

WIRELESS TELEGRAPHY OPERATORS.

In accordance with A.L. N. 2683 of 16 March 1906 a Committee sat in June to inquire into the entry and training of operators for Wireless Telegraphy in the Royal Navy. The question of operators.

A.L. N. 2683 of
16th March 1906.

The following is a summary of their report :—

The Committee recommends that a separate W.T. branch should be established on board ship, with its own operators, who should be borne and employed exclusively for W.T. duties, and should be under the supervision of the Torpedo Officer.

The operators will be entered as boys, and will be trained in accordance with the following scheme:—

AVERAGE TELEGRAPHIST'S CAREER.

1. At an age between $15\frac{3}{4}$ and $16\frac{1}{4}$ he joins the Training Ship and goes through 11 months' training course. If satisfactory, boys are rated 1st Class after six months in the Training School.

He is then examined. A speed of signalling of from 15 to 20 words per minute is necessary. If he passes, he is drafted to sea as Boy Telegraphist at 7*d.* per day. If he fails, he reverts to Boy or Signal Boy.

2. At the age of 18 he is rated Ordinary Telegraphist and gets 1*s.* 3*d.* a day.

After six months' sea service as Ordinary Telegraphist he can be examined for A.B. Telegraphist.

This examination is to be conducted at sea by two Officers having a good knowledge of Wireless Telegraphy, detailed by the Commander-in-Chief, one of whom should be a Wireless Telegraphy expert.

Requirements to allow of passing:—

I. A speed of signalling of 20 words per minute.

II. Good knowledge of the instruments in his ship and the Wireless Signalling Instructions.

III. Fair knowledge of Cruiser dispositions.

IV. Fair knowledge of the method of rapidly charting relative positions of Cruisers.

If he passes, he will be rated A.B. Telegraphist on qualifying for Trained Man. He then receives 1*s.* 10*d.* a day. If he fails, he cannot compete again for three months. A second failure puts him back six months, and a third a year.

4. After being rated A.B. Telegraphist he can apply for a further examination by a similar board to pass for Leading Telegraphist. The necessary qualifications for success being:—

I. A speed of signalling of 25 words a minute.

II. Thorough knowledge of the instruments in his ship and W.T. Signalling Instructions.

III. Good knowledge of Cruiser dispositions.

If he passes, he can, as vacancies occur in the Fleet, be rated Acting Leading Telegraphist by the Commander-in-Chief of the Fleet, provided he has two years' sea service as A.B. Telegraphist. His name is sent to the "Vernon" and Depôt as having qualified, and he will be confirmed in the rate of Leading Telegraphist as vacancies occur in the Service provided he is recommended by his Commanding Officer. First failure to pass puts him back three months, second failure six months, and third one year. Pay of Leading Telegraphist (Acting or otherwise) 2*s.* 1*d.* a day. After three years' seniority 2*s.* 3*d.* a day, and after six years' seniority 2*s.* 5*d.* a day.

5. After two years' sea service as Leading Telegraphist, or Acting Leading Telegraphist, he may, if recommended from sea for advancement and if he has passed the prescribed qualifying educational examination for Petty Officer, go through the course in the "Vernon" for Petty Officer Telegraphist.

This course will consist of:—

Electricity	-	-	-	-	-	-	-	15	days.
Accumulators	}	-	-	-	-	-	-	18	"
Motors									
Oil Engines									
Advanced course in Wireless Telegraphy	-	-	-	-	-	-	-	35	"
Telegraphy other than Wireless	-	-	-	-	-	-	-	10	"
Examination	-	-	-	-	-	-	-	2	"
								<u>80</u>	"

If he passes, the fact is noted on his certificate, and his name sent to the Depôt.

Failure disqualifies him from further examination until recommended by his Commanding Officer after not less than one year's sea service. He will then on return to "Vernon" be given a further course.

6. Leading Telegraphists, who have three years' seniority in that rate, and who have passed for Petty Officer Telegraphist in the "Vernon," will be rated by the Depôt as vacancies occur. They may be rated Acting Petty Officer Telegraphist by the Commander-in-Chief of a Station should vacancies occur on the Station. Pay to be 3s. 6d. on rating and to grade up to 3s. 9d. after three years, 4s. after six years.

7. Three courses for Petty Officer Telegraphist will be started yearly in "Vernon."

8. Petty Officer Telegraphists should requalify, if possible, every time they return home, their requalifying course lasting 15 days, viz. :—

10 days	-	-	-	-	Wireless Telegraphy.
4½ "	-	-	-	-	Other Telegraphy.
½ "	-	-	-	-	Examination.

No Petty Officer Telegraphist should be allowed to go four years without a requalifying course.

9. Petty Officer Telegraphists will be eligible for the rating of Chief Petty Officer Telegraphist after four years' sea service as Petty Officer Telegraphist. Promotion to the grade of Chief Petty Officer Telegraphist should be by seniority and recommendation, tempered by selection. The Pay of Chief Petty Officer Telegraphist to be 4s. 4d. ; after three years, 4s. 8d. ; after six years, 5s.

10. Petty Officer Telegraphists after at least one year's service in actual performance of the duties of such rating, who are candidates for Warrant Officer rank, undergo a course lasting 110 days for Warrant Officer Telegraphist.

This course will consist of :—

60 days	School.
5 "	Stores.
35 "	Wireless Telegraphy.
7 "	Electric Light.
3 "	Examination.

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One course per annum will be given by "Vernon," and the number selected to go through should not exceed six. The examination held at the end should be strict, and the fact of failing should not disadvantageously affect the future career of the candidate. It should debar him from similar courses, but should not debar him from the rating of Chief Telegraphist.

The object to be aimed at is to obtain the brains of the Branch as Warrant Officers. It should not be possible for a man of only average brains, however worthy, to rise to that rank.

11. On passing for Warrant Officer his name should be forwarded to the Admiralty, and he should be promoted to the rank when his name comes to the top of the roster, provided his conduct continues to be satisfactory.

For one year after his promotion he should only hold an Acting Warrant, and during that time he should be liable to lose his Warrant should he commit himself.

At the end of the year he should be confirmed.

12. Two Lieutenants' commissions should be open to Warrant Officers and given as their Lordships think fit, as vacancies occur.

It is not intended that they should be trained Electricians, but that they should work with the electrical party when not employed in the W.T. room. One half of the boys required for W.T. will be drawn from the Post Office Telegraph Messengers, who will be given six months' instruction in Telegraphy by the Post Office authorities before they leave that service to join a Boys' Training Establishment. These boys will go through exactly the same course at the latter establishment as will the boys recruited from other sources who volunteer for W.T. for a period of three months. At the end of this period all the boys will be examined together, and those required selected in accordance with the result of this examination. The boys thus selected will remain a further eight months in the Training Establishment before being drafted to sea (after a qualifying examination) as Boy Telegraphists (Boy, 1st Class). They will not be included in the complement of sea-going ships, but borne as "Super-numeraries for Training." They are rated "Ordinary Telegraphist" at the age of 18, and in due course become eligible for the higher ratings.

Their course of instruction while in the Training Establishment is proposed to be as follows :—

Total Period, 11 Months.

First 3 Months.

School, seamanship, and squad drill.

Boys for Wireless Telegraphy then selected from volunteers according to merit.

Remaining 8 Months (34 Weeks).

School.—The whole day (except for $\frac{3}{4}$ hour at Morse, &c.) for 12 weeks. Syllabus, as below.

Boys then rated Boy 1st Class if found satisfactory.

Then, school on half-days only for remainder of the time.

Morse and Wireless Telegraphy Work.—Throughout.

Boys to work at least $\frac{3}{4}$ hour daily up to the last 8 weeks, and then to work at this, one-half of each day.

Mechanical Training.—14 weeks, as below.

Gunnery.—Nil.

Physical Training.—Daily throughout.

PROPOSED SCHOOL SYLLABUS FOR BOYS WHEN SPECIALISED FOR THE WIRELESS TELEGRAPHY BRANCH.

Reading.—To read a passage from Standard VI. Royal Reader, or "Britain's Naval Power."

Handwriting.—To write a good legible hand at a fairly good speed.

Spelling and Composition.—To write from dictation a piece of 20 lines, selected from a Standard VI. Royal Reader, or a newspaper, the maximum number of mistakes allowed to be four ;

Or, to write a short theme or letter on an easy subject, or reproduce an article which has been previously read over twice, spelling, handwriting, and correct expression to be considered.

Arithmetic.—Compound rules, reduction of weights and measures, simple and compound proportion, simple money exchanges, simple percentages and interest, vulgar and decimal fractions (excluding recurring decimals), the Metric system (length, weight, capacity, money).

Arithmetic of electrical measurements from the text-book as used in Torpedo Schools.

Algebra and Logarithms.—Notation, addition, subtraction, multiplication, division, removal and insertion of brackets, factors, simple equations, problems leading to simple equations, highest common factor, least common multiple, simultaneous equations, definition and explanation of logarithms, multiplication and division, involution and evolution by logs.

Magnetism and Electricity.—General properties of magnets, magnetic induction, frictional electricity (including potential theory), voltaic or current electricity, resistance and the means of overcoming it, heating effects of currents, magnetic effects of currents, use of galvanometer, dynamo machinery and motors, simple lectures on alternating currents.

SYLLABUS OF MORSE AND W.T. SUBJECTS.

1. Morse in all its aspects, with special attention to correct spacing, and during the last two months boys to be taught, as far as possible, to take in with certainty, under any conditions of weak signals, slight interference and other noises, &c. Speed to be up to 15 words per minute.

2. Theory of Signals, especially as regards [organisation and manœuvring, meaning of Pendant signals.

3. Knowledge of the Instructions for W.T. Signalling.

First Period, 6 Weeks (working half days).

<u>Period.</u>	<u>Subject.</u>
1 day	- Names and uses of tools, &c., calipers, rule, set-square, spanners, taps, dies, drills, &c.
2 days	- <i>Chipping</i> .—With flat and cross-cut chisels, and hammers, to form a flat surface on a piece of rough material; afterwards, to form into a square, rectangle, or hexagon, a piece of iron boltstave, to a standard size.
4 days	- <i>Filing</i> .—Learning to use files, and to file a flat surface. Afterwards to shape a piece of boltstave into a square, rectangular, or hexagonal form, to a given size, and to file a square hole in a piece of scrap boiler plate.
2 days	- <i>Drilling</i> .—Drilling holes with ratchet brace and drill to standard sizes for tapping or clearing holes in scrap material, for nuts, ships' fittings, &c.
3 days	- <i>Tapping</i> .—Forming a thread in a hole that has been drilled, for a nut or other purpose, to a standard size; and screwing a piece of boltstave forming a stud or bolt, the bolt or stud to be a good working fit on completion.
$\frac{1}{2}$ day	- <i>Blacksmith's Work</i> .—Working at a small forge.
1 day	- Names and uses of W.T. doors, sluice and drain valves, pumps, and simple rules for opening and cleaning valves, cocks, &c.

Second Period, 8 Weeks (working half days).

4 $\frac{1}{2}$ days	- Parting and assembling fairly delicate instruments (such as old pattern galvanometers, &c.) without damage to screws, pivots, &c.
4 $\frac{1}{2}$ days	- Hand-turning, sufficient to make terminals if possible.
4 $\frac{1}{2}$ days	- Soldering, where space is confined, and without injury to insulation.
4 $\frac{1}{2}$ days	- Instruction and practice in working in ebonite and vulcanite.

ENTRY OF MEN ALREADY IN THE SERVICE: TURNING OVER.

It is proposed that special classes should be at once instituted for ratings who volunteer to turn over to the Wireless Branch in order to ensure a minimum amount of proficiency in Wireless Signalling.

Such classes should, it is thought, be started in the Fleet, on board ship at the Home Ports, or on shore at the Home Ports, Gibraltar, and Malta.

Certain inexpensive instruments should be supplied to each ship to enable these ratings to improve their speed in Signalling. These articles, which should be in excess of the present W.T. Establishment, are as follows:—

1 P.O. Key.	2 extra pairs of Telephones.
1 Buzzer.	4 French Terminals.

The following rules are suggested with regard to the turnover of various ratings:—

- (1) All Candidates for transfer to the W.T. Branch should be specially examined to ascertain that they have good hearing and possess sufficient educational attainments to carry out the duties.
- (2) Petty Officers, 1st or 2nd Class, and their equivalent rates turning over from the Signal or other Branches, should be rated Petty Officer Telegraphist (old style) and go through the next course for Petty Officer Telegraphist after their return home. They should retain their present rate of pay if over 3s. a day, or be paid 3s. a day. When they pass the examination for Petty Officer Telegraphist they will receive 3s. 6d. a day.

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Committee.

- (3) No Petty Officer Telegraphist (old style) should be eligible for Chief Telegraphist, or the Warrant Officer course, until he has passed the examination for Petty Officer Telegraphist.
- (4) Leading Seamen, A.B.'s, and Ordinary Seamen, and the equivalent rates should be examined either at sea by the W.T. Expert of the Fleet (or Officer appointed to perform his duties), or in a Torpedo School, the qualifications being a speed of 10 words per minute and a good knowledge of the instruments in their ship.
- (5) If they pass, Leading Seamen will be rated Leading Telegraphists, and the lower rates A.B. Telegraphist (provided the candidate is a trained man), and be subject to the same regulations in future as the Telegraphists (new style).
- (6) In no case should the pay of the individual turning over be lessened. They should retain their present rate of pay, if over that of the Telegraphist rating, until reaching a higher grade of Telegraphist.