volts A.C., whereas you expected the usual 2000 C.p.s. and bags of 80 volts A.C. And if you did think about that unexpected reaction would it be the first time you had spent a thought for these motors, generators and alternators which churn out your workshop "joy" so continuously? Well if you haven't been thinking about your shop power supplies it is long past time you did and you had better get cracking and check up on their condition before you find that you've got ~~anservicing~~ panic on and no 80 volts A.C. There is no excuse for thinking that because A.I. built equipment which stands up to more punishment than seems possible that this is a good reason for forgetting about it until it falls to pieces. We D.I. everything else so it makes sense to D.I. this most vital Equipment too.

Now in case you don't know, the gen on the M.P. motor is given in A.P.1095H Vol. 1 Section 4, which your electrical Officer will be happy to lend you. We definitely advise you not to try taking these motors apart, it being best to leave this to blokes who have had a course. But you should check the motors frequently, ensure that they are clean, that the bearings are O.K. and that both motors and counter-shaft bearings get lubrication at least once a month.

GENERATORS.

The D.C. generators we use are identical with those on aircraft as are the alternators, so all you have to do is turn them over to the electrical types at regular intervals for check and lubrication.

The D.C. generators are subject to brush troubles and Radar types should check daily that the brushes are not wearing excessively. Particularly a check should be made that the brushes do not wear down to the pigtail connections as if this happens severe damage occurs to the commutator. Do not change brushes yourself, they have to be belted in and adjusted and these jobs are best done by electricians who know how. The state of the bearings should be checked regularly and it is advisable to see that they receive lubrication at least once a month.

These generators are designed to operate under forced cooling and therefore if they are carrying a heavy load provision should be made forcing cooling air through the ducts provided. Skipton solved their overheating problems by rigging up a blower from an H.P.S. Indicator for which the C.T.C.'s tinmiths supplied the air pipes.

ALTERNATORS.

Alternators shall be checked about every two months. They are fairly trouble free having no brushes and forced ventilation is built in. However, the bearings shall be checked and receive lubrication at least in two monthly periods.

VOLTAGE REGULATORS.

Our Electrical Officer advises that the voltage regulators used with

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the D.C. generators should also receive monthly attention. As with V.C.P.'s these use a carbon file and can therefore get out of adjustment as they age. Again it is the electricians who should be consulted; they get courses in these too.

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WAVE FORM GENERATOR TYPE 26 and 34.

Eastmoor's LAC Thomson has found that the lead from the positive end of C538 to grid of V511 is too stiff and breaks off due to vibration. Replacement with a stranded lead is the simple remedy.

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MR. IIC LINE OF FLIGHT.

Cpl. Thompson, Eastmoor again, says that if you have no Line of Flight on IIC and you still get continuity between pins 11 and 12 of the 12 way cable to the Rx, using either megger or ohmmeter, have the riggers remove the blister so that you can remove the plate on the bottom of the scanner and clean the cam contacts with carbon-tet.

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MORGANITE AGAIN

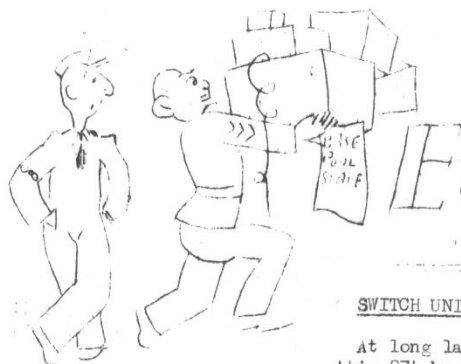
When the Milllet n.R.&I. boys cannot get 4K Morganite resistors, they use a wire wound 5K 25W (stores ref. 1100/749) and find that the T2R works fine.

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WONKY GEE CRYSTALS.

Skipton's LAC Perreault has been researching on Gee Indicators in which the fault is that the Signals can only be made to move in one direction. Perreault found that by retuning the anode coupling transformer T1 by adjusting the dust cores, the fault can be cured and the Indicator give no further trouble. We advise Units not to carry out adjustments to T1 until further experience has been gained at Skipton but this does sound promising. Will someone please send in the explanation of why adjusting the inductance of this transformer changes the frequency at which the crystal oscillates?

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Equipment

SWITCH UNIT TYPE 274

At long last we are able to put some light on this 274 business. In a previous issue of Radar News it was stated that due to the extreme shortage of this item strict control and allocation action had been taken by Bomber Command with the result that this Group's monthly allotment amounted to 45. Worrying along on the 45 per cent scheme for three months, 63 Base has completed its fitting and the surplus have been shoved into 62 and 64 Bases. Now the allocation has been doubled and it should not be long before all Bases are able to wipe this item from their books as another job completed.

FILTER UNITS TYPE 189.

Sh-h-h-h - We know it's good, but Brother you said it, "It's hard to get!" You'll get yours as soon as supply loosens up. It is well that all mechanics learn now exactly what this unit does, where it is installed and what lead is necessary before the Unit lands on you en masse. All this may be found in C.D. 0986(L). At present 64 Base is installing but soon it is hoped that 63 will get a crack at it also.

WANTED!!!

H.2.S. MARK IID CONNECTORS.

Last seen in a Mark IID aircraft at 63 Base, one uniplug was wandering from the Indicator Type 184A to the Fishpond, another uniplug came out of the Indicator and slipped across to the Tuning Unit and an 18 way ran from the Tuning Unit to the Indicator. If any or all of these three turn up, notify this Headquarters. At present 64 Base, tired of waiting, has decided to go ahead and make up their own, its a good trick if you can do it.

TOOLS! TOOLS! TOOLS!

You know those items you use for 'fixing' Radar gear - - - besides a hammer? They are important. The workshop tool inventory rears its ugly head and one day, the great day of accounting is drawing closer. How are your tools? It is never too late to start a tool check up. Does your tool kit contain all the items you were issued? If not, it should.

Radar is lucky. There is a tool issued for practically every job. Take a look at other Sections from a comparative point of view and see just how lucky we are. Your tools are your passport to good servicability. Keep them clean and in working order - - - and by all means keep them!!!!

TEST GEAR.

Test gear has been removed from the controlled item list. It now is up to Sections to see that through normal demand they are supplied with the required number of individual items of test gear. The best way to remember the total allowable is on the basis of 1 per fitted aircraft for Daily Servicing gear and 1 per 8 fitted aircraft for ordnance. The latter is the maximum and may not be exceeded. It will be found that in many cases the total allowable is in excess of normal requirement. Don't clutter up the Section with pieces of equipment that are not in constant use.

Petrol electric sets are still controlled and must be obtained through the Group Radar Pool.

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HEADQUARTERS TYPES.

Social activities at Six Group took an unexpected turn when the Section wallahs suddenly took on the various rolls of actors, producers and what have you in their contribution to the Six Group Spring Festival. It was an inspiring sight to see Sgts Hall, Howarth and Shepherd strutting their stuff before a local audience. Shep as the farmer, Hall as the Elmer Blimp "super salesman" and Howarth as the pianist and playwright made up the complement of the Section's contributions. Unfortunately "Prof." Ginsberg was out on ops on the occasion but his moral support and suggestions were very helpful in producing the play.

Leave time has come upon us once again with Sgts Hall and Shepherd doing a D.I. of Southern Ireland and L.A.W. Dumpsey our capable stenographer paying her quarterly visit to her home in Yorkshire.

W/O Al Ginsberg recently disappeared for a couple of days, the occasion being a visit from an old friend back from the Fighting Front. (It says here!) We are led to suppose the friend brought the Fighting Front with him (or her??) judging by Al's haggard look on his return.

The baseball season has also come to Group Headquarters, and the Headquarter's Radar types have turned out atm at 100%. Loud hurrahs and groans have been much in evidence as the muscles slowly respond after the winter lay off. Sgts Hall, Howarth and Sheppard are out there battling for the glory of the Sergeant's Moss and there's been promises lots of excitement and surprises.

The Eighth Victory Loan drive has gone over with a Bang!!!! The boys at Group have gone over 100% and recently there has been much studying of savings accounts and deferred pay receipts in evidence.

Many of you will be interested in learning that W/O Cates of Headquarters Bomber Command Radar parties is now up for his commission and our old friend P/S Lashbrook is filling his place at Command. Congratulations to you both!!

NO. 76 BASE

One major change has taken place in this Base since the last issue of the news, namely the cessation of training at Dishforth. On April 6th, 1945, 1664 H.C.U. ceased to operate, and since then one half of the Radar Mechanics have been allocated to the other Section in the Base, the remaining half have been posted to various Units around the country. Among the latter are Sgt. Kennedy, Cpl. Bailey, LAC's Denyer, Hartwick and Middleton. P/O Macbitesh has threatened to move out to the "local" and carry on from there. P/O Les Clark and P/O Dennis Gruber former Radar Officers, now Signals General, have recently arrived here from the "Land of the Maple Leaf". The former is in charge of 1666 Signals at Wombledon, and the latter is Deputy to the Base Signals Officer, S/Ldr. W.A. Fuller.

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NO. 76 BASE MAJOR SERVICING SECTION

Well B.M.S. is growing up. After pleading for more men, Sgt. Fred Shirley is being overwhelmed by new arrivals. He is being sent on leave to London on Monday 16th April 1945, to recover (??). Cpl. Jerry Young has wended his way here from a Lincolnshire Con. Unit, while L.A.C. (Mac. 4) McGaffery has crossed a couple of fields to come from Dishforth. Welcome lads.

Leave Notes. Cpl. (Mac. 1) MacDonnell, has gone to kiss the blarney stone (again) whilst (Mac. 2) MacEckern is off to the land of the leek via Nottingham.

Our 2 W/Ops (Mac. 3) McRide and "itch" Mitchelmore are proving themselves worthy members of the section, and are becoming top men on lads. Scanners etc.

Cpl. Don. Murray has to keep his eye on Fredl. Schroeder, the latter is always trying to rebuild the "Section Radio", whilst Don. is afraid that we will miss the news announcing V Day.

Sgt. Shirley complains that every time he hollers "Mac" the whole section come running, and he wants to know if he hasn't already received his quota of Macs.

Last Minute Flash Sgts. Shirley and Hearn have traded places, the former taking over on 1659 H.C.U., and the latter at B.M.S.S. We always say that a change is as good as a rest.

TOPCLIFFE.

Topcliffe boasts of having the best Radar Sportball team in Command. This is a challenge to any Section within reasonable distance. The losers buy the beer after the game.

Recently a slight riot was caused by a Mech's wife receiving letters written Hill Billy and Russian style. Mech. concerned - Howie (Call me Mister) Steele.

Murray (Drinkin') Thomas and Howie (Little twitch) Putnam, spent a hilarious leave in Blackpool and Bradford. Each came back 15 pounds lighter - not from having Turkish Baths.

Sally (hot tip) Tabatchnick, came back from a 48 in London with the name of a horse that couldn't lose. Bets from lads in the Section, including the Sarge, totalled four pounds. Apparently the horse didn't know there was a race and never left the gate.

It is expected that LAC's Beal and Campbell from Dishforth will be joining the Section shortly. At present, Campbell is getting all the men on Mk. 8 A.I. at Bircham Newton, and Beal is helping to keep a watchful eye on the gear over at Dishforth. So uncers beware!!!!!!

WORKINGTON

The big event of the month was the stand down at Easter for a week in order to repair the runways. All mechanics were given a "buckshee" forty-eight hours pass. Everybody took advantage of this, except Sgt. Love. He swears that it will never happen again. As far as can be ascertained from Intelligence Reports Sander used survived the attack of the main force.

LAC Jack Grant can be seen these days walking around with his chest stuck away out, just like the picture all Discip. Sergeants dream about. The rhesion - well, it seems that Jack and his Lambton Station Band, "The Blue Gremlins" won second prize at Leeds in an open contest for bands in Central Yorkshire. The certificate which Jack received, now takes precedence over pin-up girls in his billet.

Corporal Ron. Munro spent his Easter vacation at Feltwell delving into the mysteries of H.2.S. Mk. IID.

In response to our advertisement for Mechanics last month, we have received many replies. As a result our section now contains six additional Wireless Mechanics, and one Flight Mechanic w/t Radar.

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It is rumored that one of our more upstanding citizens was seen in a pub in Haregate with a blonde, blond with two of our lower types. Could be that at last he has succumbed to that down-drink?

With the coming of Spring, Sgt. Love has got that "invent something" spirit. His latest is an instrument for testing C.V.I.M.'s. As yet full details are not available.

LAC Smith's favourite question these days is, "Do you want to buy a Bond?" His persuasive powers seem to be excellent, as at the time of writing we have one hundred and fifty per cent of our quota. The secret of his success is that Smithy used to be an Insurance salesman in civvy street, and knows all the tricks of the trade.

LAC's Wife andaskell have come over from Dishforth to enjoy the pleasure of "Wembleton in the Spring", and are now wearing the MacGregor plaid. LAC Clancy is expected to follow shortly.

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NO. 62 (R.C.A.F.) BASE.

The results of last month's intensive campaign to increase serviceability on the three stations in the Base, has apparently paid off, as the latest reports tend to show. But, high serviceability is not an easily achieved thing, and that little bit extra comes right from the shoulder of every last Ruler Mechanic in the flights. Excellent show indeed! Congratulations to all!!!!!!

The special investigation on various operational failures conducted at Eastmoor in the last year, will definitely help to bring us even closer to the day when we can expect 100% dependability from our equipment. A quick trip to Feltwell has revealed quite a bit of "gen" on various items including Lucero, A.C.L.T., H2S Mk. III and even a peek into the future with BMS and other marks of H2S.

What with Victory Bonds and the good news on the radio, the times tend to bring ones mind to the post-war period when each and every one of us will no doubt be glad to recall at these days we are spending here now.

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BASE MAJOR SERVICING SECTION.

The main news of the month is Lancs and more Lancs. We have accepted our first 2 and passed them on to Tholthorpe. These lucky people, we understand, will be the first to convert. We are daily awaiting the remainder, a mere 119. The final gen is that they will consist of Canadian Lanc Mk I and English Lancs Mk III and will be turned out of Base, fitted MK IID H.2.S. Cpl. Marcus at present is spending a few days with our brother Joes at 64 Base, gathering all the Gen on Canadian Lancs.

Experiments have been going forward with Bomber Command's North Point Indicator and when we have satisfactory results we expect to be turning them out mass production. We have standing order of twenty for the squadrons.

Three additional Douglas P.E. sets have been received and turned over to the squadrons. When McLachlan and Miller went to learn on them our workshop sounded more like a boiler shop.

We welcome to Base this month Bill "Hopper" Hopper from R & I section, Linton.

Congratulations are the order of the day to both Stew Glover and Bill Hopper who are sporting well deserved tapes.

The Section went well over the top in the latest Victory Loan with a certain LAC topping all subscriptions with his ~~slucco~~ bond. While we are on the subject of the Victory Loan we are wondering if F/L Pulzak's enthusiasm as Chairman of the Loan will not have something to do with the three W.D. secretaries he acquired. We don't blame him a bit.

The Big Boss, W/O Priestman is away on leave at present and we hear by the grapevine, that he might desert the night life of York in favour of Sheffield.

Congratulations to Cpl. Betty Russell (now H.W.) our W.D. import. Too bad you wolvies in Base Pool had to take a back seat to a ground mech. Enjoying a brief rest, Bert Kirby and Wm Kent have deserted us for nine days.

J.C. Grealy has returned to our midst for a pleasant stay in the land of milk and honey, namely Eire.

Stew Glover and Doc Wright returned from leave with Doc still limping from the effects of dog racing and a "strunley" at the same time.

Wedding bells are in the offing, for that veteran of Base, Ernie Miles. Does anybody want to swap rumours re the second phase, repatriation, etc?? We will still bet money on our B.R.O. topping all.

LINTON:

This past month has definitely been kind to us and serviceability was higher than ever before. This has set the stage for a "hickshoe" B.R. Party which will be on our officers F/O Hamishen and F/L Arstol who made some remarks on serviceability and are now paying off.

Our lads here are working for their "A" Group in the works and Bricks trade. They have also raised a good crop of blisters erecting a new building and building a road to it. What are we building - Shhhhh - it's a secret!!!!

York has "had it" for the next long while, since the 8th Victory Loan has cleaned us out.

F/S (Kopy) Kopperson invites any Radar Ball team to come to Linton and receive a good shellacking. Why not start a Radar League.....? Chiefie McKay seems to be enjoying his 30 days leave back home. Oh for a "repat".

Acc rling to rumours there may be "bags of sunshine" for everyone soon. Congrats to Bill Hopper who is sporting his new tapes and has moved.

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over to Base Major. Our loss is their gain.

The Emerald Isle, sure must be something, what with Sgt. McLean, Cpl. Landry and LAC Henley joining the long line for a chance to pick 4 leaf clovers.

THOLTHORPE

That long promised electric heating has finally been fitted here and we are awaiting the first cold day to turn on the 17K watt load.

With all due respects to "old man weather" our past month's efforts seem very promising indeed. The assistance by F/L (Jonny) Cortes, one of our Radar/Nav boys has been of no-little help.

With the coming of our first Lane we are expecting bags of difficulty crawling in and out of those things.

The best one of the week was our F/O (Red) Gumble, bringing a super bond salesman over and then ending with nothing left, not only in the English savings account but the one back home too. Geo. Bryndilson however, almost sold him an H.2.S. set "t-beat".

The base-ball season is here and we challenge Linton to that long postponed game. We're ready for your drinks any day now and we also play golf, three darts and are even "hep" to the elbow act.

Ray Rankin and John McDiarmid are still interested in ball games. We thought they had hibernated to the pit for the rest of the season, after their recent bout in town.

Chiefie Gallimore is steaming at the shops, seems someone walked away with the pedals to his bike - tch, tch!

EASTMOOR

We were sorry to lose our F/L "Mavis" Martin on his recent move up to Headquarters, but we are sure his association with the "high-pail" help will not dim his memory of the perimeter here. At the same time, a welcome to our new F/L "Junior" Harfield.

Movements have been quite extensive, it seems, and we have lost Cpl. Tatham to Base, where he will act as Instructor. Thank goodness for W/S "Wally" Hill. Cpl. Graham has arrived from 4 Group where he just missed IIC, only to find a full staff bilked scanner staring him in the face. Cpl. Mahaffey is off to TRE Gr at Kilmarnock and we expect some action in the SO NO Postscript. Cpl. Silwood has come in from 30 M.S., Scotland.

LAC's Swyzio and Rosenberg reported that Feltwell is the gen place, when they took their Synthetic Trainer course.

Owing to a slight misunderstanding, Eastmoor turned up at the Linton Sign/Radar party at Greenhamerton where a good time was had by all!!! We expect a return engagement soon!!!

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NO. 63 (R.C.A.F.) BASE

BASE MAJOR SERVICING SECTION

This month finds 63 B.M.S. still grinding out Lanes at a good rate, and despite shortages of cables they came off the line fitted with k.H.M.S.

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The loss of our ace bonobon, LAC Trow has been felt through the Section. The latest rum has it that Trow is being rehospitalized on medical grounds. We wish him a speedy recovery and **best** of luck in the Land of the Angels.

F/S Trow was well and truly married on March 24th. There was a good representation of Canada there, just to see that everything went off as planned, and it did. Now our "chief" is living out and we're just waiting for our invitation to steak and bushracks.

LEEMING.

The past month has seen two more of the stalwarts in course. Cpl. Williams and LAC Cameron have been passing on the Trainer 544. So now we have a queue for the opportunity to do the servicing.

After a lapse of four months, our old faithful Ted Smith has found time from his Toronto celebrating to write to F/S Cameron. Naturally the letter was passed to all the boys on the camp and now we'll pass on his encouraging experiences:-

On disembarkation leave Ted put in for discharge from the Service and then went home to spend the Christmas Season with his folks. (How we envy you Ted!!) After his leave he was whisked off to Clinton for a refresher course. Ted says,

"As my discharge came through while I was going, but during my second week at Clinton, I was most happy to be sent to Release Centre."

And so now with 45 days leave -- a week at Clinton -- and then to Release Centre, Ted wishes us all wish we had come overseas with him by telling us of his shopping expeditions for "civvies", and his complete freedom at home.

Ted wishes us all luck and we say Thanks and "Hope to be seeing you soon."

DAILY SERVICING

The Leeming Daily Servicing boys are really getting along with the Tracs. You don't even hear them bawling any more of having to crawl in and out of them.

That old complaint, first one uttered on "Hally V's" has reared its ugly head again. Due to alternators. Four in one week seems a little.

A very popular member of the crew took the big leap during the past week when "Mac" Macdonald and Miss "Betty" Butcher both repeated that ever faithful "I do". It was suggested "Mac" take about an eight day clock to let him know when his leave was over. Here's congrats to them both!!!

NEWS FOR FOOS BY FOOS (Gen from the Leeming Coc Room)

The recent change hanging over the Coc room is the result of the loss of Art Williams to Daily Servicing. In exchange, however, we have Ron White, who came back from sick leave, putting his "inside" "I" (or up Theory to practice.

Dave "Gen" Gellberg has been assigned the task of listing discrepancies between G21 indicators and the diagrams for the same. It is suspected his recent increased interest in War News is partly due to a desire to avoid completing this job. Let's hope he never completes it.

Pauvre

18.

FROM THE H.2.S. EXPERIENCES.

L.A.C. W. Kellett, during his spare time has been incorporating a couple of modifications to his radio-amplifier. The most recent modification is a three-way inter-room system. It, by means of four H2S cables, a number of relays and unit 17 numbers of junction boxes, has connected a speaker from each room so that it may be used as a speaker or a microphone simply by throwing a switch. The work is most successful and saves R.M.I. many steps. It is now switching his receiver to a super-het variety that "at least another station".

The H2S room is being kept busy these days with making the necessary cables to the R.I.D. equipment. After having sorted out every ion (we think) we'll permit taking crystal current from a far ultra-slim lead of the junction boxes and insertion into a jack in the Tuning Unit, so found upon submitting the idea to Amber General that they have just come out with a set of their own (3/2/5). We still like our own idea best.

If anyone should ask "What's cookin'" we answer I.D. and their bench has been installed for the purpose of letting the new equipment simmer for several hours before being installed in circuit. As soon as cables are given we'll see our general shop relieved, and hear D.S. blurt about "N time to install I.D. on 'D.I. I.D.'"

SECTION

The R.I.D. program has been held up temporarily, pending the arrival of connectors. One Squar'n is completely fitted, and the other is half-completed. The new indicator has been responsible for the considerable number of headaches, chiefly due to its tendency to "cut out" adjustment while working. However, with the accumulated experience gained since the advent of the new equipment, this problem is gradually resolving itself.

The new Scanner-Well covers are at last rolling off the production line, locally manufactured and installed. By date seven have been fitted; it is hoped to have the job completed in time for the V by celebrations.

Aside from the war news, the most exciting events on the station were the semi-off parties celebrating Hank Ferguson's repatriation. The homeland trip caused a great deal of envy amongst the boys.

The most startling sight was W/S B B Ferguson's appearance after a week's spit and polish course at Leamington. The change of light in him was almost unbelievable. His shoes were shining, hair well polished, and his beard shaved all at the same time.

Weldlifters Nick Nickerson and Bob Allen have installed a new mill in the workshop. It is a non-technical device. Every day the boys in the shop pit their powers against that of the visitors and try to better their own records.

Buck More has signed on a course in London. The course should eventually lead to a several years stay in occupied Germany. Even if the course itself is not interesting, the two weeks stay around Regent Park should compensate in part.

Cpl. McLaughlin travelled with the station hockey team when it played a series of games in various parts of Scotland. The team didn't win any games but the boys said the blur and so forth were swell and the girls lovely.

Pauvre

19.

NO. 64 (R.S.V.P.) BASE

BASE MAJOR SERVING SECTION

Base Major received a big list this month in the form of W.O.G.'s posted to the section. We welcome L/C's Duke, Mallory and Hughes (all formerly with T.A.F.) to our roll. Prior to their arrival the man-power situation was, to put it mildly, most grim. The three newcomers are at present undergoing a 64 Base one-week Major familiarization course under the guidance of P/O Jay.

From L/C M. Cook we hear good news of recovery and possible early repatriation. Our best wishes go with you Cookie.

The maintenance staff here would appreciate a tip in either reason or remedy for blowing C.A.T.'s. We've had three blow up in the last week (two of them in the same Indicator). After the last local explosion the entire section rushed to the scene to find C/L. Callard standing there with a peaceful expression and a mouthful of utterances bearing not the slightest resemblance to English.

The R-bar team is away to a good start in the station's ft-ball league, having defeated last year's champions in their first game. P/O Lewis showed fine form in the match.

The Victory Loan Drive has met with 100% response here due, largely, to an afternoon's whirlwind campaign staged by S/L Carstairs. The Base Major chief talks with a keen line of sales talk in the boys' knuckle-under, one-bounce.

The section was well represented at the Victory Loan Ball, east of the boys' favour in the far end of the MAIN for a good reason or other. The bar was also situated at the far end!!!!

MIDDLETON ST. GEORGE.

During his recent leave P/S "Roly" Dear uchers' toured the country around Plymouth again. He accepted an invitation to visit the mighty battleship H.M.S. JUBON. He was on board for a little over six hours. There was so much to see he hardly had a chance to satisfy his curiosity. Unfortunately there were so many civilians waiting on board it was impossible for him to get a look at the Radar gear. He was informed that they have 14 different types. "Roly" met L/C Leary who was also touring that part of the country. There was an article in a Plymouth paper about the way Leary spends his leaves, hitch-hiking around from place to place.

P/O A.P. Thorne, Winnipeg, paid us a visit during the month. He has been over since January/41 and one of the first Canadians to take the course at Yatesbury. He was 15 months on a ground station in Ireland then posted overseas to the War East. He reached India and Ceylon, where he spent 3 years. He is on his way back to Canada. He was very interested in the mid-time gear.

S/L "Buddy" Roy and P/O Jackson were visitors from B.D.U. during the month.

The R-bar soft ball team won their first league game against 419 "B" Flight by a score of 15 to 5.

Pauvre

20.

Sgt. McArthur is being married on the 21st of April. Dave Webster is going to be the best man. We all wish "Mac" the best of luck.

Cpl. "Banty" Packer is in Northallerton hospital. We wish him a speedy recovery.

P/O Goddard and senior N.C.O.'s were on the station during the month getting a little inside "gen" on the Canadian Line. X.

P/O D. U. Hoff and P/O Macintosh were visitors from 76 base.

We welcome L.C.'s Davis, Bathurst, and Smith to the Radar Section from signals. At present they are getting a short radar course under the guidance of P/O D. U. Hoff.

SPORTS CLIPPING.

The big event of the month was the at way was our big Radar party held last month. Over thirty messes gathered at the Golden Ploose in Dalton. The evening started with a quick game of football then they brought on the chicken dinner with all the trimmings.

The Royal Canadian Mounted Police were present and their officers, Pat Petersen and Bill Bretz of Millington turned up.

After the meal the boys moved into the recreation room and really fine billiard games came into play. Other types of recreation took the form of "billiards" games and a quiet(?) sing-song in the corner.

There were no casualties, but our doctor is still wondering how he was transported from the Station to camp. We are all looking forward to the next one.

Three W/O's from Millington were on duty in the Section last week to learn the perils and mysteries of Radar. Their names are Blake, Truelove and Johnston. Blake is now away on 10 days leave and the other two have gone back to base for a course. But it now has it that Truelove has been posted to the Continent, alas Blake. Ah well!!! it was over thus.

Rumour has it that one of our flight-sergeants is hearing the faint tinkling of jollin bells in the distance. With one of our flight sergeants already married it narrows the rumour down considerably.

With Catterick and Station race tracks right at our back door the moon hour session looks like a big convention. Jim Baker and Bill Dowie have already contributed generously to the R.I. Society for Destitute Ladies.

WOMEN!!! Never, never, never, enter R.I. Section with muddy boots on. Since the floor has been varnished and waxed you either come in with your boots clean or leave them at the door.

At the present time our Officer "Mike" O'Neill is away on leave. George Wilson has just returned from a leave in South. Will Cleary has shaken the Radar dust and the Grassline out of his hair and is away to pasture for nine days rest in a place where they don't have electricity.

Jim Chesney, Fred Benkus, and Phil Charman have returned from London town with stories of the last V2 blitz. Jim Iverson is away again on his nine days tour. Probably Scotland and way points. We are all wondering if he can do it in a shirt again, and if he does, how many times he will turn it.

Pauvre

21.

Mal Lorry has returned from a quick circle tour of many England, and
feelin' much refreshed from his journeys.

Jerry Blair, by this time will be deep in the heart of the land.
Frank O'Sullivan on the mission are also giving the old time scenery the once
over - and Jerry's being the next leave will be that thirty day one we are
all looking for.

Late Flash!!!! "Pop" Menis has probably a report. Last Fall is now
employed at R.E.L. in Ontario as a civvie.

GROPE THE LINE

This month we give a quick sketch of one of the so tall Park Road think-
ing philosophical men of the R.E.L. section. Name other than that God
expert Donald Drummond.

Under his present address he trails from the Ins, Manitoba. Before this
he did some farming in Saskatchewan and Northern Ontario. Hopes to go
back to farming after he has conserved chasing flatterin' electrons around
radio circuits.

"Du" took his R.E.L. training at Queens University then on to some place
called Clinton and arrived over here. Like all such, he figures he has
been over the land.

Full of quiet wit that explodes all over the section, "Du" keeps the
section happy. He is top notch on mathematic problems. Chief hobby is
giving lessons on various card games and ball point pen uses. Chief vice
is a distinct liking for tea, which he chairs he has picked up over here.

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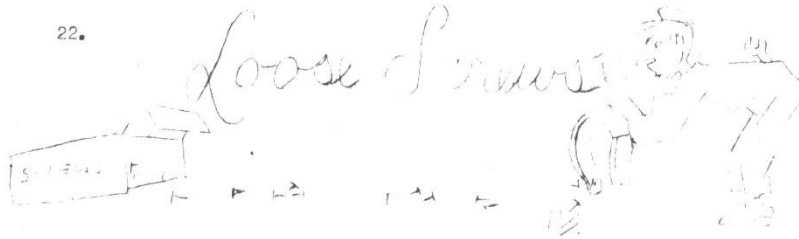
STOP! - PRESS! - NEWS! -

Bowler hats for Canadian Radio
Mechanics have so far hit a new low
this year!!!!

-000-00-00-

Pauvre

22.



Overheard from a Radio Man who had built a radio and was selling it, "Sure it works but I wouldn't advise you to listen to any Serial stories!"

////////////////////

From us sayings of the Base Radio Types who recently hit 'Stand-In' City at Group Headquarters, "Goodbye - - - Please!!!"

////////////////////

It was noted in "Radioer's Digest" that the original "Ark" has been discovered by some Russian Flyers. No. 63 Base says, --"Now can we send our old Douglas Jennies back?"

////////////////////

Have you often wondered why a Radio waves or if a carrier belongs to a Union.

////////////////////

In the beginning there wasn't Radio - - -they weren't so dumb as it seems.

////////////////////

Radio Repeat: "Which way you going Babe?"

She: "Sir!! that's no way to address a lady whom you have never met and who lives at 198760 Ontario Street, Hillcrest 35876J."

////////////////////

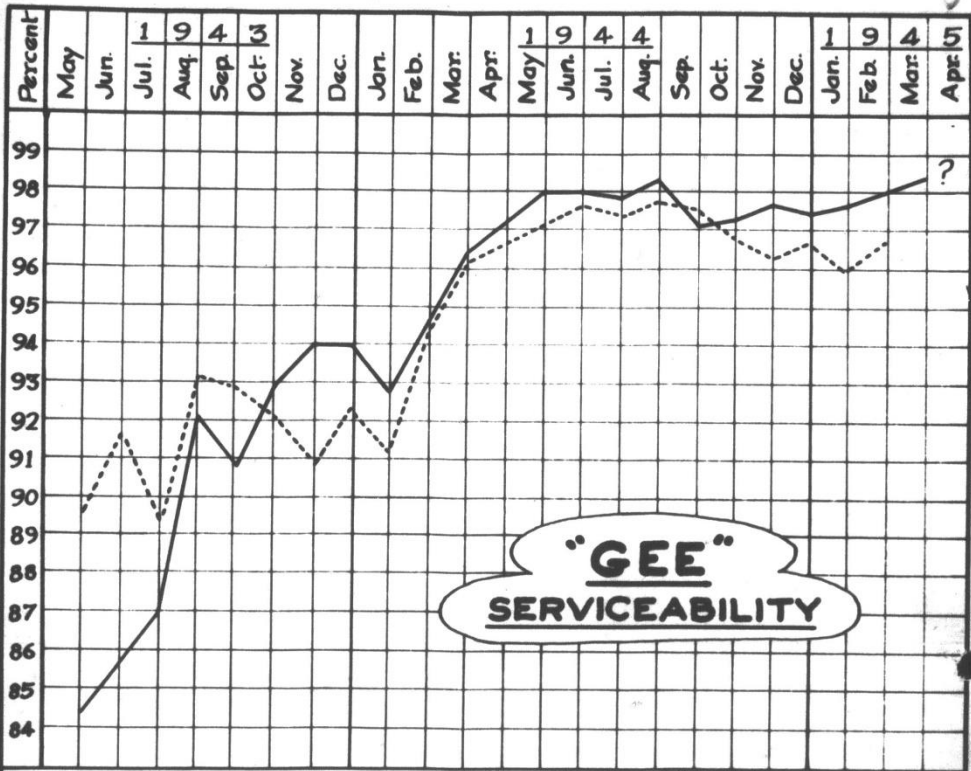
Overheard on the Station.

There goes Radio Bul.
Yes, but why the Radio?
Oh, he picks up everything.

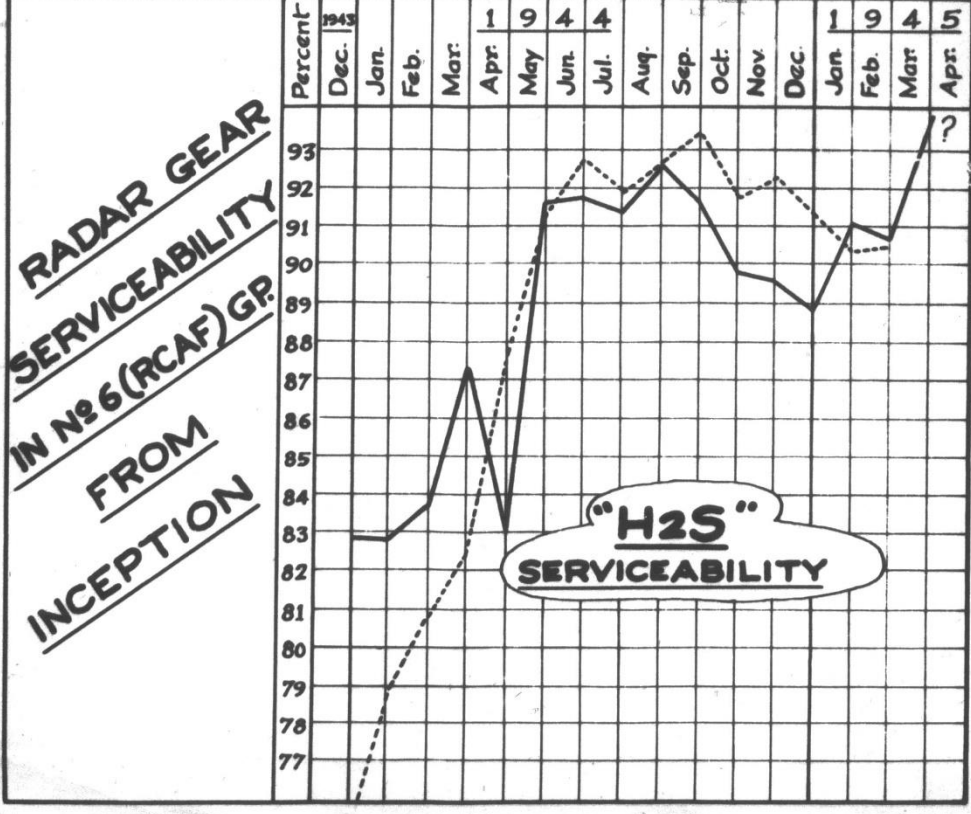
////////////////////

In R.M.'s Dictionary (many references.)

Electromagnetic:	She's got what it takes.
Protons:	Recommended for the Daily Diet
Static :	Dispersal hours
Knapsack:	Not her fault.
Cup of :	a cake in a cup.
Frequency:	Just once to often.
Scanner :	Tut! Tut!
Transitron :	Review Commission.
Saturation :	Scaped.
Rectifier :	a spitgun working.
Dumpyload :	a blind date.
V.C.F. :	Very cute proportions.
P.P.T. :	first floor on the left.
CD.0896 :	If a man answers, hang up.



No 6 (RCAF) GROUP: BOMBER COMMAND: -----



**RADAR GEAR
SERVICEABILITY
IN No 6 (RCAF) GR.
FROM
INCEPTION**

**"H2S"
SERVICEABILITY**

- 5 -

27th July,
1945.

Station Dance again with Westleton dance band in attendance.

Conference at Bomber Command, Sq/Officer Ball and Sq/Officer Davies attending.

Friday night swimming at Ripon Baths.

28th July,
1945.

Start of Moral Leadership Course which is being held at 6 Group Headquarters.

Big Track meet in London. IAW. Goudie, IAW. Griggs, and IAW. Hebert coming out with prizes for the girls.

Thirty W.D.'s invited to dance at Rufforth and thirty to Thelthorpe.

29th July,
1945.

Movie shorts tonight in Recreation Hall, on Canada and products etc.

30th July,
1945.

S/O Howson, IAW. Simpson, and IAW. Starr all on trip for today. Everyone enjoyed it and no sick this time.

31st July,
1945.

Commanding Officer's Parade, went off O.K.

Sq/Officer Ball paid a visit to RCAF Station Linton.

Twenty-five girls were invited to dance at RCAF Linton in the evening.

S/O Hamilton, Opl. Lindsay, Opl. McKay and Opl. Torpy, all went over Germany today. They seem to be getting through the girls now, but still lots more to go.

Photograph numbers for this month are:-

Y8282	Y8277	Y8317
8285	8315	8440
8286	8318	8537
8289	8322	
8450	8316	

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DSF-L-3

MONTHLY SUMMARY
OF

SECRET

172

Gunnery ENCOUNTERS

APPENDIX No. 172 to
R.A.F. FORM L40
H.Q. No. 6 (R.C.A.F.) GROUP
DATE April/45

APRIL 1945



Pauvre

FROM:- Headquarters, No. 6 (R.C.A.F.) Group.

SECRET

To:- Headquarters, D.O. Command. (Int. III) 2 Copies.
 Headquarters, Nos. 1, 3, 4, 5, 7, 8 (R.C.A.F.) & 100 Groups.... 1 Copy.
 Headquarters, No. 91 Group..... 11 Copies.
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 C.F.D.U. 1 Copy.
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 H.Q. Flying Training Command..... 1 Copy.
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 No. 24 O.T.U. Honeybourne. (Attention Gunnery Leader)- 1 Copy.
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 R.C.A.F. Nos. 75, 62, 63 & 64 Bases. (Attention Base Gunnery Ldr.) 1 Copy.
 R.C.A.F. Squadrons: 408, 415, 419, 420, 421, 425, 426, 427, 428, 429,
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 R.C.A.F. Stations: Linton, Tholthorpe, Eastmoor, Leeming, Skipton,
 Middleton, Croft, Topcliffe, Dishforth, Hemblton,
 Dalton. (Attention Station Intelligence Officer,
 ("Gen" Room) 1 Copy.
 R.C.A.F. Nos. 1661, 1666, 1659 H.C.U's. 1 Copy.
 H.Q. No. 6 (R.C.A.F.) Group Confidential Library, (Officers). ... 1 Copy.
 Group H.Q.O. 1 Copy.
 Group Historical Records..... 5 Copies.

To H.Q. R.C.A.F.
For onward
transmission.

Date:- 6th May, 1945.

Ref:- 60/3.660/1/1/Trg.

SUMMARY OF ENCOUNTERS WITH ENEMY AIRCRAFT.

APRIL - 1945.

REPORT NO. 24.

During April 1945 Lancaster and Halifax aircraft in No. 6 (R.C.A.F.) Group had 45 known encounters with enemy aircraft, 15 of which developed into attacks (i.e. Fighter opening fire).

2. From the combat reports received, the following claims appear to be justified:

- 3 - DESTROYED - 1 by 430 Sqn. (J. - 4.4.45).
 1 by 434 Sqn. (K. - 4.4.45).
 1 by 427 Sqn. (O. - 13.4.45).
- 1 - DOWNED - 1 by 433 Sqn. (I. - 9.4.45).

3. Eight different types of aircraft were encountered:

16 U/I	7 Me.262	3 Me.103	1 Me.109
10 Ju.88	6 F.W.190	1 Me.410	1 Me.110

4. Seven of these aircraft were contacted on the outward journey, fourteen over the target area and twenty-four on the return journey, enemy aircraft attacking mostly from quarter and from above.

.T.O.

Pauvre

4. Cont'd.

STAGES FROM	ABOVE	LEVEL	BELOW	TOTAL
WINTER	14	5	13	32
WINTER	2	2	2	6
WINTER	1	2	-	3
WINTER	2	1	1	4
TOTAL	19	10	16	45

[Signature]
(S.A.F. SU) Squadron Leader,
For Air Officer Commanding,
No. 6 (R.C.A.F.) Group,
ROYAL AIR FORCE.

Pauvre

- 1 -

DETAILS OF OUTSTANDING ENCOUNTERS IN APRIL - 1945.

Night of 4th April, 1945. Operations to HAMBURG.

Halifax aircraft "U" of 432 Squadron encountered a Me.163 at 4000 feet while flying on a course of 291° T off track, position 52:37 N - 07:05 E.

The fighter, giving a yellowish glow, presumably a Me.163, was first sighted by the Tail Gunner on the port quarter up at approximately 500 yards, crossing over to starboard quarter. The Rear Gunner ordered corkscrew to starboard and both Gunners opened fire a few seconds later. The Tail Guns stopped firing due to link stoppages after having fired 600 rounds but the Mid-Upper Gunner continued to fire and the fighter was seen to explode by both Gunners and Pilot when at 250 yards. This presumed Me.163 is claimed as DESTROYED.

The Rear Gunner F/S Billard and the Mid-Upper, F/S Brooks, both trained at No. 3 B & G, 24 O.T.U., Dalton Aircrew School and No. 1664 H.C.U.

COMMENT:-

This claim against a Jet aircraft has been allowed because of the attacking fighter opening fire. Quick action and fire at a good range finished off this Hun. Good Show.

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Night of 8th April, 1945. Operations to HAMBURG.

Lancaster aircraft "K" of 434 Squadron encountered a Ju.88 at 14000 feet while flying on a course of 190° T, on track, position 53:17 N - 09:35 E.

The first warning of attack was tracer coming from port quarter up and the Rear Gunner obtained the first visual a moment later at a range of 250 yards. "Corkscrew Port" was given and both Gunners opened fire. Hits were seen to enter the enemy aircraft which broke off at 200 yards on the starboard quarter up. By this time the fighter was well on fire and losing height but both Gunners continued to fire until the range was approximately 500 yards. At this point the fighter was seen to explode in mid air by both Gunners and the second Pilot. Pieces of the enemy aircraft were seen falling in flames. This Ju.88 is claimed as DESTROYED.

The Rear Gunner F/S Lawlor fired a total of 1000 rounds, encountering 1st position stoppages in both left hand guns and the right hand inner but no further stoppages were encountered after cocking. The Mid-Upper Gunner F/S Saunders fired a total of 800 rounds without any stoppages. Both Gunners trained at No. 10 B & G, 82 O.T.U., Dalton Aircrew School and No. 1659 H.C.U.

COMMENT:-

This crew was lucky not to be hit at the beginning of the attack, but they quickly retrieved themselves and sent the old Hun into eternity. Good Show.

P.T.O.

Pauvre

...to engage a ... aircraft ...
...at 17000 feet, while flying on a course 161° T, on track, position 54:09 N - 10:10 W.

...Aircraft was seen on Fishpond, starboard quarter down at 1000 yards. As range decreased to 800 yards the Rear Gunner sighted the aircraft, gave the order to engage starboard and opened fire. The fighter continued to press home his attack moving over to dead astern. At 300 yards the fighter burst into flames and broke off the attack to port beam up. The fighter was seen later going down in flames through clouds. This F.W.190 is claimed as ~~DESTROYED~~.

...F/O Reed, K. (D.F.M.), the Rear Gunner, trained at No. 3 B & G, 22 O.T.U., Dalton Aircrew School and No. 1666 H.C.U.

COMMENTS:-

Good search by W/Op. on Fishpond, immediate combat manoeuvre and good shooting were rewarded by a Kill. Good Show.

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REVIEW OF
NAVIGATION
SECRET
APRIL 1945

208
APPENDIX No. 208
H.A.F. FORM 4
H.Q. No. 6 (R.C.A.F.) GROUP
DATE May/45



ECRITURE PALE

NAVIGATION REVIEW - APRIL, 1945.

OPERATIONAL

April provided an interesting example of what happens to navigation when certain operations are limited in the facilities of radar. The monthly averages, with the exception of the wind vector error which was reduced by 4.6% were all higher or worse than those of March; the average timing error increasing from .9 minutes to 1.3 minutes. All this despite the fact that the number of operations flown during April were less than half of those concluded in March.

It is apparent that the area of the target and parts of the routes in relation to Gee coverage, has some bearing on the results obtained. Operations on Harburg, Hamburg, Kiel, Helligoland, Bremen and Wangeroo, all called for a long route over the sea, followed by a short period over land where H2S was the only reliable aid. Logs and charts of these raids checked by Headquarters showed a definite lack of co-operation between many navigators and bomb aimers. A great deal of improvement in this respect is necessary before crews will enjoy the optimum benefit from H2S as a navigational aid. Harburg logs were an excellent illustration of the above fault. Log after log showed the same picture. Navigators reached concentration points early, obviously reluctant to lose sufficient time. They kept this extra time in hand while flying on D.R., and in many cases, ignored good H2S fixes, and flew on to bomb the target early. Quite a number of navigators who ignored the H2S fixes to correct their timing, did use one of the fixes to obtain a last found wind. This same picture is repeated on a number of trips during the month and explains why that, although the timing and navigational errors are considerably poorer, the wind vector error has improved.

A large percentage of crews seem able to do systematic accurate navigation to about 100 miles before the target. From this point to the release of the bombs, even though fixes are available, time wasting is either not attempted at all or left so late that it is dangerous, if not impossible, to carry out successfully. It is obvious that not enough faith is placed in the first few H2S fixes obtained after the period wherein no aids have been available. When, after realizing that H2S is all the fixing assistance he is going to get, the navigator too often finds himself without sufficient time to make full use of his information and is faced with the unalterable necessity of bombing out of time, usually early. Had he used the original H2S fixes when they were obtained, he would have had ample time to make all necessary adjustments.

Standing Of Squadrons

Middleton achieved the distinction of attaining undisputed top place during April with both 428 and 419 well ahead of the race. 428 Squadron secured it's last month's good standing by improving from 4th to 1st place while 419 showed the greatest improvement of the month by making the leap from 11th place in March to 2nd place in April. This station has shown consistently good navigation during the past few weeks and is to be congratulated for it's fine work. It might be noted, too, that these squadrons are handicapped in that, not yet having converted to Knots, all calculations are made in mph, so that before and after operations, much additional work is required of them.

On the debit side of the picture, 415 squadron which was in 3rd place last month, sank to the bottom with a splash, being 12 points lower than it's nearest competitor. 432 and 420 squadrons maintained their last month's positions by again placing 12th and 13th respectively, displaying no improvement whatever.

1/2.....

Ecriture Pile

Log Analysis For April

Group analysis of navigators logs and charts for the month of April shows a general tendency towards a definite laxity in tracking and timing. While most squadrons excel in one or another phase of Navigation, they sadly neglect at least one other equally as important, e.g. one squadron uses the A.P.I. to great advantage for homings to concentration points; another squadron uses the A.P.I. successfully to home out of the target; another squadron will practically ignore the A.P.I. but has exceptional Radar set operators; another squadron concentrates on Log Form in all its completeness. The pre-flight checks are complete, the compass, Z equipment, and A.P.I. - T.A.S. checks being very regular. However, the old time worn faults still remain and are at present becoming worse, resulting in haphazard timing on the target.

This poor timing is a direct result of slow and sketchy navigation during the hour preceding bombing. The first H2S fix or fixes are invariably ignored completely. It should be evident that during this part of the sorties, good tracking and W/V's are most important, from the point of enemy defences, and accurate timing. Often as many as ten H2S fixes will show the aircraft to be many minutes ahead of time, yet nothing is done about it, or action is taken too late to be of help. After bombing, navigation remains sketchy and tracking has been very bad with aircraft many miles off track and often flying over defended areas. This is unnecessary. A W/V taken at the Bomb Release will give a good target area wind which may be interpolated for any required changes. A controlled A.P.I. homing will avoid overshooting turning points and eliminate inaccuracies in the courses flown. in height

Regular, methodical navigation must continue to Base, D.R. positions, fixes and A.P.I. readings, and courses must be plotted with accurate E.T.A.'s, calculated in the event of navigation or engine failure occurring before arriving at Base.

In brief, our navigation can be improved most by using all available aids and information throughout the target area.

The following comments by a Group log marker who spent some time on work submitted by the Navigators of one squadron following the Harburg operation, aptly illustrate the faults of the whole Group.

General Comments

Timing Very poor. It is interesting to note that the few aircraft that failed to get H2S fixes off Heligoland and the continental coast, bombed within one minute of their T.O.T. This is largely due to keeping their concentration time at position B and using the net, forecast winds from there on, which were really "bang on" for this trip.

The worst offenders are those navigators whose bomb aimers obtained plenty of reliable fixes from Heligoland, 20 to 25 minutes before the T.O.T. In nearly every instance, the navigator failed to attach any importance whatever to these timely fixes, even to the point of not plotting them. Why lose an opportunity to find an accurate W/V at height and revise E.T.A.'s for positions C, Z and the target? This Squadron shows a definite lack of teamwork between the navigator and bomb aimer.

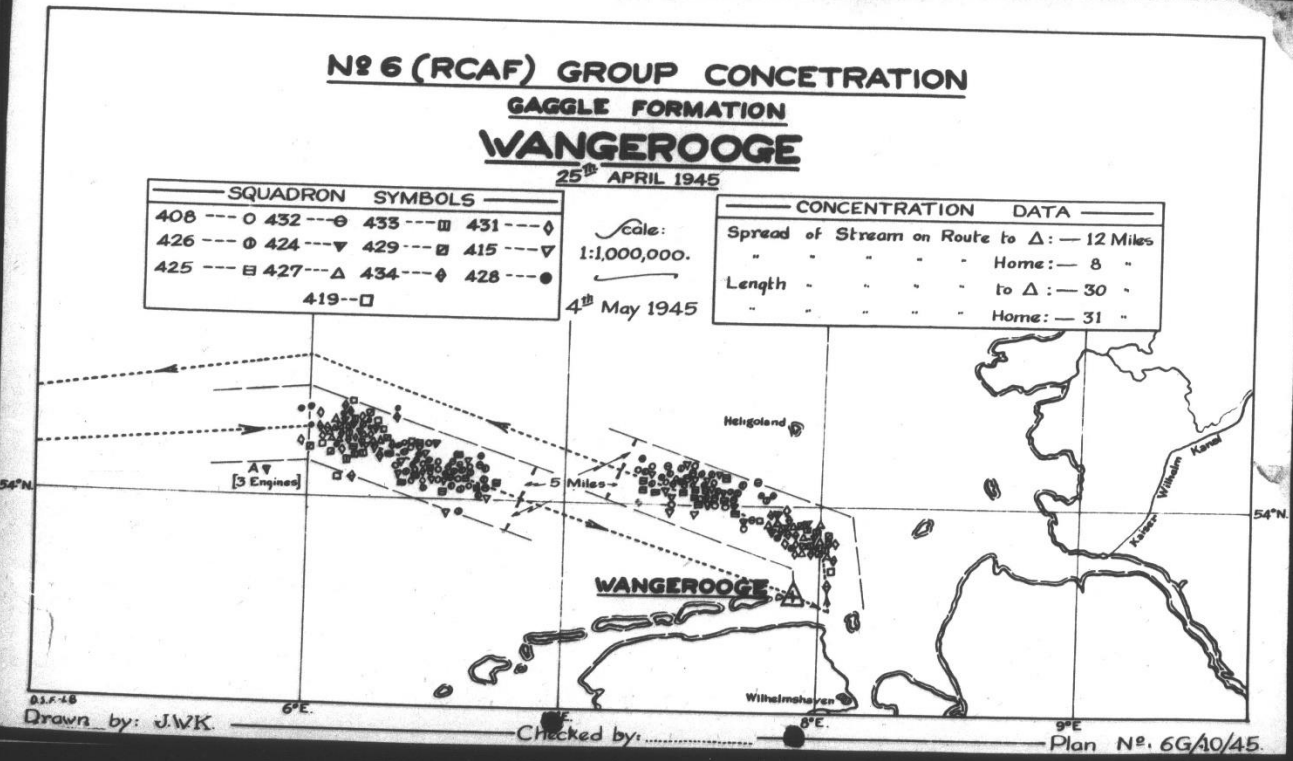
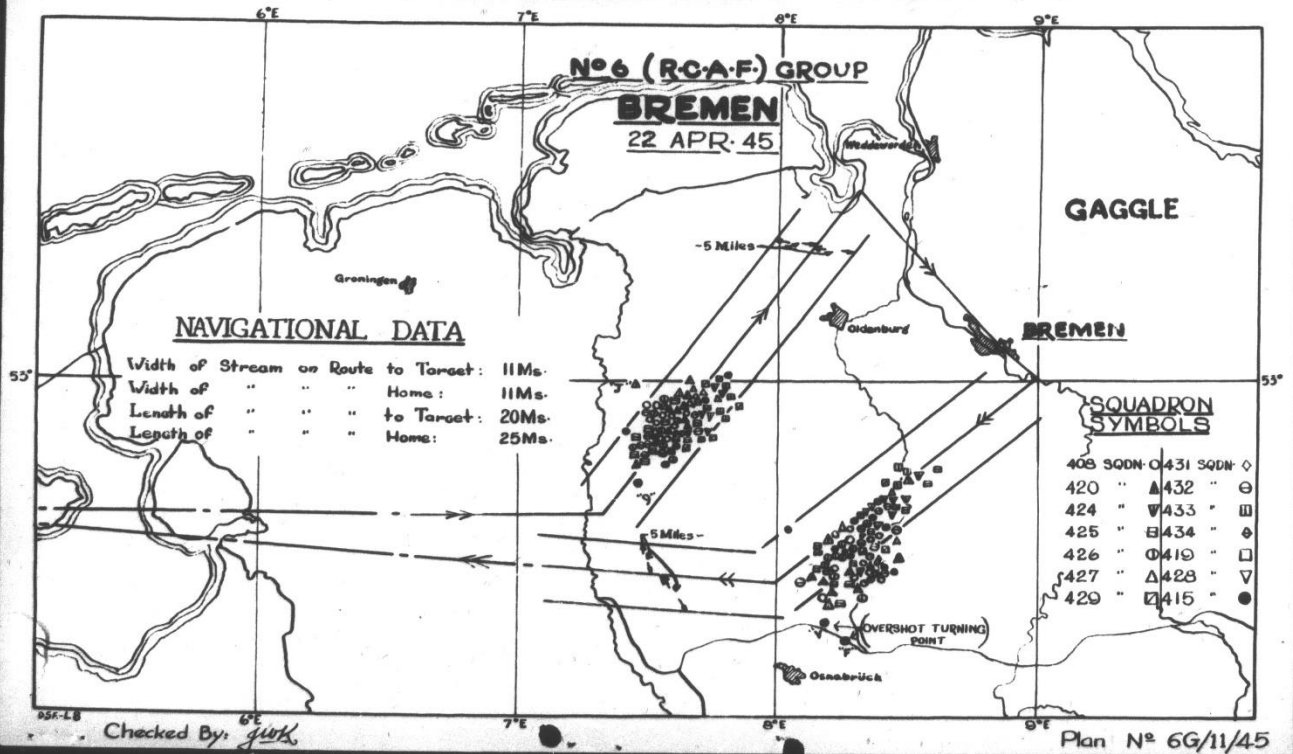
Tracking Below average. Current tactics calling for climb near the range limit of Gee, requires the navigator to use all his available information to the best advantage. On this particular raid, fixes were available at Height. A climbing W/V should be taken as soon as height is reached and this wind vector carried for subsequent winds. This was not done with the result that later W/V's taken over fairly long periods of time also included the 2000' W/V, the climbing W/V and the W/V at height.

SUMMARY OF TARGETS FOR APRIL

DATE	TARGET	NO. OF A/C	AVERAGE TIMING ERROR (Minutes)	% MORE THAN 1.5 MIN. OFF T.O.T.	% WITHIN GROUP T.O.T.	MEAN POS'N ERROR (MILES)	% OUT OF OVAL	WIND VECTOR ERROR (M.P.H.)	GROUP AVERAGE WINDS
4.4.45	Harburg	88	1.8	29.5	92%	11.3	67	14.5	304/46
4.4.45	Leuna	96	1.4	32.0	91%	5.6	60	16.0	302/50
8.4.45	Hamburg	171	1.1	21.0	98%	5.7	39	-	005/29
10.4.45	Leipzig	179	Gaggle	-	76%	-	-	14.1	244/18
13.4.45	Kiel	173	1.7	32.0	80%	10.1	52	-	319/35
16/17.4.45	Schwandorf	115	.5	10.4	90%	2.7	38	-	333/15½
16/17.4.45	Gablingen	16	.7	12.5	50%	4.0	25	-	293/16½
18.4.45	Heligoland	108	Gaggle	-	100%	-	-	11.6	324/37
22.4.45	Bremen	189	Gaggle	-	99%	-	-	12.1	357/55
25.4.45	Wangerooge	175	Gaggle	-	39%	-	-	9.1	229/6
	GROUP AVERAGE		1.3	24.4	81.5%	6.6	48.6	12.4	

STANDING OF SQUADRONS FOR APRIL, 1945

SQDN.	STANDING	SORTIES (NIGHT)	GAGGLES	TOTAL SORTIES	MEAN T.O.T. ERROR	AV. TIMING ERROR	% OFF TIME	MEAN POS'N ERROR	AV. N.V. ERROR	% OUT OF OVAL	AVERAGE VECTOR ERROR	POINTS
428	1	4	3	7	.7	.8	11.7	4.8	5.2	32.5	12.5	26.4
419	2	4	3	7	.6	.7	16	6.0	5.5	36.5	10.3	28.5
427	3	4	3	7	1.0	1.0	21.4	4.0	6.3	43.0	12.4	32.2
424	4	4	3	7	1.0	1.4	20.4	5.1	6.5	40.0	12.6	34.0
408	5	4	4	8	.6	1.2	15.8	8.3	8.1	47	11.6	37.3
433	6	4	3	7	.9	1.2	21	5.8	7.6	55	11.2	37.7
429	7	4	3	7	1.5	1.1	25.5	5.5	7.2	52.5	14.4	39.7
434	8	4	3	7	.8	.9	19.0	7.7	8.6	55.5	14.5	40.1
431	9	4	3	7	1.4	1.6	31.5	5.6	7.0	49	13.4	41.1
426	10	4	4	8	1.3	1.4	31.9	8.8	7.6	50	12.6	44.1
425	11	4	3	7	1.1	1.3	25	8.5	8.9	61.3	13.2	45.2
432	12	4	3	7	1.2	1.5	25.7	9.3	9.5	60	13.3	47.5
420	13	3	3	6	2.2	2.0	28.9	7.6	8.9	54.4	11.8	48.7
415	14	4	3	7	2.3	2.4	54.2	12.7	9.3	54.4	11.4	60.6
			GROUP AVERAGE =		1.1	1.3	24.4	6.6	7.5	48.6	12.4	39.0

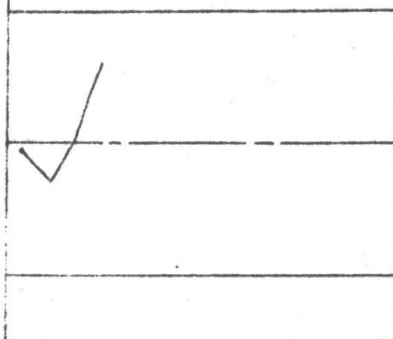


STANDARD OF NAVIGATION

[APRIL]

BY SQUADRONS COMPARED
WITH GROUP AVERAGE

NIGHT OPERATIONS ONLY

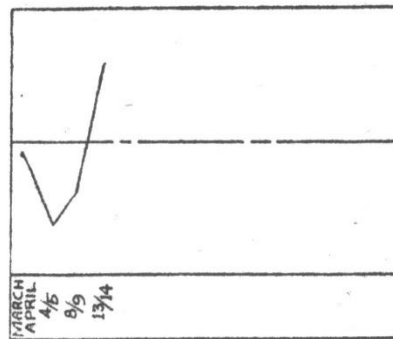


MARCH 4/5
APRIL 8/9 13/14
408

High

Av.

Low



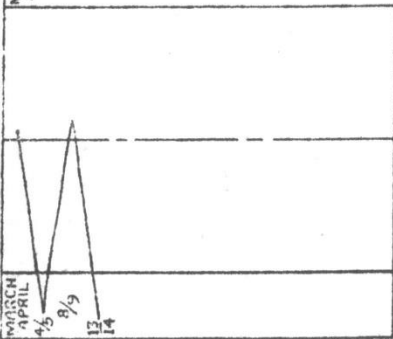
MARCH 4/5
APRIL 8/9 13/14

426

High

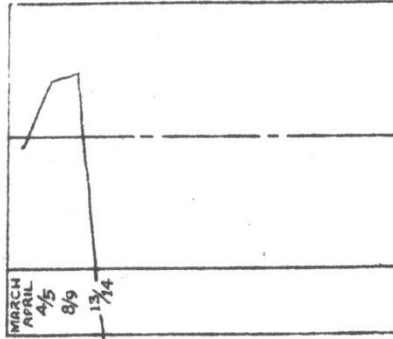
Av.

Low



MARCH 4/5
APRIL 8/9 13/14

415



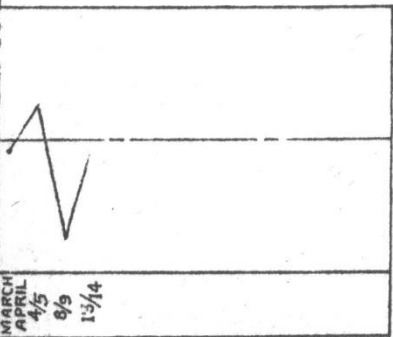
MARCH 4/5
APRIL 8/9 13/14

420

High

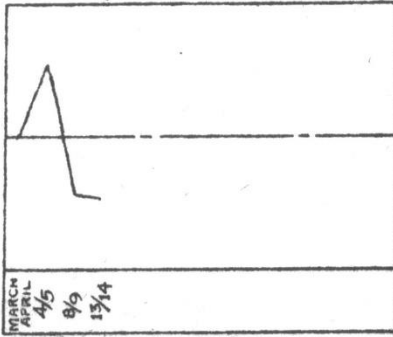
Av.

Low



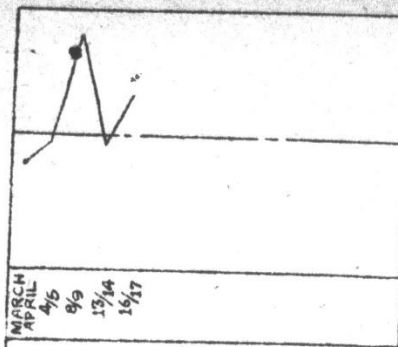
MARCH 4/5
APRIL 8/9 13/14

432



MARCH 4/5
APRIL 8/9 13/14

425

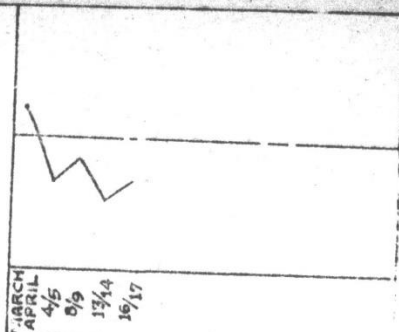


427

High

Av.

Low

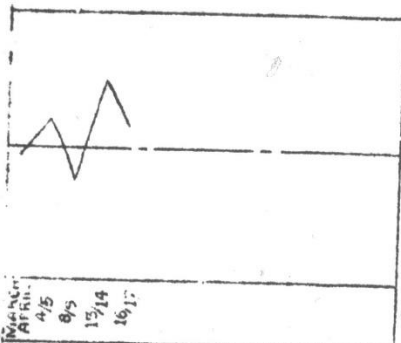


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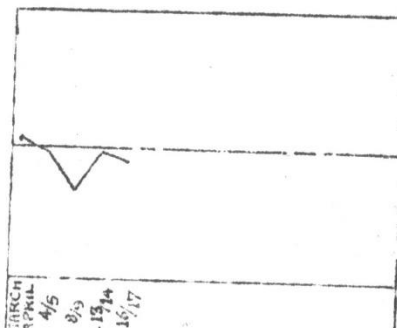
High

Av.

Low



424

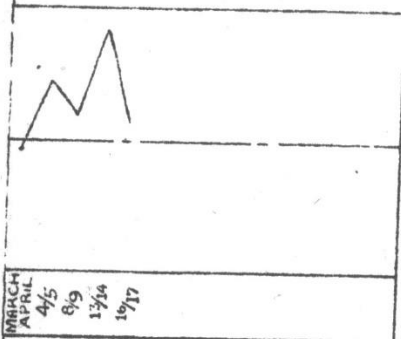


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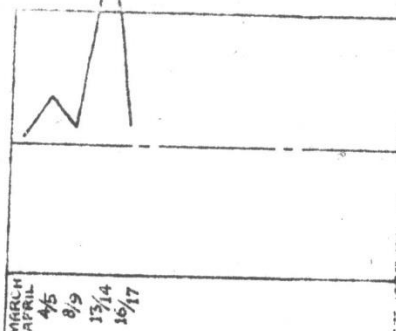
High

Av.

Low



419

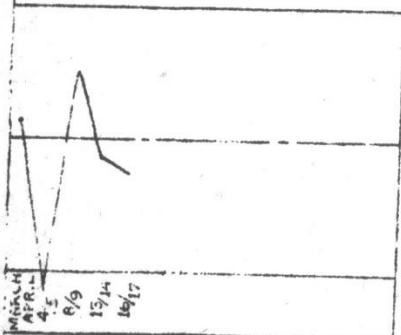


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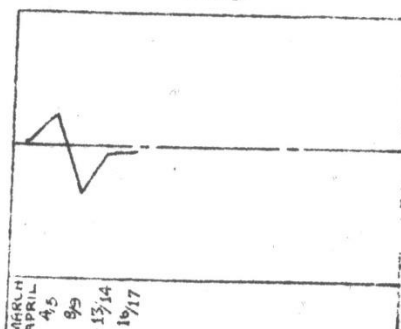
High

Av.

Low



431



434

Tracking (Cont'd.)

A W/V taken over a comparatively short period of time at height will give an accurate indication of the W/V to use for plotting D.R. positions when fixes are no longer available.

Log Form

Average. It is suggested that the Bomb Aimers box the concentration times to the target, AND the D.R. times for each turning point on the return journey. This will greatly assist in avoiding large errors in timing and in plotting D.R. positions.

Winds

Generally O.K. However, the greatest possible use is not being made of the last Gee fixes and the first H2S fixes for wind finding. An A.P.I. reading should always be taken at the time of bomb release and a W/V found. This is also a valuable wind vector to carry forward for A.P.I. homings. The T W/V can be interpolated for any changes in height.

A.P.I.

Out of Gee range the A.P.I. is somewhat neglected. Insufficient readings are plotted and course lines are seldom plotted. The A.P.I. should be used extensively for homing to concentration points and to improve tracking out of the target.

Nav. Aids

See A.P.I. H2S has not been used to advantage.

LIAISON VISITS

The object of these monthly visits by operational navigators to O.T.U.'s and CON Units is to investigate the principle and policy of instruction carried out on training stations and in return to advise instructors of changes in the current requirements of Squadron Navigation.

The reports submitted by F/O Bruce and F/O Horsnall on their recent visits to Wellesbourne and Honeybourne clearly indicated that both objects are being successfully attained, and our congratulations are extended to these officers for their valuable and conscientious efforts on behalf of 6 Group.

GROUND TRAINING

In view of the fact that the maximum number of sorties flown by any squadron in this group was only eight this month, results are disappointing.

Although the Group average is well above 600 hours, which might be expected, it is mainly the hard work of half a dozen squadrons which makes up this average. Two squadrons have maintained their positions at the bottom.

425 again tops the field by far and has a fine record of training. 432 and 426 are to be congratulated on remaining in the first four on the list.

As this lack of training hours is not due to operations, there is no excuse for it whatsoever.

Training must be maintained by Squadron Navigators despite the proximity of V-day. It may be pointed out that Squadron Navigators going on leave or on a course does not constitute an excuse for lack of training hours. Squadron Navigation Officers are responsible for leaving their "horses in order" and training should carry on under indirect supervision of station Nav. Officers in their absence.

/4.....

PAUURE

- 4 -

NAVIGATION CONFERENCE

S/L Ogilvie opened the conference, stressing the importance of parliamentary discipline at all meetings, and pointed out that punctuality in attendance was not receiving the proper consideration due such important functions.

The following items were discussed:

1. (a) Wasting Time and Time in Hand:

The present system was discussed at length and while some officers reported objections to it on the part of Captains, it was generally agreed that no real fault could be found with it. Some investigation is to be conducted with the object of determining if there is any foundation to the objections expressed by Captains.

(b) A Navigation Briefing to be given at Main Briefings

With the exception of one station, all officers reported that this addition to the main briefing was now in force and was being increasingly well received.

It was decided that, as a Group practice, time checks, would be given at all main briefings, as has already been laid down.

(c) Confidential Records

After a discussion on various suggestions as to what form this report should take, the G.N.O. decided that the method of maintaining these records would be left up to the individual stations.

(d) Gee Training - Bomb Liners

In general, all agreed that Bomb Liners do not receive adequate training in the use of Gee while at OTU's and HCU's and that it was of the utmost importance that they be given additional training on the squadrons, as O.T.U.'s and H.C.U.'s haven't the time for it.

2. Log Keeping

(a) Bomb Liner's Log

Suggestions were made that a better form is required for operational use, same to include additional columns in which to record Required Track - TRK and G/S., and that the grade of paper used is not of sufficiently substantial quality.

It was mentioned that Radar Navigation Officers, are designing a new log, which should be investigated with a view to copying it, if found suitable.

(b) Is it necessary for Navigators to log co-ordinates and/or Lat. and Long. when Air Bomber is doing the same thing?

It was decided that this was optional - that if the B/A logs co-ordinates, and Lat. and Long., then the Navigator does not have to. However, Navigators must log the symbols for fixes and Air positions, each on a separate line.

It was also decided that when log marking is done, the B/A's log must be available for additional information which might be used in back-plotting.

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GROUND TRAINING HOURS

Stand- ing	SQDN.	DRY SWIMS		SPEED-UPS		TOTAL FOR APRIL (Dry Swims, Speed-ups)	LOG MARKING APRIL	TOTAL FOR APRIL (Dry Swims, Speed-Ups, Log Marking)
		MARCH	APRIL	MARCH	APRIL			
1	425	350	470	234	453	923	267	1190
2			72	95	272	904	171	1115
3		370.1	311	337.30	453.30	772.30	204.30	977
4	434	317	436	201	293	729	232	961
5	408	197.30	315	358.15	430	745	180	925
6	415	317	374	136	297	671	227	898
7	419	381	366	194.30	280	646	105	751
8	420	266	236	69	357	593	143.30	736.30
9	429	31	84.30	204	284.30	369	191	560
10	427	269	204	209	197	401	156	557
11	428	258	369	144	103	472	77	549
12	433	297.45	264.30	123.20	221.35	486.05	40.55	527
13	431	72	213	86	185	398	55	453
14	424	286	230.45	167	106.40	337.25	50	387.25
TOTALS		3689.25	4553.45	2558.35	3933.15	8487.00	2099.55	10586.55
GRP. AVERAGES		263.30	325.25	182.45	280.47	600.36	149.58	756.54

Pauvre

3. Cross Countries needed where practice with R/F 27 Unit is possible

It was suggested that more opportunity for using the R/F 27 in training is desirable and that training routes should be organized to penetrate further East so as to provide Navigators with experience in picking up and using Continental Gee Chains.

It was decided that other shorter routes would be drawn up to augment Route No. 25 now in use.

4. Selection of Gaggles Leaders

An Air Staff letter covers this point.

5. Acute Shortage of Navigators

The G.N.O. mentioned that we are endeavouring to get new navigators but so far have had no results. He asked station navigation officers to keep him informed as to standings, especially as to spares, and pointed out that in view of present limitations, the matter would have to be left in abeyance.

6. Lectures on Far East Navigation by Repatriated Aircrew. How will Navigation change in the Far East? What training is needed between Phases I and II?

W/C Powell gave a brief summary of possible navigation problems in the Far East and asked all attending officers to think over and submit their suggestions for a training policy to prepare crews for this new field.

It was agreed that a reversion to fundamental training in DR was essential and that emphasis must be placed on Astro Navigation.

7. Concentration points to fit the tactics (Explanation why this cannot always happen will be explained by the G.N.O.)

S/L Ogilvie stated that tactics letters are often late in being sent out to the stations and explained that this is unavoidable due to changes in tactics due to various reasons.

A discussion on logging times resulted in an agreement that all times would continue to be computed in tenths of a minute, as at present.

8. Whether A.P.I. Homing is to be done to Z or to the Release Point

Some suggestions were made for an API homing to be made to position Z so as to give the Navigator time to attend to other duties on the target, run-up, but it was decided that a complete homing to the release point was preferable and would continue to be used.

The G.N.O. informed the conference that the Group policy now in effect is that from Z to the target, all aircraft are to fly briefed speeds only and he added that position Z can be eliminated if it falls too close to the last concentration point.

Powell

- 19. In order to keep a closer check on New Navigators and to facilitate passing reports to Group on this subject, it has been suggested that a standard form be approved.

After a discussion on various ideas on this subject, it was decided that the individual systems now in use on each squadron would be continued.

D. Picking of Crews for P.F.F.

The C.N.O. informed the conference that a form would be sent out by the C.T.I. It would provide for the names of nominated crews, with space for comments of the Specialist Officers concerned and the signature of the Squadron C.O. He added that if the Nav. Officers' remarks are unfavourable, the crew would not be accepted, the form being returned to the squadron.

11. Duties of the Base Navigation Officer

To be circulated to all station Nav. Officers - distribution to be arranged locally.

- 12. Now that statistics on each Navigator are available, what is being done on different stations to correct the error?

It was pointed out that figures kept on each navigator do not necessarily reveal the main source of individual faults. Suggestions as to the value of log marking were made and it was generally agreed that if this work was conscientiously done, repetitive faults could be eliminated early in a tour.

W/C Powell said that log markers were not doing their job properly and urged all SNO's to stress the importance of this work during the coming weeks.

- 13. Discussion on the two screened navigators on the R.C.A.F. Overseas Strength and their duties.

No. 1 is the Assistant to the Squadron Navigation Officer, No. 2 is the Navigator for the screened training crew.

The conference decided that No. 1 is to be in charge of all training and is to look after all new crews having up to 5 trips, after which the Squadron Navigation Officer would take them over.

No. 2 was to do all flying duties required to train new navigators and to assist on the ground as well, making himself available to the Squadron Navigator as required. His flying duties would include reporting on crew discipline and air drills.

- 14. Are the statistics on each navigator showing up the best navigators in the Squadron?

It was suggested that statistics don't prove very much as some good navigators are handicapped by bad luck in their crews and equipment and are assessed against inferior navigators who have, perhaps, done easier trips and show better results accordingly.

W/C Powell stated that statistics can be made to instill competitive feeling if properly displayed. The Captains' names should be added to these lists.

- 16. More use to be made of the A.P.I: (a) For time wasting (b) Homing to Concentration Point (c) Homing out of the target.

It was agreed that homing out of the target by A.P.I. will maintain concentration as it eliminates pilot error, wrong courses, wrong airspeeds, cutting corners etc.

/7.....

Pauvre

15. (Cont'd.)

It was agreed that homing was to be laid down by Group Signal and that each station would compute courses, distances etc., to fly on Met. winds, the homing to be done to a point some 15 minutes out of the target.

16. Z and Compass Checks

It was pointed out that "Z" equipment checks are not being made regularly enough. This must be done in future.

17. Concentration times are still not being made. Many navigators are keeping additional time in hand, although the winds suggest otherwise.

The G.N.O. pointed out that if concentration times are kept, there is a resulting improvement in the T.O.T.'s.

In the absence of the Group Radar Nav. Officer, the G.N.O. read his remarks which included advice on obtaining better blackouts, and suggestions for improving P.P.I. Photography.

He mentioned the fact that timing signals often listed radar failure as a reason for bombing out of time whereas, in fact, by later investigation, it was found that finger trouble was real reason. He urged Station Navs. to check all such reports. He also reported that B/A's were still making poor use of Gee equipment due to lack of training. A GN14 form was shown to everyone and it was suggested that this be reduced in size.

F/O Thompson said that he was endeavouring to improve the calibre of instruction at Dalton. He felt that he was not quite up-to-date on the Group policy and asked that all instructions emanating from HQ be sent to him also. He advocated a close liaison between squadrons and Con. Units. He requested that operational logs be sent to Dalton to be marked and in return, provided speed-up exercises for use on squadron training program. He requested instrument manuals and other books to fill a depleted library.

In reference to Dalton Instructors School, the G.N.O. said that Station Navs. would specify on GN13's if they consider an "average" navigator as a potentially good instructor.

BOOBS AND BOUQUETS

The following information has been supplied by individual squadrons: -

425 Squadron

Bouquets F/O Tigheclaw on Hamburg, aircraft lost a propeller shortly after setting course but they carried on and with the assistance of his set operator, F/O Ogilvie, the target was reached and bombed on time.

Boob Hamburg - this navigator laid off two A.P.I. homings, putting his vectors on backwards. As a result, the target was missed completely and the aircraft at least 65 miles off track. Instead of getting back to track when the error was discovered, even though he would have been able to join the stream, he set course for England over the Ruhr pocket.

Pauvre

424 Squadron

Bouquet

F/O Mullins, Pilot - F/O Huculak, Navigator, on Wangerooze, 25th April, 1945. This crew took off late and lost an engine just after getting airborne. They set course immediately, cutting all corners possible and arrived at 0600E the same time as the gaggle. They could not hold the gaggle speed and so bombed late, but an Aiming Point picture was obtained.

A keen crew, who showed a lot of initiative to make their mission a successful one.

408 Squadron

Bouquets

F/O K. Hickey, on an operational trip to Kiel on the night of the 13th April did an exceptional job of navigating. His D.R. compass, A.P.I. were unserviceable, his Geo and H2S being of very little use, despite this he did a good job, using a manual air plot for the trip and bombed within .3 of his allotted time.

F/O Clark, did good work on both the Leipzig and Wangerooze gaggles. On the former he was a deputy leader. When the aids of both the gaggle leader and the first deputy went u/s he took over and led the gaggle. On the Wangerooze trip, he was gaggle leader, and again turned in a very good job of navigation.

Eastmoor

Heligoland

Bouquet

F/O Beck turned in a very good performance in leading his first gaggle for the Base. It was quite an honour for this Base to start off Bomber Command's attack on this target and his bombing time of .2 mins. early was worthy of the occasion.

419 Squadron

Bouquets

W/O Keizer - for individual navigation. Including the attack on Kiel, this navigator attained an average timing error, for April, of 0.25 minutes.

F/O Kearney - for successfully dealing with an extremely difficult, Met. situation while leader the 6 Group Gaggle on Leipzig, 10th April, 1945.

F/O Taylor - Screened assistant Nav. Officer, for hard work and good results as Section Head in the absence of the Navigation Officer.

Boobs

Wrong Unit. Air Bomber put in RF 24 Unit over England instead of RF 25.

Poor Co-operation. Navigator received an H2S fix, which showed him early (Kiel 13.4.45.). Instead of overshooting the turning point at E, pilot heard M/B calling main force to bomb so they went in to bomb at H-1 instead of H+6.

428 Squadron

Bouquet

F/O Richardson - Assistant screened Navigation Officer for good work throughout the month in the absence of the Navigation Officer.

/9.....

Pauvre

428 Squadron

Boobs

Poor Compass Drill. Pilot steered 030T instead of 130T on target leg. Before the mistake was caught valuable time was lost, as a result this crew bombed the target 6 minutes late.

RF27. The navigation team put the RF27 Unit in upside down and consequently made their Gee unserviceable. The last fix into the target was at 0713⁰⁰E. A wind change occurred after this. The change was not recognized and the crew bombed 7 mins. late.

Pilot trouble. The pilot of a crew on their first operation, upon sighting the T.I.'s ahead and thinking he was early, orbited to bomb 4 minutes late.

Wrong gaggle. The gaggle on the Wangerooze attack formed up about 10 miles port of track. A navigator starboard of track and 4.5 mins. early at form-up point upon seeing a gaggle ahead of him joined it to find himself in the wrong gaggle. Had this navigator kept to Group times he would have experienced little difficulty in finding his correct gaggle.

426 Squadron

Boob of the Month

On the operation on Langweid one navigator found his E.T.A. for the last turning point into the target to be 1.5 mins. early; it was decided to set up an A.P.I. homing to the target and waste this time on the A.P.I. Just previous to this turning point all air positions were being plotted one degree west of the readings by means of a mental reset. The target homing position was set up on this basis but on starting the homing, the actual readings were plotted with the result a bit of confusion resulted and when the panic subsided 9.5 mins. had been wasted and any congestion that might have occurred by the 20 aircraft on the target was overcome by bombing 7 mins. late.

434 Squadron

Bouquets

F/O Shaw has done very fine work as leading navigator on several gaggle efforts. Flying as a deputy in the Leipzig daylight attack, Shaw was called upon to take over the navigation of the gaggle from the leader 15 minutes before T.O.T. He had a timing error of one minute early.

On a daylight attack on Bremen, he was chosen as leading navigator and although no bombs were dropped he put his formation over the aiming point within a half minute of T.O.T.

FS Leavett, a comparative newcomer to the Squadron, with three operations to his credit, is making both veteran and sprog sit up and take notice of his almost flawless log and chart work.

This navigator's work is a pleasure to behold and proof that a neat job can be turned out in the air.

Pauvre

MOVEMENTS

420 Squadron

New Navigators

The following Navigators have joined the Squadron during the month of April: -

F/O Bolton, W.L.	F/O Turpin, E.C.	Sgt. Whelan, J.F.
F/O Ferguson, A.B.	F/O Farndale, W.C.	F/S Cleary, B.J.
F/O Routly, L.E.	F/O Buick, R.M.	F/O Campbell, G.H.

Screened Navigators

The following Navigators have been screened during the month of April:-

F/L Clausen, C.D.	F/O Russel, R.E.	F/O Shier, D.G.
F/O Brownell, R.O.	F/O Gault, M.H.	F/O Johnston, J.B.
	F/O Metcalfe, E.G.	

425 Squadron

New Navigators

The following Navigators have joined the Squadron during the month of April: -

F/L Leroux	F/S Brown, J.C.	Sgt. Dextras, J.J.
F/O Greenwell, F.A.	F/S Langlois, G.P.	F/S Levesque, J.O.A.
F/S Masson, M.	F/O Michaud, J.P.	F/O O'Rourke, E.T.
	W/O Siguin, M.	

Screened Navigators

The following Navigators have been screened during the month of April: -

F/O Berube	F/O Bourke	F/O Cross
F/O Guilbeault	F/O Nobert	

The following have returned to Canada:

W/O Bourdon	F/O Bouchard	F/O Boyer
F/O Builbeault	F/O Laforce	F/O Moreau

Congratulations are in order for F/L Regimbald, who has just been screened after spending sixteen months on the Squadron; he has been Navigation Leader since November, 1944.

Also for F/O Marc-Aurele on being released by the American 3rd Army before being reported a prisoner of war.

408 Squadron

Screened Navigators

The following have been screened during the month of April: -

F/O Salisbury, H.F.	F/O Shand, D.	F/O Skinner, G.W.
F/O Whittles, M.H.	F/O McKinnon, D.	

Congratulations are due F/O McKinnon, D. for the fine work that he turned in during his tour. He was gaggle leader or deputy on two or three occasions, all of which were fine efforts navigationally.

/ll.....

Pauvre

419 Squadron

New Navigators

The following Navigators have joined the Squadron during the month of April: -

F/O Body, A.R.	F/O Christie, J.H.	F/L Cook, U.C.
F/S Cronin, J.F.	F/L Hazlitt, H.S.	F/S McCormack, R.J.
F/S McFerran, G.L.	F/O Taylor, A.M.	F/O G.L. Toombs
F/O White, R.C.		

Screened Navigators

The following have been screened during the month of April: -

F/O L.G. Bennett	F/L Fisher, A.A.	F/O Osenenko, A.
F/O Puffer, A.W.	F/O Seale, M.E.	F/O Topp, F.G.
F/O Young, H.R.		

428 Squadron

New Navigators

The following have joined the Squadron during the month of April: -

F/O Bragg	F/O Keen	F/O Dundas
F/S Goldstein	F/O Beaton	F/O Sprung
Egt. Milne		

Screened Navigators

The following have been screened during the month of April: -

F/O Gildner	F/O Zotzman
-------------	-------------

426 Squadron

Screened Navigators

The following Navigators have been screened during the Month of April: -

F/L Deane	F/O Guiguet	F/O Hill
F/O Fotheringham	F/O Hope	F/O Kreklewetz
F/O Riches	F/O Peters	F/O Taylor
F/O Willoughby		

427 Squadron

New Navigators

The following Navigators have joined the Squadron during April: -

F/S Anderson, N.A.	SGT Brown, J.A.	F/S Buhr, E.C.
F/O Burnham, R.J.	SGT Cleland, R.L.	F/O Couchman, E.J.
F/S Foulds, J.M.	F/O Godber, J.J.	F/O Heaselgrave, L.
F/O Kaiser, L.R.	F/L Lafferty, W.C.	F/O Limacher, S.A.
F/O Mather, L.G.	F/S Nobes, G.M.	F/L Swann, G.W. DFC
F/S Webb, S.R.	F/L Wismer, L.E.	

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427 Squadron

Screened Navigators

The following Navigators have been screened during April: -

F/O Crossey, R.E.	F/O Soloway, C.	S/L Smith, F.D. <u>DFC</u>
F/L Morrice, J.M. <u>DFC</u>	F/O Norton, L.R.	F/O Graham, R.A.
F/O Stratford, G.	F/O Creighton, T.K.	

429 Squadron

New Navigators

The following Navigators joined the Squadron during April: -

F/S Westbrook, W.H.	F/O Jukes, D.H.	F/S Burley, K.C.
F/O Moore, H.F.	Sgt. Koensgen, F.H.	F/O Dennison, A.S.
F/S Krempien, C.O.	F/O Dixon, E.H.	F/O Loftus, J.B.

Screened Navigators

The following Navigators were screened during April: -

F/O Bullen, F.W.	F/O Chandler	F/O Paul, A.B.
F/O Katrichak	F/O Roberts, L.R.	F/L Wheeler, E. <u>DFC</u>
WO2 Zaharia, F.G.	F/O Buckingham, D.T.	

RADAR NAVIGATION

OPERATIONAL

With the exception of targets Leuna, Kiel and Hamburg, H2S was limited as a navigational aid. The use made of H2S on the Kiel raid, 13th March, was far from satisfactory. Many operators failed to tune their sets sufficiently early for the navigators to take full advantage of this aid to determine the wind tendency. Navigators on the other hand who did receive fixes in ample time neglected to make the necessary adjustments of timing. This operation very definitely displayed a low standard of navigational team work.

The first of April all range scale drums were changed to nautical miles.

Gee range was found to give very efficient coverage to most of the targets, and jamming experienced was negligible.

Air tests have proven most valuable in assessing equipment failures of H2S. Serviceability has reached an all time low for set failures 6.57%. 14 manipulation failures resulted from 1484 sorties which is approximately .9%. All concerned are urged to continue this fine record.

Bomb-Aimers Logs and Charts

Bomb-Aimers logs and charts examined during the month do not meet with the standard set by the previous month. The influx of lesser experienced operators during the month no doubt has a bearing on these results. Radar Navigation Officers should ensure that the work of all operators meets the standards required by this Group so that he may be fully equipped to play the part required of him in the navigational team.

The following omissions of Policy have occurred - ETA turning points have not been boxed on the chart; Gee fixes are not plotted in five minute intervals; co-ordinates appear in the log but the corresponding fix is not shown on the chart. Some squadrons are still using Mercators in preference to the Radar plotting chart; and carelessness in the plotting of Gee fixes is very noticeable.

RADAR NAVIGATION TRAINING

Summary of H2S Training

SQDN.	TRAINER	BLIND BOMBING SYNTHETIC	DRY SWIMS	LECTURES	SET TIME AIR	PFI PHOTOS AIR	BLIND BOMBING RUNS	P.P.I. PHOTOS. TRAINER
408	209:25	155:40	102:30	64:00	167:50	88	275	100
415	500:00	111:30	261:30	109:00	264:36	0	206	18
419	375:50	74:30	91:50	212:45	254:50	43	118	106
420	229:30	124:50	58:30	63:00	134:20	4	199	64
424	112:40	66:40	39:00	123:00	215:05	117	58	11
425	187:45	94:15	62:30	162:30	179:10	10	253	64
426	181:45	71:40	97:45	65:45	182:45	81	261	83
427	170:20	64:00	139:00	359:00	193:05	50	103	29
428	371:45	137:00	97:30	170:30	256:05	58	252	84
429	173:00	59:00	101:30	312:00	250:40	20	283	33
431	152:00	56:00	105:00	83:00	68:10	33	71	42
432	412:20	145:00	362:30	75:00	286:55	89	260	6
433	147:20	68:50	47:15	155:00	91:10	124	120	34
434	163:35	82:00	265:00	105:00	97:35	58	71	52
GROUP AVER.	232:03	93:40	129:50	141:20	51:40	56	181	52

Total hours Set Time Air decreased from that of the month previous. However, Ground Training increased by a proportionate amount.

Paure

Gee

Excellent Gee coverage was experienced during the month. There was very little evidence of enemy jamming. Two additional Gee chains were introduced - - Kassel and Munich. Rhur and Soar chains ceased operation. A D pulse has been introduced on the North-Eastern Chain, charts however, have not as yet been issued with this lattice line.

Gee serviceability remained at it's usual high standard with 1.08% equipment difficulties.

Gee Operational Reports

Station Navigation Officers are urged that this form continues to be made out correctly and forwarded to this Headquarters as soon as possible after an operation.

Fishpond

Crew co-operation in the use of Fishpond is becoming greatly apparent, particularly in the use of Radar equipment between the Bomb-aimer and Wireless Operator.

The value of this co-operation was very ably displayed by the crew of F/L Rogers, 433 Squadron, on the night of April 15/16th when an aircraft approaching from starboard ahead was picked up by the wireless operator. When it had passed astern, the wireless operator gave evasive action. The Rear-Gunner picked the aircraft up at 500 yards and succeeded in destroying it.

P.P.I. Photography

<u>Station</u>	<u>% of Pictures Plotted (Based on No. of Cameras Used)</u>
Linton	68.5%
Eastmoor	28.5%
Tholthorpe	72.5%
Leeming	5%
Skipton	57.5%
Middleton	48%
Croft	65.5%
Group	56.2%

The percentage of plottable pictures is approximately 1% lower than the month of March. Linton, Croft, and Tholthorpe have shown considerable improvement. Leeming and Skipton, though expert in mining and coastal photography, found difficulty in photographing inland targets.

Schwandorf, the target of the night 16th/17th April, presented difficulties to most camera operators due to the mountainous contour around the target.

It is pointed out to all Radar Navigation Officers the necessity for filling out the proforma for Radar Photography correctly. The common failures noted are omissions of items - 8,9(a) and 9(b). It is drawn to the attention of the Radar Navigation Officers that the Mark of set used be inserted under item, 10.

There have been marked discrepancies between the time logged of taking pictures and the actual time of taking picture. This fact has been borne out in cases where PFI and F24 photographs have both been plotted. In order to obtain the utmost value from P.P.I. Photography, the accurate time of camera operation should be logged.

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AU REVOIR

In all probability, this will be the last issue of the 6 Group Navigation Review, so it behooves us to reflect a little upon the past and to pass along a few words of appreciation to all those good types who have contributed so much to Navigation within the Group.

To all Base, Station, Squadron and Radar Navigation Officers and their assistants we extend our sincere appreciation for their untiring efforts to maintain and improve the operational standard of Navigation throughout the Group. Much of their work has been drudgery and has often gone unsung, at least outside their sections, but results have been their reward, and satisfaction, and they have our unqualified thanks for a good job well done!

A special tribute is also offered to those R.F. men who contributed so much of their energy and skill to the success of our operations and whom we shall remember with pride and affection in the years to come. To them we extend a warm handshake and a "cheerio", with a very special one for:

- S/L LAN HEWITT DFC 64 Base Navigation Officer.
- F/L JOCK NELSON DFC Croft Radar Nav. Officer.
- F/L HAYDEN JONES DFC Eastmoor Radar Nav. Officer.
- F/L JUNIOR GURNEY DFC Linton Radar Nav. Officer.
- F/L LEN GLDSEY DFC Leeming Radar Nav. Officer.

J. M. Ogilvie 5/16

GC/S. 814/2/Nav.
16th May, 1945.

(J. M. OGILVIE) Squadron Leader,
for Air Officer Commanding,
No. 6 (R.C.F.) Group,
ROYAL AIR FORCE.

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1. COMMUNICATIONS EQUIPMENT.

(a) TR.1154 - MARCONI (W/T and R/T)

This is the main W/T and R/T installation in all 6 Group four-engined aircraft except the Lancaster I, for which see para. (b) below. The Marconi equipment TR.1154/EL155 and its associated intercom. amplifier A.1134/A, provide W/T and R/T communication on H/F and V/F channels and also facilities for Loop D/F and Loop homing. (It should be pointed out that Loops have been removed from most Halifax aircraft since their use has largely been discontinued.) In addition, intercom. facilities between various members of the crew are provided.

(b) TR.120 - RA.1004 - ME.260 (Dundix Equipment.)

This is the main W/T and R/T installation in the Lancaster I and provides very similar facilities to those provided by the Marconi equipment described in para. (a) above. The main difference, however, is that the ME.260 radio compass is a separate receiver so that communication and navigational functions of the equipment are entirely separated. This makes it possible for the pilot to home on one receiver, whilst the Wireless Operator uses the other for communication.

(c) TR.9

This is the original H/F fighter R/T set. It was adopted by Bomber Command for pilot-operated R/T, and has since been replaced by the TR.1196 and/or the TR.1143. The TR.9 provides R/T facilities only on any one channel in the high frequency range, and the limitation thus imposed has resulted in its use being restricted to communications aircraft, Beaverettes and other locations where only one frequency is required.

(d) TR.1196

This is the replacement R/T set for the TR.9, and is a much more modern and up-to-date equipment providing four channels, push-button selected, entirely under the control of the pilot. The frequency range is approximately the same as for the TR.9, but the power output is slightly higher, and communication on this set is generally satisfactory. The equipment also provides Emergency Intercom. for a maximum of three positions.

(e) TR.1143 - SCHE.522 (VHF R/T)

The TR.1143 is the normal, four channel VHF R/T fighter equipment, the SCHE.522 being an American copy with a slightly extended frequency coverage. This equipment is now being fitted in Nos. 5 and 8 Groups, is rapidly being fitted in No.1 Group, and, it is understood, will be fitted throughout Bomber Command Main Force aircraft within the next three months. Being VHF, communication is excellent over visual ranges, D/F is good and communication is much less subject to jamming. Four channels are provided, selected by push buttons under the control of the pilot.

(f) T.1333 (Dash Dingy Radio)

Often known by the Americans as the "Gibson Girl" transmitter, due to its hour-glass shape, this is the water-proof dingy transmitter fitted to all operational aircraft. It provides for transmission only on a fixed frequency of 500 Kc/s (the international distress frequency), and power is developed from a hand-driven generator. Various types of aerial are provided, normally held aloft by a kite or a hydrogen-filled balloon.

(g) L.F.F. Mark III (Identification - Friend or Foe)

This is the standard identification equipment now fitted to all R.A.F. aircraft. Earlier Marks of L.F.F. were limited in frequency coverage, and Mark III was developed to provide universal identification throughout the Army, Navy and Air Force. A small transmitter known as an Interrogator is fitted at the ground Station or ship and triggers off the L.F.F. equipment, producing a special form of

APPENDIX No. 330
R.A.F. FORM 23

H.Q. No. 8 (R.O.A.F. GROUP)

I. COMMUNICATIONS EQUIPMENT

Provision is made for six different coding systems in the aircraft. The coding system may be employed to give additional security. A "distress" switch is fitted in all 8 Group four-engine aircraft. This is the main W/T and R/T transmitter. It is fitted in all 8 Group four-engine aircraft except the Lancaster X, for which see para. (d) below. The present equipment consists of the transmitter and its associated receiver. The transmitter W/T and R/T communication on W/T and R/T channels and also facilities for loop W/T and loop R/T. (It should be pointed out that loops have been removed from most aircraft since they have largely been discontinued.) In addition, intercom facilities between various members of the crew are provided.

(d) T.A.130 - W.A.100A - W.A.100B (Dundie Equipment)

This is the main W/T and R/T installation in the Lancaster X and provides very similar facilities to those provided by the present equipment described in para. (a) above. The main difference, however, is that the W.A.100B compass is a separate receiver so that communication and navigational functions of the equipment are entirely separated. This makes it possible for the pilot to use the receiver, whilst the Wireless Operator uses the other for communication.

(e) T.A.130

This is the original R/T lighter R/T set. It was adopted by Bomber Command for pilot-operated R/T, and has since been replaced by the T.R.130 and/or the T.R.130A. The T.R.130 provides R/T facilities only on one channel in the high frequency range, and the limitation thus imposed has resulted in its use being restricted to communication aircraft, beaverettes and other locations where only one frequency is required.

(f) T.R.130A

This is the replacement R/T set for the T.R.130, and is a much more modern and up-to-date equipment providing four channels, push-button selected, entirely under the control of the pilot. The frequency range is approximately the same as for the T.R.130, but the power output is slightly higher, and communication on this set is generally satisfactory. The equipment also provides emergency intercom for a maximum of three positions.

(g) T.R.130A - W.A.100A (W.A.100B)

The T.R.130A is the normal, four channel W/T lighter equipment, the W.A.100A being an American copy with a slightly extended frequency coverage. This equipment is now being fitted in No. 2 and 8 Groups, its rapidly being fitted in No. 1 Group, and it is understood that it will be fitted throughout Bomber Command Main Force aircraft within the next three months. Being W/T, communication is made over visual channels, D/T is good and communication is made under the control of the pilot. Four channels are provided, selected by push buttons.

(h) T.R.130A (W.A.100B) (Dundie Radio)

Often known by the Americans as the "Gibson Girl" transmitter, due to its non-flare shape, this is the water-proof Dundie transmitter fitted to all operational aircraft. It provides for transmission only on a fixed frequency of 500 Kc/s (the international distress frequency), and power is developed from a hand-driven generator. Various types of aerial are provided, normally held aloft by a kite or a hydrogen-filled balloon.

(i) I.P.F. Mark III Identification - (W/T or R/T)

This is the standard identification equipment now fitted to all B.A.F. aircraft. Earlier Marks of I.P.F. were limited in frequency coverage, and Mark III was developed to provide universal identification throughout the Army, Navy and Air Force. A small transmitter known as an interrogator is fitted at the ground station on ship and triggers off the I.P.F. equipment, producing a special form of

Papier de Soie Pauvre

(b) [REDACTED]

- (a) Standard...
 The equipment fitted in all Group aircraft is the standard 'Lorenz' blind approach equipment which provides a sense of steady signal on the line of any one runway. The present receiver is pilot-operated and provides (a) sixpot frequencies, but a tunable receiver is in use in the main runway in the Group. The equipment, as a whole, however, is slowly giving way to the newer and will eventually be replaced by the more complex and accurate type now being developed in the U.S. which is pilot-operated and provides a sense of steady signal on the line of any one runway. This is a more accurate and reliable receiver and will eventually be replaced by the more complex and accurate type now being developed in the U.S. which is pilot-operated and provides a sense of steady signal on the line of any one runway.
- (b) ...
 This results in a tremendous increase in accuracy, but the system has one inherent weakness, namely, that only about 70 aircraft can be accommodated on the set of beacons at one time. This equipment was originally fitted in the Lancaster II aircraft of this group...
 The system has one inherent weakness, namely, that only about 70 aircraft can be accommodated on the set of beacons at one time. This equipment was originally fitted in the Lancaster II aircraft of this group...
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 The system has one inherent weakness, namely, that only about 70 aircraft can be accommodated on the set of beacons at one time. This equipment was originally fitted in the Lancaster II aircraft of this group...
- (c) ...
 Various marks have been developed varying only in minor details such as frequency employed and facilities provided, but these are all basically the same. The Cathode Ray tubes are used in the indicator - one for the Elevation Indicator and the other for the Horizontal Indicator. The latter gives a blind bearing...
 Various marks have been developed varying only in minor details such as frequency employed and facilities provided, but these are all basically the same. The Cathode Ray tubes are used in the indicator - one for the Elevation Indicator and the other for the Horizontal Indicator. The latter gives a blind bearing...
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- (d) ...
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- (e) ...
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- (f) ...
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 Various marks have been developed varying only in minor details such as frequency employed and facilities provided, but these are all basically the same. The Cathode Ray tubes are used in the indicator - one for the Elevation Indicator and the other for the Horizontal Indicator. The latter gives a blind bearing...

2. NAVIGATIONAL AIDS (Contd.)

(k) Walter - P. 1180.

Monitor Mark I (a)

This is a very simple tall warning device consisting of a Monitor Mark I transmitter and receiver and making use of a Flapond indicator. This is being manufactured within the Group under local arrangements and first indications show that it will be completely satisfactory. Initially, the equipment is the same as Monitor Mark III.

Monitor Mark III and IIII (b)

Monitor Mark I is a development of Monitor Mark I produced by using the Monitor Mark I transmitter, the A.S.V. Mark II receiver and the A.S.V. Mark II indicator. Presentation is on a vertical time base giving a fairly accurate indication of elevation. This is probably the most successful of all the warning devices, as it is simple, effective and satisfactory in all respects. Monitor Mark III and IIII differ from Monitor Mark I in that it is a production model with all components being specially produced. The fitting of Monitor Mark III in this Group is at present restricted to Nos. 121, 122 and 123 Squadron, but it is hoped to increase this.

Monitor Mark IV (c)

Monitor Mark IV is a production model tall warning device scheduled for production some time in 1945. Basically, it is the same as Monitor Mark III in addition to the rear-looking antenna and with provision for forward-looking antenna operation on much higher frequency and with provision for forward-looking antenna.

Monitor Mark V (d)

This is another adaptation of existing equipment being nothing more nor less than AI Mark IV fitted to Bomber aircraft. In operation, presentation is on two Cathode Ray tubes, one showing elevation, one showing azimuth and both of course, showing range. Fitting is at present confined to this Group, to 124 and 125 Squadrons.

Flapond (e)

This equipment is an attachment to HSB and is therefore limited to aircraft already fitted with this device. Presentation is of a P.L.I. type and shows the area immediately below an aircraft, maximum range being the aircraft's height above ground. Aircraft approaching above the horizontal are normally not seen, and this is one disadvantage of the equipment. Another is that low level results in very close collaboration between the Navigator operating HSB and the W/O. Flapond is very poor protection indeed. For this reason, it is hoped eventually to fit all Flapond equipped aircraft in this Group with Flapond, for which see Para. (f) below.

Flapond (f)

This is a very simple tall warning device consisting of a Monitor Mark I transmitter and receiver and making use of a Flapond indicator. This is being manufactured within the Group under local arrangements and first indications show that it will be completely satisfactory. Initially, the equipment is the same as Monitor Mark III.

Bomber (g)

Bomber Mark I is a simple receiver tuned to the frequency of enemy AI equipment; this when an AI equipped enemy fighter attempts to close a Bomber aircraft, the Bomber equipment is activated and lights a small light on the pilot's dashboard - thus giving warning. Bomber Mark III is a development of

(SECRET) DATA JANDITADIVAN .S
50 ~~DATA JANDITADIVAN .S~~

(a) Monica Mark I.

ORIG. - 70110W (x)

This is the original tail warning device consisting of a small radio transmitter and receiver. The transmitter is tuned to the frequency of the A.S.V. of object coming within its range and produces a warning sound in the receiver. The sound warning all members of the crew. This pipping sound increases in speed as the distance between the aircraft decreases. The receiver is tuned to the A.S.V. of the object. No indication of azimuth or elevation is provided. The A.S.V. equipment was not very satisfactory as the polar diagram of the aerial system did not appear to be constant, and the range at which pipping occurred varied, for no apparent reason. Setting up and maintenance were very difficult and the equipment has now been entirely removed from Bomber Command aircraft.

(b) Monica Mark III and III G

This is a development of Monica Mark I produced by using the Monica Mark I transmitter, the A.S.V. Mark II receiver and the A.S.V. Mark II indicator. Presentation is on a vertical Time Base giving a fairly accurate indication of azimuth but no indication of elevation. This is probably the most successful and satisfactory of all the tail warning devices, as it is simple, effective and maintenance is relatively good. Monica Mark III G differs from Monica Mark III only in that it is a production model with all components being specially produced. The fitting of Monica Mark III in this Group is at present restricted to Nos. 431, 434 and 435 Squadrons, but it is hoped to increase this.

(c) Monica Mark IV.

Monica Mark IV is a production model tail warning device scheduled for production some time in 1945. Basically, it is the same as Monica Mark III operating on much higher frequency and with provision for forward-looking aeriels in addition to the rear-looking aeriels.

(d) Monica Mark V.

This is another adaptation of existing equipment being nothing more nor less than AI Mark IV fitted to Bomber aircraft. In operation, presentation is on two Cathode Ray tubes, one showing elevation, one showing azimuth and both, of course, showing range. Fitting is at present confined in this Group, to 420 and 425 Squadrons.

(e) Fishpond.

This equipment is an attachment to H2S and is therefore limited to aircraft already fitted with this device. Presentation is of a P.F.I. type and shows the area immediately below an aircraft, maximum range being the aircraft's height above ground. Aircraft approaching above the horizontal are normally not seen, and this is one disadvantage of the equipment. Another is that for best results, very close collaboration between the Navigator operating H2S and the W/O operating Fishpond is essential, and when the Navigator has H2S adjusted on certain ranges, Fishpond is very poor protection indeed. For this reason, it is hoped eventually to fit all Fishpond equipped aircraft in this Group with Fishsake, for which see Para. (f) below.

(f) Fishsake.

This is a very simple tail warning device consisting of a Monica Mark I transmitter and receiver and making use of a Fishpond indicator. This is being manufactured within the Group under local arrangements and first indications show that it will be completely satisfactory. Basically, the equipment is the same as Monica Mark III.

(g) Buzzer.

Buzzer Mark I is a simple receiver tuned to the frequency of enemy AI equipment; thus when an AI equipped enemy fighter attempts to close a Bomber aircraft, the Buzzer equipment is activated and lights a small light on the pilot's dashboard - thus giving warning. Buzzer Mark III is a development of

3. TAIL WARNING DEVICES.

pilot's... Mark... and the... Warning is thus given whenever the aircraft is being tracked by any of the... enemy Radar devices. It should be pointed out however that with the... attempts to... loss some of its protective value even before... aircraft, which is expected some time late in 1944.

(h) A.F.L.T. ("Village Inn"). This is the only equipment so far developed which permits... The... and... Mark... on his target. Mark III A.F.L.T. covers a... tail warning device of itself. A.F.L.T. has only recently been used operationally in Bomber Command, two Squadrons in Nos. 1 and 5 Groups now being fitted. Throughout Bomber Command will probably not take place until the...

Note. The... equipment... which can be placed on any desired frequency in the band to be covered... ment is also solved at times against jamming, one of the enemy's... control for his fighters. A full description of Airborne Officer may be found in...

(c) Corona. Corona also attacks enemy W/T communication, not by jamming it but by setting up a transmitter in England on exactly the same frequency as the controller... equipment on the Continent and attempting to confuse the enemy pilots and control... five in some cases and has often been very successful in its results. A further... development has been W/T Corona to attack those channels on which the enemy is... using W/T control. For the full story, reference should be made to the...

(d) Derford. The enemy has made several attempts to pass W/T plots on the Bomber Stream... his very high-powered broadcast stations, and Derford is simply an exception... ally high-powered noise generating station operating in the broadcast band. In... actual fact, it is the station located at Hull, normally used for propaganda trans-... missions to Central Europe. It has been most successful largely to its extreme... power (some 300 kilowatts) and the use of directional aerials.

(e) Loftie. Loftie is an Airborne W/T jammer operating in the high frequency band and... generating some two or three kilowatts. It operates very similarly to Airborne... Giger (see para (d) above) and employs a special operator, the equipment occupying... it is believed, the bomb bay of a Lancaster.

(f) Drumstick. Since W/T is normally much simpler to jam than W/T, the enemy has made some... use of W/T jamming commences to direct his twin-engine fighters, which can... carry a Wireless Operator. This is normally on the high frequency band and has... been jammed successfully by Drumstick, which is simply a high frequency transmitter... on the same frequency which interferes with the plots being passed.

4. Countermeasures

NOTE:- Signals countermeasures consisted at upsetting plotting and enemy's ground-to-air communication for plotting aircraft were communication between the ground controller and his night fighters. The device (Airborne Cigar) attacks both ground-to-air communication and ground-to-air communication. It is a highly directional noise producing device which is normally carried only in No. 101 Squadron. It is a highly directional noise producing device which is normally carried only in No. 101 Squadron.

(a) Tinsel.

This was the earliest radio countermeasure, aimed at the enemy's ground-to-air communication. It consisted of a microphone placed in a noisy location (at present the main transmitter station) which transmitted the W/T signal and transmitting the resultant noise. The result of this was that more aircraft are transmitting "horrific" noises. On the high frequency band, most effectively in the 100-150 Mc. range, the noise is of a high intensity. This is especially true of the 100-150 Mc. range. The noise is of a high intensity. This is especially true of the 100-150 Mc. range. The noise is of a high intensity. This is especially true of the 100-150 Mc. range.

(b) Airborne Cigar.

An obvious countermeasure on the part of the enemy against Tinsel (see Para 4(a) above) was to employ VHF for his control. The first countermeasure employed against this was the Ground Cigar (a highly directional noise producing device situated on the South-East coast of England), but due to the propagation characteristics of very high frequencies, this device was only satisfactory at short ranges. Airborne Cigar (see Para 4(a) above) was a device developed which required an extra operator, now carried only in No. 101 Squadron. Basically, the equipment consists of a monitoring receiver and three jamming transmitters which can be placed on any desired frequency in the band to be covered. The equipment is also active at times against Benito, one of the enemy's systems of ground control for his fighters. A full description of Airborne Cigar may be found in B.C.S.S.I. No. 20 and H.Q.'s 6 Group/S.483/3/Sigs.

(c) Corona.

Corona also attacks enemy H/F R/T communication, not by jamming it but by setting up a transmitter in England on exactly the same frequency as the controller equipment on the Continent and attempting to confuse the enemy pilots and controllers by issuing false or misleading instructions. This move has been very effective in some cases and has often been very humorous in its results. A further development has been W/T Corona to attack those channels on which the enemy is using W/T control. For the full story, reference should be made to file 6GP/S.483/5/Sigs.

(d) Dartboard.

The enemy has made several attempts to pass R/T plots on the Bomber Stream via his very high-powered broadcast Stations, and Dartboard is simply an exceptionally high-powered noise generating station operating in the broadcast band. In actual fact, it is the Station located at Hull, normally used for propaganda transmissions to Central Europe. It has been most successful due largely to its extreme power (some 800 kilowatts) and the use of directional aerials.

(e) Jostle.

Jostle is an airborne R/T jammer operating in the high frequency band and generating some two or three kilowatts. It operates very similarly to Airborne Cigar (see para 4(b) above) and employs a special operator, the equipment occupying it is believed, the bomb bag of a Lancaster.

(f) Drumstick.

Since R/T is normally much simpler to jam than W/T, the enemy has made some use of W/T running commentaries to direct his twin-engined fighters, which can carry a Wireless Operator. This is normally on the high frequency band and has been jammed successfully by Drumstick, which is simply a high frequency transmitter on the same frequency which interferes with the plots being passed.

4. COUNTERMEASURES. (Contd.)

EUORPAJLIEDEIM .c

(g) Fidget.

(a) (noitgeorejil jlarobis) IA

As a further aid to passing plots, the enemy has keyed several of his medium frequency beams, and this has been jammed by the use of F/N/Nottransmitters in England, and this countermeasure being known as Fidget.

(h) Window.

This is the first countermeasure employed against enemy Radar devices and still remains one of the most successful. It consists of metallized strips cut to resemble the frequency of the transmissions, and a cloud of Window gives approximately the same response as a Radar tube as an aircraft. It was first directed against the Würzburg equipment but its use has now been extended to cover additional frequencies employed by German enemy AI equipment. The whole story of Window is given in 6GP/S.483/9/Sigs. and 6GP/S.483/9/Sigs. The U.S. Army Signal Corps and the R.A.F. are working for all night fighter and intruder aircraft and intruder aircraft.

(i) Garage.

This is an airborne device designed to jam the enemy Würzburg Radar equipment used for GCI and Ack-Ack control. Its use is at present confined to certain Squadrons in Nos. 5 and 8 Groups, but it is proposed to extend the installation as rapidly as possible. Basically, the equipment is a search receiver which automatically searches the Würzburg band of frequencies and when a signal is received, it locks on that frequency and jams over a short period, then switches itself off and recommences the search again. A full non-technical description can be found on file 6GP/S.483/9/Sigs.

(j) Mandrel.

This is a jamming equipment directed against the enemy Freya system. Originally, six aircraft per Squadron were fitted but the equipment has now all been removed and concentrated in special squadrons to provide more effective coverage of the frequency band concerned, and it is no longer carried in aircraft of this Group.

(k) Grocer.

This is a ground jamming device located in the South East of England directed against enemy AI equipment. It is normally run permanently during operations.

(l) Dinah.

This is an airborne jamming equipment similar to Mandrel but having a much wider frequency coverage and being much lighter and more efficient. It may also be fitted with a search receiver so that the Operator can search for enemy signals and then backtune his jamming transmitter to the required frequency. It is proving particularly effective at the present moment against the enemy's latest AI equipment (SN2).

(.L3no0) .ESURBAROBTWJOC

5. MISCELLANEOUS

.Jegbly (3)

(a) AI (Aircraft Interception).

AI (Aircraft Interception) equipment has been used by the night fighter squadrons of the U.S. Army Air Corps. The first successful type was Mark I, which was used by the 1st and 2nd Squadrons as a tail warning device, in which application it is known as Monica Mark V. This is a simple instrument, employing two Cathode Ray Tubes which give indications of azimuth and elevation, and was soon replaced by Mark V and Mark VI, which employ similar equipment but have only a single Cathode Ray Tube, the location of the aircraft being indicated by the position of a single spot on the face of the tube. The most recent and up-to-date equipment is AT-1 (DCR 720), which is produced entirely in the United States, but which represents development work both by the U.S. Army Signals Corps and the R.A.F. It is now the standard fitting for all night fighter and intruder aircraft and it is of interest to note that certain Mosquito's in 100 Group engaged in intruder activities have Mark I AI installed in their tail warning positions. It is at present being considered for use in the 1st and 2nd Squadrons in Nos 5 and 8 Groups, but it is proposed to extend the use of this equipment to other squadrons as well. The equipment is a search receiver which is fitted with a directional aerial on the aircraft. It is used to search for the tail warning signals of intruder aircraft. A search receiver is at present being fitted to 100 Group intruders.

.Jegbly (3)

This is a jamming equipment directed against the enemy's system. It is a search receiver which is fitted with a directional aerial on the aircraft. It is used to search for the tail warning signals of intruder aircraft. A search receiver is at present being fitted to 100 Group intruders.

.Jegbly (3)

This is a ground jamming device located in the South West of England directed against enemy AI equipment. It is normally run permanently during operations.

.Jegbly (3)

This is an airborne jamming equipment similar to Monica but having a much wider frequency coverage and being much lighter and more efficient. It may also be fitted with a search receiver so that the Operator can search for enemy signals and then backtime his jamming transmitter to the required frequency. It is providing particularly effective at the present moment against the enemy's latest AI equipment.

Ecriture bleu

Papier de Soie

Pauvre

60U/S.1775/5/P.3.

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No. 6. (R.C.A.F.) Group Headquarters,

APPENDIX No. 263 to

R.A.F. FORM C40

H.Q. No. 6 (R.C.A.F.) GROUP

DATE July/45

Allerton Hall, York

Mr. Knaresborough, York

Yorkshire

2nd August, 1945

W.D. PROGRESS REPORT - JULY, 1945.

1st July, 1945. Special Church Service was held in the Allerton Parish Church to celebrate Dominion Day. Music was provided by the String Trio, with P/O Meats as soloist. The Sermon was delivered by S/Ldr. Chappell.

Fortunately the weather was exceptionally good which called for a stand-down in the afternoon everyone taking advantage of it by going out on bicycle operations, picnics etc.

2nd July, 1945. Beginning of new Educational Classes which included Cooking, Business Arithmetic, Salesmanship, Leathercraft, Shortland, Home-making, Canadian Agriculture, English Language and Modern Literature and Rehabilitation Courses, aroused quite a bit of interest in camp. Leather craft seems to be very popular among the W.D.'s.

Usual Monday Evening Music Circle held in Station Library, attended by the music lovers of the camp.

3rd July, 1945. Sq/Officer Ball paid a visit to RCAF Station Linton. Big field day held at Station Topcliffe in which some of our girls and boys took part prior to going in for the Sports day at Linton. Girls were invited to the dance in the evening to top off the day. Commanding Officer's Parade with two flights of W.D.'s not forgetting the Airmen of course, and not forgetting our usual half-mile walk after inspection.

Wg/Officer Walker arrived from London today, to visit Group and Stations. Was impressed with the huts and the flowers decorating them. Wg/Officer Walker spoke to the girls in the Recreation Hall in the evening, and broke the bad news that we would possibly be here for some time owing to the shipping facilities. However, most of the girls seemed to take it in the right spirit, although there were a few long faces at the time.

4th July, 1945. Sq/Officer Ball and Wg/Officer Walker visited RCAF Linton today. Flt/Officer Satterly, Photographic Interpretation, went for a trip over Germany today. The W.D.'s are keeping their fingers crossed, in the hope that their turn will soon come up.

Station Golf Tournament held at Knaresborough Golf Club. Quite a few of the girls took part in the game, with IAW. Cauthier coming out tops, and IAW. Kerr coming out the boobie winners. We have quite a few W.D.'s who are golf enthusiasts. After the game, tea was served at the Club house which was a good ending to a hard afternoon's work.

There was also a Horseshoe Tournament held in camp in the afternoon, but none of the girls participated in this sport.

Record Dance in the Recreation Hall to finish off another day.

5th July, 1945. IAW. Anderson and IAW. Gray had the good luck to go for their flip today. Only one of them took sick, but seems better not to mention any name. They both found it very interesting as have all the girls who have gone up this month. The bomb damage is incredible and unless having seen it, it is unbelievable. Among some of the pleasures of interest in which they flow over are: Ostend, Shell, and

Flushing (extensive floods) Cologne, Aachen, Baden, Bremen, Hamburg, Hanover, Duisburg, Essen, Hamm, Dortmund, Dusseldorf, Koblenz, Antwerp. One place interesting to all was Vimy Ridge and the beaches of Dunkirk. It is only now that most of us realize what wonderful work the boys did while they were out on operations, night after night under terrible conditions, also the ground crew who kept the kids in such good condition.

Wg/Officer Walker and Sq/Officer Ball paid a visit to the Y.W. C.A. in Harrogate also to RCAF Stations Leeming and Topcliffe.

Something new in the line of Sports. Outdoor swimming at some old Mill which has been reconditioned and is now converted into a swimming pool. Everyone is taking advantage of it too. Movie tonight is "Here Come the Waves", featuring Bing Crosby, with record dance following.

6th July, 1945. IAW. Madison (Telst) and IAW. Lewis (Telst) posted for duty to RCAF Depot, Torquay. Wg/Officer Walker returned to London today.

7th July, 1945. Softball for today was: Linton vs. 6 Group, with Linton coming out winners.

Educational Tour to visit the Bronte Sisters home at Haworth. These Sisters were well known writers, one of their books being the well known Wuthering Heights. There were about fifty of the airwomen went from here, and they had a most enjoyable day. They saw through the Bronte exhibits and the church which is said to be very beautiful. Tea was served at the Bronte Cafe at the courtesy of the British Councils.

8th July, 1945. Canadian "Y" ran tour to Fountains Abbey, which was guided by a Mr. Bennett. This was very interesting to everyone who went, as the Abbey is very old and historical. F/O "Mike" Collier, tonight gave a talk on "Our Education - A Joke" which did cause quite a joke, judging by the laughter, which arose from some of the remarks.

9th July, 1945. Beginning of another week with the two lucky girls for today's flip being IAW. Bryans and IAW. Rose. Flt/Officer Satterly was posted to "R" Depot, Torquay for repatriation.

Tonights softball was Linton vs. 6 Group, Linton being the lucky team again.

10th July, 1945. Thirty of the girls invited to Rufforth tonight for roller skating party with Record Dance following. Girls had a most enjoyable time, although they did get a bit dusty during the skating period. Usual Camp show in Recreation Hall.

11th July, 1945. Station Track and Field Day. No sunshine today, but that didn't hold the events of the day from going on. 50 yard dash was won by IAW. Dennis, IAW. Goudie and IAW. Glover. High jump was taken by IAW. Griggs at 4', and she also took the broad jump at 12' 6". There was a slow bicycle race only which was won by one of the W.D's. It sure was a bang-on day and the rain managed to hold off until supper time.

Cpl. Laviolette one of our Hoop/Assts. was posted to "R" Depot, Torquay for repatriation.

IAW. Kinaman and IAW. DeGroot on Domestic Science Course at RCAF Dishforth. This course should be of great advantage to girls who have the intention of getting married when they go back home, as it goes them up on house-keeping, cooking, sewing etc.

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- 12th July, 1945. Plt/Officer Stacey, was posted to London today.
S/O Ogilby and IAN. Skinner flew over Germany today and enjoyed the trip very much.
Usual Thursday evening camp show.
- 13th July, 1945. Today's lucky girls for the flip were Cpl. Roy and IAN. Neil, who managed to attend the Station's weekly dance in the Recreational Hall. We had the pleasure of having thirty of the boys from Rufforth at the dance, which helped to fill the dance floor.
- 14th July, 1945. Plt/Officer Ball visited Webleton and Leasing today.
Track and Field Meet of No. 5 District held at RAF station today. Sixty dash was won this time by IAN. Gouin, broad jump by IAN. Griggs and high jump by Cpl. Lindsay.
Cpl. Fairhurst and Sgt. Robinson, were married today in Harrogate. It was a very quiet wedding and IAN, Gouin and Sgt. Allan stood up for them, during the ceremony.
Camp show and record dance in the evening.
- 15th July, 1945. "Development of Song", which was the title given to tonight's musical. It was illustrated by notes rendered by S/O Beatty (Singer), S/O Gales (Violinist) and they were accompanied by W/O Supervisor Hill of RAF Station Farnborough (Pianist). A most enjoyable and interesting evening, and one which had a good attendance.
- 16th July, 1945. Our catering officer Plt/Officer Halls was posted to "H" Depot, Torquay for repatriation, and S/O Stackhouse posted to Aldermaston for duties as Asst/Adj.
Plt/Officer Baunton (Cypher Officer) and Cpl. Lee took the flip for today.
Dance night and record dance following.
- 17th July, 1945. Usual Tuesday morning parade and our usual Tuesday signing walk.
Camp show as usual.
Plt/Officer Gear and Plt/Officer Baunton, were the names picked out of the hat for today. Everyone so far has had good weather for their trip, which is a good thing.
- 18th July, 1945. Softball for today was Station Combines vs. Station Firing Party. Thirty airwomen invited to RAF Station Skipton for their weekly dance. It seems to be a popular place for the dances.
Plt/Officer Watkins reported to "H" Depot, Torquay for repatriation.
Walter Shanks and Lewis at RAF Station Lister, practicing tennis for coming tournament.
No. 5 District Softball Meet held at Ripon Baths today.
Fifty yard free style was won by Cpl. Honey, fifty yard breast stroke by IAN. Cannon and the fifty back stroke by IAN. Wilkinson. Winners are going down to Beaumarsh for the swimming tournament.
- 19th July, 1945. Swimming at Ripon Baths tonight, and a full crowd attended.
Thirty N.D.'s invited to Sgt. Lees dance at Webleton and thirty to RAF Rufforth.
Usual camp show.

/over

Ecriture bleu

Papier de Soie

Pauvre

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- 20th July, 1945. Friday night swimming at Higgs Baths. Most of the girls practicing for the swimming event at Bournemouth.
Swill Station dance with the favourite Skipton Band in attendance.
Flt/Officer Gear, A.O.C.'s P.A., was posted to London today for duty.
Flt/Officer White and IAN, Spencer over Germany today.
- 21st July, 1945. Twenty-five W.N.'s invited to dance at Sgt. Ross RCAF Station evening.
Roller skating party at Rufforth which was followed by a record dance and as usual was enjoyed by all the girls, as they sure give them a swell time when they go out there.
- 22nd July, 1945. Nothing much doing today, except thirty girls invited to dance at RCAF Station Thelthorpe.
- 23rd July, 1945. Kings and Reports cases in the Recreation Hall for all those not interested in cycling etc.
IAN's Raines, Quince, Harrington, all teleprinters, posted to Torquay on staff.
Party of twenty visited the Leeds Boy and Girl Schools, one of the trips which has been arranged for those interested. It is the intention to visit all the different schools in turn, for educational purposes.
- 24th July, 1945. Commanding Officer's Parade, with the usual walk. It never rains on a Tuesday morning anyhow, which makes it much more pleasant for our route march.
Group/Officer Rafter, paid us a visit here today.
Swimming at Leeds open air pool, which is said to be really swell.
- 25th July, 1945. Group/Officer Rafter left for London again.
The two Cpl. Brown's on course at Station Dishforth.
Thirty W.N.'s invited to dance at RCAF Station Skipton.
Softball for tonight Officers vs. Cabiners, Officers coming out winners.
IAN, Cole posted to Torquay for repatriation.
Starting of the Camera Club Meeting again. We have two cameras and the necessary equipment for personal developing.
IAN, Smith on flip today.
- 26th July, 1945. Cpl. Woodford, IAN's Font, Lawrence and Shaw posted to Torquay for duties.
IAN's, Astley, Hardy and Conrad posted to Overseas Headquarters London, for duties, all teleprinters.
Thirty girls invited to a special dance given by 424 Squadron at Skipton. Girls had a wonderful time.
Flt/Officer Rafter, IAN, Leach and IAN, Smith had the good fortune to go over Germany, Holland etc., today.
Thirty girls invited to a dance at RAF Rufforth.

Papier de Soie

APPENDIX No. 286 to

REPORT FROM INTELLIGENCE SECTION
R.A.F. FORM 43
H.Q. No. 6 (R.C.A.F.) GROUP 31, 8.45

DATE Aug/45

Following the advent of V.E. Day, the Intelligence Staff at No. 6 (RCAF) Group Headquarters engaged themselves, for several weeks, in producing in two volumes a historical record of the operational activities of the Group as a whole. This record was conceived with the view of maintaining, in the original form, the story of 6 Group Heavy Bomber attacks against the enemy, from the date of the Group's inception, up to the final attack carried out by its Squadrons when the phase with Germany was finally announced. A full page in each volume is devoted to illustrations, photographs and the original reports showing the complete results of each raid carried out by any one or all of the Squadrons detailed. When completed, the two volumes were suitably bound, the covers engraved and along with other similar records completed by individual stations, were forwarded by sea-pack to Canada, being despatched to Air Force Headquarters, Ottawa, for retention in the R.C.A.F. archives.

2. Wing Commander T.S. MacKay, MBE, (C.6540) who had filled the position of Group Intelligence Officer, with outstanding success since June, 1944, was repatriated to Canada 21st June, 1945. W/C MacKay came to 6 Group Headquarters from Overseas Headquarters, London. Following his repatriation to Canada the duties of the G.I.O. were carried out by Squadron Leader P.W. Buker (C.9805).

3. The final closing notice of the Section was received early in July. The disposition of records, files, equipment and personnel therefore remained and attention was given to such matters immediately. Instructions were received from Bomber Command regarding the disposition of secret material, outlining the records and instructions which were to be returned and those which were to be destroyed by fire. Complete records of all disposition was kept and this record was in turn despatched to Bomber Command. Records and files not included in this order were shipped to Historical Records Officer, Bomber Command, with the exception of a few files dealing with Policy. The latter were shipped to Canada for reference and guidance purposes, these being required for the training program of the Pacific Force, already located in Canada. Files dealing with miscellaneous subjects, also personnel, were destroyed, the original copies of all such letters being retained by other departments of 6 Group Headquarters.

4. Approximately fifty percent of the officer personnel engaged in Intelligence duties in the Group as a whole, were repatriated to Canada within the eight week period immediately following V.E. Day. This body consisted of officers and in addition, a few other ranks, who were Volunteers for the Pacific Theatre, and included volunteers for service in the Western Hemisphere who were required on the training staff program in Canada.

5. Training continued at 76 Base in this country up to 15th August. The Intelligence Section in this Base was maintained with a complete staff. The officers remaining from other Stations in the Group (62 & 63 Bases) were those electing repatriation and discharge and those electing to remain in this country, operating with the European Occupation Force. The names of the former Officers were submitted on August 1st as being available for repatriation, the latter including those volunteers for the European Force who had been employed in 76 Base were posted to Leeming on 23rd August. F/L L.R. Shaw (C.14260) was placed in charge as Senior Intelligence Officer with instructions to organize the Intelligence set-up for the European Force as it applied to Leeming and Skipton Stations. F/L Shaw's staff included eight officers and one W.D. Officer, all of whom are volunteers for this Force. The officers remaining who had not been included on the list of those named for repatriation on August 1st, were submitted for inclusion on this list on 25th August.

6. Leeming and Skipton Stations ceased to be a part of 6 Group and were attached to No. 1 Group on 29th August, 1945.

7. All furniture and equipment from the Section was released to Stores during the week of 26th August and the site was completely cleaned and renovated by the end of that week.

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Papier de Soie

Ecriture bleu

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Equipment purchased on L.P.O. for the Art and Drafting Office, including such other items released by respective inventory holders for use in Canada, were shipped in the July sea-peak, under the supervision of Sgt. Baker. The Photo Interpretation Section was closed early in July prior to Flight Officer E. Satterly being posted to Canada to assist with the training program. Flight Officer G. Taylor, R.A.F. Photo Interpretation Officer, was posted to R.A.F. Station, Edmonton, on 15th August.

When completed, the two volumes were forwarded by sea-back to Canada, being despatched to Air Force Headquarters, Ottawa, for retention in the R.C.A.F. Archives.

3. With Commander J. S. Mackay (C.2440) who had filled the position of Group Intelligence Officer, with outstanding success since June, 1944, was requested to Canada 21st June, 1945. W.C. Mackay came to Group Headquarters from Overseas Headquarters, London, following his repatriation to Canada the duties of the C.I.C. were carried out by Squadron Leader E.W. Baker (C.2807).

4. The final closing notice of the Section was received early in July. The disposition of records, files, equipment and personnel therefore remained and attention was given to such matters immediately. Instructions were received from Bomber Command regarding the disposition of secret material containing the records and instructions which were to be returned and files which were to be destroyed by fire. Complete records of all disposition was kept and this record was in turn despatched to Bomber Command. Records and files not included in this order were shipped to Historical Records Officer, Bomber Command, with the exception of a few files dealing with Polish, these latter were shipped to Canada for reference and evidence purposes. These being required for the training program of the Pacific Force, already located in Canada. Files dealing with miscellaneous subjects, also personnel, were destroyed, the original copies of all such letters being retained by other departments of Group Headquarters.

5. Approximately fifty percent of the officer personnel engaged in Intelligence duties in the Group as a whole, were requested to Canada within the eight week period immediately following V.E. Day. This body consisted of officers and in addition, a few other ranks, who were volunteers for the Pacific Theatre, and included volunteers for service in the Western Hemisphere who were retained on the training staff program in Canada.

6. Training continued at 70 Base in this country up to 15th August. The Intelligence Section in this base was maintained with a complete staff. The officers remaining from other Stations in the Group (62 & 63 Base) were those electing repatriation and discharge and those electing to remain in this country, operating with the European Occupation Force. The names of the former officers were submitted on August 1st as being available for repatriation, the latter including those volunteers for the European Force who had been employed in 70 Base were posted to Learning on 21st August. W.I. L. Shaw (C.14280) was placed in charge as Senior Intelligence Officer with instructions to organize the Intelligence staff for the European Force as it applied to Learning and Station Stations. W.I. Shaw's staff included eight officers and one W.D. Officer, all of whom are volunteers for this Force. The officers remaining who had not been included on the list of those named for repatriation on August 1st, were admitted for induction on this list on 25th August.

7. Learning and Station Stations ceased to be a part of Group and were attached to No. 1 Group on 25th August, 1945.

8. All furniture and equipment from the Section was released to forces during the week of 25th August and the site was completely cleared and recovered by the end of that week.

Papier de Soie

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REAR HEADQUARTERS NO. 6 (R.C.A.F.) GROUP

OPERATIONS REPORT

JULY and AUGUST, 1945

APPENDIX No. — to
R.A.F. FORM 640
H.Q. No. 6 (R.C.A.F.) GROUP
DATE Aug/45

July and August were comparatively busy months. The disposal by jettisoning in the sea of approximately 700 aircraft loads of incendiary and H.E. "dud" bombs began in June 1945 and continued spasmodically until the completion of the detail on 4th September, 1945. The burden of the task fell upon the Squadrons at Leeming (427 and 429) and at Skipton (424 and 433). At first progress was tardy as the squadrons were detailed for bullseyes as well as training and continental sight-seeing flights. The original jettison area forty miles off Flowborough was changed upon the request of this headquarters, to thirty miles north east of Whitby. Later the Admiralty closed the previous jettison area and offered a jettison area off the coast of East Angles. This area necessitated a three hour flight and often the aircrew could only make one trip a day. On 29th July the Admiralty closed all jettison areas in the North Sea and Bomber Command decided to use the Bombing Practice Area in Cardigan Bay. As only twenty aircraft per day were allowed to jettison from each Bomber Group, it slowed the progress of bomb disposal. Early in August Bomber Command requested that Leeming and Skipton crews prepare for operation "Dodge". All aircrew required special inoculations and treatments in preparation for the flight to Italy and this resulted in fewer crews being available for bomb disposal.

However, with pressure applied by S.A.S.O. and Controller, the work proceeded. The R.A.F. Fighter Command took over Middleton and Croft on 1st July, 1945, and for several days Six Group supplied Flying Control personnel for Middleton and Croft until the last bombs were lifted. Leeming and Skipton were cleared next and in August Tholthorpe and Eastmoor were likewise cleared.

September found us with 33 loads of bombs remaining at Linton. Amid great rejoicing by the Armament and Flying Control sections, the Leeming and Skipton squadrons completed the arduous task of bomb jettisoning on 4th September. The last Six Group operation was completed.

The privilege of sight-seeing trips over the Continent for ground personnel was begun in June and continued occasionally until the end of August. Although operational trips, bomb jettisoning and training had precedence, altogether 660 ground crew personnel had the privilege of the Continental trip over some of the devastated area of the Netherlands, Germany, France and Belgium. Many were thrilled with the experience and were deeply impressed by the accuracy of bombing done by Bomber Command.

On Wednesday, 29th August, W/C Phelan, Acting S.A.S.O., and Air I officially closed the Air Staff at Rear Headquarters No. 6 (R.C.A.F.) Group. On Thursday, 30th August, Leeming and Skipton Stations and Squadrons 427, 429, 424 and 433 were transferred to No. 1 Group R.A.F.

The Six Group Operations Room, which at its peak of operations detailed 300 aircraft for various targets was closed on 31st August, 1945. Only the Gremlins remained to recount the epic planning and heroic achievements of No. 6 (R.C.A.F.) Bomber Group.

Report of Flying Control, Rear H.Q. No.6 (RCAF) Group,
for July, August and September, 1945.

At the end of May the transfer of 165 Canadian-built Lancasters by air to Canada began. Of these, 164 aircraft and 165 crews arrived safely in Canada, with the exception of one air gunner who died of injury from a taxiing accident. One aircraft was successfully ditched off the coast of the Azores and all the crew and passengers rescued. The last aircraft, 431/K crossed the Atlantic on July, 4th, 1945.

Many wartime flying restrictions were relaxed early in July. For example, Navigation lights were to be burned by all aircraft flying over the U.K. at night below 10,000 feet. The routing of aircraft became simpler and training flights were extended over parts of France.

Searchs for the occasional missing or overdue aircraft became more difficult because many R.A.F. Stations had closed and fewer reports were available. However, there were few accidents and training flights were reduced to a minimum. All the Halifax aircraft of No.6 Group were despatched to Transport Command or storage depots and Linton, East Moor and Tholthorpe closed their Flying Control facilities about the end of July.

On July 3rd, Middleton and Croft were transferred to Fighter Command. This left Leeming and Skipton as serviceable aerodromes and to this, Dishforth previously in No.7 Group, was added. Later in July Dishforth was returned to No.7 Group.

On August 30th, Leeming and Skipton were transferred to No.1 Group and No.6 Group was left without an aerodrome with complete Flying Control facilities. However, in order to allow the completion of bomb jettisoning from Linton, Flying Control personnel were supplied by other stations until the completion of bomb disposal on September 4th.

The No.6 Group Communication Flight at Dishforth operated until Saturday September 1st, and was then disbanded. This Communication Flight did valuable work on numerous occasions by the transfer of priority personnel to key-posts throughout Great Britain. It speeded repatriation by the transfer of documents and records from Exeter to Prestwick. The efficiency of the Communication Flight was commendable.

August 15th, VJ Day, was a memorable event. All aircraft were grounded for two days to allow personnel to celebrate the victorious end of the second World War.

On September 4th, the last ten loads of bombs were lifted from Linton station by Nos. 424 and 433 Squadrons. With the completion of bomb jettisoning Flying Control facilities at Rear H.Q. No.6 (RCAF) Group were terminated.

On September 6th, all Flying Control files, logs and instructions were listed, packed and sent to Historical Records at Overseas Headquarters.

This report concludes the work of Flying Control at No.6 Group. All Flying Control personnel may be justly proud of their share in the epic achievement of No. 6 (RCAF) Group.

B.T. O'Brien 17/4
(B.T. O'BRIEN) Flight Lieutenant,
Flying Control Officer.

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