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HUMAN FACTORS RESEARCH NEEDS IN KOREA, (U)
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6 HUMAN FACTORS RESEARCH NEEDS IN KOREA

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PREFACE

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During the fall of 1962, two research psychologists from the Office, Chief of Research and Development, visited selected elements of the Army of the Republic of Korea (ROKA) and of the Korean Military Advisory Group (KMAG) to study the feasibility of OCRD support to research on military human factors problems in Korea. The genesis of the exploratory five-week field trip was as follows:

In December 1960, the senior Advisor to the Adjutant General, KMAG, conducted a staff study for the Chief, KMAG, which indicated that a number of procedures currently employed in the induction, processing, and classification of ROKA recruits were inadequate or ineffective. The Chief, KMAG, in February 1961, indicated to the Chief, ROKA, the nature of the shortcomings and recommended that immediate steps be taken to adopt new procedures as outlined in the document prepared by the Senior Advisor.

A Memorandum for Record, prepared following a 1961 trip to the Pacific Command by two OCRD representatives, reads as follows^{1/}: "The Korean Army personnel selection system is considered by both KMAG and the Korean Army to be unsatisfactory, both from the point of view of adequacy of the selection testing instruments and the application of the program. A study on the subject made by KMAG and other information obtained is being provided to the Army Personnel Research Office for information and as a basis on which to initiate contact between that agency and KMAG. It appears that KMAG advisors both need and would welcome advice, possibly to include a visit from qualified personnel research personnel."

Since the assistance desired was within the capabilities and interests of the U. S. Army Personnel Research Office, a letter was sent by USAPRO to the Chief, KMAG, stating that USAPRO was prepared to conduct, in cooperation with KMAG and the Korean Army, research on the improvement of selection instruments and the application of a program for the selection and classification of Korean Army personnel, provided the desire for such a study still existed.^{2/} A first indorsement to the letter, dated 5 July 1962, stated that the Chief, KMAG and The Adjutant General, ROKA, would welcome the offered assistance in a cooperative effort.

^{1/} M/R, Subject: Trip to Accompany Dr. Crawford, Director of HumRRO, to the PACOM (U), 5 January 1962.

^{2/} Letter from Chief, R and D, to Chief, KMAG, Subject: Personnel Research for the Korean Army, 19 June 1962.

In response to the needs indicated in these communications, Dr. E. Kenneth Karcher, Jr. (HFRD) and Mr. Jack J. Sternberg (APRO) spent five weeks in Korea, assessing the needs for human factors research and estimating the necessary support requirements, and arranging for subsequent coordination.

Research Study 63-1 reports general findings, particularly with respect to prospective OICRD assistance to ROKA. Findings are based on interviews and conferences held with key personnel in Korea and on observations made and data collected during visits to military installations, both Korean and U. S. ARMY, and to military and civilian organizations in Korea. The study is in no sense exhaustive. (The observations and potential research areas reported are those which came to light during a five-week tour which included many and varied activities.) It was not possible to do more than identify obvious and urgent research needs and in some instances to note approaches which seemed feasible.

HUMAN FACTORS RESEARCH NEEDS IN KOREA

BRIEF

Requirement:

The Korean Army personnel selection and classification system is considered by both ROKA and KMAG to be unsatisfactory both in the testing instruments used and the application of the procedures. The Chief, KMAG, and The Adjutant General, ROKA have requested the cooperative assistance of OCRD in improving the quality and performance of ROKA and KATUSA enlisted personnel through a program of human factors research.

Procedure:

Two representatives of OCRD visited KMAG and selected elements of ROKA to: (1) identify selection and classification problems both in ROKA and in KATUSA, (2) determine the feasibility of implementing a classification system based on research findings, and (3) estimate the research support KMAG and ROKA would require to develop and implement an adequate system. Discussions were held with professional personnel from Seoul universities to assess the probability of technical assistance from that quarter.

The representatives also gathered information by which to gauge the feasibility and probable utility of conducting research specifically to improve the combat effectiveness of ROKA troops. A further objective was to assess the utility of using U. S. military forces in Korea as a basis for experimentation on human factors problems of interest to the U. S. Army.

Findings:

1. A need was confirmed for human factors research to improve and extend the psychological instruments and procedures used in the classification of ROKA enlisted personnel.
2. A need exists for human factors research directed toward an understanding of the cultural factors affecting classification and performance of Korean troops assigned to the U. S. Army in Korea.
3. ROKA does not have sufficient qualified manpower or facilities to conduct research of the required scope without technical assistance.

4. Civilian psychologists in universities and in private practice cannot be counted on to supply adequate technical assistance to the military in the immediate future.

Recommendations:

1. It is understood that consideration is being given by ARO to establishing a human factors research unit in Korea. If such a plan is put into effect, it is recommended that assistance be furnished ROKA personnel through this unit in developing a classification system based upon research and compatible with ROKA personnel management needs.

2. Should plans for the research unit not come to fruition, an alternative recommendation is that USAPRO provide guidance and assistance to ROKA research personnel in developing a classification system. Under this plan, representatives of ROKA would spend from four to eight months in APRO receiving training in research methods and working out a design for initial phases in the development of a classification battery. If appropriate, APRO personnel would arrange for short visits to ROKA to provide further consultative assistance pertaining to the validation, standardization, and implementation phases of the experimentation.

HUMAN FACTORS RESEARCH NEEDS IN KOREA

OBJECTIVES

Implicit in the concept of limited warfare is dependence upon military forces in areas remote from United States territory. For the military forces in such countries to achieve full effectiveness, the personnel selected for military service must be properly classified and optimally assigned. Many of our allies, however, do not in practice have a selection, classification, and assignment system adequate to their needs. Where this is the case, it would be of advantage to the U. S. Army to undertake a program to assist and advise the armies of a friendly nation in the development of a classification system appropriate to the country and in the development of the required psychometric measures.

The Republic of Korea was selected for the present research effort chiefly because of the potential for limited warfare existing there. The size of the Korean armed forces, as well as the number of Korean troops serving with the U. S. Army in Korea, lends importance to any improvement in effectiveness that might be achieved through research. About 30 divisions, maintained in a state of combat readiness, are immediately available for field studies. More important, personnel in the Korean Army and in the Korean Military Advisory Group (KMAG) show an appreciation of the urgent need for research and an active interest in applying research to their personnel management problems.

During the fall of 1962, two research psychologists from the Office of the Chief of Research and Development, Department of the Army, visited selected elements of the Army of the Republic of Korea (ROKA) and KMAG to study the feasibility of OCRD support to research on military human factors problems in Korea.

PROCEDURE

Installations to be visited were selected (See Appendix A) and activities were scheduled primarily with a view to identifying classification problems, and to a lesser extent the broad range of personnel management problems encountered by the U. S. Army in Korea. Broadly stated, there were two areas of interest: assistance to ROKA, directed primarily toward improving selection and classification, and the identification of human factors problems connected with ROKA enlisted men assigned to KATUSA (Korean Augmentation to the U. S. Army). Research in

the latter area would be expected to develop concepts and techniques useful in other similar situations where U. S. troops and indigenous military personnel work together. The OCRD representatives also surveyed typical U. S. military installations in Korea to assess possibilities of conducting useful research on the special human factors problems encountered by U. S. troops stationed in remote areas.

With respect to ROKA, the interest of the U. S. Army Personnel Research Office in this preliminary survey was exploratory: From the outset, it was recognized that primary responsibility for conducting research involving ROKA personnel would lie with the appropriate agencies within ROKA. The principal objectives of the visit were to estimate the research requirements, to assess the capabilities of Korean resources, military and civilian, to conduct the essential research, and, finally, to ascertain whether the present ROKA personnel management system could adapt to the implementation of an effective classification system developed on the basis of research findings.

In the following sections, each type of problem considered during the visit to Korea is taken up in turn. The background of the problem and the conditions observed are presented and analyzed, and considerations adduced bearing upon decisions as to the amount and type of research support needed. Finally, the conclusions of the APRO representative as to the utility and feasibility of a research attack upon a given problem are presented.

SCOPE OF ROKA PROBLEMS SURVEYED

The visiting research psychologists first familiarized themselves with the ROKA replacement stream input from pre-selection through MOS assignment. Procedures were examined to determine the feasibility of implementing an operational selection and classification program developed through measurement research and the changes in personnel management and policy such a system would entail. Support requirements and support capabilities of ROKA and KMAC were studied, as well as the practical aspects of assistance that might be furnished by OCRD elements. Prior and ongoing research was discussed with appropriate military and civilian personnel, including members of the faculty of two Seoul universities.

Beyond the initial processing and reception center classification, other personnel management responsibilities were considered with a view to the need for, and amenability to, a research approach. Of signal importance is the combat effectiveness of the Korean Army. The Republic of Korea maintains one of the largest standing armies in the world, and the proportion of this army assigned to the combat arms is higher than in the U. S. Army. These soldiers of the Korean army share with the 44,000 U. S. military personnel in Korea responsibility for defending the Republic against communist aggression. The senior staff of the First Republic of Korea Army (FROKA) recognizes the urgency of bringing these troops to the highest possible state of combat effectiveness and are cognizant of the important role of research toward this end.

An additional human factors problem not directly concerned with personnel classification but of importance to military effectiveness is the national program of social and economic reconstruction. This program is operated in part through reserve personnel who, during their annual two weeks of active duty, are given instructions on means of improving conditions in their home communities and their own position in the community. The effectiveness of these measures has not been evaluated.

ROKA SELECTION AND CLASSIFICATION PROBLEMS

The induction and classification system which has evolved in the past ten years reflects both the cultural patterns and political climate of the country and the influence of U. S. military forces allied with South Korean forces during the Korean war. For example, initial classification procedures are applied at the local level where a man's experience and capabilities are most likely to be known. On the other hand, instruments of classification and army job structure are closely patterned after the tests and military occupational specialties (MOS) of the U. S. Army, although both systems have been greatly simplified.

INDUCTION PROCEDURES

Men register at designated locations in the Korean city, county, or village as in the U. S. selective service system. Those who qualify proceed to the reception training center by way of a designated assembly area. Meanwhile, Army requirements are merged and the number of men needed for the Army's yearly replacement plan has been determined (Figure 1). With the exception of a small number of volunteers, the men serve almost three years in the active army and another seven years in the reserve.

To meet the needs of the Army, 180,000 men are drafted annually. In practice, because of the manpower shortage in the wake of the Korean war, almost the only basis for rejection is failure to meet minimum physical standards. The physical examinations are given at the local level by a visiting team from the Army Service Unit (ASU) located within the province. The initial physical, given one year prior to actual induction, accounts for the rejection of almost 10 percent of the registrants. The men are reexamined more thoroughly at the reception center where an additional small number is rejected. Another physical examination may be given later when the man is assigned to advanced individual training.

CLASSIFICATION PROCEDURES

Local classification activities. Classification actually begins in the local unit--the city or village where the man registers or enlists. Within the procurement framework, the chief or headman of the village or city district, who is presumed to be knowledgeable about the young men in his area, makes assignments by branch, based on what is known of the registrant's civilian occupation and experience. However, since the

country is largely agrarian, and since the registrants are only 19 or 20 years old, most of them have had little opportunity to develop occupational skills or interests other than farming. The village official often has little information on which to base a classification judgment, and approximately 35 percent of the initial assignments are changed at the reception training center prior to basic training (Table 1).

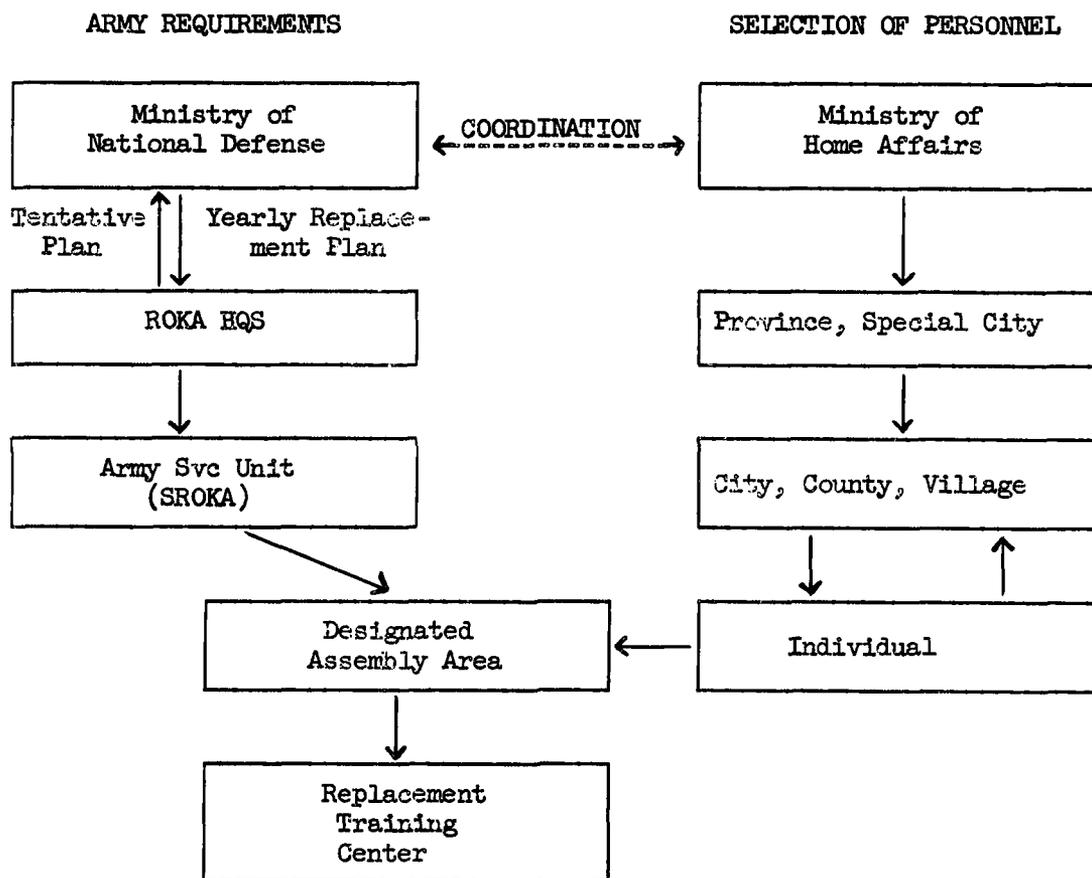


Figure 1. Steps in induction of ROKA enlisted personnel

Table 1

PERCENT OF ENLISTED MEN REASSIGNED TO VARIOUS BRANCHES
AFTER INITIAL ASSIGNMENT TO A GIVEN BRANCH
FROM 1 JANUARY THROUGH 31 AUGUST 1962
(N = 95,364)

Branch to which reassigned	Percent reassigned	Branch to which assigned initially						
		Arty	Eng	Sig	Ord	Trans	Med	Inf
Artillery	3.6	--	.2	.5	.7	2.0	.5	6.1
Engineer	4.6	1.9	--	1.5	2.0	2.2	2.1	7.1
Signal	3.4	.4	.1	--	.6	.8	.5	5.8
Ordnance	3.7	.9	.9	.5	--	.4	1.3	6.1
Transportation	6.9	8.4	6.6	8.1	2.5	--	5.7	8.2
Medical	1.2	.2	.1	.3	.2	.2	--	2.0
Infantry	11.2	20.2	21.1	18.6	30.4	41.4	14.4	--
Total	34.6	31.9	28.9	29.6	36.3	46.9	24.4	35.3

During the Korean war, almost all young men in certain provinces were siphoned into the infantry, and these provinces suffered manpower losses out of proportion to the numbers supplied. To prevent a recurrence of such a circumstance, each province now must designate for infantry assignment a certain percentage of the men it supplies--this in spite of the fact that the provinces show considerable differences in the number of medical failures and illiterates found among the inductees, as well as in the distribution of scores attained on psychological tests.

The branches to which a man may be assigned and the proportion of input allocated to each branch are currently as follows:

Infantry, including Finance, Adjutant General, Quartermaster, Military Police, Information and Education, Intelligence	52%
Artillery, including Armor and AAA	9%
Engineers	10%
Signal	8%
Ordnance	8%
Transportation, including Aviation	10%
Medical, including Chemical	4%

Classification at the reception training center. Both inductees and volunteers are processed in the reception training center (RTC) where they are tested, classified, and given a six-week basic combat training course. There is currently only one RTC in the Republic of Korea; The Adjutant General of the Korean Army has recommended activation of additional training centers. All RTC processing is completed within four days. Since the daily input averages 750 men, the schedule for inductees is tight and well organized. Of prime importance to research interests are the initiation of personal records, the interview procedures, and administration of the classification tests. Figure 2 shows in gross terms the classification process.

Two copies of personal records are initiated; one copy is maintained at ROKA headquarters and the other follows the man. These records, which resemble the Form 20 used for enlisted personnel in the U. S. Army, contain much information useful to research. An interview is given during the processing and information obtained is entered into the personal record and used for classification purposes.

All inductees, excluding illiterates, take the Korean Mental Qualification Test and the Korean Mechanical Aptitude Test. If an inductee fails to meet the minimum KMQT score required for advanced school training, he is not permitted to take any other test. The Korean Automotive Information Test is taken only by those whose initial classification is to the Transportation Corps, the Korean Shop Mechanics Test only by those assigned to the Ordnance Branch. According to present policy, the inductee must meet the minimum qualification on one test before proceeding to the next. As an expedient, however, he takes at one sitting the tests selected as appropriate for him in view of his initial branch classification. If he fails to qualify, he may be given a test for a different branch later during his processing. If an individual's test results, as well as physical and interview data, are consistent with his original classification, he is permitted to keep his branch assignment. About 35 percent of the inductees are reclassified at the RTC. A prominent reason for reclassification is failure to meet minimum requirements on the appropriate psychological test (Table 1).

If a man is in Category V (below the Army standard score of 70) on the Mental Qualification Test, past policy has been to assign him to the Infantry. However, a recent policy change requires that no more than 70 percent of Category V personnel be assigned to the Infantry. This policy change is an effort to assure that the Infantry not receive such heavy proportions of low level personnel. At the time of the field visit, the distribution of Infantry personnel by mental category was as follows:

<u>KMQT Category</u>	<u>Percent</u>
I (130 and above)	14
II (110-129)	16
III (90-109)	32
IV (70-89)	18
V (Below 70)	20
	<u>100</u>

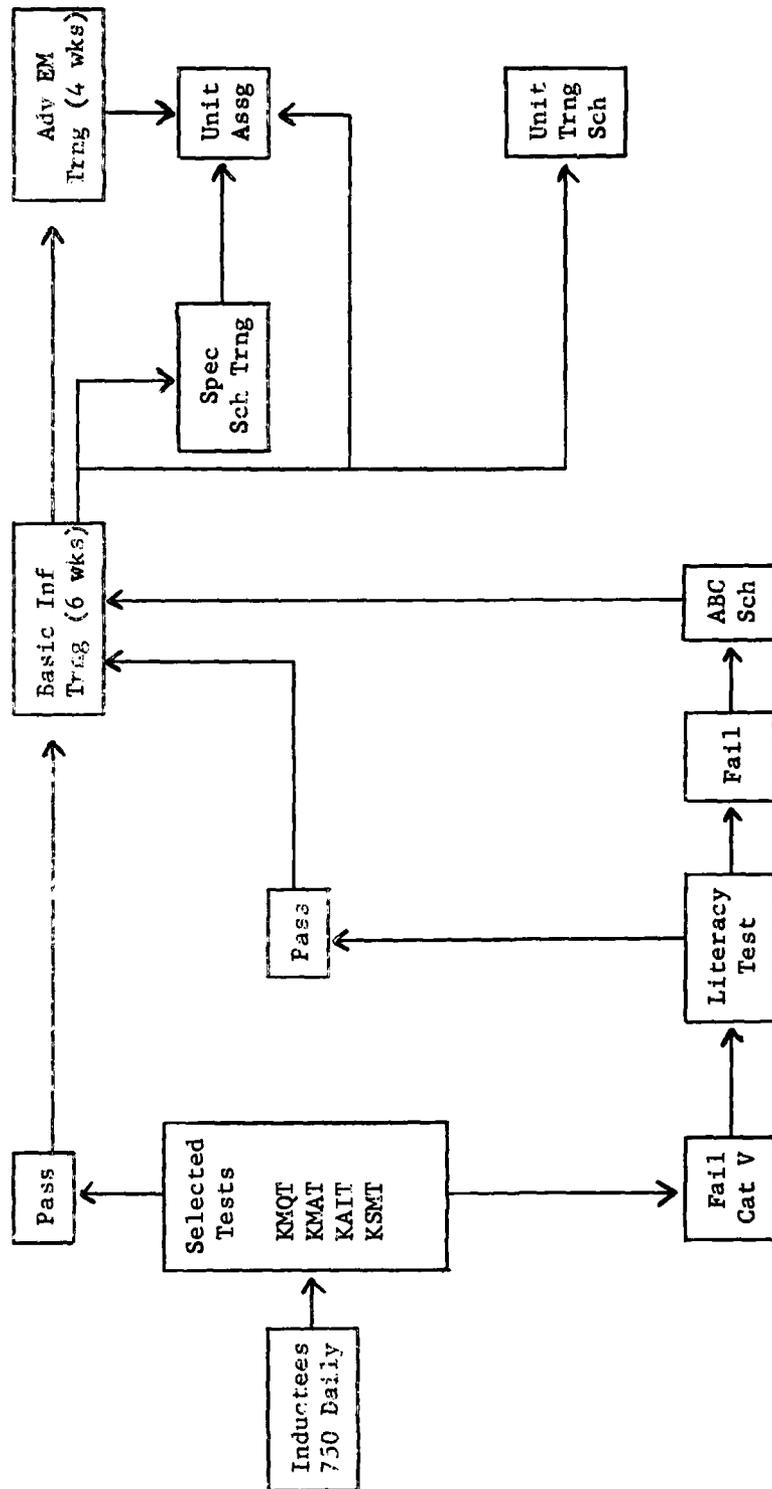


Figure 2. Processing for Basic and Advanced Training.

Because the manpower pool in Korea limits rejection on the basis of mental disqualification, illiterates are drafted. Approximately 7 percent of the draft population is illiterate. Another 20 percent has had five years or less of formal education. There are no tests appropriate to illiterates, who are sent directly to an "ABC" school to learn basic Korean reading and writing. For inductees with five years or less of formal schooling, existing tests are very difficult, and a large percentage are classified as Category V. Of these semi-literates, those who score 60 percent or higher on a literacy test are sent directly to basic training. Those who fail the literacy test are sent to the ABC school for from two to four weeks. At the end of the course, they are sent directly to basic infantry training.

After basic infantry training, some inductees remain at the training center for four weeks advanced individual training in Infantry; others are shipped out for specialist school training or unit assignment.

Advanced individual training. Although the inductee has been classified at the Army Service Unit in his province, and later possibly reclassified at the RTC, the MOS in which he will be trained is determined by those in charge of his advanced individual training (AIT). If he has been assigned to Infantry, he takes his advanced Infantry training and gets a Rifleman's MOS; or he may go to one of the specialist schools under the Infantry branch, AG or Intelligence, for example. At the particular school, his scores will be examined; or he may take additional tests to determine his course assignment. Other schools, including Ordnance and Engineer, similarly impose their own tests and requirements. The schools, however, must use the minimum cut scores provided by The Adjutant General's Office, whether or not they apply additional measures (Appendix B).

There are approximately 225 MOS in which a soldier may be trained. Three digits describe the MOS; the first indicates the occupational area, the second the entry group, and the third the duty position. Neither proficiency nor special abilities are indicated as they are in U. S. Army MOS code. In general, the MOS is awarded upon completion of advanced individual training or upon completion of specialist training at the service schools.

ROKA CLASSIFICATION TESTS

Four tests are in full operational use at the RTC: the Korean Mental Qualification Test (KMQT) and the Korean Mechanical Aptitude Test (KMAT), administered to all inductees, the Korean Automotive Information Test (KAIT), and the Korean Shop Mechanics Test (KSMT). The KMAT serves as a basis for classifying enlisted personnel into five mental categories:

I	130 and above
II	110 - 129
III	90 - 109
IV	70 - 89
V	below 70

The KMAT is used to select personnel for training in MOS with a general requirement for mechanical aptitudes. The Automotive Information test and the Shop Mechanics test are selectors for Transportation Corps and Ordnance schools, respectively. In addition to the four tests in operation at the RTC, five other tests are in process of development (Table 2). Details of content and format of the operational tests and of tests nearing operational use are presented as Appendix C.

Historically, the testing program began in 1955, with the development of a general classification test. In the development of this and subsequent tests, the branch had some assistance from KMAG, from part-time civilians, and from university staff members. However, most of the research was conducted by officers from the Office of the ROKA Adjutant General. Because of the scarcity of experienced measurement psychologists, the limited funds provided, and the urgent need for a classification program, the Korean tests were patterned after U. S. Army tests. The officers recognized that a literal translation--or even a free translation--of the U. S. Army tests would be inappropriate. However, on the assumption that the skills and abilities required for ROKA jobs are much the same as those required in U. S. Army jobs, a program was initiated to construct and develop classification tests adapted from selected U. S. Army tests. Tests to be developed and the extent of modification to be undertaken in each case, as well as the validation and standardization procedures to be applied, were decided on a judgmental basis.

The current test development procedure is as follows: For most of the tests, a contract is let to a local university for construction of test items. The Psychological Research Branch describes the content and format required for a set of items to make up the experimental form. Upon completion, the items are turned over to the Branch for analysis, standardization, validation, and implementation. The usual phases of test development include:

Item construction (contract)	3 months
Administration of trial test	1 1/2 months
Analysis of trial test, and selection of items for final test	2 months
Administration of final test to standardization sample	3 1/2 months
Standardization and preparation for implementation	1 month

Table 2

STATUS OF ROKA CLASSIFICATION TESTS

Standardized and Implemented Tests given at RTC	Initiated	Completed	Implemented	Administered to
a. Korean Mental Qualification Test (KMQT-4)	10 Sep 1958	30 Sep 1959	15 Nov 1959	All Inductees
b. Korean Mechanical Aptitude Test (KMAT-2)	30 Apr 1960	30 Nov 1960	15 Jan 1962	All Inductees
c. Korean Automotive Information Test (KAIT-1)	10 Mar 1957	5 Dec 1958	2 Feb 1959	Transportation Branch
d. Korean Shop Mechanics Test (KSMT-1)	10 Sep 1958	20 Nov 1959	1 Feb 1960	Ordnance Branch
Tests being developed				
	Initiated	Status		
e. Korean Electrical and Radio Information Test (KE & RIT-1)	4 Apr 1958	Standardized		
f. Korean Clerical Speed Test (KGST-1)	18 Jun 1960	Standardized		
g. Korean Verbal Reading Test (KVRT-1)	20 Jun 1961	In Standardization		
h. Korean Arithmetic Reasoning Test (KART-1)	10 Nov 1961	In Standardization		
i. Korean Pattern Analysis Test (KPAT-1)	10 Nov 1961	Trial Test Analysis		

The procedure has been inadequate from a number of standpoints. In certain of the special aptitude tests, content is so inappropriate to the experience and background of the young Korean that the test cannot function as intended. Opportunity to become familiar with modern mechanical and electrical equipment, and hence with mechanical principles, is limited. Some inductees, in fact, have never been in an automobile. Because of the unfamiliarity with the operation of modern equipment and the limited formal schooling of many inductees, measures other than verbal tests, less dependent on schooling and experience, are needed to serve as classification instruments.

The three operational mechanical tests have several drawbacks, in addition to inadequate cultural adaptation, which act to reduce their effectiveness. The scoring formula used--rights minus one-third wrongs--applies, strictly speaking, only to tests in which all items have four alternatives. Since, in the tests in question, items have variously two, three, and four alternatives, application of the formula results in more frequent chance scores of 3 than would be the case if the correct formula were applied. A considerable number of classification errors could result, inasmuch as a raw score of 3 on KAIT is the equivalent of a standard score of 70, the established minimum score for assignment to Transportation Corps training.

The procedure has not allowed for adequate evaluation and standardization of the tests. Norms have for the most part been established in samples pre-selected on KMQT and on men partially trained in an appropriate area. Such norms are misleading when the aptitude tests are being developed for use with an input population which has undergone virtually no pre-selection other than on physical standards.

ROKA uses the tests as successive hurdles rather than as instruments for differential classification. Scores are not combined to form composites predictive of trainability in broad occupational areas, nor are they used in multiple prediction of criterion performance. Results of the tests are thus not maximally utilized in assigning men to jobs and training.

TEST ADMINISTRATION AND SCORING

In general, testing at the RTC is conducted under favorable conditions. Within the culture, the testing facilities are adequate with respect to space, light, heat, noise, etc. Proper time limits are observed and a sufficient amount of time is allowed for completion. There are sufficient copies of the tests. Proper control is exercised to make sure that no copies of tests are lost and that pencil marks are erased. The new inductee reacts favorably to orders and there is little need for test monitors or "cheater boards."

Since many of the inductees have never been exposed to multiple-choice tests, a lecture precedes each test. The lecture for the KMQT requires 45 minutes; for each of the other tests, the preliminary lecture requires 30 minutes. Lectures and testing procedures are standardized.

Test papers are scored by hand, since there are no test scoring machines at the RTC. Accordingly, IBM answer sheets and electrographic pencils are not required. Obviously, as the number of tests increase the clerical workload also will increase. Thus, one of the management considerations that must be reckoned with in the immediate future is the installation of machines and machine techniques; otherwise the manpower requirements will become monumental.

OPPORTUNITIES FOR CRITERION DEVELOPMENT

Measures of basic training performance. Of great interest to the OCRD representatives was the availability and suitability of criteria of performance. Measures obtained at the end of basic training would be useful for early evaluation of experimental tests to select men for infantry assignment. Approximately one percent of a six-week basic training class is recycled for the standard reasons of illness, lost time, discipline, and performance. The percentage would be higher but manpower requirements, coupled with a scarcity of training facilities, keep the number low.

Two criteria are readily available: proficiency test scores and ratings by cadre. The proficiency tests are similar to the series of performance tests used in basic training in the U. S. Army; they cover such aspects of training as rifle knowledge, map reading, grenade tossing. There are 22 such tests totaling 100 points. The cadre ratings, although standardized, are subject to the usual problems of bias inherent in ratings, particularly ratings that are to be used administratively. There remains the possibility of obtaining ratings solely for research purposes from both cadre and associates. Officers at the RTC foresaw no objections to peer ratings on cultural grounds. However, if criterion ratings are to be used in predictor development, research into factors in the Korean culture which might influence the validity of ratings should be conducted.

Available criteria at technical schools. Performance evaluation techniques were observed at two technical schools, Ordnance and Engineer. While ROKA directives dictate the number of men to be trained in each course, and the RTC directs branch classification, decision as to the course the individual will take is the sole responsibility of the school. When an inductee arrives at the school, he is given a physical examination, an interview, and some home-made tests. Based on the findings and on procurement requirements, he is assigned to a course.

The program of instruction for each course is almost identical to that for the corresponding U. S. Army course. The proportion of time allocated to each subject within a course of training and the manner of presentation--lecture, practical exercise, or other--also reflects the U. S. Army course. However, cultural factors suggest that some courses should be lengthier than the U. S. Army counterparts, and that course material should be--perhaps substantially--different. It is unusual to find a ROKA inductee who has had civilian training in the area for which he is to take his

branch training. Few men have been trained as civilian automobile mechanics, for example. For that matter, many inductees have never driven a car.

In general, there is a close relationship between school and field equipment. Sometimes equipment in the field is the more modern, since the schools have limited funds with which to maintain up-to-date equipment. This lack of funds is also reflected in the quality of the instructional material, and scarcity of audio-visual aids and other training equipment. Students do not have as much equipment, or spend as much time in practice operations, as do U. S. Army trainees.

A heavy training load is imposed on the schools. Since there is no effective reenlistment program, most men leave the Army in a little less than three years. The schools must therefore constantly train large numbers of new men. For some MOS, several work years are required to develop the skills required in an accomplished journeyman. Thus, just when a man is adequately skilled, the active army loses him.

Attrition at the two schools visited was less than 3 percent. Failure in course work accounted for less than one third of the dropouts. Because of procurement requirements, the schools cannot afford to fail more than a small fraction of the students. Recycling is a rarity and is generally due to lost time. Rather, when a student is doing poorly, he is usually given help and extra work to bring him up to minimum standards. There is, however, considerable attrition through transfer to other branches. Of the enlisted men trained by Ordnance, for example, 40 percent are assigned to other branches after being trained by the Ordnance School.

For the validation of predictor classification instruments, school grades appear to be the most accessible criteria. Grades are computed much as in U. S. Army schools. The primary difference is in the construction and scoring of course examinations. Not to go into detail, the tests are made up--and scored--by instructors and approved by a committee. Tests are given at the termination of a subject area and are totaled to arrive at final course grade. Both written and performance tests are used. A cutting score is set arbitrarily, but this cutting score may be lowered to maintain a low attrition rate.

Instructor's ratings--unstandardized--contribute to an individual's grade. Both test scores and ratings are recorded and the data are available for use in research. Each school uses the information to some extent to evaluate the selection instruments and the quality of instruction. The writer examined the relationship of the classification tests to final course grade in the Ordnance School. For two recent classes, one in the Field and Electrical Maintenance Course (N = 33) and the other in the Track Vehicle Repair Course (N = 30), scores on KMQT, KMAT, and KSMT were correlated with school grade. The KMQT appeared to be the best predictor for both courses. Of the two mechanical aptitude tests, KSMT was the more effective.

Predictors	Field and Electrical Maintenance Course			Track Vehicle Repair Course		
	M	S.D.	r	M	S.D.	r
KMQT	107.5	8.8	.65	78.2	16.0	.49
KSMT	98.4	13.1	.55	74.7	9.5	.46
KMAT	100.6	15.9	.62	75.1	75.0	.29

Correlation coefficients were not corrected for restriction in range. In actual practice, multiple restrictions are placed on the selection of students for the courses. To begin with, students must meet the minimum prerequisite on each of the three KACB tests and then go through an interview. Criterion scores are also restricted, since it is the policy to fail only a small percentage of students. Considering all these restrictions, the coefficients would probably increase considerably if properly corrected. Furthermore, if the tests were used in a multiple prediction equation, greater predictive efficiency would result. Inter-correlations of KMQT and KSMT in the electrical and vehicle samples were .46 and .48, respectively.

Criterion possibilities at the Combat Arms Center. The Combat Arms Center houses training elements of infantry, armor, and artillery, all under the same commanding general. A great deal of autonomy is given each of the combat arms. As in other ROKA schools, most of the courses at the Center--Basic Officer Course, Advanced Officer Course, Officer Candidate School, and NCO training--are patterned after the corresponding U. S. Army courses. A number of the NCO courses are much longer than in the U. S. Army schools. Candidates are young (median age, 18 years) five-year volunteers who will have a relatively long period of active army service remaining after graduation. Cultural differences and opportunities for prior related experience are taken into consideration in determining the length and content of the courses.

Scarcity of equipment and the obsolete character of the equipment available are even more apparent at the Combat Arms Center than at the other schools. For example, the Artillery School had for its four courses--Basic and Advanced Officer courses, OCS, and NCO--a total of 35,000 practice rounds of ammunition. For the most part, school equipment is similar to field equipment and identical to U. S. Army issue.

Problems of officer leadership, selection, and assignment are similar to those encountered in the U. S. Army. However, it is doubtful that solutions based on U. S. Army research or experience would generalize to the Korean military organizations, in view of existing cultural differences.

For the validation of selection instruments, school grades appear to be the most readily available criteria. There is little recycling and the attrition rate is low, although higher than at the other schools visited. Criterion material essential to the development of selector instruments and procedures is available in the form of detailed records on each student.

Of passing interest, an ROTC program has been initiated in Korea to begin in 1963. Since the ROTC personnel will report to the Center for training, selection criteria for admission to the program could be effectively evaluated in relation to school performance.

RESEARCH FACILITIES WITHIN ROKA

Classification is a function of the Psychological Research Branch, one of three branches of the ROKA Research and Development Division under The Adjutant General; the other two are the Personnel Management Branch and the Personnel Administration Branch. The principal functions of the Psychological Research Branch are:

1. Preparation of classification tests, test standardization, and supervision of operational test administration
2. Review and analysis of inductee processing procedures
3. Establishment of directives on advanced MOS training
4. Establishment of directives pertaining to advanced infantry training
5. Review and analysis of classification test results

The research efforts of the branch are at present devoted wholly to the areas of selection and classification. In view of the manpower shortage in Korea, very little selection on the basis of psychological qualifications takes place. Classification is a most--perhaps the most--critical area and one which requires immediate attention. The magnitude of the problem is emphasized by the annual draft call of 180,000 men and by the large number of MOS--225 in all--in which the men must be trained.

The Branch is authorized three officers, two civilians, and two clerks. However, its actual strength at the time of the visit of the OCRD representatives consisted of ten officers and two enlisted clerks. None of the officers had had formal training in psychology or education. At least half had had combat experience. In short, the branch is minimally staffed. Its personnel typically are AG officers assigned to a highly technical job for which they do not have the appropriate research experience and professional training. Although a workmanlike job has been done in bringing the classification tests to their present stage of development, the psychometric sophistication required to refine the instruments and weld them into an effective aptitude battery is lacking.

The senior officers of the Psychological Research Branch, ROKA, are fully cognizant that their professional resources are inadequate. There appears to be little immediate prospect of adding fully qualified scientific personnel to the staff. Over a longer period, however, there are several possible avenues for increasing the technical competence of the research organization. Foremost of these is what might be termed in-service training of ROKA personnel selected for appropriate background and experience. Senior ROKA officers in the Research and Development Division suggested that they would benefit by a course of instruction, tailor-made to the research needs of ROKA. Such a course of instruction would, of course, represent only a start in developing the research competence of ROKA R and D personnel.

A second avenue considered practicable is the training of ROKA R and D personnel in the United States. Such training might be obtained either in universities which have strong departments in personnel measurement and human factors research theory and techniques, or in the appropriate OCRD elements. In fact, a significant step in this direction was taken when the Chief of the Psychological Research Branch, ROKA, and one of his key officers spent ten weeks in 1962-63 at the U. S. Army Personnel Research Office. During this time, the officers became somewhat familiar with the research procedures, methodologies, and approaches characteristic of USAFRO's human factors research. A research program was outlined for developing a classification battery for interim use by ROKA while work proceeded on a more comprehensive battery. The officers, however, recognized that their branch lacked the sophistication to carry out the plan.

A third avenue for gradually building a competent human factors research organization lies in developing a working relationship between ROKA research personnel and psychologists in Korean universities, a possibility discussed later in the present research study.

If the immediate need is to be met, however, competent assistance and direction must be sought outside of ROKA, and, indeed, outside the Republic of Korea. Such assistance is actively sought by the officers of the Psychological Research Branch, ROKA.

PSYCHOLOGICAL RESEARCH RESOURCES IN KOREA

The professional and university psychologists in Korea would appear to be a logical source of assistance in military personnel research. A stated purpose of the visit of the OCRD representatives was to gauge the possibility of enlisting technical support from the universities for a ROKA human factors research program.

There are 14 universities in Seoul, varying considerably in size and curriculum. Two, the University of Seoul and the Ewha University, were visited, and discussions were held with members of the psychology departments. Indications from these discussions were that the universities represent the largest pool of competent psychological manpower in Korea.

Personnel psychology is relatively new in Korea. There are few large industries, and hence little need for qualification or placement tests. Some tests have been developed for industrial use, notably in the coal industry, but these have been chiefly the work of university psychologists.

Most of the psychologists on university staffs have received their graduate training in Korea. Small numbers have had training in the United States. Because of the language difference and fund limitations, United States and British professional journals in the field of psychometrics are not widely available. In the main--judging from observation and discussions with the faculty of two universities--psychology in Korean universities is oriented in the humanitarian-philosophical direction. However, most staff members at the University of Seoul are familiar with testing methods and basic psychometrics, and tests are used in university guidance programs. Items for the classification tests developed by the Psychological Research Branch, TAGO, ROKA, were written by university personnel on a contract basis. The Branch has also succeeded in employing a few university staff members part time. This, in spite of an evident disinclination on the part of many psychologists to become involved in military research activities.

The universities in Seoul have recently undergone changes which included the dismissal of many older personnel, and the closing of six of the twenty universities in the city. There has also been considerable curriculum change; technical and scientific areas of study have been strengthened. As a consequence of the 1961 military revolution, organizations such as the Korean Psychological Association were disbanded. This action, as well as the changes in the universities, has tended to lessen the willingness of university personnel to participate in military activities.

A University of Seoul staff member, who is well versed in aptitude testing, is responsible for a battery of aptitude tests and a personality inventory for the coal industry. He is also the author of a textbook on aptitude testing. This professor told the USAPRO representative that he was not familiar with the military or their psychometric problems. He also displayed a lack of interest and even disdain with respect to working with the military. He said he could not speak for his colleagues in this regard. When asked if he could recommend any psychologists, he stated that he did not know of any who would be interested in the kind of activity proposed. He hastened to add, however, that he was not sure the psychologists he knew would refuse if asked. Another psychologist from a different university responded similarly, but did provide the name of a psychologist who might possibly be interested. When queried, the psychologist referred to indicated he was not interested.

An important reason for the hesitancy of the professionals to work for the military is that the military organization does not have sufficient funds to lure professional personnel from the universities. Again, military forces are comparatively new in Korea, and the Army cannot compete with the prestige status the university affords. Much effort is required to foster a better understanding between the military and the universities. In the immediate future, however, only limited assistance in research on ROKA's classification problems is to be expected from Korean universities.

FEASIBILITY OF ROKA CLASSIFICATION RESEARCH

The need for research to improve the basis for ROKA personnel management procedures was clearly evident from a survey of the procedures in effect. It was clear also that research should center on the development of an effective basis for classification, particularly to branch training. Psychological classification tests currently administered at the RTC are few in number and inadequate for a scientific classification system. Furthermore, the validity of the tests has not been established satisfactorily. Additional tests are administered by the individual Army training school and used for classification. Most of these tests, constructed by non-psychologists of the school staffs, have not been properly or adequately evaluated for reliability and validity.

The number of men required annually for ROKA does not permit a wide latitude in rejecting personnel. It is doubtful that the present manpower pool could provide a sufficient number of men, were higher selection standards to be applied. Introduction of selection instruments is therefore not considered advisable at this time. The necessary acceptance of marginal manpower further emphasizes the necessity for a more effective classification system.

Certain considerations--some purely practical, others arising from the dynamics of social change--would have to be taken into account in developing and implementing a more effective classification system for ROKA.

SPECIAL CONSIDERATIONS

Take first the eminently practical question of how the necessary computational work would be done. There is no IBM-type equipment in ROKA. Even desk calculators are scarce. Officers of the ROKA Psychological Research Branch are accustomed to doing much of the necessary clerical work themselves. Without test scoring machines, even such relatively simple processes as item analysis must be done by hand. Obviously, lack of computer support would restrict the form in which data are collected and processed; and research designs involving the analysis of masses of data collected on large samples would not be practicable. If test development on an adequate scale is to be undertaken, this difficulty will have to be surmounted. There is, of course, the possibility that a way could be devised to use U. S. Army facilities in Japan or even in CONUS.

A more fundamental consideration is the extent to which research activities are compatible with military training and field activities. During the visit of the OCRD representatives, the Deputy Chief of Staff for Personnel and The Adjutant General, ROKA, both expressed willingness to alter procedures so as to support the research endeavor. Personnel records, which are routinely kept up-to-date and which are highly accurate, would be made available. Additional data would be obtained and entered if desired. On a larger scale, responsible officials of field units have offered to alter schedules, modify training, use experimental work methods

and procedures, provide limited manpower to assist in data collection, cooperate in generating criterion data, and, in general, do whatever is necessary to the conduct of needed research.

Present ROKA personnel management procedures, although considerably influenced by those of the U. S. Army, are unique to ROKA. For example, all the provinces now attempt to assign the same proportion of their inductees to the various branches--about 50% to Infantry and lesser percentages to other branches. These proportions are maintained in spite of the fact that great differences in aptitude exist among the provinces and in spite of the fact that more than one-third the individuals assigned fail to meet the minimum prerequisites for their assigned branch under present classification procedures. The Adjutant General and the Deputy Chief of Staff for Personnel are aware that implementation of research findings may require modifications in management procedures. Both are willing to make whatever changes are necessary in procedure. While this attitude is encouraging, caution is indicated with respect to procedures which go against long-established policy. For the present, anticipated modifications in policy should be checked prior to the research activity to insure that prospective changes are not too drastic.

For a number of reasons, the simple adaptation of the U. S. Army Classification Battery is unsuitable to the needs of ROKA. The ACE tests reflect experiential opportunities considerably different from those afforded the average Korean inductee. The U. S. Army selection and classification system is administered by a large number of qualified officer and enlisted personnel using test scoring and other automatic data processing equipment. ROKA currently has neither the manpower nor the equipment to handle such an administrative load.

OCRD representatives made an attempt to determine how Korean cultural factors would affect a comprehensive testing program. Informed officials expressed the opinion that the populace is indifferent--not hostile--toward testing. This indifference is probably a function of lack of familiarity with tests and their uses. Even though Korean culture is over 4000 years old, the country has experienced less than 20 years of modern development. It will still take considerable time for many of the occidental innovations to find full acceptance. Many Koreans would find it difficult to accept the notion that a test, rather than free choice or family position, could direct their field of endeavor. However, little resistance to testing is to be expected in the military setting, since the soldiers expect to be constantly directed.

SUGGESTED DESIGN FOR ROKA CLASSIFICATION RESEARCH

GENERAL PLAN

The considerations discussed dictate the development of a system tailored to the needs and policies of ROKA. Such a system would employ

a test or test battery less complex than that of the U. S. Army to tap aptitudes and abilities appropriate to the Korean inductee, and would require less administrative support in the form of test scoring machines.

In order to produce an effective classification battery, both an interim and a long range plan should be adopted. The interim plan would provide the minimum components of a differential classification battery. The long range plan would include efforts to develop the research capabilities of ROKA and to gain support from professionals in Korean universities. The final product would be a comprehensive classification battery based on aptitude areas, similar to that of the U. S. Army, but couched in terms of the Korean culture.

Since it is deemed advisable to retain present ROKA management procedures and policies insofar as they permit the conduct of a meaningful research program, the proposal below is adapted to these policies. The research attack would be conducted in two phases. Phase I is the development of a classification battery designed to yield scores on three aptitude areas: combat, technical, and mechanical. Phase II involves the construction and development of additional tests resulting in more aptitude areas and increased differential predictions for specific jobs in ROKA. The two phases could be conducted concurrently.

PHASE I

Construction and development of the test battery. The following measures would be constructed and developed in Phase I.

<u>Measure</u>	<u>Number of Items</u>	<u>Time Limit (minutes)</u>
Arithmetic Reasoning (AR)	30	25
Army Clerical Speed (ACS)	110	5
Verbal (Vocabulary) (VE)	30	15
Mechanical Aptitude (MA)	30	15
Pattern Analysis (PA)	30	15

The tests to be constructed in this phase were decided upon on the basis of experience with the U. S. Army Classification Battery. Time limits and number of items are proposed tentatively, again on the basis of experience with tests of varying length. If the items are well constructed, the proposed number of items should be sufficient to allow for the desired spread of scores. Care should be taken to observe accepted principles of item and test construction. In particular, the items should extend over a range of difficulty with most items being of average difficulty. (One exception is the Army Clerical Speed Test, a speeded test in which all items are of approximately the same difficulty.) The test format should present the items in order from easiest to most difficult.

At this stage of development, the tests should be constructed so as to yield gross discrimination and should avoid an attempt to discriminate at all levels, particularly at the higher levels. More sensitive discrimination usually requires tests with more items, and should come as a later development.

To obtain initial evaluation of the test and procedures developed and as a basis for selecting content of the final forms, the battery of tests should be administered to a sample of 500 enlisted men at the RTC. This procedure will allow the researchers to check out the adequacy of instructions and appropriateness of time limits for each test. With respect to time limits, the usual practice is to allow enough time for at least 75% but not more than 98% to finish a particular test without rechecking answers. Since the ACS is a speed test, the time allowed should permit no more than 2% to finish the test.

By conducting an item analysis for each test, the researchers will be able to select those items which are appropriate and eliminate items which are not effective. This analysis includes obtaining measures of difficulty, internal consistency, and effectiveness of incorrect alternative responses. Items which have a difficulty value of less than .30 or more than .90 should be either rejected or modified (no difficulty check is necessary on the ACS). The incorrect alternatives should be examined to see whether or not they are being selected, that is, whether or not they are functioning as distractors at all. With the exception of very easy items, a distractor selected less than 5 percent of the time should be revised or discarded. Finally, bad items should be replaced, modified, or eliminated, and time limits and instructions should be revised if necessary.

The revised test battery should then be administered to a second sample of 500 recruits, and the results subjected to a similar but less thorough analysis. Because of the possibility that cultural factors might preclude or hinder the use of a rating scale, care should be taken to evaluate this type of psychometric instrument in terms of feasibility and reliability.

Validation of the test and the battery. The completed test battery should be administered to samples of 200 recruits from each of the branch training centers just before they begin basic training. Ancillary data such as education and operational test scores, as well as additional classification data employed by the branch or school for specific course assignment, should be recorded for each individual in the sample. Finally, upon completion of training, the course grade for each individual should be recorded as a criterion measure.

Experimental test scores, ancillary data, and school classification measures collected as above should then be correlated with final course grade, combining all courses within a school. In addition, the experimental test scores should be combined to yield composite, or aptitude area, scores and correlation coefficients between these scores and the

criterion should be computed. While it would be desirable to try all tests in all combinations with different weightings applied to each test in order to achieve maximum prediction, the amount of work required to accomplish this with the limited manpower and equipment available would probably prove excessive.

It is suggested that composite scores be formed and utilized for branch classification as follows:

<u>Aptitude Area</u>	<u>Branch</u>	<u>Selectors</u>
Combat	Infantry	Buddy Ratings
	Engineers	
	Armor	
	Artillery	
	Military Police	
Mechanical	Signal	$\frac{PA + 2MA}{3}$
	Ordnance	
	Transportation	
Technical	Adjutant General	$\frac{AR + ACS + VE}{3}$
	Finance	
	Chemical	
	Medical	
	Quartermaster	

Standardization. After the correlational data have been evaluated and operational tests selected, army standard scores should be established for these tests. A sample of 2000 men, stratified by province, rural vs urban, education, and demographic variables considered important should be selected from the recruit population. It is necessary to emphasize that the sample must consist of EM who have not received army training since it has been the custom in ROKA to standardize on trained groups. Also it is important that low raw scores (0, 1, 2, 3) give failing standard scores (below 70 if possible).

Determination of cutting scores. Cutting scores for each of the composite scores for each branch can be determined by estimating the score requirement for each branch. For example, suppose that 15% of the Signal Corps spaces require a minimum selection score of 120 and that 40% require a minimum of 90 and the remaining 45% could be 70 or less. A Signal composite or aptitude area score of 80 (one standard deviation below the mean) would reject 16% of the group. Of the 84% accepted, 16/84 or 19% would have a score of 120 or higher, which would satisfy the 15% requirement. Also, of the 84% accepted 69/84 or 81% would have a score of 90 or higher, which would more than satisfy the 55% requirement. In this illustration, the medium and high level requirements have been satisfied and the number of low cases has been reduced. The same procedure could be

employed to establish the cutting score appropriate to each of the branches. Obviously, since cutting scores will be based initially on estimates, they should be constantly revised as appropriate. Also of great importance are the procurement requirements which by necessity may produce further modification.

Further Validation. Further validation of the operational battery is necessary in order that the tests predict not only success in training but also success in job performance. A series of studies must be set up in which predictor data are correlated with job performance criteria.

PHASE II

To increase the predictiveness of the battery and to represent more adequately the range of jobs in ROKA, it will be necessary to expand the battery to provide scores on additional aptitude areas. Though this phase will be handled as a discrete approach, it may be conducted simultaneously with the development of the three basic aptitude areas and continue until a suitable battery has been developed.

A classification battery is never completed, particularly in an army where jobs and job requirements are constantly changing. A program of continuing research is required to maintain and improve the effectiveness of the battery. As skills are developed by the ROKA technical staff, more refined procedures may be employed to predict success in ROKA courses or MOS assignment. Not all jobs need be investigated. Specific jobs should be selected as representative of families of jobs, thereby permitting information to be generalized from the job studied to others similar to it. Finally, new experimental instruments must continually be investigated to supplement or replace the operational tests.

OTHER HUMAN FACTOR PROBLEMS WITHIN ROKA

IMPROVING THE COMBAT EFFECTIVENESS OF ROKA TROOPS

The Republic of Korea has one of the largest armies in the world, and a high proportion of its soldiers are combat troops. The First Army of the Republic of Korea (FROKA) is a field army whose mission is to maintain the defense of an assigned battle position. The OCRD representatives visited the 28th Division, FROKA, to survey research needs of the combat sector. However, the time spent with the division permitted only general observations.

The division is in a constant state of readiness. At the same time, advanced unit training is a continuous process. Men are assigned directly from basic and advanced infantry training and from technical schools. Some personnel are assigned directly to infantry regiments, others to on-job training with supporting elements such as Signal or Quartermaster.

The main concern of the senior FROKA staff is the broad problem of improving the combat effectiveness of the troops. They are cognizant of the role of research to this end. What can be stressed at this point is the importance of a broad research effort in this area not only to ROKA, but to the United States as well. Approximately 44,000 U. S. military personnel are stationed in Korea. These troops share the responsibility of defending South Korea against communist aggression. In the event of hostilities, their very presence would be to a large extent a function of the effectiveness of ROKA. The morale of U. S. personnel in this strategic area is highly influenced by their perception of the combat preparedness and effectiveness of the national military forces. Further, as the ROKA forces develop their full capabilities, less outside support would probably be needed.

ROKA's ROLE IN KOREAN RECONSTRUCTION

The reconstruction movement is a formal government sponsored program to improve social and economic conditions in the Republic of Korea. The country, after nearly forty years under Japanese rule, emerged in a semi-medieval state. Gains made during the 1945-1950 period were for the greater part erased in the Korean War. The reconstruction program is conducted in part through enlisted men in the Army reserve. Each year during their two weeks of active duty, the reservists are instructed in improving socio-economic conditions in their community and their own position in the community. They are taught such subjects as sanitation, civics, birth control, and how to carry on home industries and marketing activities.

To date the program has not been subjected to study and there is no empirical evidence as to its effectiveness. There is need to evaluate training techniques in relation to economic growth and social and civic training in the community. A technique as simple as the opinion questionnaire would yield helpful information. Techniques for evaluation of training methods need only be adapted to the Korean culture to be useful in describing the relationship to socio-economic developments.

KATUSA PERSONNEL--HUMAN FACTORS PROBLEM AREAS

THE KATUSA PROGRAM

The Korean Augmentation to the U. S. Army (KATUSA) constitutes approximately one-fifth of the U. S. forces in Korea. A recent directive increases this by another two percent. The broad objectives of the program are to increase the capability of the U. S. Army units to which KATUSA personnel are assigned and to provide additional well-trained personnel and skilled technicians to ROKA when the men return. The use of integrated indigenous troops is a problem of prime importance to the U. S. Army, particularly when U. S. forces are operating on an "economy" basis, as they did in Japan prior to the Korean War when there were two battalions

in each regiment instead of the normal three. Accordingly, several U. S. Army units employing KATUSA were visited in order to evaluate current utilization of the Korean personnel and to map out possible areas for research to improve selection, classification, and assignment.

In August 1959, ROKA recruits were assigned to the U. S. Army on the basis of 100 for each front-line infantry company and 75 for each artillery battery. At present, 11,029 KATUSA personnel are authorized for subordinate units, both combat and supporting, in the U. S. Eighth Army. Korean officers serve as liaison officers, aides-de-camp, and as general and special staff officers for U. S. Army local commanders. KATUSA enlisted men serve in a variety of MOS.

SELECTION FOR KATUSA

ROKA enlisted personnel are considered qualified for KATUSA assignment if they have

1. completed primary school
2. gained some understanding of English
3. completed six months or more of ROKA service (However, men with 10 weeks RTC training are sometimes assigned to KATUSA.)
4. received no foreign education or specified kinds of domestic training

More than 90 percent of KATUSA personnel are volunteers. Over 50 percent of the men accepted are above average on the Korean Mental Qualification and Mechanical Aptitude tests. In spite of this seemingly good input, a recent ROKA directive has called for improved selection. Improvement in the personnel selected for the program has recently been noted (Appendix D). Once the assignment to KATUSA has been made, EUSA has no authority to reject an individual.

ASSIGNMENT OF KATUSA ENLISTED PERSONNEL

Men are assigned to training and jobs in terms of the assessments made by local U. S. Army and ROKA liaison officers, as well as to meet the needs of the local commander. Approximately 40 percent come into the KATUSA program directly from the RTC and have had little advanced training. The remaining 60 percent come from ROKA units and have had varying amounts of training. In either case, the U. S. Army conducts on-job training and unit training for the input. In some cases, the training required to bring the individual to the point of making a contribution to the military effort is extensive considering that the KATUSA tour of duty averages 24 months. The number of KATUSA per unit varies, in some units constituting a fraction

of one percent, in others, 75 percent (Table 3). The general feeling of U. S. Army personnel toward the KATUSA enlisted personnel is favorable. They feel that the Korean soldiers are willing to work, are trainable, and make good soldiers. Local unit commanders feel that they can do a job as well as the U. S. Army soldier and that differences are individual rather than cultural.

Table 3

NUMBER OF KATUSA PERSONNEL ASSIGNED TO MAJOR U. S. ARMY UNITS
AS OF 25 SEPTEMBER 1962

Major Units	Officers	EM	Total
EUSA and its Units	10	393	403
7th LOG Comd	20	2316	2336
US I Corps	19	2799	2818
7th Inf Dif	10	1161	1171
1st Cav Dif	10	1226	1236
4th MSL Comd	4	304	308
2nd Eng GR	5	1058	1063
304th Sig Bn	1	339	340
65 Med GR	1	139	140
EUSA LL Sig Bn	1	120	121
ORD Ammo Gr	3	92	91
4th Ord Bn	1	78	79
KMAG	33	1071	1104
Total	118	11096	11214

Inadequate English language ability is the principal difficulty in the assignment of KATUSA personnel. In spite of the requirement that the soldier know English in order to get into the program, in practice, men are assigned who have little or no understanding of English. In an effort to offset this deficiency, the KATUSA are given some basic English training; however, training time is inadequate. In other words, the average KATUSA soldier comes into the program knowing little English, and he generally leaves knowing little more than when he came in. On the other hand, only limited effort has been made to get the U. S. Army soldiers to learn Korean.

These and other problems are inherent in an attempt to integrate two armies representing two different cultures. Appendix E was compiled to indicate the varying backgrounds of KATUSA personnel. The language barrier has been intensified by separate barracks, lack of PX and club privileges, differential pay, and lack of integrated social affairs. EUSA has directed a policy of equal treatment of Korean enlisted men. However, the policy is not always observed in the field and signal differences persist, some militated by management procedures which in turn stem from the fact that there are two sources of command. As an example, discipline cannot be meted out by U. S. Army commanders. For slight infractions, the KATUSA enlisted man is turned over to a KATUSA NCO. For more serious infractions, he is returned to ROKA for punishment. KATUSA personnel are paid on the same basis as other ROKA enlisted men. In addition, they receive each month a package of cigarettes, candy, and sundries. They are fed, clothed, and equipped as U. S. Army personnel. Contrary to popular opinion, they prefer Korean to U. S. Army food. Since they are not authorized military certificates, they cannot use the PX or snack bar facilities. Even if they were allowed to use these facilities, their low pay (about one dollar a month) would allow them to use the facilities very infrequently.

The principal complaint made by KATUSA personnel, however, is that they get more than their share of the "dog work", although this is usually not the case. Contrary to rumor, they are not used routinely as permanent KP's or orderlies. There is, however, a problem of rank. There are fewer sergeants among KATUSA personnel, for example, than the proportion of KATUSA personnel would warrant.

The degree of integration varies with the proportion of KATUSA in a unit and the nature of the unit's mission. When the proportion gets large, the unit often divides itself along "natural" lines. If a unit's mission does not require teamwork or interdependency, the KATUSA tend to stay by themselves. A truck company, for example, has many drivers, most of whom operate independently. On the other hand, those units which require close and continued interaction between the men demonstrate a higher degree of integration.

POTENTIAL RESEARCH AREAS

To improve the KATUSA program, policy changes as well as research are necessary. Many policy changes are being considered and implemented, but no research has been instituted. The cultural factors which may influence selection and performance need investigation. Attitude questionnaires and morale surveys may very well shed light on these problems. Research would be useful to determine how to go about making long-term friends and allies of the Koreans.

The present selection system, the tests, and the assignment requirements need reexamination. An experimental test battery developed for the express purpose of selecting men for KATUSA could prove fruitful. This battery could be tailor-made to the U. S. Army needs but at the same time consider the cultural differences.

Questions dealing with saturation points, that is, the optimal number of KATUSA in a U. S. unit, should be investigated. The need for English language fluency in various kinds of units and jobs is varied. An objective measure of English language proficiency such as the U. S. Army's English Fluency Battery, could be used to conserve English-speaking manpower. Men who know little English could be assigned in units and jobs where knowledge of English is of secondary importance, thus conserving the men who are qualified in English for jobs where communication in that language is critical.

RESEARCH INVOLVING U. S. ARMY TROOPS IN KOREA

Korea provides an excellent opportunity for human factors research in terms of the availability of combat ready U. S. Army troops. Such troops are particularly useful as samples for the tryout and validation of experimental instruments and for experimentation under controlled conditions. The field situation is an appropriate one in which to evaluate leadership behavior, job proficiency in combat and combat support MOS, and other criteria. The effects of isolation and cultural interaction could be examined to determine how they affect the predictive efficiency of selection and classification techniques and the validity of criterion ratings. In discussion with the OCRD representatives, EUSA officers expressed considerable support for research activity which would attack these complex research problems and which would involve all the human factors disciplines represented in OCRD.

The potential research areas and the feasibility of OCRD research efforts in each area have been discussed in Memorandum for Record, Summary of Psychological and Social Science Research Requirements in Korea and Okinawa, E. Kenneth Karcher, HFRD, November 1962. (FOR OFFICIAL USE ONLY).

CONCLUSIONS AND RECOMMENDATIONS

ROKA CLASSIFICATION RESEARCH NEEDS

There is an established need for research to improve and extend the psychological instruments and procedures used in the classification of ROKA enlisted personnel. Psychological classification tests currently administered at the Reception Training Center are inadequate in aptitude coverage and do not provide a scientific basis for an effective classification system.

The ROKA Psychological Research Branch is understaffed in relation to the technical task required. The Branch needs extensive support in the form of professional assistance and modern technical facilities in order to develop an effective classification system.

Korean universities and civilian psychologists cannot be expected to supply adequate technical assistance to the military in the immediate future. While faculty members and some civilian psychologists possess in varying degrees appropriate training and background, not many of these would be willing to shift their activities from a civilian to a military sphere.

RECOMMENDATIONS

It is understood that consideration is being given by ARO to establishing a human factors research unit in Korea. If such a plan is put into effect, it is recommended that assistance be furnished ROKA personnel through this unit in developing a classification system based upon research and compatible with ROKA personnel management needs.

Should plans for the research unit not come to fruition, an alternative recommendation is that USAPRO provide guidance and assistance to ROKA research personnel in developing a classification system. Under this plan, representatives of ROKA would spend from four to eight months in APRO receiving training in research methods and working out a design for initial phases in the development of a classification battery. If appropriate, APRO personnel would arrange for short visits to ROKA to provide further consultative assistance pertaining to the validation, standardization, and implementation phases of the experimentation.

SUPPORT REQUIREMENTS FOR RESEARCH ON OTHER ROKA AND KATUSA PROBLEMS

Although the research needs of ROKA and the U. S. Army in Korea were considered separately by the OCRD representatives, almost all research effort devoted to ROKA and KATUSA human factors problems would have high potential for payoff to the U. S. military support of the Republic of Korea and, indeed, to the broader interests of the United States. For

example, research to make the reconstruction program more effective could contribute to strengthening the country socially and economically. A stronger Korea would be a stronger ally. A broadly conceived study to heighten the combat effectiveness of Korean soldiers would yield both direct and indirect advantage to the U. S. military effort. Again, consider the KATUSA program in which ROKA personnel are assigned within U. S. Army units. Almost no research has been directed toward improving the program, either from the standpoint of the U. S. Army or the ROKA personnel assigned to U. S. Army duty. There is urgent need for human factors research directed toward an understanding of the cultural factors affecting the selection, and performance of the Korean troops and the impact of the program.

ROKA does not at present have sufficient technically qualified manpower or the facilities to conduct the needed research. Nevertheless, (the problems are of enough importance both to ROKA and to the U. S. Army to warrant organization of a U. S. research team to examine the needs and initiate a program of research.) Such a team should consist of social scientists representing a broad spectrum of disciplines.

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APPENDIX A

ITINERARY OF OCRD REPRESENTATIVES ON FIELD VISIT TO KOREA

- 4-5 September 1962 - Headquarters, US Army Pacific, Fort Shafter, Hawaii
- 10 September - Army Research Office, Tokyo, Camp Zama, Japan
- 12-14 September - Headquarters, Eighth US Army
- Headquarters, Korean Military Advisory Group
- Headquarters, Army of the Republic of Korea
- Korean Universities
- 15,17,18 September - The Adjutant General's Office, ROKA, Seoul, Korea
- 19-28 September - ROKA Installations and Technical Schools
throughout the Republic of Korea
- 29 September-
3 October - The Adjutant General's Office, ROKA, Seoul, Korea
- 4-7 October - I Corps, Eighth US Army, Korea
- 8-10 October - The Adjutant General's Office, ROKA, Seoul, Korea

} Seoul,
Korea

APPENDIX B

MINIMUM TEST SCORES FOR ADVANCED INDIVIDUAL TRAINING IN
ROKA BRANCH SCHOOLS

SCHOOL	COURSE	MOS	MINIMUM QUALIFICATION SCORE		
			KMQT	KMAT	OTHER TEST
Arty	Ballistic	135	100	90	
	Art Survey	140	90	80	
	Field Art Mechanic	142	80	80	
	Fire Control	144	100		
	Art Radio Op	146 147	90		
Armor	Arm Rec Crewman	173	80		
	Tank Crewman	171 175 177	85		
Signal	Field Radio Rep	220 and 3 other	100		
	VHF Spec	224	90		
	Radio Instrument Rep	225 220	95		
	Wire Rep	203	95		
	Cable Splicer	205	90		
	Repairman	228	95		
	Still Photographer	950	95		
	Wire Relay Inst Rep	229	95		
	Signal Supply	719	95		
	Projector Repair	226	100		
	Teletype Repair	247	95		
	Telegraph Op	276	90		
	Teletype Op	278	95		

SCHOOL	COURSE	MOS	MINIMUM QUALIFICATION SCORE		
			KMQT	KMAT	OTHER TEST
Eng	Pioneer	300	70		
	Carpenter	323	80	80	
	Mason	324	75	75	
	Electrician	328	80	80	
	Pipeline Spec	326	80	80	
	Utilities Rep	330	75	75	
	Tractor Op	352	80	80	
	Crane Op	354	80	80	
	Air Compressor Op	357	80	80	
	Water Supply Spec	358	85		
	Draftsman	380	80	95	
	Surveyor	386	100	100	
	Powerman	524	100	80	
	Part Supply	710	80		
	Eng Supply Spec	713	95		
	Powered Equip Rep	510	95		
	Diesel Engine Rep	406	90	90	
	Generator Rep	128	100	100	KAIT 80
Ord	Wheel Vehicle Repairman	401	80	80	KAIT 80
	Track Vehicle Repairman	402	80		KSMT 75
	Welder	408	75		KSMT 75
	Machinist	434	100	100	KSMT 75
	Small Arms Repairman	441	100		

SCHOOL	COURSE	MOS	MINIMUM QUALIFICATION SCORE		
			KMQT	KMAT	OTHER TEST
Ord (cont'd)	Turret Artillery Mech	441	100		
	Field Arty Repairman	443	80		
	Anti-aircraft Arty Rep	446	90		
	Optical Instrument Rep	473	100		90
	Heavy Wrecker Operator	618	80		80
	Ordnance Supply Spec	716	95		
	Ammunition Supply and Records Spec	735	95		
	Automotive Fuel-Elec System Rebuilder	426	100		KSMT 75
	Blacksmith	430	75		
QM	Unit Supply Spec	700	90		
	Supply Records Spec	703 and 3 other	95		
	MHE Operator	720	70	70	
	Shoe Repairman	486	75	75	
	Office Equipment Repairman	506 720	80	80	
	QM Equipment Repairman	500 and 3 other	75	75	
	Clothing and Textile Repairman	480 482			
	Laundry	481 743	70		
Trans	Wheel Vehicle Rep	400	80	80	
	Light Vehicle Op	610	70		KAIT 70
	Trans Supply Spec	717 681	85		
	Movement Control Spec	612	80		
	Stevedore	671	70		

SCHOOL	COURSE	MOS	MINIMUM QUALIFICATION SCORE		
			KMAT	KMAT	OTHER TEST
Med	Medical Aidman	810 and 8 other	80		
	Medical Technician	814	90		
	Pharmacy Technician	824	100		
	Dental Technician	831 801	100		
	X-Ray Technician	871	100	80	
	Dental Lab Tech	834 801	100	80	
	Surgical Technician	816	90		
	Medical Supply Spec	715	100		
	Preventive Med Tech	861	100		
	Medical Lab Tech	821	100		
Chem	Chemical Equipment Repairman	511	100		
	Chemical Supply Specialist	712	100		
	Chemical Staff Specialist	923	100		
AG	Personnel and Admin	770 and 2 other	100		
	Korean Typing	761 771 770	100		
	Military English	917	100		
Fin	Finance Clerk	790 and 4 other	120		
Troop Info. and Educa.	Information Specialist	941 947	120		
	Education Specialist	944	120		
	Aircraft Repairman	910 and 8 other			
M.P.	Military Police	Basic	90		

SCHOOL	COURSE	MOS	MINIMUM QUALIFICATION SCORE		
			KMQT	KMAT	OTHER TEST
Unit Training	Pole Lineman	201	75		
	Light Vehicle Op	610	70		
	Signal Security	291, 293 295	100		
	Powerman	524	80		
	Heavy Vehicle Op	612	80		
	Stevedore	671 612	70		
	Medical Equipment Rep	516	80		

APPENDIX C

DESCRIPTION AND COMMENTARY ON TESTS OF THE KOREAN ARMY CLASSIFICATION BATTERY

1. Korean Mental Qualification Test (KMQT).

The KMQT is one of the two tests given to all inductees. It was developed by TAGO, ROKA with the assistance of Captain Blaisdell, KMAG, who has a Master's degree in Psychology. The first form of this test was developed and used on an experimental basis in 1955 and became operational in November of that year. Since that time it has undergone a series of revisions and the present form became operational in November 1960.

The KMQT is the most important test in the Korean classification system. It is used to classify the inductees into five mental categories: (I: 130 and above; II: 110-129; III: 90-109; IV: 70-89; and V: below 70).

There are three kinds of items in this test: cube counting, vocabulary, and arithmetic. In content it resembles the U. S. Army General Classification Test (AGCT) used in World War II. Since the verbal and arithmetic tests of the KACB cover the same content as the verbal and arithmetic portions of the KMQT, it is not unlikely that the KMAT will be eliminated once the full KACB becomes operational.

2. Korean Mechanical Aptitude Test (KMAT).

This test is administered to all inductees concurrently with the KMQT. The test results are used to select personnel for advanced training in schools which require mechanical aptitude. The KMAT was initially developed during 1955-56 by TAGO, ROKA, with the assistance of the AG Advisor's Office, KMAG, and became operational in June 1956. The present form, KMAT-2, became operational in January 1962.

Of the fifty items in this test, none has come from the ACB counterpart; however, the items measure the same basic mechanical principles. Since most of the items are pictorial, the KMAT wisely uses pictures familiar to the Korean culture; for example, to show the effect of propulsion caused by a fan, the picture is that of a Korean fishing vessel with sails. In general, this test ignores the usual practice of having an equal number of alternatives per item, some items having two alternatives, others three. As a result, the "correction for guessing" formula which is used "corrects" the two-choice items as if they were three-choice items. The art work is passable, but several items contain concepts which are not immediately obvious from the drawings.

3. Korean Automotive Information Test (KAIT).

The KAIT was developed by TAGO, ROKA with the assistance of the AG Advisor's Office, KMAG, during 1958. It was used on a trial basis to test Transportation Corps (TC) enlisted personnel and became operational in February 1959. During the trial period in 1958, a total of 3000 TC personnel were tested. Based on the results of this trial testing, Army standard scores were determined. A standard score of 70, which is the equivalent of a raw score of three out of 25 items, was set as the prerequisite for entry into TC. Since an incorrect "correction for guessing" formula is applied, approximately one out of five examinees will make the raw score of three, or more, by pure chance. If the proper correction formula were used, about one out of twelve examinees would score 3 or above by pure chance.

The standardization sample was composed of soldiers who were pre-selected on the KMQT, and had also completed part, if not all, of their advanced training. It is common practice in ROKA to use "experienced" standardization samples, even though the test is intended for use with new inductees. The reason given for using the experienced TC personnel was that most of the new inductees are farmers and have little, if any, experience in the automotive field. It seems evident that an experiential test more suited to the inductee population should be developed. This new measure should be less dependent on automotive experience and should measure success in this MOS area more indirectly.

Of the thirty items in this test, six were based upon items in the counterpart ACB, five of which are verbatim translations. The number of item alternatives varies from two to four.

4. Korean Shop Mechanics Test (KSMT).

This test is administered during processing at the Reception Training Center to men initially assigned to Ordnance. Its purpose is to select those best qualified for advanced Ordnance training after completion of basic training. The KSMT was developed during 1959 by TAGO, ROKA with the assistance of the AG Advisor's Office, KMAG, and became operational in February 1960.

Of the thirty items in this test, eight were based upon those in the ACB, six of them revised and two verbatim. The pictorial items are superior to those of other tests, but leave much to be desired. Many items appear to have poor distractors, thus reducing the discrimination power of the items.

The remaining tests are either not operational or are not administered at the Reception Training Center.

5. Korean Electrical and Radio Information Test (KE and RIT).

The KE and RIT was developed by TAGO, ROKA, with the assistance of the AG Advisor's Office, KMAG, during the period of December 1958 through April 1960. The test is used as a selection instrument for special purposes such as selecting personnel for the new Surface to Air Missile program in ROKA. It is not presently used at the RTC because allocated time for processing does not permit it. In the near future, processing schedules will be revised to permit this test to be administered to personnel being considered for advanced Signal Corps training.

Of the thirty-five items in this test, twenty-three were based upon items in the U. S. ACB, eleven revised and twelve verbatim. The test includes seventeen pictorial items and eighteen verbal items. The pictorial premises and alternatives all come from the ACB but apparently were redrawn for Korean publication. The reproduction, however, is poor.

6. Korean Clerical Aptitude Test (KCAT).

The KCAT is a new test being developed by the Psychological Research Branch, TAGO, ROKA. It is presently being evaluated; however, a translation was not available. Its intended use is to select personnel for training in the advanced clerical fields. It is planned that this test will be ready for implementation at the RTC by mid-1963.

7. Korean Vocabulary Reading Test (KVRT).

The KVRT is a new test being developed by the Psychological Research Branch, TAGO, ROKA. The test is presently being evaluated. Since it would be too difficult for a non-Korean speaking American to evaluate it, a translation was not requested. The test is to be used at the RTC in conjunction with the KMQT to improve the process of placing personnel into mental groups and also to improve selections for advanced MOS training. Implementation is planned by late 1963.

8. Korean Arithmetic Reasoning Test (KART).

The KART is a new test being developed by the Psychological Research Branch, TAGO, ROKA. This test is presently undergoing a process of evaluation and standardization. The KART will be used at the RTC in conjunction with the KMQT to improve both categorization of personnel into mental groups and selection for specific advanced MOS training.

Of the eighty items in this test, twenty-nine appear in the ACB counterpart, nineteen adapted verbatim and ten revised. The revisions were mainly conversions of U. S. units of measurement to those of the Korean culture. In general, the test construction practice of arranging

numerical alternatives in order was ignored, thereby tending to clue certain responses. About fifteen items were noted which appear to test fundamentally the same arithmetic concepts of adding and subtracting. These items probably have high p values and very little discriminative power. A number of these items could probably be omitted without altering the effectiveness of the test.

9. Korean Pattern Analysis Test (KPAT).

The KPAT is a new test currently being developed by the Psychological Research Branch, TAGO, ROKA. It is presently undergoing a process of evaluation and standardization. The KPAT will be used at the RTC in conjunction with the KMQT to improve both the categorization of personnel into mental groups and selection for specific advanced MOS training. This test should be ready for use in the early part of 1963.

Of the eighteen problem patterns appearing in this test, three are adapted verbatim from the ACB. In general, the art work is satisfactory, and the construction of the test is far superior to that of the other tests in the KACB. The items appear to approximate the spread of difficulty in the corresponding ACB test.

10. Relationship Between ACB and KACB.

The planned KACB to a very large extent is similar to the ACB. In general, the KACB items are easy compared to U. S. standards. This is particularly true for the informational tests.

APPENDIX D

DISTRIBUTIONS OF SCORES MADE BY KATUSA PERSONNEL ON
KOREAN MENTAL QUALIFICATION TEST
AND KOREAN MENTAL APTITUDE TEST

	Ability Category	N	KMQT Percentage		N	KMAT Percentage	
January through May 1962	I	381	12.4	67.0	596	19.8	73.6
	II	1041	34.5				
	III	605	20.1		700	23.2	
	IV	516	17.3	33.0	541	17.9	26.4
	V	473	15.7		257	8.5	
	Total	3016	100.0		3016	100.0	
July through September 1962	I	277	18.1	86.1	317	20.7	88.6
	II	667	43.6		624	40.8	
	III	374	24.4		415	27.1	
	IV	156	10.2	13.9	147	9.6	11.4
	V	57	3.7		28	1.8	
	Total	1531	100.0		1531	100.0	

APPENDIX E

DISTRIBUTIONS OF BACKGROUND VARIABLES FOR
KATUSA PERSONNEL AS OF OCTOBER 1962

(N = 2361 KATUSA I CORDS)

Variable	Distribution %
<u>Age</u>	
19-21 years	5.1
22-24 years	72.2
25-29 years	21.0
above 30 years	1.7
<u>Education</u>	
College	14.9
Middle and High School	51.8
Primary School	31.1
Illiterate	2.2
<u>Combat Experienced</u>	
Inexperienced	99.5
Experienced	0.5
<u>Service Type</u>	
Draftees	95.1
Long-Term Volunteers (5 years)	4.9
<u>Religion</u>	
Protestants	11.0
Buddhists	5.1
Catholics	3.0
Confucianists	0.9
No Religious Preference	80.0