

MEDICAL RESEARCH DEPARTMENT



U. S. Submarine Base New London

AVERAGE NAVY BATTERY APTITUDE TEST SCORES
FOR ENLISTED SUBMARINERS.

BY

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Bureau of Medicine and Surgery

Research Project No. X-596 (Sub. No. 128)

Report No. 2

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Lt. (jg) N. R. Bartlett, H(S), USNR

Second Progress Report

Bureau of Medicine and Surgery

Research Project No. X-596 (Sub. No. 128)

A nalysis of Examinations of Personnel Received For
New Construction Submarines.

Medical Research Department
U. S. Submarine Base
New London, Connecticut

24 January 1946

A table of average aptitude scores is presented in this paper. The table was prepared in order to establish standards as guides for two problems in submarine personnel selection. The two are (1) the selection of instructors and (2) the selection of recruits for training. The background to each is outlined briefly below.

The Selection of Instructors

Several conferences dealing with the selection of instructors in submarine training were held at the New London Submarine Base in the early part of 1945. The primary problem was administrative -- to change the policy of detailing to instruction duty any recommended available Chief Petty Officers who had completed tours of sea duty and who wanted shore duty. Indeed, it was generally conceded that almost any rational program of selection would be an improvement over the existing state of affairs. However, granting the need for a change in administrative policy, there was considerable discussion on the policy to be substituted.

One of the points on which agreement was reached concerned psychological aptitude test standards. It was believed generally that every instructor should have at least as much verbal facility, mechanical understanding and mathematical ability as the average student in his class. And it was agreed further that the tests of the Navy Basic Battery would be assumed to be reasonably adequate measures of those abilities. Interviews, recommendations, and assessments of competence in specialties to be taught also were considered essential. But, regardless of the material that might come to light through these approaches, it was thought that no man should be assigned classroom duties unless his Basic Battery scores measured up to the characteristic average of the group he was to instruct.

This paper presents some information on test scores for experienced enlisted submarine personnel. Data for submarine recruits were not collected, since selection for submarine training is governed by directives specifying test score minima. The figures in this paper are useful primarily for advanced submarine schools where the classes are composed of experienced men.

The Selection of Recruits for Submarine Training.

Another totally different purpose also is served by the table of averages. Score distributions for Otis Intelligence and Navy General Classification Tests have been tabulated for the candidates for submarine training from time to time since early 1942.

These tabulations were prepared by this Department for information on the general academic aptitude level of the population constituting the grist of the selection and training mill. However, the need for analyzing the data according to rate specialties was not foreseen. And furthermore, there is no extrapolation method for estimating averages on the various tests of the Navy Basic Battery. That battery is now the general selection instrument, so unless the extrapolations can be made, the old distributions have no use for selection of new men. If the aim were to assign new recruits with about the same level of ability as the men already in the service, score means for experienced personnel should be determined. The table in this paper presents mean scores for several enlisted rate specialties.

Method and Results:

Every enlisted man processed by the Commander, Submarines Atlantic Fleet, for reassignment is first examined by the Medical Research Department. Note that these are not recruits received for training -- they are experienced submarine sailors. One phase of this examination is the completion of Form I, Fleet Edition, of the Navy Basic Battery by these men for whom scores for the Basic Battery are not available in the Service Record. Very few records for men reassigned contained such scores during the period of this study. Perhaps the population examined can be described most quickly by the following statements: (1) almost every man was "qualified in submarines"; (2) approximately five-eighths were graduates of the New London Submarine School; (3) about five-eighths had completed six or more submarine war patrols; (4) approximately one-fifth had enlisted in the Navy prior to 1942, and (5) approximately two-fifths were Chiefs or First Class Petty Officers. If the personnel policies on rotation of duty were being executed properly by all submarine activities, this population is representative of the total experienced populations.

The table presents mean scores for each rate (excepting Steward's branch composed of colored boys) represented by 25 or more persons examined during the course of this study. All grades from qualified striker to Chief Petty Officer are included in a rate. The last line of the table shows the overall mean for all rates combined.

Average Standard Score¹, Fleet Edition Basic Battery Tests, for various enlisted rates: experienced submarine men re-assigned at New London during the summer of 1945.

| Specialty | Number | GCT | Arith | MAT | MK(Elec) | MK(Mech) |
|-----------|--------|-----|-------|-----|----------|----------|
| EM | 303 | 57 | 54 | 57 | 65 | 59 |
| GM | 43 | 57 | 52 | 56 | 55 | 56 |
| MoMM | 475 | 56 | 52 | 55 | 57 | 60 |
| QM | 133 | 62 | 59 | 58 | 56 | 55 |
| RM | 195 | 60 | 56 | 56 | 60 | 53 |
| RT | 32 | 63 | 64 | 59 | 68 | 63 |
| SC | 71 | 52 | 48 | 50 | 50 | 48 |
| SM | 50 | 60 | 53 | 57 | 56 | 54 |
| TM | 360 | 57 | 52 | 56 | 57 | 58 |
| Y | 42 | 59 | 52 | 56 | 61 | 49 |

Overall mean
every man ex-
cepting Stow-
ards Branch

| | | | | | |
|--|------|------|------|------|------|
| | 58.0 | 54.0 | 56.2 | 58.4 | 56.9 |
|--|------|------|------|------|------|

¹Basic Battery Tests are standardized so that the mean for all Navy enlisted personnel will be 50 and the standard deviation will be 10. The aptitude and training requirements have been high for several years so it would be anticipated that average submarine scores would be above the general Navy average.