A PILOT STUDY OF THE RETENTION OF BASIC MILITARY SUBJECT MATTER AFTER SEPARATION FROM THE SERVICE

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A PILOT STUDY OF THE RETENTION OF BASIC MILITARY SUBJECT MATTER AFTER SEPARATION FROM THE SERVICE

by Harry W. Braun

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The study described in this report was concerned with the retention of basic military information by former members of the Army, who are not on active duty, at various time intervals since separation from the service. It is believed that this research has contributed information relevant to the problem of the retention or level of knowledge of basic military subject matter by individuals with prior military service. However, it appears that further investigation in this area would be more feasible with active reserve or

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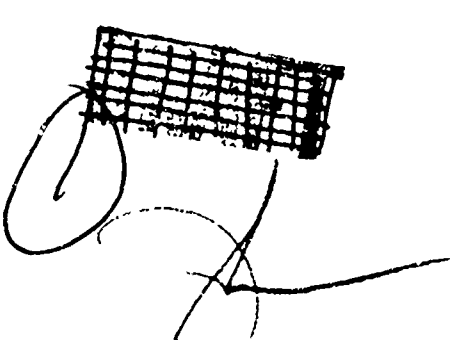
National Guard personnel rather than with the large body of former members of the Army who do not actively participate in the Reserve Program.



UNIVERSITY OF PITTSBURGH

Department of Psychology

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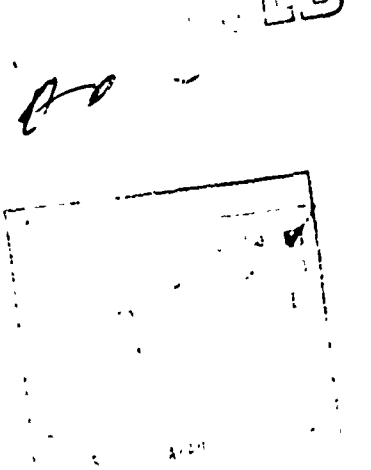

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PROBLEM

This report describes a part of a research project conducted by the Training Methods Division of the Human Resources Research Office. The title of this overall research study is "A Study of the Retention of Basic Military Subject Matter," and the investigation has often been referred to as Project KNOWHOLD. The purpose of the investigation was to determine the level of retention of basic military skills and information after the completion of basic training. The Training Methods Division of the Human Resources Research Office obtained retention data on military personnel on active duty at various points in time after the completion of basic training (6 months, 12 months, 18 months, 24 months, etc.). The study described in this report was concerned with the retention of basic military information by former members of the Army, who are not on active duty, at various time intervals since separation from the service (6 months, 12 months, 18 months, etc., up to 6 years). Thus, the study conducted by the Human Resources Research Office and the present study complement each other.

The importance of these two studies is obvious. Military leaders have recognized the need for information on the amount of basic military knowledge retained by in-service Army personnel after basic training. Such information provides a measure of the effectiveness of the basic training program and affords information of value in the planning of retraining or refresher courses where they may be indicated. Equally important is the retention problem in the case of ex-servicemen. In the event of increased or total

mobilization, the Army will probably receive from the manpower pool a sizable proportion of the men who have had prior military service. In order to plan efficient and economical retraining programs for these ex-servicemen, it is important to determine their level of knowledge of basic military subject matter. It should be emphasized that this study concerned itself with the retention of basic military skills and information, and that it did not attempt to measure the retention of other, and perhaps more complex, skills; e.g. radar operator proficiency.

PROCEDURE

1. Basic Military Proficiency Test

In this investigation, the retention of basic military information and skills was measured by the Basic Military Proficiency Test (BMPT). This test was chosen as the best available written test of basic military knowledge. It was developed by the Personnel Research Branch of The Adjutant General's Office, working in close conjunction with Army training personnel. The BMPT is a written (paper and pencil) test, based on the subject matter taught in Army basic combat training (ATP-21-114). The test contains 183 items, including 2 practice items, of the multiple choice type. For each question, the examinee must choose the best answer from among 4 possible alternative answers. The BMPT substantially covers the basic combat training curriculum. The areas of knowledge covered in the seven parts of the BMPT are listed below:

1.	Army Organization and Customs	- 13 items
2.	Care of Self in Combat	- 45 items
3.	Combat Training	- 45 items
4.	Special Skills	- 15 items
5.	Weapons	- 30 items
6.	Intelligence and Security	- 15 items
7.	Care of Self and Personal Equipment	- 20 items

It can be seen that, although the test coverage is extensive, it is not complete. Furthermore, it is obvious that some subjects are difficult to test by paper and pencil methods; e.g. for example, the skill involved in field-stripping a rifle or a machine gun. A more detailed description of the BMPT will be found in the report of the parallel study prepared by the Training Methods Division, Human Resources Research Office. A copy of the BMPT may be found in Appendix 1.

2. Information Sheet

In addition to the BMPT, a biographical information questionnaire, Information Sheet (Form KA), was administered to all personnel involved in this study. The purpose of this questionnaire was to secure information regarding personal-history and Army-service variables whose relationship to BMPT scores may be important. In this questionnaire, information was secured on the following variables:

1. Last Army grade
2. Present active reserve grade
3. Place of birth
4. Age
5. Education
6. Type of Army basic training
7. Attendance at an Army School
8. Extended active duty branch
9. Active reserve branch
10. Extended active duty military occupational specialty (MOS)
11. Active reserve military occupational specialty (MOS)
12. Kinds of jobs the individual did most in the Army
13. Total time on extended active duty
14. Time spent overseas
15. Time spent in the United States
16. Overseas commands in which an individual served
17. Whether or not the individual was in combat or under enemy fire
18. Total time in the active reserve
19. Time since discharge from extended active duty
20. Army classification test scores

A copy of this questionnaire may be found in Appendix 2.

3. Research Subjects

Discussions (in December 1953) with representatives of the Human Resources Research Office and of the Mobilization Branch, Office of the Assistant Chief of Staff, G-3, Department of the Army, resulted in a decision that enlisted Army reserve personnel should comprise the basic research population. It was further recognized that this population should include enlisted personnel who actively participate in the Army Reserve Program as well as those who do not.

a. Active Reserve Personnel

Because of the location of the principal investigator at the University of Pittsburgh, it was recommended that active enlisted reserve personnel residing in Western Pennsylvania should be tested first. Since these latter personnel are located in the Pennsylvania Military District (PMD), the concurrence and cooperation of Headquarters, Second Army, was obtained. Following that, arrangements were concluded with the S-3, Pennsylvania Military District, to conduct necessary testing of active enlisted reserve personnel during regularly scheduled drill periods and to obtain pertinent personal history data from appropriate unit records. Appendix 3 contains a copy of the letter, dated 4 February 1954, from Lt. Col. W. E. Shaw, S-3, PMD, to various United States Army Reserve Senior Unit Advisors in Western Pennsylvania, in which their assistance in the program is authorized.

Actual testing of enlisted Army reserve personnel began in Pittsburgh on 1 March 1954. Between that date and 29 April 1954, a total of 791 enlisted personnel were tested at 13 armories in Western Pennsylvania. These armories and the dates of testing are listed below:

1.	Pittsburgh	
	a. Point Breeze	1, 2, 3, 11 March 1954
	b. Saw Mill Run	8, 9, 10, 11, 16, 17 March 1954
2.	Washington	21, 22, 24, 25 March 1954
3.	Uniontown	22, 23, 25 March 1954
4.	Donora	23 March 1954
5.	Brownsville	6, 7 April 1954
6.	Waynesburg	8 April 1954
7.	Beaver Falls	13, 14, 22 April 1954
8.	Connellsville	13, 14, 22 April 1954
9.	Farrell	14, 19, 21, 22 April 1954
10.	New Castle	20, 21 April 1954
11.	Butler	27, 28 April 1954
12.	Kittaning	29 April 1954

All reserve units assigned to the above locations were tested on their regularly scheduled meeting nights in 36 testing sessions. The total of 791 men tested represents 58.9 per cent of the total assigned strength of the units.

In the interests of expanding the size of the test population, it was decided to terminate the testing of USAR units at widely dispersed locations in Pennsylvania and, instead, to test selected United States Army Reserve divisions during their annual active duty training period in the summer of 1954. This decision was approved by the Office, Chief of Army Field Forces, and the Department of the Army. This authority is contained in the letter which appears in Appendix 4. Enlisted personnel of the following reserve divisions were tested at the installations and times indicated below:

Divisions	Installation	Date
89 (Kansas)	Camp Carson, Colo.	27 July- 30 July 1954
81 (Georgia)	Fort Jackson, S. C.	27 July- 30 July 1954
98 (New York)	Camp Drum, N. Y.	10 Aug - 13 August 1954
83 (Ohio)	Fort Knox, Ky.	27 July- 30 July- 1954
100 (Kentucky)	Fort Knox, Ky.	17 Aug - 20 August 1954

It should be mentioned that the 791 enlisted men tested at various armories in Western Pennsylvania were assigned to the 79th Division (Pa.). Thus, retention test data are available on 6 United States Army reserve divisions located in geographically separate parts of the United States.

b. Inactive Reserve Personnel

Inasmuch as the great majority of reserve personnel do not actively participate in the Army reserve program, it was considered necessary to include such inactive research personnel in the study. The first testing of veterans in this category was conducted at the

University of Pittsburgh. Nearly 500 of the 558 veterans enrolled full-time in the University were contacted individually by letter (Appendix 5) and were asked to appear for testing. A total of 387 agreed to participate, but only 172 actually took the Basic Military Proficiency Test. Army veterans in this group numbered 113. In October 1954, another attempt was made to test the inactive reserve group. The names and addresses of 7222 inactive reservists residing in Allegheny County, Pennsylvania, were secured from Headquarters, Pennsylvania Military District. Letters of invitation (Appendix 6) signed by the author of this report were sent to these individuals. Extensive newspaper publicity was secured in which the nature and the purpose of this investigation were described, and in which encouragement was offered to the veterans to participate in this test. In addition, the Allegheny County Commanders of the American Legion and the Veterans of Foreign Wars agreed to encourage their members who secured letters of invitation to participate. To facilitate the cooperation of these inactive reservists, 28 conveniently located testing centers were made available. These testing centers were high schools in Pittsburgh and Allegheny County which were provided by various school authorities.

Four hundred and thirty-two letters of the 7222 sent were returned as non-deliverable. Three hundred and twenty-nine reservists indicated by return mail that they would appear for testing. Sixty-two persons replied that they would be unable to appear. Two hundred and four individuals actually did take the Basic Military Proficiency Test and the accompanying Biographical Information Sheet. Thus, BMPT scores are available on a total of 317 inactive reserve personnel. This number includes the group of 113 which had been tested at the University of Pittsburgh.

RESULTS

DESCRIPTION OF RESEARCH SUBJECTS : ACTIVE RESERVISTS

As mentioned above, two classes of former Army enlisted men served as the subjects in this investigation: those who participated in the Army Reserve Program, and those who did not. This section of the report will be concerned with the former group.

A total of 4234 enlisted men of six United States Army Reserve Divisions served as the subjects in this study. These divisions were: the 79th (Pa.), the 81st (Ga.), the 83rd (Ohio), the 89th (Kansas), the 98th (N. Y.), and the 100th (Ky.). The data presented in this report on the 79th Division were secured from personnel residing in Western Pennsylvania and as such they do not constitute a complete survey of that division. The other five divisions were tested relatively in their entirety during the 1954 active duty training period.

1. Prior Army Service (Table 1)

It is well known that Army Reserve Divisions contain enlisted men who have had prior Army service and those who have not. BMPT scores were obtained on both groups. In this study, 3152 EM (74.44 per cent) had prior service and 1082 (25.56 per cent) did not. As indicated in Table 1, the size of the latter group varies from division to division. The following reasons account for these differences: (a) In the case of the 79th Division, where personnel were tested in armories, it was not feasible to separate personnel with prior service from those with no prior Army service for the purpose of participating in this study. (b) In the case of the other

reserve divisions, unit commanders variously interpreted the Department of the Army letter authorizing their participation in this project, with the result that, in some cases, large numbers of non-prior-duty personnel were included, while in others, the number of such personnel is small.

2. Army Grade (Table 1)

Table 1 also describes the prior-service personnel in terms of the last grade which was held on extended active duty. 2229 EM (71.14 per cent) are found in the grades Private (10.05 per cent), Private First Class (29.11 per cent) and Corporal (31.98 per cent). The remaining 923 EM reported grades of Sergeant or higher. These percentages are based on the consideration of the entire prior-service group, regardless of divisional affiliation. When the six reserve divisions are surveyed with regard to this variable, a similar situation is found, i.e., approximately two-thirds of the personnel held active duty grades E-1 through E-4. The percentages range from 67.48 per cent (100th Div.) to 73.83 per cent (83d Div.).

3. Basic Training (Table 1)

Of the total group of prior-service personnel, 85.52 per cent (N 2675) received basic training in one of the combat arms, and 14.35 per cent (N 449) took basic training in a technical service branch. 1807 EM (57.77 per cent) received Infantry basic training. Among the six reserve divisions, the percentage of men who received combat arms basic training ranged from 81.80 per cent (79th Div.) to 89.82 per cent (100th Div.). In terms of the proportion of men who were given Infantry basic training, the range extends from 45.62 per cent (79th Div.) to 65.01 per cent (81st Div.).

4. Army Branch (Table 1)

Whereas 85.52 per cent of all prior service personnel received basic training in the combat arms, only 67.83 per cent listed a combat arm as the branch in which they were on extended active duty for the longest period of time. Similarly, only 35.58 per cent of the total group reported Infantry as their active duty branch as compared with 57.77 per cent who were given Infantry basic training. Considering the divisions, the range of active duty Infantry personnel varies from 26.74 per cent (79th Div.) to 42.44 per cent (81st Div.), and the range of combat arms enlisted men extends from 63.15 per cent (79th Div.) to 74.27 per cent (81st Div.).

5. Time on Extended Active Duty (Table 1)

Slightly less than half (43.15 per cent) of all prior duty personnel reported a two-year tour of extended active duty. The 79th Division contained the smallest number of two-year men (28.54 per cent) and the 83d Division the most (50.64 per cent). In the total group, almost two-thirds (64.22 per cent) had tours of duty of two years or less. Among the divisions, the range on this variable extended from 56.63 per cent (100th Div.) to 73.93 per cent (81st Div.). 83.50 per cent of all prior service men in the sample served on extended active duty for periods of three years or less, the divisional range extending from 78.51 per cent (98th Div.) to 88.31 per cent (83d Div.).

6. Combat (Table 1)

Less than half (41.04 per cent) of the prior service group reported that they had been in combat or under enemy fire. The 100th Div. contained the largest proportion (49.33 per cent) of combat personnel and the 81st Div. the smallest (35.68 per cent).

7. Army School (Table 1)

Similar results were obtained when subjects were asked whether they had attended an Army school for four weeks or more: 41.53 per cent replied in the affirmative. The range on this variable extended from 45.48 per cent (89th Div.) to 33.79 per cent (81st Div.).

8. Age - Education (Table 2)

The average age and level of education of all divisional personnel (those with prior service as well as those with no prior service) are given in Table 2. The former mean is 25.94 years and the latter is 11.14 grades. The range of divisional means for both variables is not great: three years in the case of age, and one and one-half grades in the case of education.

9. Reserve Branch (Table 3)

Of the total group of prior-service and non-prior-service personnel who were subjects in this study, 77.23 per cent were members of Army Reserve combat arms units. The divisional range extended from 40.41 per cent (79th Div.) to 91.54 per cent (81st Div.). More personnel were members of Reserve Infantry units than any other combat arm. The range on this factor varies from 17.57 per cent (79th Div.) to 62.69 per cent (81st Div.), while of the total Reserve group, 43.86 per cent were in the Infantry.

10. Reserve Grade (Table 3)

Slightly more than one-half (51.19 per cent) of all active Reserve personnel in the sample are distributed among grades E1 through E4. Of the various divisions the 79th contained the largest proportion (61.71 per cent) of EM in these grades and the 81st Div. the smallest (45.08 per cent).

11. Time in the Active Reserve (Table 3)

Table 3 also shows the distribution of all active Reserve personnel with respect to time in the United States Army Reserve. At the time of testing, one-half (50.49 per cent) of all subjects were in the Reserve for periods of time of two years or less. When the various divisions are considered, the proportion of two-year men varies from 62.31 per cent (100th Div.) to 43.81 per cent (98th Div.).

12. Army Classification Test Scores

In so far as it was possible, one or more of the following Army Classification Test scores were obtained on the personnel who were subjects in this study: (a) Aptitude Area I (AAI), including Reading Vocabulary (RV), Arithmetic Reasoning (AR), and Pattern Analysis (PA); (b) Army General Classification Test (AGCT), Form R-5, R-6; and the Armed Forces Qualification Test (AFQT). Such scores were available on 2274 (72.14 per cent) of the 3152 prior-service enlisted men, and on 566 (52.31 per cent) of the 1082 enlisted men with no prior service. In Table 4 may be found the means and standard deviations of each of the six reserve divisions on these classification tests. It will be seen that there is considerable variation among the divisions of these measures. Thus, in the case of Aptitude Area I, the divisional means range from 92.17 (100th Div.) to 104.27 (89th Div.), a spread of twelve score points. A similar situation exists in the case of the Army General Classification Test where a range of eleven score points characterizes the divisional means. Analyses of variance of both Aptitude Area I scores and Army General Classification Test scores by divisions yielded F ratios which are significant beyond the one per cent level of confidence (Table 5).

When scores on the above-named classification tests are sorted into the so-called "mental groups", the distribution portrayed in Table 6 is obtained. The percentages of subjects (both prior-service and non-prior-service) falling into the various groups are: Group I: 7.64 per cent; Group II: 35.00 per cent; Group III: 36.73 per cent; Group IV: 17.88 per cent; Group V: 2.75 per cent.

RESULTS

BASIC MILITARY PROFICIENCY TEST: ACTIVE RESERVISTS

1. General

In Table 7 are presented the mean scores of the six United States Army Reserve Divisions on the Basic Military Proficiency Test. These means are based on the scores of both prior-service personnel and non-prior-service personnel. Therefore, Table 7 may be regarded as indicating the level of knowledge of these divisional personnel as of the time to testing (spring-summer 1954) and as measured by this test.

The mean BMPT score for all reserve personnel of these divisions (N: 4234) was 97.94 points. The mean divisional score ranges from 91.89 points to 101.08 points. A mean score of 97.94 points on the Basic Military Proficiency Test represents knowledge of 53.52 per cent of the 183 items which comprise this test.

Also included in Table 7 are the mean scores for each division as well as for the total sample on each of the seven subtests of the Basic Military Proficiency Test. The smallest difference among the divisions as well as the highest percentage correct score occurs on Subtest 6 which contains fifteen items on intelligence and security. The mean score on Subtest 6 for all reserve personnel is 10.60 which represents knowledge of 70.67 per cent of the fifteen items which make up this subtest. The lowest percentage achievement score for all reserve personnel occurs on Subtest 4 which is made up of fifteen items labelled "Special Skills." The mean score on Subtest 4 for all reserve personnel is 6.08 which reflects correct knowledge of 40.53 per cent of the subject matter of this subtest. In terms of percentage of correct knowledge, the subtests rank from high to low as follows:

Rank	Subtest Number	Subtest Title	Number of Items	Per Cent Correct
1	6	Intelligence and Security	15	70.67
2	1	Army Organization and Customs	13	59.92
3	2	Care of Self in Combat	45	57.22
4	3	Combat Training	45	55.33
5	5	Weapons	30	46.77
6	7	Care of Self and Personal Equipment	20	45.10
7	4	Special Skills	15	40.53

Analysis of variance of divisional differences in BMPT total mean scores (Table 8) yielded an F ratio of 20.53 which is significant beyond the one per cent level of confidence. The divisional means range from 91.89 points to 101.08 points, a difference of 9.19 score points which is significant beyond the one per cent level of confidence (t: 10.09). When subtest means are compared, the actual point score differences among divisions range from 0.65 (Subtest 6) to 2.41 (Subtest 3). These differences are also significant beyond accepted levels of confidence.

The data in Table 7 are based on the BMPT performance of all divisional personnel, including those who had and those who had not had prior extended active duty in the Army. In Table 9, the mean BMPT total scores of these two classes of reserve personnel are separated for the six reserve divisions and for the entire sample. Approximately three-fourths (N: 3152, 74.44 per cent) of all reserve personnel tested had prior Army service. The mean BMPT total score of this group

was 99.93, which represents accurate knowledge of 54.61 per cent of the 183 items of the test. The mean BMPT total score of the non-prior-service group (N: 1082) was 92.15, which is an achievement score of 50.34 per cent. The difference between the mean scores of these groups is significant beyond the one per cent level of confidence (t: 12.55). In this regard, attention is called to the small size of the samples of non-prior-duty men drawn from the 81st Div., the 83d Div., and the 100th Div.

When the mean BMPT total scores of prior duty men in the various divisions are compared, it is found that the means range from 95.98 (79th Div.) to 104.32 (98th Div.). The difference between these two means is significant beyond the one per cent level of confidence (t: 7.25).

Table 9 also includes the mean BMPT total scores of prior-duty personnel in the various divisions and in the total sample as a function of time since separation from extended active duty in the Army. Inspection of these data reveals no consistent decrements in knowledge with time since discharge. Thus, in the case of the total sample, the mean BMPT total score is 100.34 for the group who had been separated six months or less at the time of testing. The means of the one-year, one-and-one-half-year, and two-year groups decline from this level until a mean of 95.95 is reached with the two-and-one-half-year group. Time groups beyond this point show, in general, an increase in mean BMPT total scores, with the group who had been discharged six years or more at the time of testing attaining the highest mean score of any of the time groups: 105.05. In a later section of this report there is presented an analysis of BMPT total scores as a function of time since separation from extended active duty and Army classification test scores.

2. BMPT Scores: Prior Service - Non-prior Service by Aptitude Groups

In the previous section, the BMPT scores of prior service men and non-prior service men in the various reserve divisions were compared and the statistically significant superiority of the former group was noted. In the present section, the BMPT scores of these two categories of personnel are again compared, but with a control for general intelligence. The measures of general intelligence used in this study are the scores on the following Army classification tests: (a) Aptitude Area I (AA-I) in the Army Classification Battery, (b) the Army General Classification Test (AGCT), the Armed Forces Qualification Test (AFQT), and the tests designated R-5, -6. These tests are considered very good measures of trainability with very high reliabilities and they generally correlate with each other to the order of .90.[1] Scores on these tests are often categorized into five socalled "mental groups." Table 6 contains the equivalences between groups, standard scores (AGCT, AA-I, R-5) and percentiles (AGQT).

In Table 10 are presented the mean BMPT total scores of prior-service and non-prior service personnel when such personnel classified by "mental groups." (It should be noted that Army classification test scores were available on only 72.14 per cent of the prior duty group and on 52.31 per cent of the non-prior duty group.) The differences between mean BMPT total scores of these two categories range from 9.80 score points (Aptitude Group IV) to 12.83 score points (Aptitude Group I), and these differences, all favoring the prior-service group

[1]Personal communication from Dr. Julius E. Uhlaner.

are significant beyond the one per cent level of confidence (Table 11). Within the prior-service sample, the average difference in mean BMPT total scores of Aptitude Groups I through IV is 10.84 score points. Within the non-prior service category, this average difference is 9.83 score points. From these results it is apparent that when control is exercised over general intelligence, prior-service personnel score significantly higher on the BMPT that non-prior service personnel, and that for both groups performance on the BMPT is positively related to level of intelligence.

When aptitude differences are controlled, the superiority of prior-service personnel over the non-prior service group is of the order of ten score points, which represents the difference between the total weighted means for these two groups (Table 10). The total weighted mean which appears in Table 10 and other subsequent tables reflects an adjustment of BMPT scores to wholly or partially eliminate the influence of aptitude differences (as measured by Army classification tests) on these scores. The method of computing the total weighted mean is given in Appendix 7.

In this regard, attention should be called to the fact that non-prior service reserve personnel have received varying degrees of Army training, depending on length of service in the United States Army Reserve. Although the BMPT performance of such reserve personnel is significantly inferior to that of prior-duty reserve personnel, it is significantly better than the BMPT performance of men tested prior to any Army basic combat training and who have been in the Army only a few days. The mean BMPT total score of a group of men (N: 712) in this last category has been found to be 73.73 (S.D. 19.56).[1]

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[1]Personal communication from Dr. Ivan Scheier and Mr. William Montague.

3. BMPT Scores: Time Since Discharge by Aptitude Groups

In Table 12 appear the BMPT total scores of prior-duty reserve personnel classified into aptitude groups as a function to time since separation from extended active duty. Analyses of variance of differences in BMPT total scores of the various time-since-discharge-groups within aptitude levels II, III, and IV, as well as of the total sample, yielded F ratios which are significant beyond the one per cent level of confidence (Table 13).

The mean BMPT total scores of the time-since-discharge groups are plotted in Figure 1. Inspection of Figure 1 and Table 12 reveals that for the entire sample, the relationship between mean BMPT total score and time since discharge is essentially linear. The mean BMPT total score for the group tested six months after separation from extended active duty is 98.39. Beyond this point, the lowest mean BMPT total score, 95.28, is found at the four year interval. The highest mean BMPT total score, 105.13, occurs in the case of the group which had been discharged more than six years at the time of testing. A similar linear relationship appears when the total weighted means are considered (Table 12). Further inspection of Table 12 and Figure 1 indicates that: (a) in the case of aptitude group II, a slight negative relationship exists between BMPT performance and time since discharge; (b) in the case of aptitude group III, this relationship is probably linear; and (c) in aptitude group IV, this relationship appears to be slightly positive. It is suggested that aptitude level differentially affects the relationship between BMPT scores and time since separation from extended active duty. The data in Table 12 also reveal that within any time-since-discharge group, mean BMPT total scores are positively related to aptitude level.

In evaluating the BMPT scores of prior duty active reserve personnel as a function of time since separation from active service, it is important to secure some estimate of their level of knowledge as measured by this test at the time of separation from active duty. It was not possible to obtain such scores on the enlisted men who participated in this research. However, BMPT scores were available on a representative group (N: 676) which included men about to be discharged from the Army as well as active service Army enlisted men who had completed 20 to 24 months of service at the time of testing. (Inducted Army enlisted personnel typically serve 20 to 24 months.) The mean BMPT total scores of these subjects by aptitude groups appear in Table 14, together with the corresponding BMPT means of prior-service reserve personnel who had been separated from active service six months or less at the time of testing. None of the differences between aptitude group BMPT means is statistically significant. The data of Tables 12 and 14 support the conclusion that the level of knowledge of basic military skills and information as measured by the BMPT does not materially change with time (up to six years) from what it was at the completion of a tour of extended active duty.

In Table 15 are presented the mean scores on the seven BMPT subtests of groups who had been discharged six months and four years at the time of testing. These groups are classified into the five aptitude levels. Inspection of these means reveals that, in the case of aptitude groups II and III, the greatest differences between the

means of the six months group and the four years group occurs in subtest 3 (Combat Training) and subtest 5 (Weapons). In aptitude group IV, the greatest difference between the means of these two groups is found in subtest 6 (Intelligence and Security). The size of the samples in aptitude groups I and V is too small to permit these comparisons.

4. BMPT Scores: Basic Training Branch by Aptitude Groups

The BMPT scores of prior-duty active reserve enlisted personnel were analyzed in terms of their relationship to the Army branch in which subjects received basic training. The data appear in Table 16 in the form of the mean BMPT total scores of the various basic-training-branch groups classified by aptitude level.

The basic training branch reported by the 2250 enlisted men on whom Army classification test scores were available and the proportion of men trained in each branch are: Infantry: 58.09 per cent; Armor: 5.73 per cent; Armored Infantry: 5.73 per cent; Engineers: 5.47 per cent; Artillery: 10.67 per cent; Other branches: 14.31 per cent.

When the total sample is considered, the Armor basic training group is found to have the highest mean BMPT total score (101.13) with the Infantry group ranking second (100.37). The lowest mean BMPT total score occurs in the case of the Artillery group. Within aptitude levels II, III, and V, the Infantry group ranks highest.

Analyses of variance of differences in mean BMPT total scores of the various basic training groups in the total sample (disregarding aptitude level) yielded an F ratio which is significant between the five and one per cent levels of confidence (Table 17). Similar analyses of variance within aptitude levels resulted in statistically

significant F ratios only in the cases of aptitude groups II and IV. The data in Table 16 also indicate that within every basic-training branch group, level of knowledge as measured by the BMPT is positively related to aptitude level (Table 17).

5. BMPT Scores: Army Branch by Aptitude Groups

In Table 18 are presented data which show the relationship between BMPT scores, classified by aptitude level, and the branch of the Army in which the active reserve personnel reported that they had served for the longest period of time. The 2266 subjects on whom Army classification test scores were available were divided among Army branches as follows: Infantry: 36.67 per cent; Armor: 6.47 per cent; Artillery: 14.96 per cent; Engineers: 10.36 per cent; Other branches: 31.02 per cent.

Within each aptitude level, the mean BMPT total score of Infantry-branch personnel is superior to that of any other-branch classification, and this superiority is statistically significant in many but not all comparisons. In the total sample, disregarding aptitude level, the highest mean BMPT total score is that of the Armor group (101.96), while the Infantry mean is next highest (101.91). However, when the adjusted total weighted means are inspected, Infantry branch personnel are found to rank highest.

Attention is called to the fact that active reserve personnel who served in branches other than the combat arms, record mean BMPT total scores which in every aptitude level but one (II) as well as in the total sample are practically equal to or superior to those of the Artillery group. Artillery branch personnel consistently score lower on the BMPT than any of the other combat arms groups.

Analyses of variance of BMPT differences among Army branch groups (Table 19) within aptitude levels (except V) produced F ratios which are significant beyond either the five per cent level of confidence (groups I and III) or the one per cent level of confidence (groups II, IV, and total sample). It may be concluded that BMPT performance is related to the branch of the Army in which active reserve personnel served for the longest period of time, with Infantry personnel tending to show the highest level of knowledge.

6. BMPT Scores: Time on Extended Active Duty by Aptitude Groups

Data showing the relationship between BMPT scores and time on extended active duty are presented in Table 20. When the total prior-service sample (whose Army classification test scores could be obtained) is considered, a positive relationship is found to exist between BMPT performance and length of Army service up to three years. From three years to six years and over this relationship is essentially linear. Thus, the mean BMPT total score of personnel who had been in the Army for six months or less is 94.53. This mean steadily rises to a high of 104.20 in the case of the three year group, and then varies between 100.94 and 101.70 for periods of time from four years to six years and over. However, when adjusted total means are inspected, the relationship between BMPT scores and length of Army service is positive up to two years and negative from that time until six years. Within aptitude levels II, III, and IV, a similar positive relationship between BMPT performance and time on extended active duty up to two years is found.

Analyses of variance of BMPT differences among groups classified by length of Army service within aptitude levels and in the total sample resulted in F ratios (Table 21) which are significant beyond the five per cent level of confidence (group II) and beyond the one per cent level of confidence (group III and total).

7. BMPT Scores: Combat by Aptitude Groups

Slightly more than a third (37.47 per cent) of the prior service active reserve personnel reported that they had been in combat or under enemy fire during their Army service. The mean BMPT total scores of these combat personnel as well as the non-combat group, classified by aptitude level, are presented in Table 22. The difference between the mean BMPT score of the entire combat group, 101.73, and that of the entire non-combat group, 98.29 is statistically significant beyond the one per cent level of confidence (Table 23). Statistically significant differences between the mean BMPT scores of these two categories of personnel are found in aptitude groups III and IV (Table 23).

8. BMPT Scores: Army Grade by Aptitude Groups

The relationship of Army grade to level of knowledge on the BMPT is portrayed by the data in Table 24, where appear the mean BMPT total scores of the various Army enlisted grades classified by aptitude level. In the total sample, disregarding aptitude level, this relationship is positive, when both unadjusted means and total adjusted weighted means are considered. Thus the mean of privates (E-1, E-2) is 91.83 and that of master or first sergeants is 108.29. Analysis of variance of BMPT differences among grade groups (not considering aptitude level) yielded an F ratio which is significant beyond the

one per cent level of confidence (Table 25). Similar analyses of variance within aptitude levels resulted in statistically significant F ratios in the cases of aptitude groups III and IV. In the higher aptitude groups I and II these ratios were not statistically significant (Table 25).

9. BMPT Scores: Army School by Aptitude Groups

Approximately forty per cent of the prior duty active reserve personnel on whom Army classification test scores were available reported that they had attended an Army school for four weeks or longer. The contribution of this experience to BMPT performance was analyzed (Table 26). The mean BMPT total score of the entire school group is 103.01 and that of the group which did not have such schooling is 97.66. The difference between these two means is statistically significant beyond the one per cent level of confidence (Table 27). However, when these two categories are compared by aptitude levels, none of the differences between test means is statistically significant at accepted levels of confidence (Table 27). These data were not analyzed to show what effect specific kinds of school experience might have had.

10. BMPT Scores: Army Job by Aptitude Groups

Prior-duty active reserve personnel who participated in this study were asked to indicate their last Military Occupational Specialty (MOS) when on active duty as well a the kind of jobs they had done most in the Army. The reported jobs were classified into the following categories:

CODE	CATEGORY
01	Engineering construction and building (e.g., engineer, pioneer)
02	Repair maintenance mechanic (e.g., auto repair, radio repair)
03	Operator - vehicle (e.g., light vehicle, tank)
04	Operator - weapons (heavy weapons, crewman, rifleman)
05	Operator - other equipment - not too high level (e.g., switchboard)
06	Technician - high level operator (e.g., medical, radio)
07	Unskilled office jobs (e.g., dispatcher, message center)
08	Clerical (e.g., clerk typist, supply clerk)
09	Skilled office jobs (e.g., finance accounting, personnel)
10	Other high level (e.g., fire direction center, recon survey)
11	Special services (e.g., athletic specialist, bandsman)
12	Medical (e.g., medical aid man)
13	Food preparation and service (e.g., cook, steward)
14	Unskilled labor (e.g., details, guard)
15	Line of field soldiering (e.g., scout, tank crew)
16	Field administration and authority (e.g., platoon sergeant, squad leader)
17	Police (e.g., military police)
18	In training (e.g., basic, technical)

All Army job categories which were reported by at least 100 men were identified and the mean BMPT total scores of the personnel in these job categories are presented in Table 28. When aptitude level is disregarded and the entire sample is considered, it is found that the highest mean BMPT total score (as well as the highest adjusted total weighted mean) occurs for the Field Administration and Authority category. Such personnel tend to hold the higher enlisted grades and it has been shown that BMPT performance directly varies with grade. The lowest mean is scored by vehicle operators (96.78), but when adjusted total weighted means are inspected, clerical personnel are found to have the lowest (97.39). A more extensive analysis of the relationship between BMPT scores and MOS is indicated.

11. BMPT Scores: Negro Personnel

Only a very small number of Negro personnel were found in the prior-duty active reserve personnel in the six United States Army Reserve Divisions which were tested in this study. The mean BMPT total scores of these individuals (N: 100) classified by aptitude level appear in Table 29. The aptitude group means are well within the range of comparable groups of caucasians.

12. Correlation of BMPT Scores with Army Classification Test Scores

It is apparent from the results presented in this report that BMPT scores are correlated with aptitude level as measured by Army classification tests. The product-moment correlation coefficients of these two variables are presented in Table 30. In Part I of Table 30, correlation coefficients of AGCT scores only and BMPT total scores are presented for the six divisions and for the total sample on whom AGCT scores were available. The correlation coefficients range from 0.310 to 0.508 with the correlation coefficient for the total sample (N: 1300) being 0.411. In Part II of Table 30 the product moment correlation of BMPT total scores and aptitude levels is given as 0.473 (N: 2740). In this latter correlation, aptitude level as determined by scores on all available Army classification tests (AGCT, AA-I, AFQT, R-r, -6) was utilized.

RESULTS

BASIC MILITARY PROFICIENCY TEST: INACTIVE RESERVISTS

In considering the BMPT performance of inactive reserve personnel, i.e., those individuals who do not actively participate in the Army Reserve Program, the characteristics of the sample should be kept in mind. The sample includes only a total of 307 men, these subjects were all volunteers, and approximately one-third were students who were enrolled at the University of Pittsburgh. In view of these facts, the representativeness of the sample is questionable, and, consequently the BMPT scores of the sample should be regarded as only suggestive of the BMPT performance of the population which they represent.

In Table 33 are presented the BMPT scores of the inactive reserve group as a function of time since separation from extended active duty. This table also includes the grand total BMPT mean score of this group which was computed in disregard of the time variable. This grand total BMPT mean score is 105.54. The corresponding grand total BMPT mean scores for prior-duty active reserve personnel and non-prior duty active reserve personnel are 99.93 and 92.15 respectively (Table 9). The obtained mean of 105.54 represents knowledge of 57.67 per cent of the 183 items which comprise the BMPT. On the basis of the data presented in Table 33, it appears that the relationship between BMPT performance and time since separation from extended active duty is negative.

When the BMPT means of the various inactive reserve time groups are compared to the corresponding means of prior-duty and non-prior duty active reserve personnel (Table 9), the superiority of the inactive reserve group is apparent.

However, this statement is tempered by the data which appear in Table 31 which contains the mean BMPT total scores of inactive reservists classified into aptitude groups (as well as time since discharge) and the corresponding BMPT means to prior-duty active reserve personnel. The latter means are generally superior, although the performances of the two groups of personnel are roughly comparable. Army classification test scores were available on approximately one-half of the inactive reserve group. They were obtained from personnel records at Headquarters, Pennsylvania Military District, Indiantown Gap Military Reservation.

Table 32 contains the mean BMPT total scores of inactive reservists whose Army classification test scores were not available.

DISCUSSION

It is believed that this research has contributed information relevant to the problem of the retention or level of knowledge of basic military subject matter by individuals with prior military service, and that it has thereby achieved its primary purpose. However, the research was also "viewed as a pilot study designed to determine the feasibility of a more extended investigation of this nature and to develop procedures for such an extended investigation" (Appendix A, Subcontract 650-020).

The fact that results pertinent to the problem have been obtained is evidence that research on this problem is feasible. However, it appears that further investigation in this area would be more feasible with active reserve or National Guard personnel rather than with the large body of former members of the Army who do not actively participate in the Reserve Program. The basis of this statement lies in the fact that only three per cent of the 6790 inactive reservists who presumably received invitations to participate in the study actually appeared to take the BMPT. (Five per cent indicated by return mail that they would participate.) It will be recalled that attempts were made to facilitate the cooperation of these individuals: (1) a personal letter of invitation was sent to each; (2) the support of veterans organizations was obtained; (3) the project received extensive local newspaper publicity; and (4) twenty eight conveniently located testing centers were available. In spite of these conditions, only a very small number of inactive reservists volunteered their services for the three to four

hours of evening time that was necessary. Perhaps a study should be undertaken to ascertain the attitudes toward the Army of inactive reservists and to determine the factors which are related to their participation or non-participation in research which has been judged to be of benefit to the Army. Thus, it is possible that a different and more successful appeal could have been directed to this group.

As stated above, active reserve and National Guard personnel are considered to be a more likely group of subjects for research on this problem. However, when these personnel are used as subjects, the problem becomes not one of "pure" retention of the content of previous active duty training, but one of the current level of knowledge of specifiable areas of military skills and information, since these individuals constantly receive "new" as well as "refresher" training. Nevertheless, it is obvious that the determination of the level of proficiency in specific or general areas of these military personnel is an important topic for additional research. If this research is to be pursued, it is suggested that it be carried out during the annual active duty training period of Army Reserve and National Guard units. During that time, large numbers of personnel are concentrated at military installations where physical facilities and available time are more suited for such testing as may be required than is the case when these personnel are studied at the armories in which they customarily train.

SUMMARY AND CONCLUSIONS

The purpose of this study was to determine the retention of basic military skills and information after separation from Army service. Retention was measured by the Basic Military Proficiency Test (BMPT) which was developed by the Personnel Research Branch, The Adjutant General's Office, Department of the Army. This is a written test containing 183 multiple-choice items based on subject matter taught in Army basic combat training. A biographical information questionnaire was also administered to secure information on twenty personal history and Army service variables whose relationship to BMPT scores was considered worthy of investigation. Army classification test scores were obtained from personnel records insofar as it was possible.

The subjects were 4234 active participants in the Army Reserve Program as members of six United States Army Reserve Divisions. Of these, 3152 men had had prior Army service. In addition, BMPT scores and biographical information were obtained on 317 men who were not active in the Army Reserve Program. These men were the respondents to a letter which was sent to over 7000 inactive reservists in Allegheny County, Pennsylvania, in which they were invited to participate in this research project.

The major findings of the study were:

1. Prior-duty active reserve personnel scored significantly higher on the BMPT than did active reserve personnel who had no prior Army service.
2. The relationship between BMPT scores and time since separation from active duty is essentially linear. When aptitude level as measured by Army classification tests is considered, a differential relationship between these variables exists.

3. Basic training branch is significantly related to BMPT performance. Personnel who received Infantry basic training tend to score higher.

4. BMPT performance is related to the branch of the Army in which active reserve personnel served for the longest period of time, with Infantry branch personnel tending to show the highest level of knowledge.

5. A positive relationship is found to exist between BMPT scores and length of Army service up to two years. Beyond that time the relationship is negative.

6. Personnel who were in combat or under enemy fire scored significantly higher on the BMPT than personnel who were not.

7. The relationship between BMPT scores and Army enlisted grade is positive.

8. Individuals who attended an Army school for four weeks or more score significantly higher on the BMPT than those who did not have that experience.

9. The kind of job which the individual did most of the time in the Army is related to BMPT performance. The highest scores were made by personnel in the Field Administration and Authority category.

10. A positive relationship was found to exist between Army classification test scores and BMPT scores (r: 0.473).

11. The small size of the inactive reserve sample warrants only several tentative conclusions which appear in the text.

Table 1

PERCENTAGE DISTRIBUTION OF ARMY SERVICE VARIABLES BY DIVISION

KEY--Army Grade

1 Private
2 Private First Class
3 Corporal
4 Sergeant
5 Sergeant First Class
6 Master or First Sergeant
7 Reject

KEY--Basic Training

1 No basic training
2 Armor
3 Armored infantry
4 Infantry
5 Artillery
6 Engineers
7 Other
8 Reject

KEY--Army School

1 Yes
2 No
3 Reject

KEY--Army Branch

1 Armor
2 Artillery
3 Engineers
4 Infantry or armored infantry
5 Other
6 Reject

KEY--Extended Active Duty

1 Six months
2 One year
3 One and one-half years
4 Two years
5 Two and one-half years
6 Three years
7 Four years
8 Five years
9 Six years
10 Over six years
11 Reject

KEY--Combat

1 Yes
2 No
3 Reject

		79 (N=740)		81 (N=462)		83 (N=754)		89 (N=814)		98 (N=1001)		100 (N=463)		TOTAL GROUP		
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Army Service		445	60.14	443	95.89	711	94.30	454	55.77	644	64.26	455	98.24	3152	74.44	
Not in Army		295	39.86	19	4.11	43	5.70	360	44.23	357	35.74	8	1.76	1082	25.56	
Army Grade	1	55	12.34	65	14.67	61	8.68	49	10.94	49	7.63	36	7.96	315	10.05	*
	2	137	30.79	125	28.22	215	30.58	126	28.12	198	30.84	111	24.56	912	29.11	
	3	129	28.99	124	27.99	243	34.57	155	34.60	193	30.06	158	34.96	1002	31.98	
	4	89	20.00	95	21.44	148	21.05	81	18.08	146	22.74	108	23.89	667	21.29	
	5	27	6.07	19	4.29	29	4.13	27	6.03	30	4.67	25	5.53	157	5.01	
	6	8	1.80	15	3.39	7	1.00	10	2.23	26	4.05	14	3.10	80	2.55	
	7	0	-	0	-	8	-	6	-	2	-	3	-	19	-	
Basic Training	1	0	0	0	0	3	.42	0	0	0	0	1	.22	4	.13	*
	2	24	5.39	19	4.29	45	6.37	17	3.84	26	4.07	40	8.85	171	5.47	
	3	37	8.31	10	2.26	38	5.38	25	5.64	22	3.44	31	6.86	163	5.21	
	4	203	45.62	288	65.01	409	57.93	254	57.34	381	59.62	272	60.18	1807	57.77	
	5	61	13.71	46	10.38	68	9.63	51	11.51	80	12.52	45	9.96	351	11.22	
	6	39	8.76	24	5.42	35	4.96	38	8.58	30	4.69	17	3.76	183	5.85	
	7	81	18.20	56	12.64	108	15.30	58	13.09	100	15.65	46	10.18	449	14.35	
	8	0	-	0	-	5	-	11	-	5	-	3	-	24	-	
Army School	1	199	44.72	147	33.79	259	37.65	201	45.48	276	43.67	201	44.97	1283	41.53	*
	2	246	55.28	288	66.21	429	62.35	241	54.52	356	56.33	246	55.03	1806	58.47	
	3	0	-	8	-	23	-	12	-	12	-	8	-	63	-	

* Percentages omitting rejects

		79 (N=740)		81 (N=462)		83 (N=754)		89 (N=814)		98 (N=1001)		100 (N=463)		TOTAL GROUP		
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Army Branch	1	26	5.84	20	4.51	61	8.64	24	5.33	41	6.38	36	7.91	208	6.62	*
	2	69	15.51	74	16.70	88	12.46	71	15.78	87	13.53	73	16.04	462	14.70	
	3	67	15.06	47	10.61	68	9.63	64	14.22	53	8.24	44	9.67	343	10.92	
	4	119	26.74	188	42.44	264	37.39	146	32.44	247	38.41	154	33.85	1118	35.58	
	5	164	36.85	114	25.73	225	31.87	145	32.22	215	33.44	148	32.53	1011	32.17	
	6	0	-	0	-	5	-	4	-	1	-	0	-	10	-	
Extended Active Duty	1	20	4.49	35	7.94	15	2.14	21	2.59	16	2.49	6	1.33	113	3.61	*
	2	82	18.43	53	12.02	82	11.70	61	7.51	53	8.26	28	6.19	359	11.46	
	3	30	6.74	27	6.12	36	5.14	40	4.93	36	5.61	19	4.20	188	6.00	
	4	127	28.54	211	47.85	355	50.64	182	22.41	274	42.68	203	44.91	1352	43.15	
	5	30	6.74	8	1.81	34	4.85	20	2.46	26	4.05	27	5.97	145	4.63	
	6	83	18.65	44	9.98	97	13.84	59	7.27	99	15.42	77	17.04	459	14.65	
	7	31	6.97	26	5.90	42	5.99	38	4.68	53	8.26	36	7.96	226	7.21	
	8	30	6.74	12	2.72	22	3.14	14	1.72	43	6.70	26	5.75	147	4.69	
	9	1	.22	7	1.59	7	1.00	4	.49	5	.78	12	2.65	36	1.15	
	10	11	2.47	18	4.08	11	1.57	13	1.60	37	5.76	18	3.98	108	3.45	
	11	0	-	2	-	10	-	2	-	2	-	3	-	19	-	
Combat	1	170	38.29	157	35.68	289	40.70	179	39.60	270	42.19	222	49.33	1287	41.04	*
	2	274	61.71	283	64.32	421	59.30	273	60.40	370	57.81	228	50.67	1849	58.96	
	3	1	-	3	-	1	-	2	-	4	-	5	-	16	-	

* Percentages omitting rejects

Table 2

MEAN AGE AND EDUCATIONAL LEVEL BY DIVISIONS

		79	81	83	89	98	100	Total
Age	N	740	462	752	812	999	463	4228
	M	25.02	26.50	26.54	24.71	26.10	27.71	25.94
	σ	5.82	5.05	4.88	5.03	5.80	5.58	5.48
Education	N	740	462	753	812	1001	463	4231
	M	11.41	10.13	11.09	11.65	11.24	10.66	11.14
	σ	2.07	2.54	1.99	2.07	2.33	2.43	2.24

Table 3

PERCENTAGE DISTRIBUTION OF RESERVE VARIABLES BY DIVISION

KEY--Reserve Grade

1 Private
2 Private First Class
3 Corporal
4 Sergeant
5 Sergeant First Class
6 Master or First Sergeant
7 Reject

KEY--Reserve Branch

1 Armor
2 Artillery
3 Engineers
4 Infantry or armored infantry
5 Other
6 Reject

KEY--Active Reserve Time

1 Six months
2 One year
3 One and one-half years
4 Two years
5 Two and one-half years
6 Three years
7 Four years
8 Five years
9 Six years
10 Over six years
11 Reject

		79 (N=740)		81 (N=462)		83 (N=754)		89 (N=814)		98 (N=1001)		100 (N=463)		TOTAL GROUP	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Reserve Grade	1	169	22.87	15	3.28	34	4.58	72	8.93	53	5.33	18	3.90	361	8.53
	2	79	10.69	70	15.32	158	21.26	131	16.25	182	18.31	65	14.10	685	16.18
	3	208	28.15	121	26.48	220	29.61	201	24.94	246	24.75	125	27.11	1121	26.48
	4	135	18.27	129	28.23	130	17.50	214	26.55	259	26.06	101	21.91	968	22.86
	5	99	13.40	65	14.22	120	16.15	124	15.38	114	11.47	99	21.48	621	14.67
	6	49	6.63	57	12.47	81	10.90	64	7.94	140	14.08	53	11.50	444	10.49
	7	1	-	5	-	11	-	8	-	7	-	2	-	34	0.80
Reserve Branch	1	17	2.30	1	0.22	56	7.50	45	5.54	56	5.60	53	11.57	228	5.38
	2	42	5.68	84	18.22	263	35.21	125	15.38	221	22.10	107	23.36	842	19.89
	3	110	14.86	48	10.41	29	3.88	94	11.56	43	4.30	19	4.15	343	8.10
	4	130	17.57	289	62.69	327	43.78	364	44.77	509	50.90	238	51.97	1857	43.86
	5	441	59.59	39	8.46	72	9.64	185	22.76	171	17.10	41	8.95	949	22.41
	6	0	0	1	-	7	-	1	-	1	-	.5	-	15	0.35

		79 (N=740)		81 (N=462)		83 (N=754)		89 (N=814)		98 (N=1001)		100 (N=463)		TOTAL GROUP	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Active	1	224	30.35	73	15.87	253	33.69	116	14.32	104	10.45	147	32.03	917	21.66
Reserve	2	61	8.27	63	13.70	107	14.25	168	20.74	122	12.26	93	20.26	614	14.50
Time	3	28	3.79	74	16.09	54	7.19	52	6.42	144	14.47	33	7.19	385	9.09
	4	26	3.52	56	12.17	24	3.20	37	4.57	66	6.63	13	2.83	222	5.24
	5	18	2.44	11	2.39	9	1.20	20	2.47	31	3.12	9	1.96	98	2.31
	6	114	15.45	28	6.09	25	3.33	72	8.89	91	9.15	16	3.49	346	8.17
	7	114	15.45	50	10.87	62	8.26	174	21.48	184	18.49	50	10.89	634	14.97
	8	66	8.94	42	9.13	82	10.92	69	8.52	95	9.55	47	10.24	401	9.47
	9	15	2.03	15	3.26	22	2.93	20	2.47	35	3.52	9	1.96	116	2.74
	10	72	9.76	48	10.43	113	15.05	82	10.12	123	12.36	42	9.15	480	11.34
	11	2	-	2	-	3	-	4	-	6	-	4	-	21	0.50

Table 4

MEAN ARMY CLASSIFICATION TEST SCORES BY DIVISIONS

Army Tests		79	81	83	89	98	100	Total
	N	233	130	408	284	272	200	1527
RV	M	105.16	92.06	97.44	104.64	102.04	94.31	99.91
	σ	19.59	21.52	21.90	21.74	20.14	19.78	21.39
	N	233	130	408	284	272	200	1527
AR	M	99.21	89.41	92.68	101.64	96.94	88.60	95.29
	σ	19.35	23.16	22.06	20.68	21.47	19.79	21.43
	N	233	129	408	279	272	200	1521
PA	M	102.94	94.19	99.37	106.98	103.57	93.59	100.87
	σ	21.69	20.08	22.25	21.34	21.32	21.23	21.96
	N	233	129	408	279	272	200	1521
AAI	M	102.43	93.27	96.57	104.27	100.59	92.17	98.74
	σ	17.45	18.73	19.55	18.12	18.09	17.22	18.83
	N	206	216	133	225	396	124	1300
AGCT	M	109.99	102.17	113.33	113.46	113.84	109.37	110.75
	σ	18.77	15.49	17.17	15.98	17.03	15.31	17.24
	N	75	0	1	3	14	0	93
R-5-6	M	109.59		98.00	112.00	115.00		110.35
	σ	15.94		--	6.17	19.83		16.51
	N	40	4	0	83	12	0	139
AFQT	M	43.50	50.25		44.36	48.17		44.61
	σ	29.45	27.53		27.41	28.00		28.11

Table 5

ANALYSIS OF VARIANCE OF DIVISIONAL DIFFERENCES IN ARMY CLASSIFICATION TEST SCORES

Classification Test	Source of Variation	df	Mean Square	F
Aptitude Area I	Between Divisions	5	5411.30	16.00*
	Within Divisions	1515	338.14	
AGCT	Between Divisions	5	4516.02	16.00*
	Within Divisions	1294	282.30	

*Significant beyond the one per cent level of confidence.

Table 6

DISTRIBUTION OF ARMY CLASSIFICATION TEST SCORES
BY APTITUDE GROUPS

Group	AAI	AFQT	AGCT	R-5-6	Total	Percentage
I	57	4	148	8	217	7.64
II	406	10	544	34	994	35.00
III	587	8	420	28	1043	36.73
IV	405	6	94	3	508	17.88
V	66	2	10	0	78	2.75
Total	1521	30	1216	73	2840	

KEY:	Group	AFQT	AGCT/AAI
	I	93-100	130-163
	II	65-92	110-129
	III	31-64	90-109
	IV	10-30	65-89
	V	1-9	39-64

Table 7

MEAN BMPT TOTAL AND SUB-TEST SCORES BY DIVISIONS

BMP SUB-TESTS		79	81	83	89	98	100	Total
	N	740	462	754	814	1001	463	4234
Test 1	M	7.30	8.13	8.00	7.33	7.95	8.39	7.79
	σ	2.73	2.12	2.21	2.17	2.32	2.14	2.36
	N	740	462	754	814	1001	463	4234
Test 2	M	24.47	25.38	26.07	26.10	26.12	26.17	25.75
	σ	5.11	4.90	4.74	4.60	4.91	4.88	4.86
	N	740	462	754	814	1001	463	4234
Test 3	M	23.33	24.05	25.06	25.41	25.74	25.30	24.90
	σ	5.58	5.71	5.69	5.74	5.76	5.81	5.79
	N	734	462	754	814	1001	463	4228
Test 4	M	5.88	5.60	5.95	6.19	6.60	5.80	6.08
	σ	2.45	2.44	2.57	2.35	2.67	2.40	2.53
	N	730	462	754	814	1001	463	4224
Test 5	M	12.90	14.37	14.36	14.26	14.32	13.94	14.03
	σ	3.78	4.02	4.31	4.24	4.21	4.45	4.21
	N	715	460	754	814	1001	463	4207
Test 6	M	10.26	10.39	10.68	10.77	10.91	10.26	10.60
	σ	2.50	2.79	2.92	2.79	2.68	3.37	2.83
	N	710	460	754	814	1001	463	4202
Test 7	M	8.81	9.08	8.80	9.09	9.42	8.62	9.02
	σ	2.73	2.83	3.00	2.93	3.06	3.40	2.82
	N	740	462	754	814	1001	463	4234
Total	M	91.89	96.87	98.73	99.11	101.08	98.58	97.94
BMPf	σ	18.77	18.22	18.60	18.33	18.98	19.81	19.02

Table 8

ANALYSIS OF VARIANCE OF DIVISIONAL DIFFERENCES IN BMPT TOTAL MEAN SCORES

Source of Variation	df	Mean Square	F
Between Divisions	5	7244.65	20.53*
Within Divisions	4228	352.89	

*Significant beyond the one per cent level of confidence.

Table 9

PERCENTAGE DISTRIBUTION OF GROUPS IN TERMS OF TIME SINCE DISCHARGE FROM EXTENDED ACTIVE DUTY WITH MEAN BMPT TOTAL SCORES BY DIVISIONS

Div.		Army Service*	Not in Army	6 mos.	1 yr.	1 1/2 yrs.	2 yrs.	2 1/2 yrs.	3 yrs.	4 yrs.	5 yrs.	6 yrs.	Over 6 yrs.	Re. jects
79	N	445	295	29	31	45	37	13	14	75	34	10	156	1
	%	60.14	39.86	6.53	6.98	10.14	8.33	2.33	3.15	16.89	7.66	2.25	35.14	
	M	95.98	85.74	102.93	90.87	90.80	91.57	92.32	90.57	92.28	97.53	90.50	100.72	
	σ	18.08	17.73	15.27	26.77	23.02	16.56	8.75	9.34	16.58	14.27	18.20	13.21	
81	N	443	19	18	42	99	76	14	25	35	34	4	94	2
	%	95.89	4.11	4.08	9.52	22.45	17.23	3.17	5.67	7.94	7.71	.91	21.32	
	M	96.89	96.53	99.72	93.95	94.96	97.72	103.92	93.32	93.77	91.53	91.25	102.47	
	σ	18.36	14.66	25.26	20.65	17.83	19.20	18.12	15.00	16.85	16.19	20.43	18.60	
83	N	711	43	50	110	154	79	12	14	34	43	14	192	9
	%	94.30	5.70	7.12	15.67	21.94	11.25	1.71	1.99	4.84	6.13	1.99	27.35	
	M	99.08	92.93	100.62	93.87	98.41	96.25	84.17	102.71	97.47	96.70	92.79	105.69	
	σ	18.73	20.54	21.41	23.03	17.02	19.62	18.70	13.97	14.83	13.79	19.28	15.79	
89	N	454	360	29	102	40	35	13	19	34	32	14	127	9
	%	55.77	44.23	6.52	22.92	8.99	7.87	2.92	4.27	7.64	7.19	3.15	28.54	
	M	102.79	94.49	98.28	104.95	97.55	100.83	102.31	102.74	95.18	102.31	106.07	107.73	
	σ	18.84	15.96	24.28	17.94	22.30	17.36	18.04	21.10	12.84	14.29	18.35	16.48	
98	N	644	357	31	47	128	92	17	17	30	41	15	224	2
	%	64.26	35.74	4.83	7.32	19.94	14.33	2.65	2.65	4.67	6.39	2.34	34.89	
	M	104.32	95.22	103.29	96.64	100.17	103.41	96.24	106.76	105.50	102.88	108.07	108.98	
	σ	19.48	16.31	22.51	15.15	21.38	19.19	18.15	12.67	18.04	18.38	19.28	16.53	
100	N	455	8	60	58	59	60	10	25	17	19	9	134	4
	%	98.24	1.76	13.30	12.68	13.08	13.30	2.22	5.54	3.77	4.20	2.00	29.71	
	M	99.04	72.38	98.52	97.33	97.95	97.53	94.10	105.24	93.59	103.32	94.78	101.87	
	σ	19.35	24.85	[illegible] 13	20.22	17.71	19.98	17.49	15.96	21.11	14.23	6.32	18.04	
Total	N	3152	1082	217	390	525	379	79	114	225	203	66	929	27
	%	74.44	25.56	6.94	12.48	16.80	12.13	2.53	3.65	7.20	6.50	2.11	29.66	
	M	99.93	92.15	100.34	97.39	97.42	98.45	95.95	100.32	95.60	98.72	98.91	105.05	
	σ	19.11	17.20	21.91	21.99	19.54	19.31	18.12	16.56	17.03	15.94	19.24	16.75	

* Army Service includes Rejects

Table 10

MEAN BMPT TOTAL SCORES OF PRIOR-SERVICE MEN AND NON-PRIOR-SERVICE MEN BY APTITUDE GROUPS

Group		Army Service	Not in Army	Total
I	N	137	80	217
	M	117.96	105.13	113.23
	σ	14.07	14.42	15.49
II	N	749	245	994
	M	108.55	97.65	105.87
	σ	15.69	14.92	16.16
III	N	848	195	1043
	M	99.17	88.14	97.10
	σ	15.11	14.60	15.67
IV	N	466	42	508
	M	85.44	75.64	84.63
	σ	17.10	17.31	17.33
V	N	74	4	78
	M	68.28	78.75	68.82
	σ	17.81	16.10	17.84
Total	N	2274	566	2840
	M	99.57	93.66	98.38
	σ	19.20	16.89	18.93
Total Weighted Mean		100.49	90.16	

Table 11

TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN BMPT TOTAL MEANS OF PRIOR-SERVICE AND NON-PRIOR SERVICE GROUPS BY APTITUDE LEVELS

Aptitude Level	t
I	6.29
II	9.39
III	8.55
IV	3.49
V	-
TOTAL	7.30

All of the above ts are significant beyond the one per cent level cf confidence.

Table 12

MEAN BMPT TOTAL SCORES OF TIME-SINCE-DISCHARGE GROUPS
BY APTITUDE LEVELS

Group		6 mos.	1 yr.	1½yrs.	2 yrs.	2½yrs.	3 yrs.	4 yrs.	5 yrs.	6 yrs.	Over 6 yrs.
	N	6	12	8	11	1	2	9	8	2	75
I	M	114.17	123.50	126.38	123.73	112.00	134.00	118.44	110.63	140.50	115.76
	σ	12.69	11.42	11.02	13.26	--	--	11.79	5.62	--	14.15
	N	38	80	105	73	20	29	58	54	15	276
II	M	115.63	110.40	109.43	110.90	105.50	110.72	101.72	110.57	102.53	107.40
	σ	13.88	16.04	15.60	14.75	13.06	13.64	13.46	13.13	19.08	16.58
	N	61	110	162	119	25	32	77	63	16	177
III	M	103.80	100.35	100.80	101.05	95.40	94.72	94.77	95.52	102.00	98.10
	σ	13.61	24.68	13.05	13.66	17.28	16.22	15.18	13.92	11.40	17.90
	N	45	93	129	77	13	18	34	26	6	18
IV	M	82.31	84.94	86.24	84.40	84.23	91.94	82.18	86.65	81.83	96.56
	σ	11.16	19.58	14.91	16.16	15.89	12.26	15.96	15.96	12.86	12.68
	N	10	20	23	13	1	1	4	1	0	1
V	M	62.70	63.00	70.22	71.46	93.00	66.00	71.00	98.00	--	82.00
	σ	12.88	15.11	19.92	17.40	--	--	8.9	--	--	--
	N	160	315	427	293	60	82	182	152	39	547
Total	M	98.39	97.18	97.35	98.67	96.58	100.38	95.28	100.16	101.03	105.13
	σ	21.86	23.34	18.51	18.41	17.34	17.63	17.22	16.48	18.90	15.18
Total Weighted Means		102.50	100.58	101.10	101.19	97.11	100.73	95.03	99.58	96.88	101.25

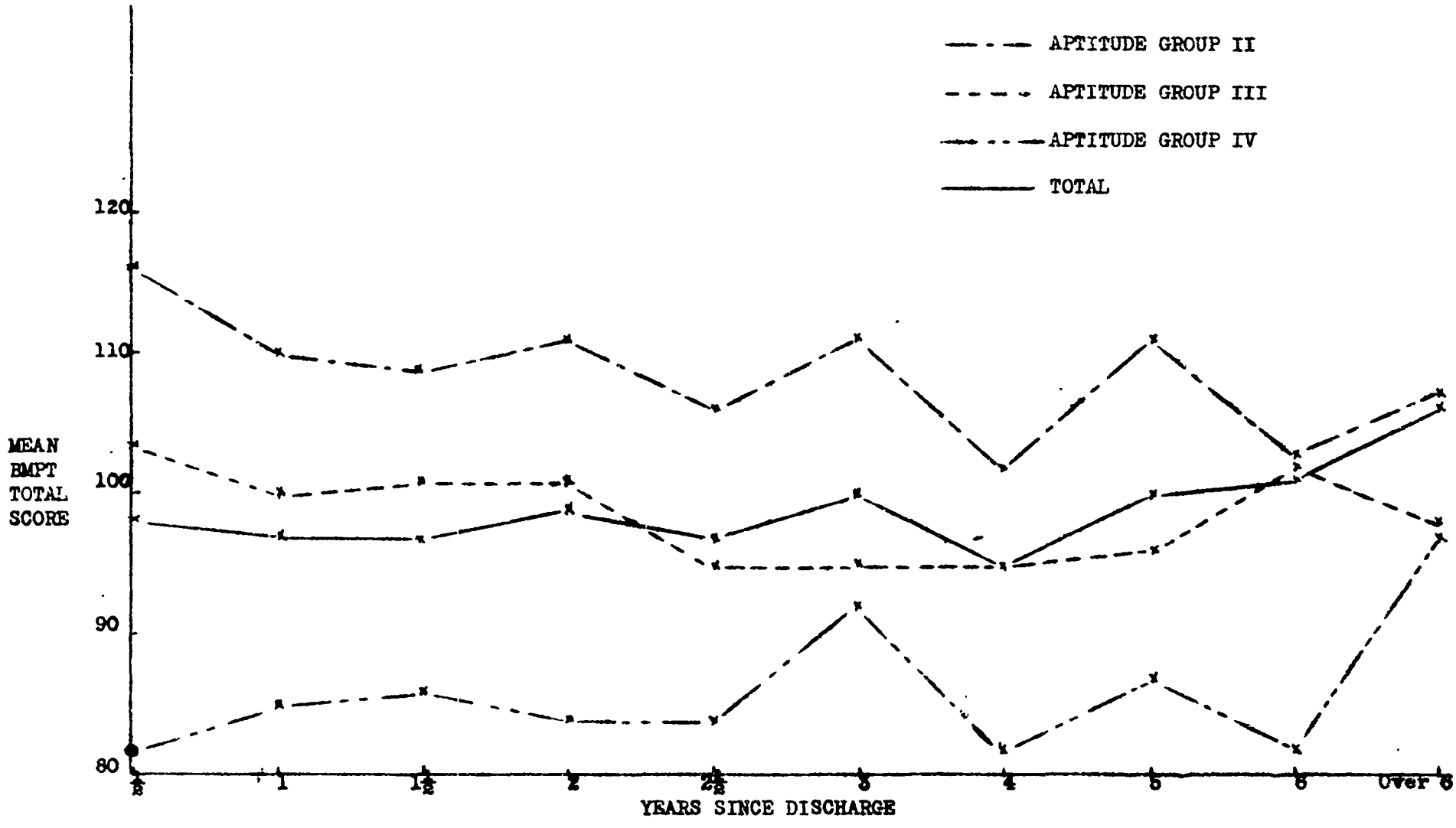

FIG. 1. MEAN BMPT TOTAL SCORES OF APTITUDE GROUPS AND TOTAL SAMPLE AS A FUNCTION OF YEARS SINCE DISCHARGE.

Table 13

ANALYSES OF VARIANCE OF TIME-SINCE-DISCHARGE DIFFERENCES IN BMPT SCORES WITHIN APTITUDE LEVELS

Aptitude Level	Source of Variation	df	Mean Square	F
I	Between groups	--	--	--
	Within groups	--	--	
II	Between groups	9	757.61	3.52*
	Within groups	738	215.48	
III	Between groups	9	752.93	3.97*
	Within groups	832	189.60	
IV	Between groups	9	2733.67	9.19*
	Within groups	449	297.48	
V	Between groups	--	--	--
	Within groups	--	--	
Total	Between groups	9	2764.90	8.26*
	Within groups	2247	334.89	

* Significant beyond the one per cent level of confidence.

Table 14

MEAN BMPT TOTAL SCORES OF ARMY SEPARATEES

Group I	N	18
	M	116.44
	σ	21.67
Group II	N	128
	M	112.09
	σ	13.52
Group III	N	163
	M	102.20
	σ	17.31
Group IV	N	277
	M	80.34
	σ	19.28
Group V	N	90
	M	70.92
	σ	17.15
Total	N	676
	M	91.33
	σ	23.30

Table 15

MEAN BMPT SUBTEST SCORES BY APTITUDE LEVELS SIX MONTHS AND FOUR YEARS SINCE DISCHARGE FROM EXTENDED ACTIVE DUTY

Aptitude Group	Time Since Discharge	N	BMPT Subtests 1	2	3	4	5	6	7	Total
I	6 mos.	6	9.17	24.67	28.17	8.00	17.50	14.00	9.67	114.17
	4 yrs.	9	10.11	28.78	30.22	8.89	16.33	12.67	12.00	118.44
II	6 mos.	38	10.03	28.39	29.05	7.32	18.24	11.89	10.41	115.63
	4 yrs.	58	8.72	26.86	24.69	6.19	14.40	10.90	9.67	101.72
III	6 mos.	61	8.61	26.20	25.98	5.93	15.46	12.02	9.37	103.80
	4 yrs.	77	7.53	24.70	23.95	5.84	12.91	10.51	8.27	94.77
IV	6 mos.	45	6.80	22.91	20.27	4.07	12.33	8.96	7.38	82.31
	4 yrs.	34	6.68	22.65	21.09	4.97	11.32	7.62	7.24	82.18
V	6 mos.	10	4.20	16.10	15.9	3.9	10.4	6.50	5.7	62.70
	4 yrs.	4	5.0	21.25	17.25	3.25	8.0	8.25	6.0	71.00

6 months	N	160	
	M	98.39	
	σ	21.86	
4 years	N	182	
	M	95.28	
	σ	17.22	

Table 16

MEAN BMPT TOTAL SCORES OF BASIC TRAINING GROUPS
BY APTITUDE LEVELS

		Armor	Armored Infantry	Infantry	Artillery	Engineers	Other
Group I	N	10	8	66	10	8	32
	M	120.00	124.88	120.21	109.40	114.25	116.59
	σ	16.18	10.70	12.59	12.16	8.75	14.32
Group II	N	37	29	403	88	37	147
	M	108.84	109.14	110.29	106.08	109.14	104.71
	σ	13.02	12.60	16.44	13.07	18.39	15.60
Group III	N	51	50	518	83	39	102
	M	99.41	99.68	100.21	97.81	98.51	94.78
	σ	14.67	14.78	18.39	14.10	13.82	17.44
Group IV	N	27	32	280	52	33	35
	M	91.96	87.81	85.80	79.42	86.00	85.43
	σ	13.31	16.26	17.86	16.61	15.79	12.67
Group V	N	4	10	40	7	6	6
	M	66.50	68.70	71.73	58.57	58.67	68.67
	σ	6.19	15.78	17.81	8.41	10.68	21.99
Total	N	129	129	1307	240	123	322
	M	101.13	98.02	100.37	96.20	97.43	99.98
	σ	17.12	19.14	20.60	18.80	20.21	18.48
Total Weighted Mean		101.17	100.89	100.88	96.22	99.12	96.61

Table 17

ANALYSES OF VARIANCE OF BMPT DIFFERENCES AMONG BASIC TRAINING GROUPS WITHIN APTITUDE LEVELS

Aptitude Level	Source of Variation	df	Mean Square	F
I	Between groups	5	325.92	1.84
	Within groups	128	176.54	
II	Between groups	5	787.56	3.15**
	Within groups	735	249.73	
III	Between groups	5	542.74	1.81
	Within groups	837	300.46	
IV	Between groups	5	650.26	2.26*
	Within groups	453	288.08	
V	Between groups	5	340.51	1.06
	Within groups	67	321.48	
Total	Between groups	5	961.10	2.43
	Within groups	2244	394.79	

* Significant at 5 per cent level of confidence.

** Significant at 1 per cent level of confidence.

Table 18

MEAN BMPT TOTAL SCORES OF ARMY BRANCH GROUPS
BY APTITUDE LEVELS

		Armor	Artillery	Engineers	Infantry	Other
Group I	N	13	8	18	50	47
	M	120.69	113.63	117.28	122.66	113.38
	σ	10.65	17.32	9.34	11.85	15.55
Group II	N	51	114	64	242	276
	M	111.04	107.13	108.56	111.91	105.76
	σ	11.55	14.19	15.38	16.65	15.49
Group III	N	51	127	89	329	251
	M	99.16	97.12	99.65	101.43	97.11
	σ	15.68	14.51	14.19	13.85	20.05
Group IV	N	25	84	66	176	113
	M	88.64	80.31	83.97	88.74	84.80
	σ	16.14	17.94	16.28	17.94	14.98
Group V	N	7	6	9	34	16
	M	69.00	49.33	65.11	73.06	69.88
	σ	8.25	9.76	15.83	24.48	17.80
Total	N	147	339	246	831	703
	M	101.96	95.86	97.79	101.91	98.99
	σ	18.26	19.62	19.24	19.59	19.57
Total Weighted Mean		101.35	96.54	99.43	102.75	97.64

Table 19

ANALYSES OF VARIANCE OF BMPT DIFFERENCES AMONG ARMY BRANCH GROUPS WITHIN APTITUDE LEVELS

Aptitude Level	Source of Variation	df	Mean Square	F
I	Between groups	4	586.09	3.22*
	Within groups	131	181.82	
II	Between groups	4	1358.81	5.66**
	Within groups	742	240.13	
III	Between groups	4	826.52	3.15*
	Within groups	842	262.24	
IV	Between groups	4	1140.96	3.94**
	Within groups	459	289.80	
V	Between groups	4	757.29	1.81
	Within groups	67	417.43	
Total	Between groups	4	2763.42	7.32**
	Within groups	2261	377.63	

* Significant at the 5 per cent level of confidence.

** Significant beyond the 1 per cent level of confidence.

Table 20

MEAN BMPT TOTAL SCORES OF TIME-ON-EXTENDED-ACTIVE-DUTY GROUPS BY APTITUDE LEVELS

		6 mos	1 yr.	1 1/2 yrs.	2 yrs.	2 1/2 yrs.	3 yrs.	4 yrs.	5 yrs.	6 yrs.	Over 6 yrs.
Gp. I	N	5	16	5	39	13	30	10	12	3	3
	M	123.60	111.63	123.60	123.13	118.69	115.23	115.70	109.92	125.67	125.00
	σ	--	11.42	--	11.91	19.17	12.84	10.51	16.10	--	--
Gp. II	N	26	94	46	294	35	132	53	40	10	18
	M	102.15	106.98	108.96	110.97	107.60	107.08	109.08	106.78	101.20	106.50
	σ	10.65	12.56	17.23	15.17	16.36	18.18	14.96	12.40	17.57	13.24
Gp. III	N	40	109	46	446	38	75	42	25	2	22
	M	95.50	95.20	97.41	101.20	98.03	100.35	96.02	93.04	98.00	99.64
	σ	14.93	12.27	14.06	13.73	16.33	16.37	16.10	23.07	--	17.54
Gp. IV	N	19	66	24	299	8	24	8	7	2	4
	M	82.84	82.70	83.63	86.34	94.00	86.63	78.88	89.57	65.50	83.00
	σ	14.16	18.84	14.21	16.22	--	17.66	--	--	--	--
Gp. V	N	4	8	4	44	4	0	4	0	0	1
	M	54.50	75.25	62.25	70.18	57.25		62.75			60.00
	σ	--	--	--	12.46	--	--	--	--	--	--
Total	N	94	293	125	112.2	98	261	117	84	17	48
	M	94.53	96.52	98.94	99.36	102.19	104.20	101.31	101.70	100.94	101.58
	σ	18.25	17.51	19.50	18.91	20.56	18.52	19.27	18.49	22.76	18.46
Total Weighted Mean		95.53	96.92	98.90	101.78	100.35	97.56	97.00	95.01	91.05	98.81

Table 21

ANALYSES OF VARIANCE OF BMPT DIFFERENCES AMONG TIME-ON-ACTIVE-DUTY GROUPS WITHIN APTITUDE LEVELS

Group	Source of Variation	df	Mean Square	F
II	Between groups	9	455.83	1.91*
	Within groups	738	239.10	
III	Between groups	9	639.81	2.98**
	Within groups	835	214.75	
Total	Between groups	9	3593.35	10.13**
	Within groups	2248	354.86	

* Significant at the 5 per cent level of confidence.

** Significant beyond the 1 per cent level of confidence.

Table 22

MEAN BMPT TOTAL SCORES OF COMBAT AND NON-COMBAT GROUPS
BY APTITUDE LEVELS

		Combat	No Combat
Group I	N	58	79
	M	120.53	116.06
	σ	14.01	13.92
Group II	N	292	456
	M	108.85	108.33
	σ	16.11	15.38
Group III	N	311	530
	M	101.60	97.80
	σ	14.97	14.75
Group IV	N	159	304
	M	87.52	84.23
	σ	16.25	17.45
Group V	N	28	46
	M	70.57	66.89
	σ	15.08	19.14
Total	N	848	1415
	M	101.73	98.29
	σ	18.77	19.27
Total Weighted Mean		101.33	98.68

Table 23

TESTS OF SIGNIFICANCE OF DIFFERENCES BETWEEN BMPT TOTAL MEANS OF COMBAT AND NON-COMBAT GROUPS BY APTITUDE LEVELS

Aptitude Level	t
I	1.83
II	0.44
III	3.58**
IV	2.02*
V	0.91
TOTAL	4.20**

* Significant at the five per cent level of confidence.

** Significant beyond the one per cent level of confidence.

Table 24

MEAN BMPT TOTAL SCORES OF ARMY GRADE GROUPS
BY APTITUDE LEVELS

		Private	Private First Class	Corporal	Sergeant	Sergeant First Class	Master or First Sergeant
Group I	N	8	29	39	42	13	5
	M	123.63	115.97	121.13	116.95	116.69	109.40
	σ	9.34	14.59	11.86	15.23	11.48	20.53
Group II	N	70	197	243	165	43	28
	M	104.06	108.63	109.24	108.39	111.79	110.11
	σ	14.09	16.21	14.51	17.13	15.63	14.03
Group III	N	96	262	288	166	28	5
	M	95.14	97.02	100.09	103.23	101.11	100.80
	σ	15.66	14.67	14.08	15.53	18.16	9.20
Group IV	N	71	190	140	55	6	3
	M	79.04	82.51	89.16	92.44	100.50	102.00
	σ	16.52	16.53	16.23	16.25	13.59	10.04
Group V	N	15	27	21	5	1	0
	M	57.13	70.81	71.76	73.20	110.00	--
	σ	12.14	17.61	17.40	19.54	--	--
Total	N	260	705	731	433	91	41
	M	91.83	96.13	101.35	104.81	108.44	108.29
	σ	20.50	19.53	17.63	17.77	16.84	14.72
Total Weighted Mean		95.39	98.28	101.34	102.71	105.82	101.61

Table 25

ANALYSES OF VARIANCE OF BMPT DIFFERENCES AMONG ARMY GRADE GROUPS WITHIN APTITUDE LEVELS

Group	Source of Variation	df	Mean Square	F
I	Between groups	5	238.56	1.20
	Within groups	130	199.62	
II	Between groups	5	410.52	1.68
	Within groups	740	244.97	
III	Between groups	5	1174.66	5.27*
	Within groups	839	223.06	
IV	Between groups	5	3540.18	13.76*
	Within groups	459	257.13	
V	Between groups	--	--	--
	Within groups	--	--	--
Total	Between groups	5	9674.14	28.06*
	Within groups	2255	344.79	

* Significant beyond the one per cent level of confidence.

Table 26

MEAN BMPT TOTAL SCORES OF ARMY SCHOOL AND NON-SCHOOL GROUPS BY APTITUDE LEVELS

		School	No School
Group I	N	69	67
	M	117.28	118.94
	σ	14.23	13.36
Group II	N	364	372
	M	109.74	107.78
	σ	15.28	15.66
Group III	N	339	500
	M	100.37	98.36
	σ	15.41	15.35
Group IV	N	122	333
	M	87.75	84.67
	σ	17.92	16.55
Group V	N	19	43
	M	67.47	69.35
	σ	20.37	17.84
Total	N	913	1315
	M	103.01	97.66
	σ	18.50	19.20
Total Weighted Mean		100.89	99.02

Table 27

TES OF SIGNIFICANCE OF DIFFERENCES BETWEEN BMPT TOTAL MEANS OF SCHOOL AND NON-SCHOOL GROUPS BY APTITUDE LEVELS

Aptitude Level	t
I	0.63
II	1.72
III	1.84
IV	1.66
V	0.34
TOTAL	6.60*

* Significant beyond the one per cent level of confidence.

Table 28

MEAN BMPT TOTAL SCORES OF CERTAIN ARMY JOB GROUPS
BY APTITUDE LEVELS

KEY

All army jobs for which frequency was greater than 100

02--Repair Maintenance Mechanic
03-- Operator (Vehicle)
04--Operator (Weapons)
06--Technician (High Level Operator)
08--Clerk and Clerical
13--Food Preparation and Service
16--Field Administration and Authority

Aptitude Group		*02	03	+	05	08	13	16	Total
I	N	14	13	23	11	16	1	28	106
	M	121.07	123.15	118.22	114.36	113.62	117.00	118.11	
	σ	13.43	15.93	13.05	16.04	12.15	-	12.41	
II	N	71	83	123	46	110	31	116	580
	M	110.32	105.65	109.72	106.26	105.25	100.97	112.29	
	σ	13.06	15.90	15.42	14.96	15.59	19.08	16.56	
III	N	69	126	187	33	101	60	84	660
	M	98.39	100.21	99.84	96.03	97.02	95.35	102.44	
	σ	13.19	14.66	15.96	20.95	13.89	14.49	16.73	
IV	N	29	95	120	13	24	40	40	361
	M	85.03	87.12	85.47	92.15	80.71	99.55	99.55	
	σ	12.13	15.71	18.22	10.19	13.04	15.08	15.08	
V	N	1	21	23	0	0	4	5	54
	M	55.00	68.52	68.53	--	--	61.50	93.40	
	σ	--	14.45	19.18	--	--	5.41	13.59	
Total	N	184	338	476	103	251	136	273	1761
	M	102.38	96.78	98.12	102.07	100.13	97.03	107.64	
	σ	16.85	18.99	20.36	18.13	16.49	17.03	17.26	
Total Weighted Mean--Gps. I-IV		101.00	100.69	101.28	99.79	97.39	99.45	106.13	

Table 29

MEAN BMPT TOTAL SCORES OF NEGRO ACTIVE RESERVE ENLISTED PERSONNEL BY APTITUDE LEVELS

Group	N	M
I	1	96.00
II	17	105.06
III	27	92.63
IV	41	76.41
V	14	68.07
Total	100	84.69

Table 30

PRODUCT-MOMENT CORRELATION COEFFICIENTS OF AGCT SCORES AND BMPT TOTAL SCORES FOR DIVISIONS AND FOR TOTAL SAMPLE

I. AGCT and BMPT Total by Division

Division	N	r
79	206	0.508
81	216	0.310
83	133	0.353
89	225	0.394
98	396	0.430
100	124	0.372
Total	1300	0.411

II. Aptitude Groups and BMPT Total (white subjects only)

N	r
2740	0.473

Table 31

MEAN BMPT TOTAL SCORES OF INACTIVE RESERVISTS BY APTITUDE LEVELS AT CERTAIN PERIODS OF TIME SINCE DISCHARGE FROM EXTENDED ACTIVE DUTY

		Active	Inactive
6 months			
Group II	N	38	9
	M	115.63	115.67
	σ	13.88	14.56
One year			
Group II	N	80	20
	M	110.40	112.80
	σ	16.04	13.08
One and 1/2 years			
Group I	N	8	11
	M	126.38	117.73
	σ	11.02	11.45
Group II	N	105	34
	M	109.43	105.85
	σ	15.60	13.92
Group III	N	162	17
	M	100.80	99.06
	σ	13.05	14.01
Two years			
Group I	N	11	6
	M	123.73	117.33
	σ	11.02	15.45
Group II	N	73	34
	M	110.90	107.18
	σ	14.75	12.37
Group III	N	119	14
	M	101.05	96.50
	σ	13.66	12.70
Group IV	N	77	9
	M	84.40	83.89
	σ	16.16	17.93

Table 32

MEAN BMPT TOTAL SCORES OF INACTIVE RESERVISTS AT CERTAIN PERIODS OF TIME SINCE DISCHARGE FROM EXTENDED ACTIVE DUTY (ARMY CLASSIFICATION TEST SCORES UNAVAILABLE)

Time since Discharge	N	M
6 months	12	113.67
1 year	8	117.50
1½ years	10	105.10
2 years	29	105.07
2½ years	14	108.07
3 years	13	103.00
4 years	6	97.67
5 years	2	111.50
6 or more years	27	100.96

Table 33

MEAN BMPT TOTAL SCORES OF INACTIVE RESERVISTS AS A FUNCTION OF TIME SINCE SEPARATION FROM EXTENDED ACTIVE DUTY

Time since Discharge	N	M	σ
6 months	29	114.90	21.19
1 year	41	111.51	14.63
1 1/2 years	74	105.44	15.03
2 years	97	103.21	16.21
2 1/2 years	20	101.65	17.77
3 years	15	101.40	10.19
4 years	8	97.63	12.51
5 years	2	111.50	6.91
6 years	1	----	---
Over 6 years	26	101.58	19.75
Total	307	105.54	16.93

APPENDIX 1

BASIC MILITARY PROFICIENCY TEST

APPENDIX 2

INFORMATION SHEET

82<

University of Pittsburgh
Information Sheet
Form KA

R1 R2 R3 RV
AR
PA
I

1. Print Your Name and Serial Number in the spaces below:

Name
last name first name middle initials

Complete Serial Number This Date
day month year

Active Reserve Unit USAR Center

2. Present Civilian Occupation:

Job title

Describe what you do in detail

HOW TO ANSWER THESE QUESTIONS

Most of these questions have several different answers printed right after the question. In front of each answer is a box like this: ☐. Read all the answers under the question. Then put a cross, like this: · in front of the answer you pick.

1. What was your last Army grade? (On extended active duty only)

0 ☐ Not in Army
1 ☐ Private (E-1 or E-2)
2 ☐ Private First Class (E-3)
3 ☐ Corporal (E-4)
4 ☐ Sergeant (E-5)
5 ☐ Sergeant First Class (E-6)
6 ☐ Master or First Sergeant (E-7)

2. What is your present active reserve grade?

0 ☐ Not in active reserve
1 ☐ Private (E-1 or E-2)
2 ☐ Private First Class (E-3)
3 ☐ Corporal (E-4)
4 ☐ Sergeant (E-5)
5 ☐ Sergeant First Class (E-6)
6 ☐ Master or First Sergeant (E-7)

3. Where were you born?

print name of state or foreign country

4. How old were you on your last birthday?

years old

5. Mark the highest grade you completed in school: (Mark only one)

00 ☐ No school
01 ☐ First grade
02 ☐ Second grade
03 ☐ Third grade
04 ☐ Fourth grade
05 ☐ Fifth grade
06 ☐ Sixth grade
07 ☐ Seventh grade
08 ☐ Eighth grade
09 ☐ Ninth grade
10 ☐ Tenth grade
11 ☐ Eleventh grade
12 ☐ Twelfth grade
13 ☐ First year college
14 ☐ Second year college
15 ☐ Third year college
16 ☐ Fourth year college
17 ☐ More than four years college

6. Did you take extended Army basic training? (More than summer training)

1 ☐ Yes — If yes, where

print name of fort or camp

2 ☐ No

7. What type of Army basic training did you have? (Extended active duty only)

0 ☐ No basic training
1 ☐ Armor
2 ☐ Armored infantry
3 ☐ Infantry
4 ☐ Artillery
5 ☐ Engineers
6 ☐ Other — What?

print name of branch

8. Have you ever gone to an Army school for four weeks or more?

1 ☐ Yes — If yes, where?

print name of school

2 ☐ No

9. In what branch of the Army were you on active duty for the longest time?

0 ☐ Not in Army

1 ☐ Armor

2 ☐ Artillery

3 ☐ Engineers

4 ☐ Infantry or armored infantry

5 ☐ Other (give name of branch)

10. What branch of the active reserve are you in now?

0 ☐ Not in active reserve

1 ☐ Armor

2 ☐ Artillery

3 ☐ Engineers

4 ☐ Infantry or armored infantry

5 ☐ Other (give name of branch)

11. What was your last MOS (Military Occupational Specialty) when on active duty?

0 ☐ Not in Army

number of MOS _____ name of MOS _____

12. What is your MOS (Military Occupational Specialty) in the active reserve?

0 ☐ Not in active reserve

number of MOS _____ name of MOS _____

13. What kind of jobs have you done most in the Army?

14. How much time were you on extended active duty altogether? Mark the one which is nearest to right for you.

0 ☐ Not at all

1 ☐ Six months

2 ☐ One year

3 ☐ One and one-half years

4 ☐ Two years

5 ☐ Two and one-half years

6 ☐ Three years

7 ☐ Four years

8 ☐ Five years

9 ☐ Six years

10 ☐ Over six years

15. How many **months** of your Army time were spent overseas?

0 ☐ Not in active Army

months.

16. How many **months** of your Army time were spent in the United States?

0 ☐ Not in active Army

months.

17. Mark all the overseas commands where you served:

0 ☐ Never overseas
1 ☐ Alaska
2 ☐ Austria
4 ☐ Caribbean
8 ☐ Europe
16 ☐ Far East
32 ☐ Pacific
64 ☐ Trieste
128 ☐ Other (What?)

18. Have you been in combat or under enemy fire?

1 ☐ Yes
2 ☐ No

19. How long have you been in the active reserve?

0 ☐ Not at all
1 ☐ Six months
2 ☐ One year
3 ☐ One and one-half years
4 ☐ Two years
5 ☐ Two and one-half years
6 ☐ Three years
7 ☐ Four years
8 ☐ Five years
9 ☐ Six years
10 ☐ Over six years

20. How long since you were discharged from extended duty?

0 ☐ Never on extended duty
1 ☐ Six months
2 ☐ One year
3 ☐ One and one-half years
4 ☐ Two years
5 ☐ Two and one-half years
6 ☐ Three years
7 ☐ Four years
8 ☐ Five years
9 ☐ Six years
10 ☐ Over six years

APPENDIX 3

LETTER FROM S-3, PENNSYLVANIA MILITARY DISTRICT TO USAR SENIOR UNIT ADVISERS

HEADQUARTERS PENNSYLVANIA MILITARY DISTRICT
Indiantown Gap Military Reservation
Pennsylvania

4 February 1954

Senior Unit Advisors
Erie
Franklin
New Castle
Butler
Glassmere
Pittsburgh
(South Park, Aurelia St, Saw Mill Run)
Greensburg
Washington
Uniontown

This letter will introduce Dr. Harry W. Braun, University of Pittsburgh, who is affiliated with George Washington University, Human Resources Research Office, Training Methods Division, Washington, D. C.

Dr. Braun has received authority from both Second Army and Headquarters Pennsylvania Military District to conduct a series of tests and the completion of information sheets during regularly scheduled drill periods of the USAR. You are directed to give Dr. Braun every possible assistance in the execution of his training survey of reserve enlisted men and, if the need should arise, instruct unit commanders that unit records will be available for Dr. Braun's inspection.

Dr. Braun has a security clearance up to and including SECRET.

/s/

WILLIAM E. SHAW
Lt Colonel INF
S-3

APPENDIX 4

LETTER FROM THE ADJUTANT GENERAL TO COMMANDING GENERALS, FIRST ARMY, SECOND ARMY, THIRD ARMY, FIFTH ARMY

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DEPARTMENT OF THE ARMY
OFFICE OF THE ADJUTANT GENERAL
WASHINGTON 25, D C.

AGAC-L (M) 201.6 (6 Jul 54) G1 8 July 1954

SUBJECT: Retention of Basic Military Subject Matter (KNOWHOLD)

TO: Commanding Generals
First Army
Second Army
Third Army
Fifth Army

1. The Department of the Army, continuing its research on retention of basic military subject matter, deems it necessary to determine the effects of the lapse of time on the retention of basic military subject matter in enlisted men who have returned to civilian status, but who participate in the Army Reserve Program.

2. Inclosure No. 1 outlines the over-all requirements for the accomplishment of this phase of the research. The rosters to be completed by the unit will be prepared by the Department of the Army and forwarded to the units prior to their departure for summer camp for the posting of information listed in Inclosure No. 1.

3. This portion of Task KNOWHOLD is to be accomplished by subcontract with the University of Pittsburgh. The principal investigator in this phase will be Dr. Harry Braun, assisted by a team of three researchers.

4. It is desired that you provide the support necessary for the accomplishment of this research. This authorizes the use of time previously scheduled for training if deemed necessary to the success of the project.

BY ORDER OF THE SECRETARY OF THE ARMY:

/s/

JOHN A. KLEIN
Major General, USA
The Adjutant General

1 Incl
Rqmt for Mil Research Subj

Copies furnished:
Chief of Information
Assistant Chief of Staff, G-1
Assistant Chief of Staff, G-3
Chief of Army Field Forces
Commanding General, Army Antiaircraft Command
Chief, Armed Forces Special Weapons Project
Superintendent, US Military Academy

Requirement for Military Research Subjects

1. Agency Conducting Research:

The University of Pittsburgh, under contract to the Human Resources Research Office. The principal investigator is Dr. Harry W. Braun, who will be accompanied by three research assistants.

2. Units to be Tested and Dates Available:

Installation	Date	Divisions
Camp Carson, Colo.	27 July-30 July	89 (Kans.)
Fort Jackson, S. C.	27 July-30 July	81 (Ga.)
Camp Drum, N. Y.	10 Aug -13 Aug	98 (N. Y.)
Fort Knox, Ky.	27 July-30 July and 17 Aug -20 Aug	83 (Ohio) and 100 (Ky.)

3. Personnel Required for Testing:

a. All available enlisted personnel of the units listed are needed for testing. It is desired that, where a choice is necessary, priority be given to infantrymen.

b. Men can be tested in a single group of 1000; it is, however, preferred to hold the size of the group to 250. Four groups of this size can be tested simultaneously.

c. The testing will consume three hours, not counting time for moving to the area and moving out of the building assigned.

d. Two enlisted assistants per 250 man group or fraction thereof are required to assist in proctoring the tests and in administration. These assistants should be men with some experience in handling groups of men. If men with testing experience are available, they are preferred.

4. Test Site:

A test site which will provide good lighting, shelter, a reasonable amount of space for each man, and if possible, a place for each man to write, is desirable. Facilities considered suitable for this purpose are large classrooms, mess halls and theaters.

5. a. Complete rosters will be furnished each unit direct from the Department of the Army prior to departure for camp. They will show name, service number, branch, and race. There will be six blanks after each name, ordinarily used to record attendance at drills. The unit will

be responsible for entering the following information for each man expected to attend summer camp: Blank 1, date of separation from last period of extended active duty; Blank 2, Reading and Vocabulary Test score (RV); Blank 3, Arithmetic Reasoning Test score (AR); Blank 4, Pattern Analysis Test score (PA); Blank 5, Aptitude Area I score (AAI). This information may be taken from DA Form 20 (Qualification Record-Enlisted Personnel) of each man. If certain of the information is missing, blanks should be left on the roster. If scores for the above listed tests are not listed, but an AGCT score is, enter "AGCT___," entering the individual's score in the blank.

b. Names of men not attending summer camp should be lined out prior to time of testing, and the names and data on any men present but not listed should be entered in ink below the end of the list. These completed rosters should be brought to the test site with the group to be tested and given to the researcher in charge.

6. The tests will be in paper-and-pencil form. They will test the background knowledge of the troops in basic military subjects. The objective is to evaluate the effect of the passage of time on the retention of these subjects.

APPENDIX 5

LETTER FROM THE DEANS OF THE UNDERGRADUATE SCHOOLS, UNIVERSITY OF PITTSBURGH TO STUDENT VETERANS

UNIVERSITY OF PITTSBURGH

PITTSBURGH 13, PENNSYLVANIA

Dear Student Veteran,

Your cooperation is requested in an essential research project which the University of Pittsburgh is conducting for the Human Resources Research Office. The purpose of this project is to determine the level of knowledge of certain basic military information and skills among ex-servicemen.

It is hoped that by engaging in this study, veterans may assist the service branches in developing more effective training programs, and may help future generations of trainees in having a more satisfactory experience under that training.

Your participation in this project will require about an hour and one-half of your time and not more than two hours. On the attached sheet, note the day and the two-hour period in which you can appear in Room 2012 CL, and keep this letter as a reminder of your appointment.

Your assistance in this project is sincerely appreciated.

The Deans of the Undergraduate Schools

PROJECT SCHEDULE

SELECT A TIME AND KEEP THIS SHEET AS A REMINDER. THE PLACE: Room 7012 CL

Thursday, April 8

( ) 8:30 am - 10:30 am
( ) 9:30 am - 11:30 am
( ) 10:30 am - 12:30 pm
( ) 11:30 am - 1:30 pm
( ) 12:30 pm - 2:30 pm
( ) 1:30 pm - 3:30 pm
( ) 2:30 pm - 4:30 pm
( ) 3:30 pm - 5:30 pm

Friday, April 9

( ) 8:30 am - 10:30 am
( ) 9:30 am - 11:30 am
( ) 10:30 am - 12:30 pm
( ) 11:30 am - 1:30 pm
( ) 12:30 pm - 2:30 pm
( ) 1:30 pm - 3:30 pm
( ) 2:30 pm - 4:30 pm
( ) 3:30 pm - 5:30 pm

Saturday, April 10

( ) 9:00 am - 11:00 am
( ) 10:00 am - 12:00 m
( ) 11:00 am - 1:00 pm

Monday, April 12

( ) 8:30 am - 10:30 am
( ) 9:30 am - 11:30 am
( ) 10:30 am - 12:30 pm
( ) 11:30 am - 1:30 pm
( ) 12:30 pm - 2:30 pm
( ) 1:30 pm - 3:30 pm
( ) 2:30 pm - 4:30 pm
( ) 3:30 pm - 5:30 pm

APPENDIX 6

LETTER FROM HARRY W. BRAUN TO INACTIVE RESERVISTS

UNIVERSITY OF PITTSBURGH

PITTSBURGH 13, PENNSYLVANIA

DEPARTMENT OF PSYCHOLOGY

September 24, 1954

Dear Sir:

I am writing to you to secure your cooperation in a research project which I am carrying out for the Human Resources Research Office. This Office is an organization which is helping the Army find out how good its training methods are and how they might be improved. One way to find out how good training methods are is to determine how much former soldiers remember about basic military skills and information.

I am asking you, as a former member of the Army, to help in this project by taking a test of basic military information and skills to see how much you may have forgotten and how much you remember. You can take this test at a high school which is near your home during the first week in October. Below is a list of schools and the evenings on which this test will be given. Please select the school at which you will appear. After that, write the name of the school on the enclosed post card, sign your name, and send the card back to me.

I want to assure you that the taking of this test will not affect your military status in any way. Your test score will be kept confidential and will be used for research purposes only.

I hope that you will participate in this important study. The value of this project has been recognized by school authorities in Allegheny County who have allowed the use of their schools. The Allegheny County Commanders of the American Legion, the Veterans of Foreign Wars, and the Amvets are also encouraging their members to cooperate.

I shall sincerely appreciate your help.

Yours truly,

Harry W. Braun

HARRY W. BRAUN, Ph.D.
Assistant professor of psychology

TEST SCHEDULE

All testing sessions will be from 8:00 p.m. to 10:30 p.m.
unless otherwise indicated.

MONDAY, OCTOBER 4:

Clairton High School
Allegheny Valley High School (Springdale)
Brentwood High School
McKees Rocks High School
Munhall High School
West View High School
Schenley High School (Pittsburgh) 7:30 p.m. to 10:00 p.m.

TUESDAY, OCTOBER 5:

McKeesport High School (Shaw Avenue)
Wilkinsburg Senior High School
Mt. Lebanon High School
Sewickley High School
Langley High School (Pittsburgh) 7:00 p.m. to 9:30 p.m.
Peabody High School (Pittsburgh) 7:30 p.m. to 10:00 p.m.
Allegheny High School (Pittsburgh) 7:00 p.m. to 9:30 p.m.
South Hills High School (Pittsburgh) 7:30 p.m. to 10:00 p.m.

WEDNESDAY, OCTOBER 6:

East McKeesport High School
Penn Senior High School
Crafton High School
Coraopolis Senior High School
Schenley High School (Pittsburgh) 7:30 p.m. to 10:00 p.m.

THURSDAY, OCTOBER 7:

Braddock High School
Etna High School
Bridgeville High School
Avalon High School
Langley High School (Pittsburgh) 7:00 p.m. to 9:30 p.m.
Peabody High School (Pittsburgh) 7:30 p.m. to 10.00 p.m.
Allegheny High School (Pittsburgh) 7:00 p.m. to 9:30 p.m.
South Hills High School (Pittsburgh) 7:30 p.m. to 10:00 p.m

APPENDIX 7

METHOD OF COMPUTING THE TOTAL WEIGHTED MEAN

In computing BMPT subgroup means, e.g., for each Army rank, the known relationship between BMPT scores and aptitude level (as measured by Army classification tests) becomes important. Thus, the difference in mean BMPT total scores between sergeants and privates may be wholly or partially attributable to differences in mean aptitude scores for these two rank subgroups. One solution is to use a regression or covariance correction for BMPT means, statistically partialling out the aptitude differences. However, a simpler solution consists in differentially weighting the aptitude group BMPT means within each of the rank groups.

The usual formula for the arithmetic mean BMPT score for a rank group weights the aptitude level BMPT means by the proportion of individuals of that rank in each of the aptitude levels:

$$M_{jk} = \sum_i p_{ij} M_{ijk} \qquad \text{(Formula A)}$$

where M_{jk} is the mean BMPT score for (say) the total group of sergeants, p_{ij} is the proportion of sergeants in each of the aptitude levels, and M_{ijk} is the mean BMPT score for the sergeants in a given aptitude group. Since the p_{ij} vary considerably between rank groups (e.g., sergeants and privates), in computing rank group BMPT means, we replace the p_{ij} in the formula with p_i, i.e., the proportion of the total group of individuals (combining all rank groups) in each of the aptitude groups. Then the formula for the mean BMPT score of a rank group becomes:

$$M_{jk} = \sum_i p_i M_{ijk} \qquad \text{(Formula B)}$$

When there is little relationship between the subgroup classification variable (e.g., Army rank) and aptitude test scores, the two methods of estimating mean BMPT scores will yield similar results, since $p_{ij} = p_i$. However, in many cases such a relationship is apparent ($p_{ij} = p_i$) and Formula B gives a mean BMPT score that is less influenced by aptitude differences.