

RADAR PERSONNEL.

GENERAL.

The growth of RADAR fitting in the Navy has been stupendous shown by the comparison of the fitting of one major set in Rodney in 1938 and those fitted in Rodney to-day - no less than eighteen major sets and another seven still to be fitted, apart from minor sets, interrogators, I.F.F. and beacon sets etc. Additionally, there are the many remote displays to be considered as well as after action sets.

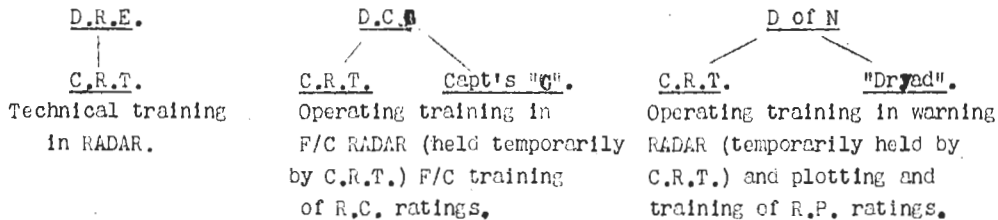
Initially, the growth and development of shipborne RADAR were the responsibility of the Signal Branch of the Navy and it was natural therefore, that telegraphist ratings, being radio-minded, should become the Navy's first R.D.F. operators as "Telegraphists R.D.F.", and should be fostered and trained by the Captain H.M. Signal School. Similarly, the technical upkeep of the sets was entrusted to a group of officers of the R.N.V.R. (special) Branch and to radio mechanics - then termed wireless mechanics - who were all trained under Signal School auspices.

The responsibility for the operational (in its strategic sense) side of RADAR was vested in the Signal Officer and, in 1942, a series of very short weekly courses for general service officers was commenced to instill into the executive officer, some appreciation of how to use RADAR, and some of its shortcomings as well. However, it became apparent that this tremendous weapon could not be adequately controlled and used to the best advantage when, throughout the Fleet, owing to the few ships who possessed the Signal Officer as part complement, it was directed by officers who lacked the necessary training and who, moreover, were not actually responsible for the tactical use of the weapon. Hence in 1943, it was decided that the "users" of the weapon - the Navigating Branch, the Gunnery Branch, the Torpedo Branch, the Fighter Directing Branch and the A/S Warfare Branch, should among them, be severally responsible for the development, planning, staff, training and operational work connected with their sphere of interest. To implement this decision, the Navigation Branch became responsible for the training and conditions of service of the RADAR/Plot rating and the Gunnery Branch for the training and conditions of service of the RADAR/Control rating, which ratings were introduced in March 1944. At the same time, the Captain RADAR Training assumed from the Captain H.M. Signal School, the responsibility for technical training, in RADAR only, of the RADAR officer and the Radio Mechanic. The Captain, RADAR Training set up his headquarters in H.M.S. Collingwood where the installation of a large technical training school was commenced. It is, perhaps, apt at this point to mention that the "user" officers of the responsible branches i.e. the gunnery and navigating branches, have not yet taken over their full responsibilities under the Act and that the Captain RADAR Training is acting "in loco parentis" as regards operating training for ratings and operational training for executive officers.

As regards the operator in particular, there has been one other major change in his make-up. In December 1942, operators were not seamen and were accommodated on board as substantive additions to complement. It was apparent at that time that foreseeable fitting would entail the accommodation on board of an enormous private army of RADAR operators and ships' sides would be bulging. Consequently, it was decided that as from February 1943, all ratings for qualification in RADAR should a) be medically fit for the seaman branch and b) be qualified for the seaman branch by having undergone New Entry Part II training. With the introduction of the RC/RP 1st, 2nd and 3rd. class non-substantive rates in March 1944, most RADAR ratings turned over to seaman and the RADAR branch became part of the seaman complement of a ship.

Let us review therefore the general set-up of responsibility for the RADAR Branch as at 1st May 1945.

Admiralty.



Points to note additional to this very general picture are a) D.A.W.T. and D.A./S.W. in Admiralty, through F.D.C. Yeovilton and "Osprey", exercise a strong influence on the plotting training of R.P. ratings.

b) RADAR courses of 6-8 weeks duration are being included in Navigating Officers courses to fit them for the duty of carrying out responsibility for the Warning RADAR branch.

c) The Captain H.M. Signal School still retains responsibility for the manning and operation of the Radio Countermeasures branch though the Captain RADAR Training is responsible for technical training in the pulsed equipment side of Radio Countermeasures i.e. roughly, those which are anti-RADAR in operational use.

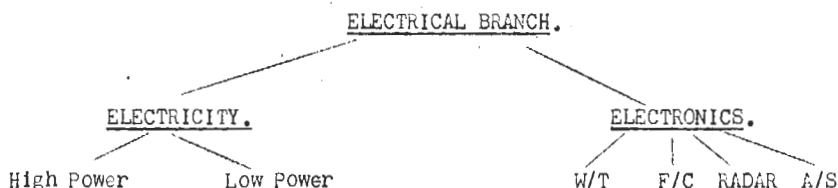
THE RADAR OFFICER.

Having given the very broadest outlines to the formation of the present RADAR branch and its conception and training, let us now turn to more detailed consideration of the particular people who go to make up the personnel side of the Branch.

The RADAR Officers were initially given a brief technical training in RADAR matters and were sent out to ships and bases both as operational officers, as maintenance engineers and as fitting and installation engineers. Ever-increasing complexity of RADAR apparatus called for continual lengthening of courses in RADAR, which has resulted to date in a course of approximately eight months duration, mainly given in the RADAR School, R.M.S. Collingwood. There are about 20 officers in each course which commence every six weeks. Candidates are drawn from volunteers in the Electrical, Executive and other branches (there is one R.N. Emergency officer and one R.N.R. officer), from C.W. candidates recommended from the lower deck (RADAR operators or radio-mechanics) and from civilian universities and technical colleges. C.W. candidates must possess either a degree or knowledge amounting to a degree of physics or science, engineering or radio engineering. Civilian entries are those selected from among the Hankey Scheme products. This Scheme selects boys from Colleges and Schools and puts them through a two year university course in physics to a final qualification of B.Sc. (Honours) and in some cases, they may get radio training for three - six months after completing the varsity course. All officer entries are selected by the Deputy Director of Scientific Research at the Admiralty. Having completed their course, officers (midshipmen of under 21 and T/A Sub-Lieutenant R.N.V.R. (Sb) 21 or over) usually tend to divide into two types, operational and purely technical. The former are mostly sent to sea and the latter to shore bases where their work is mainly composed of testing, installation and ship maintenance.

It is apposite to note at this juncture that a vast proportion of the real "know-how" of RADAR operational technique is the property of those RADAR officers who have spent most of the war at sea. And it is to these officers that the Schools of the old Navy look to impart their experience and knowledge to the new masters of the art in the Fleet.

A large number of officers, however, have shown themselves to be far more technically minded and, generally speaking, have been used as pure technicians and little else. There is at present being designed for the Navy, a new technical branch - the Electrical Branch - and the way is open to the RADAR Officer for a post-war career in the Navy, provided he is selected for such duties. The Electrical Branch will be responsible for the maintenance and repair of all electrical and electronic apparatus fitted; which can be shown under the following table:-



Thus the RADAR Officer (or, for that matter, the H/FD/F or W/T Officer) have a deal to learn before they can be styled as fully qualified electrical officers.

There will also be offered to selected RADAR Officers, a short-term commission of 5-8 years terminating with a gratuity, to tide the Navy over the drought of the post-war years. These officers will probably carry out Radio Technical duties only.

It is thus seen that the RADAR Officer as such, has little or no future on the operational side but that his future lies along technical lines, provided he cares to work for it. This must include, however, detailed training on the operating side - how to get the best out of the sets, the interpretation of displays etc. etc. In this, he will act as adviser to the Navigating and Gunnery Officers of his ship.

THE RADIO MECHANIC.

This rating was introduced purely as a wartime expedient and was given a war time status of mechanic as opposed to artizan or artificer. His initial scheme of training can be shown in a simple table:-

R/Mech (RADAR)	24 weeks Technical College	10 weeks RADAR Technical.
R/Mech (R/WT)	24 weeks Technical College	6 weeks RADAR 4 weeks W/T.

This scheme produced two men - the radio-mechanic (RADAR) and (W) respectively - who were adequate to cope with the requirements of the first few simple RADAR sets - the type 79, type 286 M, type 291, type 282 M(1) and (2) - but who began to fall down very badly (especially the (W)) when type 281 and 271 Q were introduced and who were completely astern of station and flummoxed by types 276/277 and 293. Energetic steps taken to provide over one million pounds actual worth of equipment in H.M.S. Collingwood have allowed the course to be lengthened and strengthened. In addition, a period of practical servicing training in both the RADAR School and in Sherbrooke House, Glasgow has been added to produce the following course:-

20 weeks Technical College 16 weeks RADAR 8 weeks S.H. = 44 weeks as opposed to the old 34 week course. A further five weeks will shortly be added (September/October 1945) to enable types 274/275 to be included. This will represent as much as we can cram into the man and further sets will only be dealt with on a post-graduate basis e.g. type 262 and 263, 980 etc. The present course covers the following:- types 291, 271Q, 285 P4 and Q, 79, 281, 277/293 and relevant beacons, interrogators, I.F.F. sets etc. American RADAR is only dealt with on a post-graduate or pre-commissioning basis.

Entry and Advancement.

Trainees from shore enter as Ordinary Telegraphists (wireless mechanic candidate) and are rated radio mechanic on successful completion of the Collingwood course. They are rated leading radio mechanic one day later. This provides for reversion, if and when necessary on disciplinary or technical grounds, to radio mechanic. After twelve months as leading radio mechanic, the rating is eligible for promotion to acting petty officer radio mechanic providing he has carried out his duties satisfactorily and is worthy of petty officer rating. After twelve months in the acting rating, he may be confirmed petty officer if considered worthy and if he holds a certificate of competency signed by a qualified signal - communications or RADAR officer. The standard required is that a) he should be able to maintain, service and repair all RADAR sets fitted in his own ship and b) show a satisfactory technical approach to sets with which he may not necessarily be familiar. When a petty officer radio mechanic has two years seniority as acting and confirmed petty officer, he is eligible to take the course for Chief Petty Officer Radio-Mechanic, service qualifications for which rating is three years as a petty officer, acting time up to 18 months being allowed to count. Five courses a year for Chief Petty Officer Radio-Mechanic are run, about twenty in each course. Recommendations for chief petty officer radio-mechanic should be forwarded to the Captain RADAR Training for (R) mechanics and the Captain H.M. Signal School for (W/T) mechanics. The (WR) mechanics on taking the course for chief, must opt either for W/T Or RADAR. There is no rating Chief P.O. Radio-Mechanic (WR). The "C" qualification is now dead but those ratings who have qualified "C" are qualified for Chief under the new rules and must opt for W/T or RADAR on promotion. A roster is held for ratings for Chief Petty Officer Radio-Mechanic.

In addition, to the above entry from shore, transfers from existing ratings are also accepted after passing an aptitude test given in H.M.S. Collingwood. If particularly radio trained they can be accepted for direct entry, i.e. to carry out the technical course only, but very few ratings are thus accepted. Recommendations for ratings who should have a good educational standard and possess mechanical aptitude, should be forwarded to Director of Manning, Admiralty, copy to the Commodore of the Man's depot and to Captain, RADAR Training and Captain, H.M. Signal School. Leading hands and above (as also trained operators, V/S and W/T) are normally ineligible and are only accepted in very outstanding circumstances e.g. a rating medically unfit.

Refresher courses and Pre-commissioning Training.

We are now in a position to give extensive refresher courses and pre-commissioning training in new apparatus. C.A.F.O. 12/45 refers and ratings should be discharged to H.M.S. Collingwood to be ready to commence any course on any Monday. In addition, shortened refresher courses are held in RADAR bases but only on certain apparatus. Application should be made to local F.O.I.C. It is stressed that the RADAR School courses are far more detailed and intensive than outlying courses and endeavour should be made to take advantage of these when-ever possible.

RADAR ARTIFICER.

In conclusion, it might be noted that we are trying to introduce, as a long term policy, the radio artificer - to parallel the electrical artificer. It is early days yet to say whether this rating will be approved, or even his terms of reference, but if he is, existing radio-mechanics will turn over to the new status, always, of course, provided they are considered satisfactorily to meet the requirements of the artificer status.

WARRANT RADIO MECHANICS.

We have long felt the need for this officer - an urgent need. There are, however, only some 40 continuous service radio mechanics in the branch and it is a qualification for warrant officer that he should a) have been a continuous service rating and b) have completed six years service.

You cannot therefore obtain warrant officers from H.O. ratings (the one exception is the schoolmaster (HO) to which rank, quite a few radio mechanics have been promoted).

With the promulgation of further conditions of service for radio mechanics (including, if then approved, the radio artificer) it is hoped to promulgate the qualifications required for Warrant rank and subsequent commissioned rank.

COMPLEMENTS.

Complements have been gradually brought up until in 1944 they were 5 for a Fleet Carrier, 3 for a battleship or cruiser, 2 for an escort carrier but only one (W) for a destroyer. By A.F.O. 883/45 these have been revised to admit of the W/T complements being included and now provide 5 RADARS for a Fleet Carrier or Battleship, 4 for a Cruiser and 2 for a Fleet Destroyer or A/A sloop. This dealt with later. Without going into great detail, these complements are again in process of revision and will in future, owing to the present great differences of fitting in ships of the same classes, be calculated on a "points for sets fitted" basis. They will probably emerge as something like Battleship fully modernised 10, Fleet Carrier fully modernised 9, Cruiser fully modernised 7, older ships or non-modernised ships, about 2 less each. At present Vanguard has been complemented with 8.

In addition to Radio Mechanics, maintenance complements also provide for electrical staffs for RADAR electrical duties from an A.B.S.T. additional to complement to an E.A. 2 L.T.O's and 2 S.T.'s.