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A SUMMARY OF PROGRAMMED WORK IN PROGRESS FY 63-64: TASKS, EXPLO--ETC(U)
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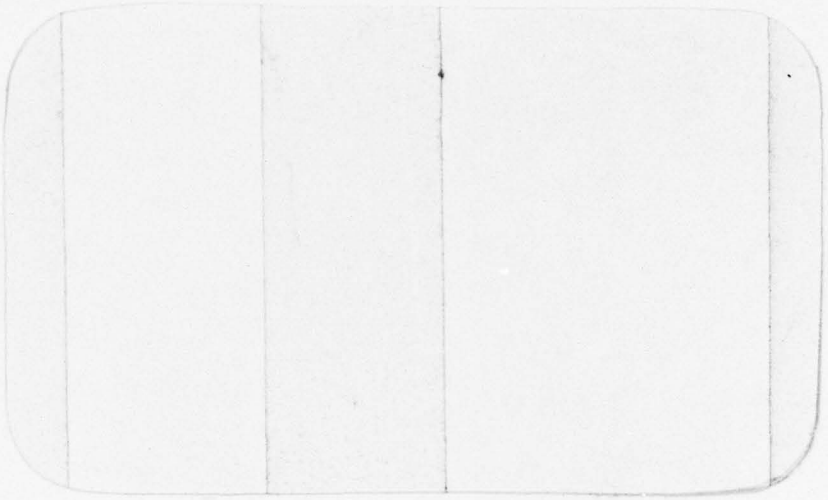

The George Washington University
HUMAN RESOURCES RESEARCH OFFICE
operating under contract with
THE DEPARTMENT OF THE ARMY

(6)

A SUMMARY OF PROGRAMMED WORK IN PROGRESS FY 63-64: Tasks, Exploratory Studies, and Basic Research.

(11) July 1964

(15) DA-44-188-ARO-2

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FOR THE CHIEF:

ALEXANDER NICOLINI
Major, Infantry
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PREFATORY NOTE

This is a report of the programmed work under way in HumRRO during FY 63 and 64. It is organized by the seven operating divisions of HumRRO in Alexandria and at Army Centers, arranged in the order of their establishment. 1/ Since the basic materials in the report were prepared separately by the respective research groups, there is some variation in the amount or nature of detail included (particularly in the listing of products of the research), but the same general guidelines are followed throughout.

All Tasks and all Basic Research efforts programmed during either FY 63 or FY 64 are reported. Some of the programmed Exploratory Studies are reported directly; the others were the forerunners of tasks SYSTEM, MAP, MOSAIC, AUTOSPAN, HIGHLEAD, REFILL, and HAWKEYE, and are not separately reported. An account of the Technical Advisory Services in response to specific Army requests appears in a separate report; in some instances, where TAS activities are closely related to ongoing Task activities, they are noted in this document.

The information given for each Task, Exploratory Study, or Basic Research Project covers the entire period of effort through 30 June 1964, although several of the major studies were begun some years before the FY 63-64 period. This complete account is believed to be more useful than the piecemeal account which would be provided if only the work accomplished during FY 63-64 were reported.

The dates under the "Duration" heading indicate the first year and the final year in which the Task or study appeared in the Work Program; Tasks continuing in the FY 65 Work Program are noted as "In progress." Some Task activities, primarily in connection with completion of reporting, reviewing, and preparing for publication, continue for a limited time after a Task has been essentially completed and has been removed from the formal Work Program. Tasks (or Subtasks) on which all work has been concluded are usually noted as "Completed" or "Terminated." Listed in the Supplement are some of the reports published during the FY 63-64 period from research done prior to that period.

The lists of "Products" of the research do not include items which, while they may have been important elements in the planning or administration of the research, were intended primarily for internal or sponsor use or information. However, in many instances prototype or other training materials, consulting reports on specialized subjects, journal articles, and similar items have been included because they are clearly products of the research effort. Because the format of the present report is oriented to the Work Program presentation of research effort, publications which are not directly related to a particular Task or other segment of the Work Program are not presented.

1/ The research unit now designated as the U.S. Army Training Center Human Research Unit was the Leadership Human Research Unit prior to FY 64.

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TMD

Training Methods Division

110/

TRAINING METHODS DIVISION

1. Task FORECAST

   a. Title: Development of a Method of Forecasting Training Demands Imposed by New Electronic Weapon Systems

   b. Sponsors: Office of the Chief of Ordnance, Department of the Army Headquarters, U.S. Continental Army Command

   c. Objective: To develop improved methods for forecasting the content of effective and economical training programs for the operation and maintenance of new electronic weapon systems.

   d. Duration: FY 56 - FY 63

   e. Subtasks:

      FORECAST I: Methods of forecasting the training demands for electronic guided missile systems: Completed.

      FORECAST II: Study of the transfer and equipment-minimizing effects of the methods: Completed.

      FORECAST III: Evaluation of new methods of electronic systems analysis for maintenance training: Completed.

      FORECAST IV: Extension and further test of a method for training repairmen on new weapon systems.

   f. Products:

      (1) Technical Report (63): Determining Training Requirements for Electronic System Maintenance: Development and Test of a New Method of Skill and Knowledge Analysis, June 1960.

      (2) Training Materials: M-33 Integrated Fire Control, Experimental Manual.

      (3) Training Manual: A Procedural Guide for Technical Implementation of the FORECAST Methods of Task and Skill Analysis, July 1961.

      (4) Training Material: FORECAST Mockup System - Technical Description, September 1961.

      (5) Research Memorandum: A Description of SNAP Programming, May 1963.

      (6) Consulting Report: Implementation and Checkout of the FORECAST Concept of Electronic System Repair at the U.S. Army Ordnance Guided Missile School, August 1963.

(7) Training Materials: (HIPAR)

Scrambled Book for Practical Exercise Problems in Troubleshooting the HIPAR Transmitter.

Problems for Practical Exercise Training Equipment HIPAR MTI.

Scrambled Book for Within Block Troubleshooting.

Scrambled Book for HIPAR Transmitting Symptoms.

Scrambled Book for HIPAR Transmitter Troubleshooting Block Diagram and Story.

(8) Consulting Report: (Navy)

The Application and Test of the FORECAST Concept of Electronics Maintenance on NAVY LORAN Equipment, in preparation.

(9) Training Materials: (Navy)

Forecast Troubleshooting Manual for AN/UPN-12 and AN/UPN-15.

FORECAST Within Block Troubleshooting Procedures for LORAN Receiving Set, AN/UPN-12 and AN/UPN-15.

FORECAST Troubleshooting Scrambled Text for Operation LORAN Receiving Set, AN/UPN-12, AN/UPN-12A, AN/UPN-15, AN/UPN-15A.

(10) Research Report: (13)

FORECAST Systems Analysis and Training Methods for Electronic Maintenance Training, May 1964.

g. Utilization of Products:

(1) The FORECAST concept was used on the Improved NIKE Hercules HIPAR system for system troubleshooting and understanding. This course was forecasted, that is, produced before the system went to the field. It is still in use at the Ordnance Guided Missile School. Special troubleshooting manuals were produced as part of the FORECAST application.

(2) Four sets of part-task training equipment, designed for use with FORECAST instruction, were delivered to OGMS for use with the FORECAST portion of the HIPAR course. This training equipment provided the only experience students received in practical exercises until the real system arrived and was set up at the school. After the real HIPAR system became available, the part-task trainers have been used to rehearse students in practical exercises so that they are prepared to learn the fine points on the real system (real-system time is still in short supply, as only one of these high-cost systems is available at OGMS).

(3) Practical Exercise Training Equipment (PETE) was designed for use at OGMS. This was a low-cost, generalized, troubleshooting trainer, a second-generation adaptation of the part-task trainers used in the HIPAR course. OGMS had nine PETEs built and is using them in the SERGEANT program.

(4) The FORECAST concept has also been utilized by the U.S. Navy. The LORAN maintenance course at Fleet Training Center, Norfolk is a FORECAST course. It is producing students with the ability to accomplish three times as many repairs (per unit time) as conventionally trained maintenance personnel. The SNAP programming methods developed in Subtask IV are being utilized in this course, as well as the products of earlier subtasks.

h. Benefits to the Army:

In early studies (1958-59) the effectiveness of the FORECAST concept (manuals and training) was demonstrated in producing maintenance personnel who performed at a 40% higher level on a job proficiency test than did conventionally trained repairmen; the training time for FORECAST-trained repairmen was 40% shorter than that for conventional repairmen. The training costs were less than conventional costs because of the shortened training time and the use of a special, low-cost, part-task trainer used in place of real hardware for about 30% of the practical exercise time.

One part of FORECAST troubleshooting is general to all systems; that is, once learned, no retraining is necessary regardless of the type of system to be repaired.

The potential benefits of the FORECAST concept have not been fully utilized at the present time. In fact, it appears that the Navy is benefitting more from the research than the Army has to date.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	17.6
FY 63	1.8
FY 64	.5

(2) Military Support:

(a) Personnel: Instructors - 5 man-years
Subjects - 8 man-years

(b) Facilities: 5 school classrooms for 8 months
5 M-33 radar systems (obsolescent) for 4 months
1 classroom for 1 year

(3) Subcontracts: $20,000 for training equipment

Task FORECAST

j. Coordination:

The Signal Corps (briefings)
The Adjutant General (coordination for student input to course)
All Army Headquarters and Schools concerned with electronics maintenance (reports distributed)

2. Task JOBTRAIN

a. Title: Development of a Method for Building Training Programs for Signal Corps Electronics Repairmen

b. Sponsor: Office of the Chief Signal Officer, Department of the Army

c. Objective: To develop an integrated training and on-the-job support system for Signal Corps electronics repairmen in their first enlistment.

d. Duration: FY 59 - FY 63

e. Subtasks:

JOBTRAIN I: Development of a method for defining performance requirements for electronics repairmen positions: Completed.

JOBTRAIN II: Development of guidance on the design of training materials and methods for school programs: Completed.

JOBTRAIN III: Development and limited test of an experimental training program on repair of selected field carrier equipments.

JOBTRAIN IV: Construction and test of a complete short course for the first-enlistment training of a Signal Corps MOS 294 repairman.

f. Products:

(1) Research Memorandum: The Development of Training Programs for First Enlistment Repairmen: I. How to Define Training Objectives, July 1960.

(2) Research Memorandum: The Development of Training Programs for First Enlistment Personnel in Electronics Maintenance MOS's: II. How to Analyze Performance Objectives to Determine Training Content, January 1960.

(3) Research Memorandum: The Development of Training Programs for First Enlistment Personnel in Electronics Maintenance MOS's: III. How to Design the Handbook Materials, February 1960.

(4) Research Memorandum: The Development of Training Programs for First Enlistment Personnel in Electronics Maintenance MOS's: IV. How to Design Training Methods and Materials, February 1960.

g. Utilization of Products:

(1) A JOBTRAIN course for MOS 296 repairmen was prepared, complete with special manuals at the U.S. Army Southeastern Signal School. This course is 16 weeks in duration, compared with about 25 weeks for the conventional course. Approximately 50 students trained in this course were tested and compared to conventionally trained students (no difference in performance levels). They were then given the 296 MOS and assigned to the field. Authorization could not be obtained to change technical manuals in the way called for by the JOBTRAIN procedures.

(2) In FY 64 the JOBTRAIN course for MOS 296 was selected by the Army for further test and evaluation in response to interest expressed by the Office of the Secretary of Defense in extending the application of HumRRO-developed concepts and procedures in electronics maintenance training. U.S. Continental Army Command will repeat the JOBTRAIN test with the addition of a field follow-up test seven months after graduation. The criterion performance measure will be the responsibility of the Signal School. The conduct of the JOBTRAIN training and the conventional training will be the responsibility of the Southeastern Signal School. CONARC will be responsible for assignment of personnel to appropriate job duties as well as having over-all responsibility for the test. HumRRO will participate in an advisory role. This test will be initiated early in calendar year 65.

h. Benefits to the Army:

Experience with JOBTRAIN showed that electronics maintenance could be performed, with special guidance manuals and instruction, without all of the electronic theory which is provided in conventional training. The JOBTRAIN procedures showed indications of providing some increase in job proficiency and decrease in training time.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	11.7
FY 63	1.3
FY 64	.3

(2) Military Support: Four instructor-technicians for 4 years; classroom, workspace equipment.

j. Coordination:

U.S. Continental Army Command

3. Task METHOD

a. Title: Development of Guidelines for the Application of Programmed Instruction to Selected Military Training Problems

b. Sponsor: U.S. Continental Army Command

c. Objective: To develop techniques and guidelines for applying programmed instruction to specific types of military training problems.

d. Duration: FY 59 - In progress.

e. Subtasks:

METHOD I: Study of various methods of organizing learning materials: Completed.

METHOD II: Development of guidelines and principles for teaching principles, rules, and generalized procedures.

f. Products:

(1) Research Memorandum: Organizing the Presentation of Concepts in Education and Training: The Lattice Technique, November 1962.

(2) Journal Article: "Verbal Paired-Associate Learning as a Function of Grouping Similar Stimuli or Responses," J. Exp. Psychol., vol. 65, no. 1, January 1963.

(3) Journal Article: "An Experimental Hypothesis of Intra-List Generalization," Psychol. Rep., vol. 13, no. 2, October 1963.

(4) Journal Article: "Supplementary Report: Verbal Paired-Associate Learning as a Function of Grouping Similar Stimuli or Responses," J. Exp. Psychol., vol. 67, no. 3, March 1964.

(5) Journal Article: "Experimentation and Programming," AV Communication Rev., vol. 12, no. 1, Spring 1964.

(6) Manual: A Self-Instructional Course in Basic Computer Programming, in preparation.

g. Potential Utilization of Products:

The self-instructional package from METHOD II will, dependent upon the manner of implementation, either (1) replace certain sections of the ADPS Programming Specialist Course, or (2) supplement (particularly

for slower students) the instructor's efforts in getting across the points involved in those sections. In either case, the training will be made more efficient (the mode rather than amount of training will be affected).

h. Potential Benefits to the Army:

Results of efforts on METHOD I provided some guidelines for programming the learning of nomenclature and similar content although no immediate benefit in terms of curriculum or course modification was achieved. METHOD II, however, building upon the general foundation yielded from METHOD I research, will provide a specific, usable programmed instructional package for the ADPS Programming Specialist Course (MOS 745.1). In addition, METHOD II will provide, through experimentation, general guidelines for the application of programmed instruction to tasks requiring the learning of principles and rules.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	7.2
FY 63	1.7
FY 64	1.3

(2) Military Support:

(a) Sixty basic trainees at Fort Dix as subjects.

(b) Will use 1000 Army students from Fort Monmouth, the consumer school.

j. Coordination:

Because of their interests in the development of programmed instructional materials, the following Armed Forces agencies have been contacted:

Personnel and Training Branch, Office of Naval Research
Office of the Adjutant General
U.S. Army Signal Center
U.S. Army Signal School
U.S. Army Southeastern Signal School
U.S. Army Participation Group, U.S. Naval Training Devices Center

Close contacts and briefings have been a continuing effort with the consumer, the USASCS at Fort Monmouth.

4. Task RESOLVE

a. Title: Procedures for Construction and Use of War-Game-Like Exercises for Training in Decision Making

b. Sponsor: U.S. Continental Army Command

c. Objective: To develop methods and techniques for constructing and conducting training war games that simulate the decision-making environment of an individual company grade officer during battle.

d. Duration: FY 63 - FY 64. Terminated.

e. Subtasks:

RESOLVE I: Methods and procedures for constructing and using exercise material designed to allow students to practice in-battle decision making and problem solving.

f. Products:

A prototype war-game-like training exercise suitable for use with large groups of company-grade officer trainees. During the exercise each trainee would have an opportunity to practice decision making in a simulated combat environment.

g. Utilization of Products:

The prototype training exercise described above was unfavorably reviewed by CGSC. The exercise was deemed appropriate for use at the company-grade level but not at the field-grade level. Because other HumRRO units were already investigating many of the problems associated with company-grade officer training, work on the development of the above exercise was terminated. The task was then reoriented toward an investigation of the techniques for analyzing military organizations so as to determine the information requirements of key executive and administrative persons within such organizations. A request to USCONARC for HumRRO research in the above and/or related areas of management training was submitted by the U.S. Army Finance School in January 1964. This request was disapproved by USCONARC.

h. Benefits to the Army:

Knowledge and expertness acquired by staff; employed during TAS activity concerning an evaluation of LOGEX, and to be used in an FY 65 Exploratory Study (ES-22) concerning management information requirements.

i. Resources Expended:

(1) Basic Man-Years: FY 63 2.2
FY 64 .6

(2) Military Support: None

j. Coordination:

U.S. Army Command and General Staff College, Fort Leavenworth
U.S. Army Finance School, Fort Benjamin Harrison.

5. Task SYSTEM

a. Title: Preparation of a Personnel System Development Program

b. Sponsor: Human Factors and Operations Research Division, Office of the Chief of Research and Development

c. Objective: To prepare an integrated personnel system development program.

d. Duration: FY 64. Terminated.

e. Subtasks:

SYSTEM I: Personnel system development program.

f. Products:

The following documents were prepared in cooperation with U.S. Army Personnel Research Office and submitted to HFORD for implementation:

(1) Requirements for Personnel and Training Information, 1963.

(2) Proposed USA Human Factors Specification, 1963.

g. Utilization of Products:

Not as yet utilized.

h. Benefits to the Army:

Adoption of requirements set forth in product documents could be expected to improve the effectiveness of Army weapons systems by (1) design of equipment which is more compatible with human capabilities and limitations, and (2) improved human capabilities through more timely development of appropriate job aids, manning requirements, duty positions, selection requirements, training, and training equipment.

i. Resources Expended:

(1) Basic Man-Years: FY 64 .1

(2) Military Support: None.

j. Coordination:

The Task was conducted jointly with U.S. Army Personnel Research Office.

TRAINING METHODS DIVISION

6. Task OVERDRIVE

a. Title: Analysis of Training Requirements for Operation of an Amphibious Ground Effect Machine

b. Sponsor: U.S. Army Transportation Research Command

c. Objective: To determine training requirements for operators of Army amphibious ground effect machines (GEM).

d. Duration: FY 63 - In progress

e. Subtasks:

OVERDRIVE I: Training requirements of ground effect machines.

f. Products:

Simulator for use in studying operator performance.

g. Utilization of Products:

None as yet.

h. Potential Benefits to the Army:

The results of this research will provide those responsible for vehicle development with an estimate of the influences which differences in the vehicle's control characteristics, its operating environment, and the mission required of it, would have upon the ability of the operator to learn to operate effectively and safely. This information will permit a determination of the constraints which the human operator places upon the future vehicle development, as well as offering a long-range prediction of training requirements.

i. Resources Expended:

(1) Basic Man-Years: FY 63 1.3
FY 64 2.3

(2) Military Support:

Two enlisted S & E personnel for 2 years as technicians.

j. Coordination:

As directed by task sponsor

7. Task DEVICE

a. Title: Analytic Procedures for Determining Functional Specifications for Training Devices

b. Sponsor: U.S. Continental Army Command

c. Objective: To develop and evaluate a set of procedures for determining the need for and nature of a training device in a particular training program.

d. Duration: FY 64

e. Subtasks:

DEVICE I: Application of training device development principles and procedures to a specific Army system.

f. Products:

None. Activity on this Task has been suspended due to (1) difficulties encountered in finding a suitable training program to use as a research vehicle, and (2) shortage of personnel.

g. Utilization: None

h. Benefits to the Army:

No direct benefits. Information and experience gained on this Task should be useful in the Exploratory Study (ES-21) on UH-1 helicopter maintenance training.

i. Resources Expended:

(1) Basic Man-Years: FY 64 .9

j. Coordination:

Working relationships established with the U.S. Army Transportation School during this Task resulted in the initiation of (ES-21) on UH-1 helicopter maintenance.

8. Task MOSAIC

a. Title: Studies on Organization and Operation of Electronic Maintenance Units

b. Sponsors: U.S. Continental Army Command
U.S. Combat Developments Command

c. Objective: To develop a method for studying the interaction of the organization and operation of electronic maintenance units with the units' input and output conditions. The technique will be designed for use in developing new organizational and operational structures for such units, and evaluating these structures in terms of unit effectiveness.

d. Duration: FY 64 - In progress

e. Subtasks:

MOSAIC I: Development of methods for analyzing and measuring the effectiveness of electronic maintenance units.

MOSAIC II: Design and evaluation of new approaches to within-unit job structure and operations.

f. Products: MOSAIC is still in its planning phase. No products to date.

g. Potential Benefits to the Army:

Eight Army organizations, each responsible for an aspect of electronic maintenance units operations, will have a method for:

(1) Determining the changes in job duties imposed by new maintenance policies.

(2) Determining the cost of new maintenance policies.

(3) Comparing the cost and effectiveness of alternate maintenance policies.

(4) Suggesting new maintenance policies from a detailed understanding of the structure of job duties, cost, and effectiveness.

h. Resources Expended:

(1) Basic Man-Years: FY 64 1.2

Task MOSAIC

i. Coordination:

USCONARC - Conference to discuss selection of a type unit for initial study.

USCDC - Conference to determine appropriate division for sponsorship.

9. Task TRADER

Task TRADER at its inception was designated as a Director's Office Task, with several of the Subtasks assigned to individual research divisions. These specifically oriented subtasks were later continued as individual Tasks which are reported in the appropriate sections in this document. The following report of Task TRADER activities, while included under the Training Methods Division heading, also includes the TRADER subtask activities at the U.S. Army Air Defense and Aviation Human Research Units.

a. Title: Developing Guidance for Establishing Requirements and Characteristics of Training Devices

b. Sponsor: Office of the Chief of Research and Development, Department of the Army

c. Objective: To contribute increased efficiency in the Army's procedures for establishing requirements for and determining characteristics of training devices.

d. Duration: FY 62 - FY 63

e. Subtasks:

TRADER I: Literature survey and development of tentative guidance book (Training Methods Division, Air Defense Human Research Unit, Aviation Human Research Unit, and Director's Office).

TRADER II: Transfer of skill and knowledge from training device to criterion (Training Methods Division): Completed.

TRADER III: Air defense system simulation and training device problems (Air Defense Human Research Unit): Completed.

TRADER IV: Aviation simulator and training devices problems (Aviation Human Research Unit): Completed.

f. Products:

(1) Research Bulletin: Factors and Techniques in Development and Utilization of Training Devices, in preparation.

(2) Training Device: A mock-up of the OV-1 cockpit constructed from photographs and plywood[1] (Aviation Human Research Unit).

1/ Research Memorandum, A Preliminary Study of the H-34 Cockpit Procedures Training, (Aviation HRU, October 1960), a product of Task REFLECT, describes early work on the mock-up.

(3) Report to the U.S. Army Aviation School: "Effectiveness of (Consulting Report) Device 2-C-9 in Teaching Ground Cockpit Procedures for AO-1 Aircraft," (Aviation Human Research Unit, 1962.

(4) Report to the U.S. Army Aviation School: "Relative Effectiveness (Consulting Report) of Device 2-C-9 and a Photographic Cockpit Mock-up Device in Teaching Ground Cockpit Procedures for the AO-1 Aircraft," (Aviation Human Research Unit), 1962.

(5) Research Memorandum: Application of a Method of Evaluating Training, (Air Defense Human Research Unit) November 1962.

(6) Journal Article: "Application of a Method of Evaluating Training," J. Appl. Psychol., vol. 48, no. 2, April 1964.

g. Utilization of Products:

(1) The mock-up (Item 2 above) was borrowed by the Aviation Board for use in transition training for AO-1 Aircraft.

(2) The concept of the mock-up and its use in training has been adapted for the preflight training program for warrant officers on the O-1 fixed wing aircraft at Fort Rucker. In addition, the concept is to be applied at Fort Wolters for both fixed and rotary wing training.

h. Potential Benefits to the Army:

(1) The Research Bulletin under preparation will provide guidance on the development and use of training devices, to officers with training responsibilities.

(2) Considerable savings in the cost of training equipment without degradation of training effectiveness appear to be feasible by wide application to cockpit procedure training of the concept of using mock-ups with low functional fidelity.

i. Resources Expended:

(1) Basic Man-Years: FY 62 4.2
FY 63 6.1

j. Disposition of Task:

The effort under Task TRADER in the FY 63 Work Program was redesignated as specific Tasks for the FY 64 Work Program, as follows:

TRADER II was redesignated Task DEVICE, Training Methods Division.

Task TRADER

TRADER III was redesignated Task RINGER, Air Defense Human Research Unit.

TRADER IV was redesignated Tasks ECHO and ROTOR, Aviation Human Research Unit.

Descriptions of the Tasks derived from TRADER are included in this report under the above Task titles.

TRAINING METHODS DIVISION

10. Basic Research: Command Decision Making in Crisis (BR-3)

a. Objective: To develop a model of decision making.

b. Potential Benefits:

This research effort was terminated in FY 63 as prospects for meaningful results did not appear to be promising.

c. Research Support:

(1) Basic Man-Years:

Thru FY 62	.2
FY 63	.1

THE DECISION PROCESS

11. Basic Research: (BR-4)

a. Objective: To study the manner in which situational factors affect the way in which available information is processed, the thoroughness with which it is used, and the way in which it is weighted in reaching a decision.

b. Potential Benefits:

The importance of a better understanding of the processes involved in decision making has been heightened by the potential conditions of future battle and contemporary concepts of dispersion and mobility which point to a widened locus of decision responsibility and an increased need for efficient and effective decision making. This basic research effort is directed toward accumulating additional data about decision behavior, particularly with regard to the processing and utilization of information.

c. Research Support:

(1) Basic Man-Years:

Thru FY 62	1.3
FY 63	.8
FY 64	.8

AHRU

U.S. Army Armor

Human Research Unit

U.S. ARMY ARMOR HUMAN RESEARCH UNIT

1. Task SPANOCON

   a. Title: Human Factors Influencing Span of Control Within Military Organizations.

   b. Sponsor: U.S. Continental Army Command

   c. Objective: To explore factors related to improved methods for training platoon and higher unit commanders to control their units under present and future concepts of military organization. (FY 63)

   d. Duration: FY 57 - FY 64. Terminated.

   e. Subtasks:

      SPANOCON I: Survey of literature dealing with span of control: Completed.

      SPANOCON II: Experimental study of factors in the span of control, level 1, platoon: Terminated.

   f. Products:

      (1) Research Memorandum: SPANOCON: Span of Control, 2. Effect on Reliability of Free and Forced Distributions in Rating, August 1961.

      (2) Research Memorandum: SPANOCON: Span of Control 1. Development of a Knowledge-Free Span of Control Test, May 1962.

   g. Utilization of Products:

      The span of control exercises developed for the research purposes of this Task were reviewed by U.S. Army Armor School, and certain concepts and procedures were adopted for use in the Basic Officer Course of that school.

   h. Research Support:

      (1) Basic Man-Years:

Thru FY 62	9.1
FY 63	1.1
FY 64	.3

      (2) Military Support: None during the summary period.

   i. Coordination:

      U.S. Army Armor School

2. Task TRAINCREW

a. Title: Methods for Improving Tank Crew Performance.

b. Sponsor: U.S. Continental Army Command

c. Objectives: To provide Armor with improved techniques for tank crew training by the evaluation of the present system and the development of improved methods.

d. Duration: FY 61 - FY 63.

e. Subtasks:

TRAINCREW I: Development and evaluation of proficiency tests, and improved methods and techniques for use in tank crew team training.

f. Products:

(1) Technical Report: Development and Evaluation of Tank Crew Proficiency Tests, in preparation.

g. Utilization of Products:

None, to date.

h. Research Support:

(1) Basic Man-Years:

Thru FY 62	3.1
FY 63	1.3
FY 64	.9

(2) Military Support: Approximately 50 tank crews were provided for testing. In addition, the U.S. Army Armor Center provided vehicles and range area for the testing.

i. Coordination:

Coordination was effected with and technical advice was provided by the U.S. Army Armor School.

3. Task VE-TRAIN

a. Title: Methods for Improving Training for Automotive Maintenance

b. Sponsor: U.S. Continental Army Command

c. Objective: To increase the effectiveness and efficiency of training for Army organizational automotive maintenance through advisory services and developmental activities.

d. Duration: FY 63 - In progress.

e. Subtasks:

VE-TRAIN I: Technical advice on the implementation of the training structure for MOS 631:

(a) Job requirements: Completed.

(b) Training objectives, lesson plans, and proficiency tests.

(c) Evaluation of the training structure for MOS 631.

VE-TRAIN II: Exploratory development of methods and materials for increasing transfer of learning in automotive maintenance training.

f. Products:

(1) Letter to CG, USCONARC: (Consulting Report) Subject: "Consolidation of Organizational Maintenance MOS 631 and 632", dated 30 April 1962. The letter outlined a multilevel organizational automotive maintenance career field with new, behaviorally stated MOS descriptions.

(2) Letter to CG, USCONARC: (Consulting Report) Subject: "Implementation of Organizational Vehicle Maintenance Training (Revised MOS 631)", dated 25 March 1963. The letter contained a technical critique of early POI proposals for the organizational automotive mechanic career field.

(3) Consulting Report: Job Requirements for Consolidated MOS 630, 631, and 632 (Automotive Mechanics), March 1964.

(4) Consulting Report: (TAS) Evaluation of the Equipment Serviceability Criteria for 2-1/2 Ton Truck M135; and for Full Tracked Tank M48A1, October 1963.

(5) Sample test: A Sample Test for Assessing Army Equipment Record System Proficiency, Specimen and DF, 10 October 1963.

g. Utilization of Products:

(1) Item 1, above, provided USCONARC with a guideline for a consolidated career field for vehicle mechanics. This proposal was submitted by USCONARC to Department of Army for approval and implementation.

(2) Item 2, above, provided USCONARC with information which re-directed the study efforts on the problem of consolidating and developing a career field for automotive vehicle mechanics.

(3) Item 3, above, contains the most up-to-date information on organizational mechanic job requirements. The information was obtained in a field survey conducted by a HumRRO-CONARC team. The findings have been used in the preparation of the proposed Army Subject Schedules and Programs of Instruction for vehicle mechanic training by the proponent schools. In addition, the findings will be used in specifying detailed training objectives for formal courses and on-the-job training and in the development of mechanic proficiency tests.

(4) Item 4, above, provided the U.S. Army Maintenance Board with a guideline which was used to direct revision and/or preparation of existing or future Equipment Serviceability Criteria forms.

(5) Item 5, above, contained a sample test which was incorporated into TM 38-750, Army Equipment Management. Additional comments on the training portion of this manual were submitted and incorporated.

h. Research Support:

(1) Basic Man-Years: FY 63 2.1
FY 64 1.3

(2) Military Support: A CONARC military-civilian team assisted in the interview of approximately 110 mechanics at Fort Hood in the determination of their job requirements. Trainees, provided by U.S. Army Training Center, Armor, were used in the evaluation of an experimental training program on electrical troubleshooting. Approximately 40 truck drivers and 60 tank crewmen were tested on their ability to apply the Equipment Serviceability Criteria. In addition, the U.S. Army Armor Center provided shop space, vehicles, and tools, as required.

Task VE-TRAIN

i. Coordination was effected and briefings were given to interested agencies, e.g., DCSIT, USCONARC: U.S. Army Maintenance Board; U.S. Army Armor, Infantry, Artillery and Guided Missile, and Ordnance Schools; U.S. Army Enlisted Evaluation Center; and appropriate U.S. Army training centers.

4. Task RECON

a. Title: Training Methods and Techniques for Improving Combat Readiness of the Armored Cavalry Platoon

b. Sponsor: U.S. Continental Army Command

c. Objective: To develop training program guidance, instructional aids, and techniques to improve the over-all proficiency of the Armored Cavalry platoon.

d. Duration: FY 63 - In progress.

e. Subtasks:

RECON I: Determination of job requirements for individual armored cavalry personnel: Completed.

RECON II: Preparation of tactical problems and development of armored cavalry platoon indoor training method: Completed.

RECON III: Preparation of training guidelines and improved training methods.

RECON IV: Demonstration and comparative evaluation of the proposed training methods.

f. Products:

(1) Research Memorandum: A Survey of Problems in the Tactical Training of Armored Cavalry Platoons, January 1963 (For Official Use Only). Published under Subtask UNIT III, administrative predecessor to Task RECON.

(2) Technical Report: The Determination of Combat Job Requirements for Armored Cavalry Platoon Personnel, in preparation.

g. Utilization of Products:

(1) Item 1, above, provided USCONARC with guidelines for the evaluation review of existing Armored Cavalry training programs, Armored Cavalry unit commanders with indicators of points of strength and weakness within their organizations, and this Unit with direction for the research and development program on Armored Cavalry training.

(2) Item 2, above, contains information which will be useful in (a) providing motivation for Armor School students by giving a preview of the requirements of the job; (b) evaluating platoon proficiency, diagnosing and remedying training deficiencies; and (c) developing and standardizing proficiency tests for the use of the agencies concerned.

Task RECON

h. Research Support:

(1) Basic Man-Years: FY 63 2.4
FY 64 2.9

(2) Military Support: Cavalry regiments both in CONUS and overseas were visited and approximately 150 members were interviewed. These interviewees included regimental commanders, squadron commanders, staff officers, company officers, and key NCO's. The USAARMC provided visual aids equipment and communication equipment for experimental training program.

i. Coordination:

Coordination was effected and briefings were given to interested agencies, e.g., G-3, Seventh Army; U.S. Army Armor School; Combat Developments Command, Armor Agency; 2d Armored Cavalry Regiment; 3d Armored Cavalry Regiment; 11th Armored Cavalry Regiment; 14th Armored Cavalry Regiment; 3d Armored Division; 3d Infantry Division; and Seventh Army Training Center.

5. Exploratory Study: Tactical Command Decision Making (ES-12)

a. Objective: To explore problems of isolating patterns of behavior, skills, and traits representative of effective military commanders in tactical decision-making situations.

b. Duration: FY 63 - In progress

c. Disposition:

Exploration will be continued to determine the feasibility of a research Task directed at identifying the key elements in the decision process, and developing training for improving the decisions.

d. Research Support:

(1) Basic Man-Years: FY 63 2.1
FY 64 1.7

(2) Military Support: The U.S. Army Armor Center has provided individual officers and men to serve as research subjects. No items of military equipment have been required.

6. Exploratory Study: Tank Crew Effectiveness (ES-17)

a. Objective: To collect and collate information which would provide the basis for the formation of concepts about the probable nature of the tank crew's technical and social compatibility in relation to its effectiveness.

b. Duration: FY 64 only

c. Disposition:

This effort was terminated as it did not seem to offer sufficient promise of useful results to warrant continuation.

d. Research Support:

(1) Basic Man-Years: FY 64 .6

7. Exploratory Study: Night Devices Training (ES-19)

a. Objective: (1) To study the feasibility of developing techniques for cycling day and night training so that performance under conditions of limited visibility will be improved, and (2) to provide guidance on human factors problems introduced by new night viewing devices.

Exploratory Study

b. Duration: FY 64 - In progress

c. Disposition:

This study was undertaken, as an outgrowth of Task ARMORNITE, to attempt to develop a technique for scaling the sensory (e.g., visual) requirements of various military tasks and relate these sensory requirements to training and performance. At the request of the U.S. Army Combat Developments Command Armor Agency, this study in FY 65 will be redirected to gauge the potential impact of advances to be expected in military operational doctrine and hardware systems for night operations. The study will now be focused on the effects that new night vision devices will have on achieving and maintaining effective performance at night.

d. Research Support:

(1) Basic Man-Years: FY 64 .5

e. Coordination: Coordination has been effected with U.S. Army Armor School; CDC, Armor Agency; Frankford Arsenal; Combat Surveillance and Target Acquisition Training Command; and U.S. Army Engineer Research and Development Laboratory.

8. Basic Research: Training Taxonomy (BR-8)

a. Objective: To develop a job task classification system that will permit prediction of optimal training procedures on the basis of systematically conceptualized task characteristics.

b. Reports:

(1) Research Memorandum: The Feasibility of Developing a Task Classification Structure for Ordering Training Principles and Training Content, January 1963.

c. Potential Benefits:

Work toward development of a taxonomy of training methods will be continued. Such a classification system, developed in terms of task characteristics found to be related to the effectiveness of various training procedures, would provide the basis for choosing the optimal procedure to be used in training for a particular task skill or knowledge. It would also permit instructors, administrators, and research specialists to communicate with greater precision in discussing training problems and exchanging ideas and materials.

Attempts by psychologists to build behavior classifications that would be applicable for training purposes have not as yet been successful, usually either because the selection of relevant facts has been too limited or because either broader or more specific concepts than those used have been needed. Drawing on the experience of other studies, earlier efforts under this Basic Research program have shown promise of success following further modifications in conceptualization and in methods of attack.

d. Research Support:

(1) Basic Man-Years: FY 63 .5
FY 64 .3

9. Basic Research: Shaping of Skills (BR-9)

a. Objective: To determine the laws that describe the relationship between the distribution of reinforcements and the rate of acquisition of skill, and the level of individual and group performance maintained over time.

Basic Research

b. Reports:

(1) Journal Article: "The Use of Schedule of Reinforcement to Regulate a Collective Team Response Rate," Psychol. Record, vol. 14, pp. 57-70, 1964.

(2) Journal Article: "Shaping of Three-Man Teams on a Multiple DRL-DRH Schedule Using Collective Reinforcement," J. exp. Anal. Behav., vol. 7, pp. 191-197, 1964.

c. Potential Benefits:

Continuing work towards efficient reinforcement schedules could provide significant reductions in time and money required for training; selected schedules might reduce or prevent the marked decrement in performance that often occurs after training has been completed and routine job requirements are imposed.

d. Research Support:

(1) Basic Man-Years: FY 63 1.1
FY 64 1.6

(2) Military Support: The U.S. Army Armor Center has supplied individuals to serve as research subjects. No items of military equipment have been required.

U.S. Army Training Center

Human Research Unit

TCHRU

U.S. ARMY TRAINING CENTER HUMAN RESEARCH UNIT

1. Task FIGHTER

a. Title: Factors Related to Effectiveness and Ineffectiveness of Individuals in Combat

b. Sponsor: U.S. Continental Army Command

c. Objective: To develop a systematic understanding of stress as a factor in human performance, with the long-range objective of application of results to improving combat effectiveness.

d. Duration: FY 53 - FY 64

e. Subtasks:

FIGHTER I: Characteristics of Fighters and Nonfighters: Completed.

FIGHTER II: Development of Combat Substitutes: Completed.

FIGHTER III: Survey of Rigorous Training in Service Schools: Completed.

FIGHTER IV: Development of Stressful Situations and Determination of Individual Reactions to Stress: Completed.

FIGHTER V: Principles Guiding the Modification of Individual Reaction to Severe Environmental Stressors: Completed.

FIGHTER VI: Engineering and Assessment of Procedures for Increasing Resistance to Stress.

f. Products:

(1) Staff Memorandum: Detailed Results of the FIGHTER I Assessment Program, February 1957.

(2) Technical Report: (44) FIGHTER I: An Analysis of Combat Fighters and Non-Fighters, December 1957.

(3) Special Report: (13) FIGHTER I: A Study of Effective and Ineffective Combat Performers, March 1958.

(4) Staff Memorandum: Field Stress: A Preliminary Study of Its Structure, Measurement, and Relationship to Combat, May 1957.

(5) Research Memorandum: Inferred Correlation Between Combat Performance and Some Field Laboratory Stresses, November 1958.

(6) Staff Memorandum: Observations of Seven Armed Forces Specialized Training Schools, February 1957.

(7) Staff Memorandum: The Construction, Validation and Application of a Subjective Stress Scale, February 1958.

(8) Research Memorandum: Human Psychophysiological Response to Stress: Successful Experimental Simulation of Real-Life Stresses, December 1959.

(9) Research Memorandum: Validity and Reliability of Certain Indicators of Psychological Stress, June 1960.

(10) Research Report: (10) Experimental Studies of Psychological Stress in Man, December 1962.

(11) Research Report: Effectiveness of Behavior Under Stress, in Preparation.

g. Utilization of Products:

(1) Data from the study of combat fighters and non-fighters were used by U.S. Army Personnel Research Office in developing current classification tests for assigning men to the combat arms or to the technical services.

(2) The findings of the studies on the development of experimental life-threat stress situations have been made available to all research workers concerned with combat stress.

(3) The remaining products of this Task extend existing knowledge and understanding of the processes and effects of stress. They are, therefore, of immediate utility to research workers interested in the improvement of performance under stress to products of utility to trainers interested in techniques and procedures for enhancing the stress-resistance of trainees.

h. Benefits to the Army:

Various insights into the stress process have been obtained. Now approaches will be taken to confidence-building training.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	35.2
FY 63	2.9
FY 64	3.2

(2) Unit Support: Considerable TDY and extensive laboratory and instrumentation support was necessary.

(3) Center Support: Troops and facilities furnished by U.S. Army Training Center, Infantry, Fort Ord.

(4) Subcontracts: Sixth Army Medical Laboratory, Fort Baker, for urine analyses.

Task FIGHTER

j. Surveillance:

Because of the nature of the Task, the Surgeon General's Office and the U.S. Army Personnel Research Office were kept informed of all activities and made inputs and comments of significance.

2. Task NCO

a. Title: Training of Potential Noncommissioned Officers

b. Sponsor: U.S. Continental Army Command

c. Objective: To improve the caliber of noncommissioned officer performance in the Army through curricula and techniques designed to develop noncommissioned officers as early as possible in their Army careers.

d. Duration: FY 53 - In progress.

e. Subtasks:

NCO I: Survey of Army NCO leadership training and NCO job duties: Completed.

NCO II: Development of experimental training program: Completed.

NCO III: Field evaluation of leadership training programs for light weapons infantry trainees.

f. Products:

(1) Information Report: A Follow-up Study of NCO Leaders School Graduates, September 1953.

(2) Staff Memorandum: Observations on a Number of Noncommissioned Officer Academies, May 1958.

(3) Staff Memorandum: A Critical Incident Study of Infantry, Airborne and Armored Junior Noncommissioned Officers, July 1958.

(4) Research Memorandum: Research on the Training of Noncommissioned Officers. Progress Report: NCO I, July 1960.

(5) Research Memorandum: Report of the Assessment Study Area of NCO II, February 1963.

(6) Research Memorandum: Report of the Course Compression Study Area of NCO II, March 1963.

(7) Research Memorandum: Report of the Leadership Orientation and Motivation Study Area of NCO II, April 1963.

(8) Research Memorandum: Report of the Integrated and Informal Leadership Training and the Fundamental Leadership Skills Study Areas of NCO II, May 1963.

(9) Research Memorandum: Leadership Climate for Trainee Leaders: The Army AIT Platoon, August 1963.

(10) Training Material: A Guide for the Potential Noncommissioned Officer, 3rd Edition, December 1961. (Now USCONARC Pamphlet #350-24, June 1963)

(11) Training Materials: Lesson Plans, Preview-Review sheets, Advance Sheets, Handouts, Tests and instructions and materials for use in establishing a Leader Preparation School.

(12) Training Materials: Automated Package: Scripts, Workbooks, Equipment, Instructor's Guide, Equipment Manual, Tapes, Film Strips, Copy of Draft Technical Report, Assessment measures for use in teaching the Leadership Functions Block of the NCO Leader Preparation Course and BCT Leader Orientation Course.

g. Utilization of Products:

(1) Leader Preparation Schools have been established at ten Army Training Centers (Forts Dix, Knox, Jackson, Sill, Leonard Wood, Polk, Gordon, Ord, Bliss and Sam Houston) for use in Combat Arms MOSs and Military Police and Medical MOSs, and at the U.S. WAC Training Center.

(2) Combining the efforts of Fort Ord ATC and Task NCO personnel, the BCT Leader Orientation Program was formulated, deriving format and materials from the Leader Preparation Program. USCONARC-directed pilot LOPs are currently being operated at Fort Ord and Fort Polk, with continuing Task NCO TAS.

(3) In cooperation with Army Pictorial Service, Task NCO personnel assisted materially in the production of three Army Training Films, titled "Introduction to Leadership" (TFs 21-3301, 21-3302, and 21-3303).

(4) Requests for materials have been processed from Reserve components and foreign allies (these requests having been referred through channels).

(5) Task personnel have acted in an advisory and liaison capacity to the Boy Scouts of America who are modeling their training program efforts after the methods and principles evolving from Task NCO research.

h. Benefits to the Army:

(1) The leader Preparation Course provides an expedient, practical, and effective method of preparing selected BCT graduates for junior NCO responsibilities in AIT. Following selection (on the basis of aptitude, interpersonal skills, adaptability to Army life, and willingness to participate in a Leader Preparation Program) in BCT, potential junior NCOs are sent to the two-week Leader Preparation School and

then to eight weeks of AIT. By acting as squad leaders or trainee assistant platoon sergeants in AIT the trainees receive practical experience in leadership as well as training in their MOSs. The Leader Preparation School provides a means for reaching and training potential junior leaders in any of the service commitment groups for a leader resource reservoir to meet mobilization requirements.

(2) The BCT Leader Orientation Program provides a method for systematically screening, earmarking, and expediting arrival in the BCT companies of potential BCT trainee leaders. Selected leaders are systematically and efficiently provided with a carefully designed set of BCT-oriented "need to know" skills and knowledges. Due to the high proportion of automated instruction, the LOP can be staffed with only two or three cadre per cycle.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	18.4
FY 63	2.4
FY 64	.7

(2) Unit Support: Extensive Technical Advisory Service was provided to the WAC in establishing a Leader Preparation Program which would be suited to their needs. Technical Advisory Service to the ATCs where the Schools are established is a continuing effort.

To facilitate implementation of the Leader Preparation Program, instruction Institutes have been conducted at Presidio of Monterey and at Fort Polk to prepare trainer personnel in the Program.

(3) Center Support: USATC, Fort Ord provided subjects, facilities, and experienced instructors.

j. Surveillance:

USATC, Fort Ord supplied valuable inputs to the development of the Leader Preparation Program. The BCT Leader Orientation Program was instigated and prepared by Fort Ord ATC personnel under the guidance of the TAS provided by Task NCO.

3. Task RIFLEMAN

a. Title: Improvement of the Combat Proficiency of the Light Weapons Infantryman

b. Sponsor: U.S. Continental Army Command

c. Objective: To improve the combat proficiency of the light weapons infantryman by conducting research in the area of AIT for this soldier.

d. Duration: FY 58 - In progress.

e. Subtasks:

RIFLEMAN I: Combat knowledges and skills required of the 1962 light weapons infantryman: Completed.

RIFLEMAN II: Devices required to accomplish the research mission of Task RIFLEMAN: Terminated as of 30 June 1961, device development being continued as required in later subtasks.

RIFLEMAN III: Techniques of employment and procedures of training for selected light infantry weapons, equipment, and tactics of 1962: Completed.

RIFLEMAN IV: Development of improved rifle squad tactical training for the light weapons infantryman.

RIFLEMAN V: Advanced land navigation: Completed.

f. Products:

Through FY 63, Task RIFLEMAN research was conducted at the U.S. Army Infantry Human Research Unit. During that time the following products were developed.

(1) Research Memorandum: The Combat Subjects and Corresponding Proficiency Levels Essential to the 1962 Training Program for the Light Weapons Infantryman (MOS 111.0), December 1958.

(2) Research Memorandum: Critical Combat Skills, Knowledges, and Performances Required of the 1962 Light Weapons Infantryman (MOS 111.), January 1961.

(3) Research Memorandum: RIFLEMAN II: An Advancing Small Arms Target, March 1959.

(4) Technical Report: Performance Evaluation of Light Weapons Infantrymen (MOS 111.0), Graduates of the Advanced Individual Training Course (ATP 7-17), December 1962.

(5) Research Memorandum: Instructor's Guide--Advanced Land Navigation. A Prototype Course, July 1963.

(6) Research Memorandum: A Series of Experimental Investigations of the Land Navigation Process, January 1964.

(7) Technical Report: (89) Advanced Land Navigation: Development and Evaluation of a Program of Instruction, May 1964.

g. Utilization of Products:

(1) Job description for the light weapons infantryman. This information has been incorporated into ATP 7-17, Advanced Individual Training, Infantry, and has also been used by the U.S. Army Infantry School in revising field manuals and Army Training Tests and in the development of an Intensified Combat Training Program. In addition, the Infantry School has reproduced 3,000 copies of this report for distribution to Infantry Officers' Orientation Course classes.

(2) Performance evaluation of light weapons infantrymen. Headquarters, USCONARC concurred with the recommendations contained in this report. The findings have been used by the U.S. Army Infantry School in revisions of training publications relevant to ATP 7-17, Advanced Individual Training, Infantry. USCONARC has called the attention of ATC Commanders to this report as a basis for improving the training given to Infantry replacements.

(3) Advanced land navigation course. USCONARC has directed that this program of instruction be combined with the program for basic trainees previously developed by HumRRO Task PATROL and taught in the AIT phase of training. An 18-hour program has been developed and is now being implemented in Infantry AIT programs at Army Training Centers.

h. Benefits to the Army:

This Task has provided a comprehensive job description of the performance, together with the component skills and knowledges, required of the light weapons infantry replacement engaged in combat. An evaluation of the ability of graduates of AIT, Infantry, to meet these requirements has been gathered and made available. An advanced land navigation course that significantly improves the ability of trainees to navigate over unfamiliar terrain under all conditions of visibility has been developed and implemented. A 52-hour course in squad tactics and patrolling has been developed and field tested. After revision indicated by the field test, this program will be integrated with the TRAINFIRE II program and presented for adoption.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	26.9
FY 63	4.0
FY 64	2.0

(2) Unit Support: Considerable TDY at Infantry ATCs was required.

(3) Center Support: Significant inputs were contributed to the Task by personnel from U.S. Army Infantry School, Fort Benning and each of the USATCs, Infantry.

j. Surveillance:

U.S. Army Infantry School was kept informed of Task efforts and all material developed was staffed through appropriate Sections, Departments, and Committees for comment and concurrence.

4. Task SWINGSHIFT

a. Title: Techniques and Training Methods for Improving Individual and Squad Infantry Performance in Operations During Limited Visibility

b. Sponsor: U.S. Continental Army Command

c. Objectives: To increase the individual soldier's effectiveness in infantry operations during limited visibility by development of improved operating techniques and training methods. Primary emphasis will be on operations for which surveillance equipment systems are not likely to be adequate.

d. Duration: FY 60 - 64

e. Subtasks:

SWINGSHIFT I: Identification of an infantry night-operating core curriculum and initiation of training research on a selected subject: Completed.

SWINGSHIFT II: Definition of critical perceptual tasks required during night operations.

f. Products:

Through FY 63, Task SWINGSHIFT research was conducted at the U.S. Army Infantry Human Research Unit. During that time the following products were developed.

(1) Research Memorandum: Review and Discussion of Tentative Operating Characteristics and Employment of Ground Surveillance Radar Authorized in the Infantry Battle Group (July 1959), April 1960 (For Official Use Only).

(2) Research Memorandum: A Provisional Core Curriculum for Infantry Night Operations Training: Conceptualization and Proposed Content, December 1960.

Task SWINGSHIFT was moved to the TRAINING CENTER HRU at beginning of FY 1964. Lack of staff has precluded further progress except for the preparation and distribution of the following report of research accomplished at the Infantry HRU.

(3) Research Memorandum: Moonlight and Night Visibility, January 1964.

g. Utilization of Products:

(1) Review of ground surveillance radar. At the time of publication this document provided the only centralized source of information on the

characteristics and use of radar equipment available to the Infantry Battle Group and, as such, enjoyed a wide demand distribution among Army infantry units.

(2) Core curriculum for night training. This document was used as a source of information by U.S. Army Infantry Schools, Fort Benning, in review and revision of night training for Infantry.

(3) Summary of information on visibility under low levels of natural illumination. This report will be an important source of information in further field studies and in planning night operations.

h. Benefits to the Army:

This Task has provided a comprehensive training curriculum designed to teach the basic skills and knowledges required for infantry operations under conditions of limited visibility. The development of a program of instruction based on this complete curriculum would better prepare the infantryman for participation in dismounted tactical operations under low levels of illumination. In addition, information pertinent to the conduct of night training and operations has been gathered from widely scattered sources and made available in the recent Research Memorandum.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	4.1
FY 63	1.0
FY 64	.3

(2) Unit Support: Usual clerical support

(3) Center Support: None required

j. Surveillance:

During development of the core curriculum and the review of radar equipment, USAIS and USA Second Infantry Division, Fort Benning made observation of night problems and training possible and contributed significant comments and inputs.

5. Task TRANSITION

a. Title: Human and Organization Factors Affecting the Civilian-Military Transition of Army Recruits

b. Sponsors: U.S. Continental Army Command
Office of the Deputy Chief of Staff for Personnel, Department of the Army

c. Objective: To improve the attitudes of the Army recruit so that he will be more willing to learn and to identify with the Army as an organization.

d. Duration: FY 62 - In progress.

e. Subtasks:

TRANSITION I: Effects of basic training platoon composition on attitudes toward military service.

TRANSITION II: Development of procedures for proficiency-based training.

f. Products:

(1) Task Paper: A Program for the Improvement of Recruit Training, February 1963.

(2) Research Report: Effects of Variations In Training Platoon Composition Upon Development of Recruit Attitudes During Basic Combat Training, in preparation.

g. Utilization of Products:

(1) The Task Paper listed as a product includes recommendations made previously in two oral briefings, one to the BCT Division, DCSIT, USCONARC, November 1962, the other to DCSPER, DA, December 1962. In addition to a discussion of the advantages of accelerated promoting the paper contains the following recommendations:

(a) Inauguration of a proficiency-based training program, with delegation to Training Center commanders of authority to graduate trainees upon demonstrated achievement of specific minimum standards.

(b) Preparation of a definitive Basic Training Manual to facilitate individual study.

(2) The above recommendations are reflected in Section IV, Recommended Actions, in a memorandum on Recruit Training prepared for the Secretary of the Army by the then Undersecretary, Stephen Ailes. The following specific recommendations are made in the Ailes Report under the heading of "Challenge to Trainees."

(a) The use of a textbook such as described in the HumRRO Study entitled "Transition."

(b) The adoption of a BCT test as described in the HumRRO Transition Study which, with other evaluations, will enable each recruit to earn a score reflecting appearance, attitude, effort, and physical and mental proficiency.

(c) The requirement of a minimum score for graduation from BCT.

(d) A system of promotion, assignment, and individual and unit awards based on achievement as measured by this test.

(3) BCT Division, DCSIT, USCONARC has prepared a basic training textbook or manual which is slated for general distribution in about July 1964 to replace FM 21-13, The Soldier's Guide.

(4) In cooperation with TRANSITION II, BCT Division, DCSIT, USCONARC has prepared and field tested a substantially revised version of ATT 21-2 which is slated for general adoption about July 1964. The revised ATT 21-2 covers comprehensively the BCT objectives established by the AD Hoc Conference, places a greatly increased emphasis on performance, and incorporates proficiency scores from Physical Combat Proficiency Test and weapons qualification. It consists of four parallel or alternate forms to insure comprehensiveness of testing and reduce "cramming" for specific test content.

(5) BCT Division, DCSIT, USCONARC has prepared a revision of ATP 21-114, slated for adoption about July 1964, requiring a minimum grade of 70% on ATT 21-2 for graduation from BCT and advancement to AIT and specifying a clear, articulated recycle policy for trainees failing the BCT proficiency test.

(6) USCONARC reply to the Ailes report recommends that the DA staff determine the feasibility of waiving approximately two months of service for promotion to E-2 for trainees who excel in BCT (not to exceed 10%). Senior officer and cadre schools will emphasize competitive programs which include appropriate awards.

h. Benefits to the Army:

The TRANSITION recommendations are directed to making the recruit's BCT experience a more challenging one--in the long range and fundamental interest of improving his attitudes toward the Army so that he will learn more readily to identify with its goals. Specific benefits anticipated are as follows:

(1) BCT textbook. The factual information which the recruit must learn in BCT will be provided in one single, clear, continuously available source. This will:

(a) permit and facilitate self-study,

(b) reduce cadre effort spent in information transmission,

(c) be clear exposition of what the trainee must know in order to graduate from BCT.

(2) Comprehensive performance test of proficiency

(a) Clear, implemented specification of the ATP training objectives to both trainors and trainees.

(b) Source of reliable, objective information to training organization on both the differential and the over-all quality of its product--trainee proficiency.

(3) Minimum score for graduation from BCT

(a) Insure known, minimum competence of input to AIT.

(b) Make clear to trainors and trainees that Army has a serious concern with the accomplishment of minimum BCT objectives.

(c) Give trainee early occasion to learn that his success in the Army depends on his own efforts and competence.

(4) Early promotion

(a) Provide incentive to trainee to make maximum effort to accomplish BCT objectives.

(b) Provide reward for exceptionally proficient trainees early in their Army experience and accelerate their advancement before they reach the first, crucial, re-enlistment decision.

i. Resources Expended:

(1)	Basic Man-Years:	Thru FY 62	2.4
		FY 63	1.8
		FY 64	2.5
(2)	Unit Support:	Extensive TAS was provided the BCT Division, DCSIT, USCONARC and Fort Ord ATC.	
(3)	Center Support:	USATC, Infantry, Fort Ord provided subjects and experienced Test Platoon personnel.	

j. Surveillance:

The following military organizations were briefed and made inputs and comments on this Task:

BCT Division, DCSIT, USCONARC
DCSPER, DA
Test Platoon personnel, USATC, Infantry, Fort Ord

6. Task RAID

a. Title: Methods for Improving the Effectiveness of Small Groups Under Stress

b. Sponsors: Office of the Assistant Chief of Staff for Intelligence, Department of the Army
Headquarters, U.S. Continental Army Command

c. Objective: To develop and test principles of group structure and operation, in order to provide guides for improving the effectiveness of small groups operating under stressful (decrement-producing) conditions.

d. Duration: FY 62 - FY 64. Transferred to Infantry Human Research Unit in FY 64.

e. Subtasks:

RAID I: Analysis of military problem and development of preliminary organizational and procedural guide for long-range reconnaissance patrol.

f. Products:

(1) Consulting Report: Summary of Human Factors Relevant to the Training of Long-Range Reconnaissance Patrol Companies in Seventh Army, January 1963.

(2) Research Memorandum: Comparison of Random Pairs and Real Pairs on a Simple Auditory Counting Task, March 1963.

g. Utilization of Products:

The data gathered in the Seventh Army on LRRP companies (including questionnaires administered to LRRP members concerning their training, duties, and equipment, interviews with key company and corps G2 personnel, and observations of patrols in action on FTXs) was provided the G2 in the V and VII Corps at their request.

h. Benefits to the Army:

The information contained in the Consulting Report provides a basis for the evaluation and perhaps revision of some of the practices and concepts used in the conduct of long-range reconnaissance patrols.

i. Resources Expended:

(1) Basic Man-Years: FY 62 2.4
FY 63 2.9

(2) Unit Support: TDY to Seventh Army.

(3) Center Support: Seventh Army support in conduct of interviews, observations, and questionnaires.

j. Coordination:

The Surgeon General's Office
Headquarters, Seventh Army
U.S. Army Intelligence School
Combat Surveillance and Target Acquisition Training Command
U.S. Army Combat Development Experimentation Center

U.S. ARMY TRAINING CENTER HUMAN RESEARCH UNIT

7. Task CENTER

a. Title: Improvement of Effectiveness of Basic Combat Training Graduates

b. Sponsor: U.S. Continental Army Command

c. Objective: To increase the effectiveness of the Basic Combat Training (BCT) graduate with respect to discipline, motivation, and initiative, primarily through study and manipulation of trainee-cadre relationships.

d. Duration: FY 64 - In progress.

e. Subtasks:

CENTER I: Development of measuring instruments for discipline, motivation, and initiative.

CENTER II: Selection of relevant BCT variables for experimental modification.

f. Products: None as yet. Exploratory pilot studies being conducted.

g. Utilization of Products: Not applicable at this time.

h. Benefits to the Army: Not applicable at this time.

i. Resources Expended:

(1) Basic Man-Years: FY 64 3.6

(2) Unit Support: Facilitation of small exploratory field studies.

(3) Center Support: Equipment borrowed from Fort Ord for field studies.

j. Surveillance: G-3, Fort Ord.

8. Basic Research: Nonverbal and Extraverbal Communication in Groups (BR-10)

a. Objective: To study fundamental aspects of the communication of information other than that which the communicator is consciously aware of or intends to communicate.

b. Reports:

(1) Research Memorandum: Need Aggression Measurement, October 1963.

(2) Papers prepared for publication:

"Strain Reduction in Interpersonal Relationships," September 1962.

"Correlation of Test Performance With Awareness of Personality State," April 1963.

"Effect of Preceding Rosenzweig's PF Test With the TAT," April 1963.

"A Checklist for Feelings of Hostility," April 1963.

"Examiner Influence on a Group Test Performance," August 1963.

"Effects of Simple, Noxious Stimulation in the Production of Aggressive Fantasy."

c. Potential Benefits:

The study included examination of the communication of attitudes, emotion, and motivation among members of a group and from a leader to his followers without the use of words, or by the use of meanings other than literal meaning of the words.

d. Research Support:

(1) Basic Man-Years:

Thru	FY 62	0.0
	FY 63	1.7

U.S. Army Infantry

Human Research Unit

IHRU

U.S. ARMY INFANTRY HUMAN RESEARCH UNIT

1. Task OFFTRAIN

   a. Title: Studies in Leadership and Leadership Training

   b. Sponsor: Headquarters, U.S. Continental Army Command

   c. Objective: To improve leadership training by the development of training procedures and materials based on study of the leadership process in platoon-sized units.

   d. Duration: FY 55 - FY 63. Completed. (Transfered from U.S. Army Leadership Human Research Unit in FY 60)

   e. Subtasks:

      OFFTRAIN I: Training leaders with sound films and group discussion techniques.

      OFFTRAIN II: Leadership behaviors at the platoon level in zone-of-interior divisions.

      OFFTRAIN III: Development of criteria for evaluating experimental leadership training.

      OFFTRAIN IV: Development of effective leadership training methods.

   f. Products:

      (1) Prototype: Manual for Instructors of Junior Officer Leadership Training, March 1955.

      (2) Technical Report: (27) Films and Group Discussions as a Means of Training Leaders, March 1956.

      (3) Prototype: A Guide for the Use of NCO Leadership Training Films, June 1957.

      (4) Research Report: (1) A Study of Leadership in Army Infantry Platoons, November 1958.

      (5) Research Report: (5) Leadership in Army Infantry Platoons: Study II, July 1960.

      (6) Prototype: Basic Problems in Small-Unit Leadership, February 1962.

      (7) Prototype: Instructor's Guide: Basic Problems in Small-Unit Leadership, February 1962.

      (8) Prototype: Practical Exercises: Basic Problems in Small-Unit Leadership, February 1962.

(9) Technical Report: (84) A Program of Leadership Instruction for Junior Officers, June 1963.

g. Utilization of Products:

(1) On the basis of the OFFTRAIN I research, USCONARC initiated the TRAINLEAD film program. Films have been distributed Army-wide and are in all Army Film Libraries. They are in use by service schools and units conducting officer and NCO leadership instruction.

(2) The 16-hour leadership course developed in OFFTRAIN IV was implemented by USCONARC in Advanced Course ROTC at all ROTC Universities and Colleges beginning with the 1962-63 school year. Appropriate ATP's were amended to reflect substitution of this 16-hour course for previous 10 hours. Some of the materials also are being used at West Point.

h. Benefits to the Army:

The development of the TRAINLEAD films provided the Army with a means whereby the young leader could gain experience in solving problems typical of those that small unit leaders face in actual practice. OFFTRAIN IV has furnished the Army with a 16-hour program of instruction in leadership for the student officer with emphasis on practical work that deals with the realistic, everyday problems of the small-unit leader.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	18.1
FY 63	.1

(2) Unit Support:

Leadership Activites Questionnaire was administered to 322 members of 46 platoons at Fort Riley during OFFTRAIN III research.

(3) Center Support:

OFFTRAIN III: 29 groups of 4 subjects each were used in a support experiment to study the effect of social desirability on behavior description.

OFFTRAIN IV: Presented to platoon leaders of three battle groups as trial administrations to provide the basis for refinement of student and instructor materials.

j. Coordination:

U.S. Army Infantry School
U.S. Army Infantry Center
U.S. Military Academy
Chief, Army Reserve and ROTC Affairs, Department of the Army
Chief, ROTC Division, USCONARC

2. Task RIFLEMAN

This Task was begun at the Infantry Human Research Unit and transferred to the Training Center Human Research Unit at the end of FY 63.

For report see Training Center Human Research Unit.

3. Task SWINGSHIFT

This Task was begun at the Infantry Human Research Unit in FY 60 and transferred to the Training Center Human Research Unit at the end of FY 63.

For report, see Training Center Human Research Unit.

U.S. ARMY INFANTRY HUMAN RESEARCH UNIT

4. Task UNIFECT

a. Title: Development of Procedures for Increasing the Effectiveness of Small Infantry-Type Units

b. Sponsor: U.S. Continental Army Command

c. Objective: To study training procedures utilizing task-related experiences to increase group esprit and improve team functioning of small infantry-type units.

d. Duration: FY 63 - In progress. (Preceded by an Exploratory Study, ES-9, during FY 62).

e. Subtasks:

UNIFECT I: Experimental study of the effects of early, task-related group manipulations on unit effectiveness.

UNIFECT II: Development and evaluation of squad and platoon tactical training.

f. Products:

(1) Research Memorandum: Some Determinants of Small-Group Effectiveness, October 1962.

(2) Research Memorandum: Pilot Studies of Team Effectiveness, February 1963.

(3) Research Report: Experimental and Theoretical Studies of Team Training Procedures, in preparation.

(4) Research Memorandum: Procedures for the Elicitation and Analysis of Team Coordinate Responses, in preparation.

g. Potential Benefits to the Army:

The reports listed as products should, when completed, furnish the Army information as to some of the factors operating among members of small groups which increase their motivation to work together effectively. The second subtask will attempt to establish training conditions which will produce habits of maximum cooperation and coordination among team members, thus increasing the effectiveness of small combat teams.

h. Resources expended:

(1) Basic Man-Years: FY 63 2.3
FY 64 3.9

(2) Unit Support: 4.5 Man-years to date.

(3) Center Support: 540 EM in 4 and 5 man teams for one day each. 5 KW Field generator set and operator for 79 days. Use of M79 Grenade Launcher range for two days with 50 rounds of ammo. Four EM to assist in the administration and mechanical operation of experimental range.

i. Coordination:

U.S. Army Infantry School

5. Task LEAD

a. Title: Development of Training for Improving the Combat Skills of Leaders in Small Infantry Units

b. Sponsor: U.S. Continental Army Command

c. Objectives: To improve officer training in the critical skills required for effective combat leadership in small infantry units.

d. Duration: FY 63 - In progress.

e. Subtasks:

LEAD I: Identification of critical combat leadership skills.

LEAD II: Experimental studies of training methods and materials.

f. Products:

(1) Technical Report: Report containing a statement of LEAD I training implications is in preparation.

(2) Manual: Procedures Guide for Infantry Platoon Leader, in preparation.

(3) Manual: Manual of Platoon Standing Operating Procedures (SOP's), in preparation.

(4) Manual: Manual containing a collection of critical combat events and analyses is in preparation.

(5) Manual: Fundamentals of Combat (Programmed Booklet), in preparation.

(6) Manual: Squad Formations and Battledrill (Programmed Booklet), in preparation.

(7) Research Report: An Evaluation of the Effect of Programmed Instruction Response Conditions on Acquisition and Retention Scores, in preparation.

g. Potential Benefits to the Army:

The products of this Task should provide the Army with improved training in combat leadership for the junior officer. The instructional techniques developed will decrease the amount of time required for such training, decrease the dependence of such training on the availability of terrain, and increase the complexity of the problem-solving experiences the student will have during training. The three manuals being compiled by LEAD I (Products (2), (3), and (4) listed above) will be based on the critical

combat skills and knowledges that the Infantry platoon leader must have; as training materials, they should be useful not only in the training of junior officers, but also in helping these officers train their units to operate effectively under combat conditions. The manuals in preparation by LEAD II (Products (5) and (6) above) will provide prototype instructional methods for teaching the skills identified in LEAD I.

h. Resources Expended:

(1) Basic Man-Years: FY 63 4.7
FY 64 3.9

(2) Unit Support: 4 Man-Years. 45 platoon leaders and 45 platoon sergeants were used as observers for 3 days each during visit of two staff scientists to Seventh Army in Germany.

(3) Center Support:

10 student officers - 3 hours each.
220 student officers - 5 hours each.

i. Coordination:

U.S. Army Infantry School
U.S. Military Academy

6. Task HIGHLEAD

a. Title: Training for Leadership at Senior Levels of Command

b. Sponsor: U.S. Continental Army Command

c. Objective: To improve officer training by developing materials designed to serve as a basis for instruction in leadership at senior levels of command.

d. Duration: FY 64 - Ongoing. (FY 63 Exploratory Study, ES-11)

e. Subtasks:

HIGHLEAD I: Preparation of a document to be used as a fundamental basis for instruction in leadership at senior levels of command.

f. Products:

(1) Training Document: Leadership at Senior Levels of Command in preparation.

(2) Journal Article: "Assumption of Command," Military Rev., vol. XLIV, no. 2, 1964.

g. Potential Utilization of Products:

The book, when completed, will provide the U.S. Army Command and General Staff College with a framework which can serve as a basis for instruction in leadership at senior levels.

h. Potential Benefits to the Army:

The book, when completed, will furnish the Army with a systematic analysis of command leadership--not to prescribe rules of how to lead but rather to provide understanding of why effective leadership is successful.

i. Resources Expended:

(1) Basic Man-Years: FY 64 1.1

(2) Unit Support: 1 man year. Two coordination visits were made to Command and General Staff College.

(3) Center Support: Not applicable.

j. Coordination:

U.S. Army Command and General Staff College

7. Task RAID

This Task was begun at the U.S. Army Training Center Human Research Unit in FY 62 and was transferred to the Infantry Human Research Unit at the end of FY 63. For a report of work up to that time, see Training Center Human Research Unit.

Because of lack of staff, no work was accomplished on this Task at the Infantry Human Research Unit during FY 64. The Task has been terminated.

8. Exploratory Study: ROTC Program (ES-16)

a. Objective: To consider various aspects of the ROTC program to determine what research activity might be undertaken to improve the program.

b. Duration: FY 64 only

c. Disposition:

Exploration of the potential areas of research resulted in formulation of Task ROCOM, which has been approved for inclusion in the FY 65 Work Program. Work in the Task will begin with determination of training objectives for the ROTC program and development of appropriate measures of knowledge and skill. A possible long-range third step may be development of improved ROTC training methods and materials.

d. Research Support:

(1) Basic Man-Years: FY 64 2.8

e. Coordination:

ROTC Division, Office Reserve Components, Department of the Army
ROTC Division, U.S. Continental Army Command
U.S. Army Infantry School
U.S. Army Personnel Research Office

U.S. Army Air Defense

Human Research Unit

ADHRU

U.S. ARMY AIR DEFENSE HUMAN RESEARCH UNIT

1. Task SAMOFF

a. Title: Training Requirements and Procedures for Surface-to-Air Missile Battery Officer

b. Sponsor: U.S. Continental Army Command

c. Objective: To develop well-defined training requirements for SAM battery officers and to increase the effectiveness of the methods and techniques used in school training and on-the-job training for these officers.

d. Duration: FY 57 - FY 63

e. Subtasks:

SAMOFF I: Job descriptions for SAM battery officer positions: Completed.

SAMOFF II: Assessment of the job proficiency of Nike-Ajax platoon leaders: Completed.

SAMOFF III: The development of procedures for determining the objectives for junior missile officer training courses.

SAMOFF IV: Improvement of Nike battery officers' proficiency in evaluating personnel performance.

f. Products:

(1) Staff Memorandum: Survey of Opinions of Graduates of the Surface-to-Air Missile Officer Basic Course, August 1958.

(2) Staff Memorandum: The Effect of Intercession and Altruistic Appeals Upon Questionnaire Return Rates, January 1959.

(3) Technical Report: (54) The Development of Job Descriptions for NIKE AJAX Battery Officers, April 1959.

(4) Prototype: Job Requirements of the NIKE AJAX Battery Commander (USARADCOM Permanent Site), April 1959.

(5) Prototype: Job Requirements of the NIKE AJAX Battery Executive Officer (USARADCOM Permanent Site), April 1959.

(6) Prototype: Job Requirements of the NIKE AJAX Integrated Fire Control Platoon Leader (USARADCOM Permanent Site), April 1959.

Task SAMOFF

(7) Prototype: Job Requirements of the NIKE AJAX Launcher Platoon Leader (USARADCOM Permanent Site), April 1959.

(8) Research Memorandum: Weighted Scores, Ranks, and C-Scale Scores for Evaluated Activities of Job Descriptions of NIKE AJAX Battery Officers, June 1959.

(9) Technical Report: (62) The Revision of NIKE Platoon Leader Job Descriptions: AJAX to HERCULES, May 1960

(10) Prototype: Job Descriptions for NIKE HERCULES (Universal) Platoon Leaders, May 1960.

(11) Test: SAMOFF Proficiency Test (NIKE AJAX Platoon Leaders), August 1959.

Test Director's Manual
Team Captain's Manual
Examination Manuals
- Station 1 Operational Readiness Checks
- Station 2 Battery Control Officer
- Station 3 Operator Evaluation
- Station 4 Console and Panel Operation
- Station 5 Missile and Launcher Inspection
- Station 6 Missile Servicing
- Station 7 Extra Duty Assignments
- Station 8 Platoon Administration

(12) Technical Report: (66) Measurement of the Job Proficiency of NIKE AJAX Platoon Leaders, October 1960 (For Official Use Only)

(13) Prototype: List of Activities of Fire Control Platoon Leaders (N-H), December 1961.

(14) Research Report: Explanation and Description of Junior Officer Jobs, in preparation.

(15) Research Report: Development of Procedures for Deriving Training Objectives for Junior Officers, in preparation.

(16) Prototype: Procedures for Deriving Training Objectives for Junior Officers, in preparation.

(17) Prototype: Technical Appendices to "Procedures for Deriving Training Objectives for Junior Officers," in preparation.

(18) Technical Report: Report on programmed instruction for junior officers, in preparation.

(19) Prototype: SAMOFF Self-Instruction Manuals (Programmed instruction for junior officers in the NIKE HERCULES system), in preparation.

Section A	Important Controls and Indicators on the Battery Control Console
Section B	15-Minute Alert Procedures (General Outline)
Section C	15-Minute Alert Procedures (Detailed Description)
Section D	Power Checks (Battery Control Area)
Section E	Launcher Acquire and Command Checks (Battery Control Area)
Section F	Gyro Azimuth Transmission Check (Battery Control Area)
Section G	Introduction to Data Recorder Tape Reading
Section H	Simultaneous Tracking Test
Section I	Dynamic Check: Courses 1 and 2
Section J	General Information on Some Other Battery Control Area Checks

g. Utilization of Products:

(1) Job descriptions for junior officers in Nike Ajax and Nike Hercules batteries have been widely distributed in ARADCOM and in ARADSCH for use in training junior officers.

(2) General statements of training objectives, one task description, and officer proficiency tests, were made available to ARADSCH personnel for consideration in program planning for Course 44-A-C20.

h. Benefits to the Army:

This Task has provided job description information to ARADCOM and to ARADSCH which has been used in planning the training of junior officers. It has developed a comprehensive and systematic procedure by which service schools may describe junior officer jobs, and may derive, validate, and update training objectives for officer orientation courses. This Task has also developed approximately 20 hours of programmed instruction which officers can use either in formal training or while on the job to learn certain critical checks and procedures in the Nike Hercules system.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	15.9
FY 63	2.0
FY 64	2.1

(2) Unit Military Support: 17 man months by enlisted personnel

(3) Center Support: Experienced air defense personnel made available for interviewing, pretesting, and review of various portions of job-task descriptions, questionnaires, proficiency tests, and programmed instructional material.

(4) ARADCOM Support: Task personnel visited many ARADCOM units to interview personnel and to collect data. In addition, several hundred mailed questionnaires were returned by ARADCOM battery officers.

j. Surveillance:

Subtask draft reports were reviewed by ARADSCH, and suggestions were made to make the recommendations more useful to the Army. Briefings and discussions have been presented and/or various prototype materials have been made available to CONARC, ARADCOM, ARADSCH, OGMS, QMS, and INFSCH personnel.

2. Task MAINTRAIN

a. Title: Maintenance Proficiency and its Relation to Training Procedures for Guided Missile Personnel

b. Sponsor: U.S. Continental Army Command

c. Objective: The purpose of this Task is to develop a comprehensive set of training procedures and principles that will be applicable to the problems involved in the training of personnel who will maintain Army Air Defense weapon systems.

d. Duration: FY 58 - FY 64

e. Subtasks:

MAINTRAIN I: Experimental program for fire control technicians: Completed.

MAINTRAIN II: Analysis of troubleshooting procedures: Completed.

MAINTRAIN III: Knowledges and skills required to maintain the Nike-Ajax missile: Completed.

MAINTRAIN IV: Identification of effective practices in industrial training programs: Completed.

MAINTRAIN V: The design and evaluation of selected literature for Nike missile maintenance.

f. Products:

(1) Research Report: (2) Some Problems in the Analysis of Trouble Shooting Behavior, October 1959.

(2) Technical Report: (60) Experimental Comparison of Two Basic Electronics Courses for Fire Control Technicians, February 1960.

(3) Research Memorandum: Current Practices in Electronics Training in Industry, May 1960.

(4) Research Memorandum: A Survey of Organizational Maintenance of the Nike Ajax Missile, July 1960.

(5) Research Memorandum: An Annotated Bibliography on the Trouble-shooting of Electronic Equipment, March 1962.

(6) Research Report: The Development and Evaluation of Improved Troubleshooting Manuals, in preparation.

(7) Manual: Guide to the Preparation of Improved Troubleshooting Manuals, in preparation.

g. Utilization of Products:

(1) MAINTRAIN I was the final step in demonstrating how training time for electronics technicians could be reduced without loss of proficiency. As a result of this and earlier studies, the length of the Basic Electronics course at the Air Defense School was reduced from 12 weeks to 6 weeks.

(2) The proficiency testing techniques employed in MAINTRAIN I have been adopted for routine use by ADS.

(3) Job description techniques developed in MAINTRAIN V were used by ADS in the preparation of guidelines for Tasks and Skills Analysis for MAULER.

(4) The Air Defense Center, Board, and Combat Developments Agency have concurred in the recommendation to use techniques developed in MAINTRAIN V for preparation of troubleshooting manuals for a future air defense system.

h. Benefits to the Army:

This Task provided the final demonstration of a technique for reducing course length in Basic Electronics without reducing proficiency of graduates. This has resulted in a substantial reduction in training costs at ADS. Task personnel trained the original proficiency testing team at ADS, thus making possible improved quality control for ADS graduates. Task and Skills Analysis for MAULER (and future systems) should be more useful because of the improved guidelines. When the improved troubleshooting manuals become available, substantial improvements in troubleshooting proficiency among electronics technicians should be found. Prior to that time, the manual building techniques developed in this Task will permit the development of special texts that should permit more effective training and a reduction in attrition at ADS.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	14.1
FY 63	1.4
FY 64	.5

(2) Unit Military Support: 5 man years

(3) Center Support: MAINTRAIN I - ADS trained one class of technicians using experimental POI. ADS also furnished radars and test equipment for use in testing the graduates of the course.

MAINTRAIN V - ADS devoted approximately two man-months to the development and administration of a troubleshooting test. Field Printing Plant printed approximately 600 pages of classified materials (approximately 400 copies).

(4) Subcontracts:

(a) MAINTRAIN III - performed under contract to American Institute for Research, Philadelphia, Penn.

(b) MAINTRAIN V - mathematical analysis of electronic circuits performed by Schellenger Research Laboratory, Texas Western College, El Paso, Texas

j. Surveillance:

Coordination has been maintained with Air Defense School, Air Defense Board, Air Defense Combat Developments Agency, and 1st GM Brigade.

3. Task TEXTRUCT

a. Title: Methods of Instruction in Technical Training

b. Sponsor: U.S. Continental Army Command

c. Objective: To produce new or improved methods of instruction applicable to Army technical training courses.

d. Duration: FY 59 - FY 63

e. Subtasks:

TEXTRUCT I: Preliminary investigation of new methods of instruction: Completed.

TEXTRUCT II: Development and evaluation of principles of content programming.

f. Products:

(1) Research Memorandum: An Annotated Bibliography on the Automation of Instruction, July 1959.

(2) Training Material: Pocketschool Series in Mathematics, 1960-1963.

(3) Research Memorandum: Results of Exploratory Investigations Conducted for the Purpose of Planning a Research Program on Instructional Methods, March 1961.

(4) Research Memorandum: Teaching Machines and Programmed Instruction - Some Factors to Consider in Implementation, August 1961.

(5) Research Memorandum: A Procedural Guide to the Programming of Instruction - Preliminary Report, March 1962.

(6) Consulting Report: The Text of an Orientation Workshop in Automated Instruction, July 1962.

(7) Prototype: Procedural Analyses for the Use of Three Pieces of Test Equipment: OS-8 C/U Oscilloscope, TS-505 A/U VTVM and TS-352 A/U Multimeter, August 1962.

(8) Training Material: First Week of Basic Electronics, December 1962.

(9) Manual: A Handbook for Programmers of Automated Instruction, September 1963.

(10) Research Memorandum: Evaluation of an Auto-Instructional Program on the First Week of a Basic Electronics Course, March 1964.

g. Utilization of Products:

The guidance documents concerned with implementation of programmed instruction within the Army have been given wide distribution. For example, some 1700 copies of the Programmer's Handbook have been sent to all Schools, Training Centers, and other Army agencies. In addition, at the request of USCONARC, special programmer training workshops have been conducted at Forts Bliss, Lee, and Benning.

h. Benefits to the Army:

Much interest in and use of programmed instruction in the Army can be directly related to the guidance documents provided by this task. The number of courses and parts of courses that have been converted to programmed instruction have continued to increase. The special requirement within programmed instruction for behaviorally stated training objectives has also contributed directly to the emphasis, within training establishments, upon clearer formulations of such objectives.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	13.2
FY 63	3.5
FY 64	.3

(2) Unit Military Support:

(a) The preparation of experimental programs and the use of Unit personnel as trial subjects -- 7 enlisted men, totaling 13 man-years.

(b) Design and construction of experimental equipment - 3 man-years.

(3) Center Support: Support given by USAADCEN has included students and classroom space, and support by USAADS has included students, facilities, and assistance in administering materials for testing.

j. Surveillance:

During the development of the program in basic electronics, coordination was maintained with USAADS, particularly with Basic Electronics Division, Electronics Department.

4. Task VIGIL

a. Title: Training Surface-to-Air Missile Operator Personnel

b. Sponsor: U.S. Continental Army Command

c. Objective: To improve the training of operator personnel assigned to surface-to-air missile units by studying the process whereby the necessary knowledges and skills are acquired.

d. Duration: FY 59 - In progress.

e. Subtasks:

VIGIL I: Development of job requirements, proficiency tests, and training requirements for Nike system launcher and assembly area operators: Completed.

VIGIL II: Training requirements for radar operators: Completed.

VIGIL III: The relative utility of simulated and live firings for missile service practice: Completed.

VIGIL IV: Investigation of vigilance behavior: Completed.

VIGIL V: Target Detection Training.

f. Products:

(1) Research Memorandum: The Accuracy of Two Modes of Radar Tracking for Two Visual Noise Levels, May 1960.

(2) Research Memorandum: Detectability on a PPI Scope as a Function of Target Velocity and Noise Level, February 1961.

(3) Technical Report: (72) Development and Use of Proficiency Tests for Nike System Launching Platoon Operators, August 1961.

(4) Technical Report: (73) Radar Tracking Accuracy as a Function of Training and Task Variables, October 1961.

(5) Research Report: (8) A Survey and Analysis of Vigilance Research, November 1961.

(6) Research Memorandum: Target Detectability on an A-Scope as Influenced by Vertical and Horizontal Video Amplification, February 1962.

(7) Research Memorandum: The Effects of Pairing, Rest Intervals, Signal Rate, and Transfer Conditions on Vigilance Performance, March 1962.

(8) Technical Report: (79) An Attempt to Develop a Radar Operator Screening Test: A Report of Simulator Instability, June 1962.

(9) Research Memorandum: The Relation Between Radar Detection and the Observer's Concept of a Target, June 1962.

(10) Research Report: Vigilance Performance as a Function of Task and Environmental Variables, May 1963.

(11) Technical Report: (85) A Filter Method of Adjusting PPI's, June 1963 (For Official Use Only).

(12) Research Bulletin: (10) Vigilance: A Guide to Improved Performances, October 1963.

(13) Journal Article: "Monetary Incentives and Vigilance," J. Exper. Psychol., vol. 67, no. 2, February 1964.

g. Utilization of Products:

(1) Radar operator techniques designed and tested by ADHRU and USAADS personnel have been employed by USARADCOM to increase the low altitude capabilities of Nike air defense systems.

(2) Recommendations concerning the design and use of radar target simulators for training and proficiency testing have been approved and adopted by ARGMA and CONARC.

(3) Implementation of a standardized radar scope adjustment procedure developed in VIGIL II has been directed by CONARC.

(4) A human factors guide has been distributed at the user level to provide commanders with the information necessary to maintain high performance levels of personnel engaged in monitoring tasks.

h. Benefits to the Army:

(1) This Task has provided the Army with information concerning the target detection and target tracking capabilities of air defense missile operator personnel in both normal and electronic counter measures (ECM) environments.

(2) Methods of proficiency test construction have been furnished the USAADSCH.

(3) Information concerning the design and specifications of radar operator training simulators has been furnished to appropriate agencies.

(4) Various radar target detection training techniques and methods have been developed and tested.

(5) Techniques for increasing the efficiency of personnel engaged in monitoring tasks have been developed and tested.

(6) Job aids designed to increase the detection proficiency of radar operators have been developed and tested.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	14.1
FY 63	2.7
FY 64	2.9

(2) Unit Military Support:

(a) Device development - 1.5 man-years.

(b) Enlisted assistant - 1.5 man-years.

(c) Approximately 1 man-month as subjects.

(3) Center Support:

(a) The USAADCEN has furnished 450 man-days of experienced and inexperienced air defense operator personnel in support of research activities.

(b) Center equipment support has included radar target simulators, Nike fire control systems, and Nike launcher systems.

(c) USAADCEN personnel have also furnished technical advice.

j. Surveillance:

(1) Close contact has been maintained with agencies concerned with the training and utilization of Army Air Defense missile personnel. Various departments of the USAADS have normally furnished equipment and support personnel as well as information sources for VIGIL research efforts. The USADHRU and USAADS have jointly researched problems of common interest.

(2) Concurrence and guidance given by CG AD Center, April 1964, CG AD School, April 1964, and CO CDC ADA, March 1964.

5. Task TRADER

Task TRADER was a Director's Office Task in which Subtask III, Air Defense System Simulation and Training Device Problems, was conducted by the Air Defense Human Research Unit.

For the report on the activities under Task TRADER, see Training Methods Division. For subsequent work by the Air Defense HRU, see Task RINGER in this section.

6. Task ARGUS

a. Title: Analysis of Nuclear Safety Requirements

b. Sponsor: Deputy Chief of Staff for Military Operations

c. Objective: To simplify nuclear warhead mating procedures employed in the Nike Hercules Missile System.

d. Duration: FY 63 - FY 64. Completed.

e. Subtasks:

ARGUS I: Simplification of warhead assembly procedures.

ARGUS II: Objective inspection procedures for warhead section mating.

f. Products:

(1) TM 9-1100-250-12 was rewritten and submitted to Picatinny Arsenal to be used as a model for technical manual preparation.

g. Utilization of Products:

Picatinny Arsenal was furnished rewritten technical manual to use as a model for writing technical manuals.

h. Benefits to the Army:

This Task has provided a simplified text and improved format for TM 9-1100-250-12 which, if employed as a performance guide, should reduce the probability of human error in the performance of warhead section assembly operations. This revision serves as a model for the preparation of future technical manuals. The Task has, in addition, provided a model for the development of objective procedures for the evaluation of technical proficiency in warhead section mating procedures.

i. Resources Expended:

(1) Basic Man-Years FY 63 1.9
FY 64 .4

(2) Unit Military Support: None.

(3) Center Support: Two people attended one week of school on Nuclear Warhead Mating Procedures at the Air Defense School; two months' observation warhead mating procedures, 1st Guided Missile Brigade.

Task ARGUS

j. Surveillance:

Concurrence and guidance furnished by DCSOPS, Oct 1961, Pres AD Board, Jul 1962, DCSOPS Nuc Coord Gp, Sept 1962, FLD Comd DASA, Oct 1962, CG ARADCOM, Oct 1962, OSWD, Sept 1962, USA Test and Eval Cmd, Sept 1962, CG AD Center, Sept 1962, CG CONARC, Nov 1962.

7. Task RINGER

a. Title: Fidelity Requirements for Training Devices

b. Sponsor: Chief of Research and Development

c. Objective: To provide Army training personnel with objective information about the degree of appearance fidelity and functional fidelity required by training devices used to train men to perform fixed procedure tasks.

d. Duration: FY 64 - In progress

e. Subtasks:

RINGER I: The effect on proficiency of lowering functional fidelity of a training device.

RINGER II: The effect on proficiency of reducing the size of a training device.

RINGER III: The effect on proficiency of altering the housing of a training device.

f. Products:

(1) Research Memorandum: A Test of a Method of Converting Proficiency Scores to Learning Time Scores, June 1964.

(2) Research Memorandum: Some Research Findings on Fidelity of Training Devices for Fixed Procedures Tasks, in preparation.

g. Utilization of Products:

If the field test sustains RINGER findings, the 1st Air Defense Guided Missile Group (Trg) of 1st Air Defense Guided Missile Brigade (Trg) plans to investigate substitution of inexpensive, low-fidelity training devices for part of training now conducted with tactical equipment.

h. Potential Benefits to the Army:

The Task may result in realizing substantial monetary savings in reduced cost of training devices.

i. Resources Expended:

(1) Basic Man-Years: FY 64 2.2

(2) Unit Military Support: Device construction - 9 man-months

(3) Center Support: Subjects - 270 trainees for 5 hours each

(4) Facilities: Use of one building for testing subjects periodically for 18 months

j. Surveillance:

Concurrence and guidance given by CG AD Center, Apr 1964, CG AD School, Apr 1964, Pres AD Board, Apr 1964, CO CDC ADA, Mar 1964.

8. Exploratory Study: Aircraft Recognition (ES-31)

a. Objective: To examine potential training procedures in aircraft detection and recognition, suitable primarily for use in Basic Combat Training or Advanced Individual Training, but having application in certain other courses as well.

b. Duration: FY 64 - In progress

c. Disposition:

This study is a successor to the Exploratory Study on Air Defense AIT (ES-13) in the FY 64 Work Program. That inquiry into feasibility of improving air defense AIT procedures was terminated when suitable research areas could not be readily identified. The present study developed from discussion with U.S. Army Air Defense School in regard to training and employing the Redeye system, and will be approached in terms of the problems in aircraft detection and recognition facing the Redeye gunner.

With the advent of long-range missiles following World War II, training and research in visual recognition and range estimation have been given little attention. The development of forward area weapons such as Redeye will require the development of visual skills, and the demands on the gunner will be much greater because of the greatly increased target capabilities.

It appears probable that this study will develop into a research Task in FY 65. The aim would be to develop means and procedures to train gunners to a higher degree of skill in target recognition and ranging and indicate development of equipment to maintain this skill in the field.

d. Research Support:

(1) Basic Man-Years: ** FY 64 .5

e. Coordination:

U.S. Army Air Defense School

9. Exploratory Study: Auto-Instructional Methods (ES-14)

a. Objective: To determine critical gaps in knowledge about auto-instructional methods by examination of current military and civilian research activities in this rapidly expanding field, and to identify fruitful areas for HumRRO research.

b. Duration: FY 64 only

Exploratory Study

c. Disposition:

Exploration of the subject area has led to the establishment of a Basic Research effort, Programmed Instruction (BR-11), which has been approved for inclusion in the FY 65 Work Program. Success in this research effort should contribute not only to improved effectiveness of program production activities within the Army but should also provide information relevant to the general technology of instruction.

d. Research Support:

(1) Basic Man-Years: FY 64 .9

e. Coordination:

Informal coordination has been initiated with personnel from U.S. Army Air Defense School. Concurrence and guidance have been provided by CG AD Center, Apr 64, and CG AD School, Apr 64.

10. Basic Research: Index to the Learning Literature (BR-5)

a. Objective: To explore the problems of developing an indexing system for identifying and systematizing scientific information on learning.

b. Potential Benefits:

Improvements in system for classifying scientific and technical information on learning would provide an improved basis for an information retrieval system for learning and training research. The research program was terminated in FY 63 for higher-priority activities. The information which had been gathered was used as a basis for consultation by the HumRRO representatives on the Ad Hoc Army committee which was assembled to prepare the Army's proposal for the STINFO system.

c. Research Support:

(1) Basic Man-Years: Thru FY 62 1.1
FY 63 .2

11. Basic Research: Textual Material (BR-7)

a. Objectives:

(1) To describe accurately how readable and comprehensible any technical discourse material is, and (2) to discover rewriting rules which will make such material more readable and comprehensible.

b. Reports:

(1) Research Memorandum: An Overview of the Conceptual Structure of Subtask PIONEER VII, July 1963.

(2) Research Memorandum: Effects of Certain Statistical Characteristics of Sets of Related Sentences Upon Learning, in preparation.

c. Potential Benefits:

(1) The first objective is being pursued through the study of statistical and grammatical characteristics of technical discourse which determine its level of complexity and hence the difficulty with which it will be read and comprehended. The ultimate aim is to develop a formula which is a more valid basis for establishing the readability and comprehensibility of material than any of the existing formulas. A valid readability formula would serve as a checking device on all contents produced for use in Army training.

(2) In furtherance of the second objective, whenever rules promoting more effective reading and comprehension are discovered, they will be made available for utilization by personnel preparing training materials. Valid rewriting rules would provide explicit guidance on how to revise material found unacceptably unreadable according to the readability formula to be developed.

d. Resources Expended:

(1) Basic Man-Years:

FY 62	.7
FY 63	1.2
FY 64	2.2

(2) Unit Military Support: Approximately nine man-months have been expended upon the development and manufacture of laboratory devices used in the conduct of its research program.

(3) Center Support: Present data-collection operations will require support in the form of subjects (first year Army EM) at the rate of 250 man-days per year.

U.S. Army Aviation

Human Research Unit

U.S. ARMY AVIATION HUMAN RESEARCH UNIT

1. Task LIFT

a. Title: Army Aviation Helicopter Pilot Training

b. Sponsor: Headquarters, U.S. Continental Army Command

c. Objective: To develop more efficient and effective training methods for Army helicopter pilot training.

d. Duration: FY 56 - FY 63. Completed.

e. Subtasks:

LIFT I: Survey of Army aviation primary helicopter pilot training.

LIFT II: Development of reliable, analytic measures of student helicopter pilot proficiency.

LIFT III: Survey of operational rotary and fixed wing pilot activities.

LIFT IV: A quality control system for rotary wing pilot training.

f. Products:

(1) Staff Memorandum: Survey of Army Cargo Helicopter Pilot Course, June 1957.

(2) Prototype: Instructor Patter for H-23 Helicopter Training, 1957 and several revisions.

(3) Prototype: Instructor Patter for H-13 Helicopter Training, 1957.

(4) Prototypes: Pilot Performance Description Records, measuring instruments covering primary and advanced flight maneuvers for the OH-13, OH-23, UH-19, CH-21, and CH-34 helicopters.

(5) Prototype: Manual of Instruction: Use of Pilot Performance Description Records in Flight Training Quality Control, 1959, (rev) 1963.

(6) Technical Report: (75) Survey of Operational Flying Activities of Rotary Wing Aviators, April 1962.

(7) Technical Report: (76) Survey of Operational Flying Activities of Fixed Wing Aviators, April 1962.

(8) Technical Report: (77) Improving Flight Proficiency Evaluation in Army Helicopter Pilot Training, May 1962.

(9) Consulting Report: A System of Flight Training Quality Control and Its Application to Helicopter Training, June 1963.

g. Utilization of Products:

(1) Proficiency measurement: The Pilot Performance Description Record (PPDR) from LIFT II has been implemented as the basis for administering all check-rides at the U.S. Army Primary Helicopter School (USAPHS).

(2) Quality Control: The quality control system from LIFT IV has been implemented at USAPHS.

(3) Patter Books: The OH-23 patter books have been implemented at USAPHS.

(4) Operational Activity Surveys: These documents provided basic source material for school planning and have also been used as sources of information for inputs to CDC studies.

h. Benefits to the Army:

This Task has provided a means of objectively measuring helicopter performance that is more reliable than the formerly used methods. It has greatly increased standardization in both instruction and check-rides. The quality control system provides the school with a continuous measure of the quality of its output and serves as a means of identifying instructional and program deficiences. This Task has further provided the Army with a comprehensive statement of what Army aviators are required to do on the job in all theaters of operation. This provides both a basis for determining training objectives and input for certain CDC studies.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	14.8
FY 63	.5
FY 64	.1

(2) Unit Support: Extensive TDY was necessary on this Task due to the effort at USAPHS, Fort Wolters and to the world-wide survey effort of LIFT III.

(3) Center Support: Support given by USAAVNC and USAPHS included use of helicopters, instructors, and students.

j. Surveillance:

Due to the diverse nature of activities under this Task almost all agencies of Army aviation have been contacted and briefed, and have made inputs or comments on this Task. The USAPHS and USAAVNS were, of necessity, regular particpants in the activities.

2. Task OBSERVE

a. Title: Improved Methods for Training Aerial Surveillance Personnel

b. Sponsor: Headquarters, U.S. Continental Army Command

c. Objective: To develop improved methods for training aerial observers.

d. Duration: FY 58 - FY 63

e. Subtasks:

OBSERVE I: A study of improved methods for training of personnel in visual aerial observation: Completed.

OBSERVE II: The development of an automated course of instruction for unit aerial observers.

f. Products:

(1) Research Memorandum: A Field Test of Visual Detection and Identification for Real and Dummy Targets, April 1959.

(2) Research Memorandum: Research on Human Aerial Observation, Part I: Summary, July 1960.

(3) Research Memorandum: Research on Human Aerial Observation, Part II: Description of Tactical Field Test, July 1960.

(4) Research Memorandum: Research on Human Aerial Observation, Part III: Summary Data from Tactical Field Tests, July 1960.

(5) Research Memorandum: Training Research on Low Altitude Visual Aerial Observation: A Description of Five Field Experiments, July 1962.

(6) Technical Report: (80) Low Altitude Aerial Observation: An Experimental Course of Instruction, October 1962.

(7) Technical Report Supplement: (80) Training Materials for Aerial Observer Instruction in Basic Visual Skills, October 1962. (Incorporated in revision of AR 95-51, Aerial Observer Training, February 1962, and FM 1-80, Aerial Observer Training, February 1962.)

(8) Training Materials: Observer training materials, including a set of 781 color slides of military equipment and associated maps and folders for use in classroom training.

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A SUMMARY OF PROGRAMMED WORK IN PROGRESS FY 63-64: TASKS, EXPLO--ETC(U)
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(9) Training Materials: Programed text materials for aerial observer training, administrative manual, achievement tests, and proficiency test (19 volumes).

(10) Technical Report: Programed Instruction and Low Altitude Aerial Observation, in preparation.

g. Utilization of Products:

(1) Training Course: The OBSERVE-developed course is the Army standard observer training course as a result of publication of revised AR 95-51 and FM 1-80.

(2) Training Materials: The color slides and associated maps developed by this Task have been borrowed on a number of occasions by various field units and by the U.S. Army Aviation School. The 2d Infantry Division, Fort Benning, and the 11th Air Assault Division, Fort Benning, recently used these materials in their observer training.

(3) Task personnel administered the programed text materials to four officers of the 73d Aviation Company just prior to that unit's departure for Viet Nam. In addition, that unit duplicated the OBSERVE I color slides to take to Viet Nam for further training use.

(4) Publication of the programed texts as a DA Technical Manual has been recommended to USCONARC and is under review.

h. Benefits to the Army:

This Task has provided the Army with an effective and more efficient training program for low altitude visual aerial observation. Techniques and procedures useful at higher altitudes would not suffice at lower altitudes, so new techniques and training were developed. The programed texts will provide an effective medium for unit training in the critical observer skills, while reducing the requirement for trained instructors.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	8.1
FY 63	1.3
FY 64	.2

(2) Unit Support: TDY for field testing.

(3) Center Support: Use of aircraft, terrain, and test subjects.

(4) Subcontract: Subcontract support for field test development in amount $35,000 was supplied by Human Sciences Research Inc.

Task OBSERVE

j. Surveillance:

This Task was sponsored by the Deputy Chief of Staff for Intelligence, USCONARC. Coordination was effected with various intelligence agencies, including the U.S. Army Intelligence School at Fort Holabird. The Department of Tactics, USAAVNS provided constant input and support.

3. Task INTACT:

a. Title: Integrated Contact/Instrument Training.

b. Sponsor: Headquarters, U.S. Continental Army Command

c. Objective: To improve Army flight training through the application of the integrated contact/instrument training concept.

d. Duration: FY 59 - FY 63

e. Subtasks:

INTACT I: Determination of the effectiveness of the integrated contact/instrument training concept for Army fixed wing training.

f. Products:

(1) Staff Memorandum: A Summary of Prior Research on Integrated Contact/Instrument Flight Training, June 1958.

(2) Technical Report: Effectiveness of Integrated Contact/Instrument Flight Training in Army Fixed Wing Training, in preparation.

(3) Training Materials: Integrated Contact/Instrument Flight Training, Fixed Wing Primary, experimental flight syllabus, January 1961.

Primary Fixed Wing Contact and Instrument Flight Manual, November 1960.

Pilot Performance Description Records (8 forms for O-1 and TL-180 aircraft).

Daily Progress Record, Primary Training, (3 forms for O-1 and TL-180 aircraft).

Daily Progress Record, Advanced Contact (1 form for O-1).

Daily Progress Record, Advanced Instruments (1 form for U-6A).

g. Utilization of Products:

Evaluation of the integrated training program, which was requested by U.S. Army Aviation School, showed that the program did not have sufficient advantage over conventional training to warrant its adoption by the Army with present training equipment. Advantages shown by integrated training and side-by-side seating training aircraft would make

this concept feasible should the Army procure a fleet of primary training (non-tactical) aircraft. Such procurement is actively considered for rotary wing primary and instrument training aircraft and for fixed wing instrument training.

h. Benefits to the Army:

This Task provided the Army an evaluation of a training concept of considerable interest to them (USAAVNS had conducted a small-scale study of the concept in 1956-57 before requesting that HumRRO undertake a large-scale evaluation in Task INTACT). The study showed that the advantages of this training concept alone are not sufficient to justify expenditure of funds to procure suitable training aircraft for integrated training. In addition, objective measures of fixed wing flight performance were developed. The data collected are the most complete in existence on Army fixed wing student performance and will provide a source for basic study of flight skills in years to come.

i. Resources Expended:

(1)	Basic Man-Years:	Thru FY 62 7.0 FY 63 .4
(2)	Unit Support:	TDY to Camp Gary. Training of instructor and check pilots.
(3)	Center Support:	Use of aircraft, instructors, and students. Additional flight time for instructor and check pilot training.
(4)	Subcontract:	Lease of 16 Cessna-180 aircraft and spare parts for same were provided through funds from DCSOPS, DA and OCRD, DA, in amount approximately $133,000. These aircraft replaced a like number of O-1's in the training fleet and, consequently, the monies that were programed for operation of the O-1 aircraft.

j. Surveillance:

This Task was monitored quite closely by USAAVNS due to their interest and and to the sizable support and coordination requirement.

4. Task LOWENTRY:

a. Title: Methods for Improving Navigation Training for Low Altitude Flight.

b. Sponsor: Headquarters, U.S. Continental Army Command

c. Objective: To improve navigation techniques for low altitude flight and to develop training methods to teach these skills to aviator personnel.

d. Duration: FY 61 - In progress

e. Subtasks:

LOWENTRY I: An analysis of the training requirements for low altitude navigation.

LOWENTRY II: Development of a Program of Instruction for low altitude navigation.

f. Products:

(1) Consulting Report: Pictorial Navigation Displays and Low Altitude Navigation, May 1964.

(2) Research Memorandum: The Influence of Map Scale, Subject Task, and Coordinate Scale Usage on Map Locational Accuracy, May 1964.

(3) Consulting Report: Survey of Factors Influencing Low Altitude Navigation, in preparation.

(4) Training Test: Navigation for Army Aviators, in preparation.

(5) Research Memorandum: A Field Study of Map Locational Accuracy, in preparation.

(6) Research Memorandum: The Effect of Training on Accuracy of Angle Estimation, in preparation.

g. Potential Utilization of Products:

This Task is not to the point at which the products are utilized, although inputs have been made to U.S. Army Aviation School and other agencies. It is anticipated that it will provide the basic framework for a new navigation training program for Army aviation. The Task staff have been consulting recently with DOT, USAAVNS on changes in their training in this area.

The survey of low altitude navigation factors will be a basic source document for low altitude operations. Much of this information has already been used as input to CDC. It is anticipated that task and

training requirements information which has been developed will lead to SDR's in the instrumentation and job aid areas, as well as to new map and cockpit QMR's.

h. Benefits to the Army:

This effort will provide the Army with a system for low altitude navigation and training in this area. In addition, it will lead to development of equipment necessary for maximum operational effectiveness in low altitude navigation.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	2.6
FY 63	2.5
FY 64	2.1

(2) Unit Support: No unusual requirements.

(3) Center Support: Minor amounts of flight time.

j. Surveillance:

Original concern grew out of Aviation Test Board "Man-Machine Study" in which the Aviation HRU was responsible for the human factors evaluation. Recent concern by DOT, USAAVNS.

5. Task TRADER

Task TRADER was a Director's Office Task in which Subtask IV, Aviation Simulator and Training Devices Problems, was conducted by the Aviation Human Research Unit.

For the report on the activities under Task TRADER, see Training Methods Division. For subsequent work by the Aviation HRU, see Tasks ECHO and ROTOR in this section.

6. Task HELFIRE:

a. Title: Methods for Improving Aerial Gunnery Training in the Armed Helicopter

b. Sponsor: Headquarters, U.S. Continental Army Command

c. Objective: To develop instructional techniques for improving performance in aerial gunnery from the armed helicopter.

d. Duration: FY 63 - In progress

e. Subtasks:

HELFIRE I: Survey of human factors problems in the armed helicopter during low altitude flight.

HELFIRE II: Development of a standard of performance.

f. Products: None, as yet.

g. Utilization of Products:

This Task has not reached the utilization stage.

h. Potential Benefit to the Army:

This Task will provide bases for measurement of nap-of-the-earth helicopter operator and gunnery proficiency. It will allow valid determination of major training problem areas.

i. Resources Expended:

(1) Basic Man-Years: FY 63 2.6
FY 64 3.1

(2) Unit Support: TDY

(3) Center Support: Use of aircraft, subjects, TDY funds, ammunition, and range areas has been requested. Action pending.

j. Surveillance:

Inputs and revisions made by DCSUTR, USCONARC. Recent coordination with DOT, USAAVNS.

7. Task ECHO:

a. Title: Synthetic Flight Training Programs and Devices

b. Sponsor: Headquarters, U.S. Continental Army Command

c. Objective: To evaluate current Army aviation synthetic training and selected devices, and to establish guidance for effective utilization of flight training devices.

d. Duration: FY 64 - In progress. (Predecessor activities included Task REFLECT which could not be staffed; Task TRADER, a HumRRO-wide task; and technical advisory services to Aviation Test Board and USAAVNS.)

e. Subtasks:

ECHO I: Survey of Current Synthetic Flight Training.

ECHO II: Synthetic Devices in Rotary Wing Contact Training.

ECHO III: Synthetic Devices in Rotary Wing Instrument Training.

f. Products:

(1) Research Memorandum: A Survey of Utilization of Synthetic Training Devices at CONUS Aviation Field Units, in preparation.

g. Utilization of Research Products:

(1) Various trainer evaluations (2-B-5, 2-B-12, 2-B-12A) made in the predecessors to this Task or in TAS have been included in the Reports of Test of the Aviation Test Board. On the basis of research results and other considerations, U.S. Army Aviation School deleted procurement of five additional 2-C-9 trainers. With reference to a report on the relative effectiveness of Device 2-C-9 and the photographic mockup device the Commandant, USAAVNS reported to CG, USCONARC in June 1962: "This report could affect the design of future procedures training devices. It seems to show a break-through in training device concepts,..."

(2) As a result in part of recommendations made in the 2-B-5 and 2-B-12 device evaluations CONARC directed a study of aviation training device requirements which led to Tasks ECHO and ROTCR.

h. Potential benefit to the Army:

While the benefit to the Army from use of training devices can be great, experience has shown that the Army does not achieve maximum benefit from its devices. The research in ECHO II seeks to improve

this situation. In addition, it may help reduce training costs by early identification of problem students, as well as from possible flight-time savings.

i. Resources Expended:

(1) Basic Man-Years: FY 64 2.3

(2) Unit Support: Nothing unusual.

(3) Center Support: Use of devices, test subjects, and aircraft.

(4) Subcontract: Funds from USCONARC in amount $200,000 for procurement and maintenance of four Whirlymite Hovering Trainers.

j. Surveillance:

Most activities have been in cooperation with USAAVNS and Aviation Test Board. ECHO II involves close coordination with USAPHS.

8. Task ROTOR:

a. Title: Implications of Aircraft Characteristics and Task Difficulty for Design of Rotary Wing Training Devices

b. Sponsor: Office of the Chief of Research and Development

c. Objective: To develop, evaluate, and apply a method for analyzing the task of helicopter control in relation to task difficulty, trainer characteristics and cost, and transfer of training.

d. Duration: FY 64 - In progress.

e. Subtasks:

ROTOR I: Helicopter Control Task Dimensions and Their Relative Difficulty.

ROTOR II: Study of Training Device Characteristics and Transfer of Training.

f. Products: None, as yet.

g. Utilization: This Task is not yet to a stage that permits utilization.

h. Potential Benefits to the Army:

Results of this research will allow for better determination of training devices requirements and of characteristics of training devices. In addition, the analysis of the helicopter control tasks in terms of the information requirements and sources upon which the pilot bases his decisions, the pilot behaviors required to maintain control, and the difficulty of the various piloting tasks should add to knowledge of learning of complex psycho-motor skills involved in flying.

i. Resources Expended:

(1) Basic Contract: None.

(2) Unit Support: None required other than supervision.

(3) Center Support: None required.

(4) Subcontracts: This entire effort is being conducted on subcontract with Life Sciences, Inc. Two contracts in amount of approximately $15,000 and $94,000 support this effort. Services of this firm were desired so that the Army could avail itself of the unique experience of the firm's personnel in the human factors aspects of helicopter flying and simulator design.

Task ROTOR

j. Surveillance:

Cognizance for this task rests at CCRD, DA. Direct supervision of the research is exercised by the U.S. Army Aviation Human Research Unit.

Language and Area Training Division

LATD

LANGUAGE AND AREA TRAINING DIVISION

1. Task CONTACT

a. Title: Development of Training Procedures for Faster Acquisition of Perishable Tactical Information From Non-English-Speaking Prisoners of War

b. Sponsor: Headquarters, U.S. Continental Army Command

c. Objective: To develop methods of training troops in the acquisition of highly perishable tactical information from non-English-speaking prisoners in the combat zone. A course based on such methods would be intended for selected combat personnel whose work would complement rather than substitute for the efforts of the highly trained linguist-interrogator.

d. Duration: FY 58 - FY 64

e. Subtasks:

CONTACT I: Development and evaluation of methods of training for the rapid acquisition of language skills: Completed.

CONTACT II: Construction, programming, and evaluation of an empirical, limited tactical language course.

CONTACT III: Investigation of procedures for limited tactical language training in Mandarin Chinese.

f. Products:

(1) Research Report: (9) Development and Evaluation of Training Methods for the Rapid Acquisition of Language Skills, January 1962.

(2) Research Report: Development and Evaluation of a Limited Language Russian Course, in preparation.

(3) Prototype Materials: How-To-Do-It Manual, How to Construct and Evaluate a Foreign Language Course Designed to Enable the Acquisition of Perishable, Tactical Information From Newly Captured POW's, in preparation.

(4) Research Report: Development and Evaluation of a Mandarin Chinese Limited Language Course, in preparation.

(5) Technical Report: A Basic Foreign Language Training Program for the U.S. Army, in preparation.

(6) Prototype Materials: A complete set of master language tapes (Russian language) and a complete set of related printed materials.

(7) Prototype Materials: A complete set of master language tapes (Mandarin Chinese) and a complete set of related printed materials.

(8) Prototype Materials: A set of specifications for equipment (tape recorders and cartridges) for use in the Russian and Mandarin Chinese courses.

g. Utilization of Products:

Recommendations for implementation are being prepared for discussion with the sponsor and other interested agencies. Implementation decisions will be made following these presentations.

h. Benefits to the Army:

The immediate benefits are training techniques and materials to enable large numbers of troops to learn limited language skills. The specific skills are those needed to elicit perishable information from newly captured POW's and as an aid in escape and evasion operations. However, results of the project also lay a foundation for a self-instructional training system aimed at providing foreign language training of a wider scope.

i. Resources Expended:

(1) Basic Man-Years:

Thru FY 62	10.5
FY 63	2.7
FY 64	2.0

(2) Support Requirements: Relatively minor support was required from the military (10 enlisted men as subjects for 30 days).

j. Coordination:

Pertinent intelligence and language-teaching agencies, including ACSI, G-2, CONARC and the Defense Language Institute have shown interest in and have been kept informed on this research.

LANGUAGE AND AREA TRAINING DIVISION

2. Task SPECIAL

a. Title: Training in Special Warfare, Counter-Insurgency and Related Missions

b. Sponsor: Headquarters, U.S. Continental Army Command

c. Objective: To increase the capabilities of Army personnel to perform Special Warfare, counter-insurgency and related unconventional missions through improved training and operational procedures.

d. Duration: FY 63. Terminated; succeeded by Task AREA and Task CIVIC.

e. Subtasks: None

f. Products:

(1) Research Memorandum: A Bibliography on the Role of Air Power in Guerrilla and Counterguerrilla Operations, November 1962.

(2) Research Memorandum: Unconventional Warfare, An Annotated Bibliography of Paperback Books, August 1962.

(3) Research Memorandum: Counterinsurgency Training, A Selected Subject Bibliography, November 1962.

(4) Research Memorandum: Guerrilla Warfare Readings, December 1962.

g. Utilization of Products:

The bibliographies and the book of readings were designed primarily for instructor and student use in various Army schools concerned with counterinsurgency and guerrilla activities. Requests for these publications from Army schools, units, individuals, and from organizations outside the military have been filled. The original printing of 500 copies of the Readings has been nearly exhausted.

h. Benefits to the Army:

(1) The bibliographies which have been distributed bring together under the same covers a comprehensive list of references for subjects which have been treated in a wide diversity of original publications. The book of readings provides case study material and expositions of various subjects in guerrilla warfare which should be of value to instructors, students, and other personnel concerned with guerrilla and counterinsurgency activities.

(2) Task personnel provided advisory services to the Army on the training of Special Forces radio operators, and on language training for Special Forces personnel.

Task SPECIAL

j. Coordination:

Special Warfare Center
Special Forces Groups
Special Operations Research Office
Office of the Deputy Chief of Staff for Military Operations

3. Task MALT

a. Title: Construction of a Short, Automated Vietnamese Language Course

b. Sponsor: Office of the Chief of Research and Development

c. Objective: To develop a short, automated instructional course designed to enhance U.S. Armed Forces language capability in Vietnamese. Such a course would be intended primarily for Military Assistance Training Advisory personnel and others going to South Vietnam for whom more extensive language training is not feasible.

d. Duration: FY 64

e. Subtasks:

MALT I: Construction and evaluation of a short, automated Vietnamese course.

f. Products:

(1) Research Memorandum: Some Language Aspects of the U.S. Advisory Role in South Vietnam, November 1963.

(2) Prototype Materials: One set of lesson tapes and associated material constituting the Vietnamese Language Course.

(3) Technical Report: Construction and Evaluation of a Short Automated Vietnamese Language Course, in preparation.

g. Potential Utilization of Products:

(1) Training: The self-instructional, functional, audio-lingual Vietnamese course is intended for use by Military Assistance Training Advisory personnel, Special Forces, and other U.S. personnel for whom more extensive training is unfeasible.

(2) Skill refresher and/or maintenance use: The course is sufficiently mobile to permit distribution to students in Vietnam so that they may use it to refresh and/or augment their Vietnamese verbal repertoire.

h. Potential Benefits to the Army:

(1) Pending final evaluation of the course, the prospects are that personnel assigned to Vietnam will now have available to them a self-instructional device that is effective in teaching them basic (South) Vietnamese phonology, syntax, and some useful vocabulary.

(2) An effective self-instructional course would be expected to produce personnel with at least minimal language skills at a relatively low cost per student, at the same time solving the problem of the scarcity of Vietnamese-speaking instructors.

(3) The results of experimental comparisons in the course evaluation phase may constitute important inputs in regard to decision making in future courses in the Research and Standards Division, Defense Language Institute.

i. Resources Expended:

(1) Basic Man-Years: FY 64 1.1

(2) Support Requirements: About 20 military personnel will be required as subjects for experimental evaluation, each to devote an estimated 100 hours to this support activity. The probable sites of the evaluation are the Special Warfare Center, Fort Bragg and Defense Language Institute, West Coast Branch.

j. Coordination:

Defense Language Institute

4. Task AREA

a. Title: Development of Concepts and Techniques in Area Training

b. Sponsor: U.S. Continental Army Command

c. Objective: To increase the effectiveness of area training programs by broadening the concept of area training and by developing improved instructional techniques.

d. Duration: FY 64 - In progress

e. Subtasks:

AREA I: Survey of selected concepts and techniques for area training.

AREA II: Development of techniques for simulating some critical aspects of working in a foreign culture.

f. Products:

(1) Research Memorandum: Cross-Cultural Problems of U.S. Army Personnel in Laos and Their Implications for Area Training, in preparation (For Official Use Only).

(2) Research Memorandum: Examples of Cross-Cultural Problems Encountered by Americans Working Overseas: An Instructor's Handbook, in preparation.

g. Utilization of Products:

(1) The report on cross-cultural problems of U.S. Army personnel in Laos will be useful to instructors in area training programs.

(2) The findings of AREA I will provide information about possible improvements that could be made in area training. Utilization of information and principles from the social sciences should furnish a basis for evaluation of training objectives and techniques in courses to prepare personnel for overseas missions.

(3) The Instructor's Handbook of examples of cross-cultural problems should be useful in the design of classroom lectures in courses for advisory and technical assistance personnel going abroad.

(4) AREA II will be an attempt to provide the Army with training situations to provide practice in coping with critical working conditions overseas. The focus of training situations will be on cross-cultural barriers involved in face-to-face communication. During FY 65 the most feasible forms of the simulations will be determined by means of a series of trial runs. The final products

planned for the Army are a series of simulations in a form suitable for implementation in area training.

h. Benefits to the Army:

Work now in progress will provide improvements in area training by adapting to it the best of existing techniques and principles from social science, by making the content of the instruction more responsive to actual field conditions overseas.

i. Resources Expended:

(1) Basic Man-Years: FY 63 .6
FY 64 2.7

(2) Support Requirement: Approximately 30 experienced military personnel have been interviewed for an estimated average of two hours each. Their continued support is anticipated. One enlisted man serves as a research assistant.

j. Coordination:

The activities and products of AREA are of interest and application to a large number of organizations in the Army and also in government and in outside private organizations who have need for or sustain programs in area training. Hence the requirements and coordination for AREA have been responsive to the experiences of many people, some of whom are the Military Assistance Institute, Special Operations Research Office, Agency for International Development, Foreign Service Institute, Peace Corps, United States Information Agency, and National Training Laboratories.

5. Task CIVIC

a. Title: Problems in Education and Training for Civic Action

b. Sponsor: U.S. Continental Army Command

c. Objective: To identify and solve problems in the education and training of United States and Allied military personnel for civic action.

d. Duration: FY 63 - In progress

e. Subtasks:

CIVIC I: Guidelines for training U.S. Army personnel for civic action planning.

CIVIC II: Improvement of civic action training through application of lessons learned from past socioeconomic development projects.

f. Products:

(1) Research Memorandum: Human Factors in Civic Action: A Selected Annotated Bibliography, June 1963.

(2) Journal Article: "The Process of Cross-Cultural Innovation," International Development Rev., vol. VI, no. 2, June 1964.

g. Utilization of Products:

(1) Numerous requests from various types of Army and government activities have been filled for the Bibliography. It is designed primarily as an aid for trainees or instructors developing lesson plans.

(2) The guidelines for training personnel for civic action surveys will be of value to the Civil Affairs School, in modifying present instruction and teaching aids so that they will more closely correspond to actual field operations.

(3) Subtask II will isolate and clarify some of the important dimensions which correlate to successful and unsuccessful cross-cultural innovation efforts by Americans in overseas settings. The information will be used by Army schools offering Civic Action instruction and by field personnel who have responsibility for selecting and planning Civic Action projects.

h. Benefits to the Army:

Results of these and any subsequent subtasks will provide information which will be useful in modifying existing courses or lesson plans,

developing new courses or lesson plans, or modifying instructional techniques. They may also be of direct value to field personnel involved in Civic Action Planning or operations. In either case, this new knowledge should contribute to the Army officer's effectiveness in carrying out his Civic Action assignment.

i. Resources Expended:

(1) Basic Man-Years: FY 63 .4
FY 64 2.3

(2) Support Requirements: Support of overseas commands to permit research personnel to accompany Civic Action survey teams is essential. Subtask II will require cooperation of the Agency for International Development to permit interviews of returned personnel and access to their files.

j. Coordination:

U.S. Army Civil Affairs School
U.S. Army Special Warfare Center
U.S. Army Combat Developments Command Civil Affairs Agency
U.S. Army Forces, Southern Command
Special Operations Research Office
Agency for International Development
Peace Corps

6. Task MAP

a. Title: Development of Materials for Use in Training Personnel for Military Assistance Advisory Duties

b. Sponsor: Assistant Chief of Staff for Force Development, Department of the Army

c. Objective: To improve the effectiveness of military assistance advisors through the development and application of improved techniques and job-oriented training materials. These techniques and training materials will facilitate effective working relationships between advisors and their counterparts in the host military organizations.

d. Duration: FY 64 - In progress

e. Subtasks:

MAP I: Determination of advisor training content.

MAP II: Development of training material and methods.

f. Products:

(1) Research Report: Advisor-Counterpart Interactions in the MAP to the Republic of China Army, in preparation.

(2) Research Report: Advisor-Counterpart Personality Preferences Among Personnel in the MAP to the Republic of China Army, in preparation (For Official Use Only).

g. Potential Utilization of Products:

Reports in preparation will contain information potentially useful to the Military Assistance Institute and to other training organizations responsible for the training of MAAG personnel. Studies of the job activities of MAAG personnel will be continued in Fiscal Years 1965 and 1966 with the goal of providing guidelines on the training of U.S. personnel for advisory functions in underdeveloped countries.

h. Resources Expended:

(1) Basic Man-Years: FY 64 1.1

(2) Personnel Support: Approximately 300 MAAG personnel spent two to four hours each in interviews and completion of questionnaires.

Task MAP

1. Coordination:

Coordination is being effected with interested agencies and commands, including the Office of the Assistant Secretary of Defense, International Security Affairs; U.S. Continental Army Command; and Military Assistance Institute. A requirement for research on problems covered by this project has been stated formally by Headquarters, USARPAC.

LANGUAGE AND AREA TRAINING DIVISION

7. Task CULTECH:

a. Title: Technical Training Across Cultural Barriers

b. Sponsor: Headquarters, U.S. Continental Army Command

c. Objective: To develop improved techniques for training personnel of underdeveloped countries in the technical skills required by modern armies.

d. Duration: FY 64

e. Subtask:

CULTECH I: Study of difficulties encountered by foreign military students in learning selected man-machine tasks.

f. Products:

(1) Research Memorandum: A Survey of Academic Achievement of Allied Students in U.S. Army Technical Schools, in preparation.

g. Utilization of Products:

This report will provide USCONARC with information of value in suggesting possible modifications of the Foreign Military Training Program. These modifications will be expected to increase the effectiveness of the program.

h. Benefits to the Army:

The report on the survey of the academic achievement of foreign students in U.S. Army technical schools will include (1) the most objective information obtainable concerning the course grades of foreign students, (2) information concerning the relationship between English language competence and course performance and (3) opinions and recommendations of U.S. instructors as to how the effectiveness of the program might be increased.

i. Resources Expended:

(1) Basic Man-Years: FY 64 .6

j. Coordination:

Office of Foreign Military Training, Deputy Chief of Staff for Operations
Defense Language Institute

LANGUAGE AND AREA TRAINING DIVISION

8. Task AUTOSPAN

a. Title: Development and Evaluation of a Self-Instructional Method for Learning a Foreign Language.

b. Sponsor: Defense Language Institute

c. Objective: To develop and evaluate a self-instructional method for learning a foreign language.

d. Duration: FY 64 - In progress

e. Subtasks:

AUTOSPAN I: Development and evaluation of a self-instructional method for learning the audio-lingual skills of a foreign language.

AUTOSPAN II: Development and evaluation of a self-instructional method for learning the reading and writing skills of a foreign language.

f. Products:

This research has been only recently initiated, and no products have yet been developed. Products planned include (1) a self-instructional foreign language course, and (2) guidelines for constructing similar courses for other languages of the same language family.

g. Benefits to the Army:

This Task will produce and evaluate a prototype foreign language course covering the fundamental skills. Such courses are expected to substantially increase the effectiveness of informal foreign language instruction and to help solve problems stemming from shortages of native speakers qualified to teach.

h. Resources Expended:

(1) Basic Man-Years: FY 64 .4

(2) Military Support: No extensive support requirements are contemplated.

i. Coordination:

The Defense Language Institute will be the prime coordinating agency. Other governmental agencies such as the Foreign Service Institute and private organizations such as the Center for Applied Linguistics will be kept informed of progress.

LANGUAGE AND AREA TRAINING DIVISION

9. Task REFILL

a. Title: Field and Laboratory Investigation of Selected Factors in Foreign Language Learning

b. Sponsor: Defense Language Institute

c. Objective: To increase the effectiveness of foreign language-training systems in meeting U.S. Army requirements by studies on selected factors involved in the language teaching-learning process.

d. Duration: FY 64 - In progress

e. Subtasks:

REFILL I: A survey of language instruction techniques.

REFILL II: Investigation of procedures for optimal instruction in the phonology of a foreign language.

REFILL III: Studies of on-the-job application of language skills.

f. Products: None, as yet.

g. Potential Utilization of Products:

(1) The REFILL I survey results will (a) provide objective inputs regarding variation in foreign language pedagogy to DLI and others concerned with the control of training standards and requirements; and (b) suggest neglected areas in foreign language teaching for potential subsequent research.

(2) REFILL II will, through laboratory experimentation, seek some definitive procedures for improved instruction in the phonology of a foreign language.

(3) REFILL III findings should help to provide critical information to DLI regarding field criterion data on language utilization and communication. The relation between such a criterion and more immediate course achievement criteria is in need of investigation. The efficacy of various achievement predictors, training methods, and incentives may well have to be reviewed in the light of anticipated immediate-ultimate criterion discrepancies.

h. Benefits to the Army:

REFILL survey results and experimental findings are expected to increase the over-all effectiveness of foreign language instruction for U.S. Armed Forces personnel.

Task REFILL

i. Resources Expended:

(1) Basic Man-Years: FY 64 .9

(2) Support Requirements:

(a) REFILL I: It is anticipated that an estimated 20 military installations will be visited for a period of about four days each, in the course of contacting instructors and students.

(b) REFILL III: It is estimated that 200-300 military personnel will be contacted for the purpose of interviews and completion of questionnaires, utilizing an average of 2 to 3 hours per individual.

j. Coordination:

U.S. Army Personnel Research Office
Foreign Service Institute
U.S. Office of Education
U.S. Information Agency
National Security Agency

Supplement

Reports of Previous Research Prepared During FY 63-64

SUPPLEMENT

Reports of Previous Research Prepared During FY 63-64

1. Task NICORD -- Training of Ordnance Guided Missile Maintenance Personnel (Training Methods Division)

a. Products:

(1) Staff Memorandum: Troubles Reported by Electronics Repair Personnel in Nike Ordnance Detachments, March 1957.

(2) Staff Memorandum: Ordnance Nike Detachment Electronics Maintenance Personnel: Analysis of Activities with Implication for Training, May 1957.

(3) Briefing Booklet: Progress Report on Task NICORD, June 1962.

(4) Research Report: Identification of Electronics Maintenance Training Requirements: Development and Evaluation of an Experimental Ordnance Radar Repair Course, in preparation.

b. Utilization of Products:

(1) Training Aids. Simplified block diagrams prepared for experimental course were utilized in standard school Nike Tracking Radar Courses.

(2) Course Content. Greater emphasis has been given in standard OGMS training to practical aspects of electronic maintenance including operation of test equipment, soldering, physical location, etc.

c. Benefits to the Army:

NICORD demonstrated the utility of (1) methods for identifying and analyzing maintenance requirements to determine appropriate training content; (2) methods of sequencing and communicating various types of training content; and (3) inclusion of certain types of training content having applicability to a wide variety of electronic systems. Implementation of the methods employed in the experimental course and the types of content found to be effective could significantly enhance training efficiency for similar electronic maintenance programs by reducing the time spent in formal training while advancing end-of-course proficiency.

2. Task RAMP -- A Study of the Training and Field Activities of Army Aircraft Maintenance Personnel (Training Methods Division)

a. Products:

(1) Interim Report: Summary Report of Activities of USAREUR Aircraft Maintenance Personnel, February 1959.

(2) Research Memorandum: A Survey of Activities of Aircraft Maintenance Personnel, October 1962.

b. Utilization of Products:

Both the Transportation School (Fort Eustis) and the Aviation School (Fort Rucker) were provided with detailed research data indicating the frequency with which a large variety of specific maintenance tasks were performed by repair personnel in the field. Training authorities at each school indicated that they would make use of these data in carrying out changes in course content and subject matter presentation. Presumably they have done so.

c. Benefits to the Army:

One of the clearest implications of the RAMP data, but one which was toned down in the report at the request of Transportation Corps officials, was that the over-all system for training aviation maintenance personnel should be re-examined. (The RAMP data clearly indicated that the actual job activities of the so-called organizational maintenance personnel, trained at Rucker, and the so-called field maintenance personnel, trained at Eustis, overlapped extensively.)

It appeared likely that substantial economies could be effected in the training system if the MOS structure were revised so as to reduce the overlap in training and in job duties of these supposedly different categories of men.

Various informal reports, which have come to HumRRO's attention, indicate that USCONARC has in fact been re-examining the MOS structure and the over-all training system for aviation maintenance. So far as is known, USCONARC has not officially indicated that this re-examination was stimulated by the RAMP report, but it seems likely that the two events are not unrelated.

3. Task TRACE -- The Experimental Development of Improved Electronic Troubleshooting Procedures and Teaching Methods (Training Methods Division)

a. Products:

(1) Research Memorandum: Methods and Devices for Teaching Data Flow to Electronic Maintenance Personnel, November 1962.

b. Utilization of Products:

The RM cited presents research findings of general interest to the development and application of devices for teaching logic of troubleshooting. There is no way of determining the extent to which these findings have been accepted.

c. Benefits to the Army:

The results of this Task, if implemented, would increase the benefit to be derived from the teaching of troubleshooting logic by coupling such instruction with specific equipment upon which the logic is dependent, rather than attempting to teach a generalized logic. Means are provided for achieving economical specific-system instruction, one through devices sufficiently flexible to adapt to different equipments, the other through devices that are sufficiently inexpensive to permit construction for individual equipment items.

4. Task COLDSPOT -- Human Factors in Military Performance in Extreme Cold Weather (Training Methods Division)

a. Products:

(1) Technical Report: (86) Cold-Weather Operational Training of Infantry Forces in the Strategic Army Corps, February 1964.

b. Utilization of Products:

No direct utilization of the specific findings can be documented. However, comments from OCRD, CONARC, and ACSFOR indicated that the findings are useful in developing plans for cold weather training and operational doctrine.

c. Benefits to the Army:

(1) Comments from Environmental Sciences Division, OCRD:

"The report provides a very good coverage of the problems concerned with troop operations in cold regions; the report has considerable value in pointing up areas where better training methods and procedures are required; the report points out equipment items which need improvement or should even be eliminated."

(2) Comments from USCONARC:

"The report is very significant and will be useful in evaluating the current program of arctic environmental training in support of war plans."

(3) Comments from ACSFOR:

"Concur in the findings, conclusions and recommendations of the report. The new DA policy takes into consideration most of the factors brought out in the report."

5. Task UNIT -- Evaluation and Improvement of Tank Platoon Training (U.S. Army Armor Human Research Unit)

a. Products:

(1) Technical Report: (88) — Development and Evaluation of Systems for the Conduct of Tactical Training at the Tank Platoon Level, April 1964.

(2) Training Device: — The Miniature Armor Battlefield and User Manual.

(3) Training Device: — The Combat Decisions Game and User Manual.

(4) Research Memorandum: — The Development and Evaluation of the Tank Platoon Combat Readiness Check, April 1963.

(5) Performance Test: — Tank Platoon Combat Readiness Check.

b. Utilization of Products:

(1) Items (1) and (2), above, provided USCONARC and Department of the Army with a new method of training armor officers and NCOs in basic armor tactics and operational procedures. This method has been approved and adopted by Department of the Army, and procurement of 16 Miniature Armor Battlefields is now in process.

(2) Items (1) and (3), above, provided USCONARC and Department of the Army with a new method of training which has been adopted as a DA training aid and is now in current use by several active armor units, reserve component units, and some ROTC centers.

(3) Items (4) and (5), above, provide a field performance test for tank platoons. The test has been approved by USCONARC and Department of the Army and is currently being issued in the form of a DA Training Circular.

6. Task QUIZ -- Psycholcgical Techniques for Facilitating and Countering Interrogative Processes (U.S. Army Training Center Human Research Unit)

a. Products:

(1) Research Memorandum: An Experimental Approach to Tactical Interrogation, February 1963.

(2) Research Memorandum: An Evaluation of Three Screening Procedures for Interrogation, May 1963.

b. Utilization of Products:

Research Memorandum circulated to staff at ACSI and Fort Holabird, and to the Commandant and staff of the Sixth Army Area Intelligence Training School, recommending a method of providing interrogator trainees with realistic, practical interrogational situations.

7. Task UPSTREAM -- Procedures for Anticipating Training Requirements for Future Air Defense Guided Missile Systems (U.S. Army Air Defense Human Research Unit)

a. Products:

(1) Technical Report: (83) The Prediction of Training Requirements for Future Weapons Systems: A Personnel Support System Research and Development Process, April 1963.

b. Benefits to the Army:

This task was designed to identify training requirements for new systems prior to delivery to the Army so that school trained personnel could be ready to operate and maintain the equipment immediately. This would eliminate costly delays in utilizing the equipment and damage from untrained personnel.

Recent information from CONARC indicated that the R&D letter requesting information for use in connection with the test of the IMMRAND concept had been forwarded to all USCONARC schools for reply by 6 July 1964.

8. Basic Research: Effects of Controlled Isolation on Performance (BR-6)
(U.S. Army Training Center Human Research Unit)

a. Products:

(1) Research Memorandum: Conformity to a Group Norm as a Function of Sensory Deprivation and Social Isolation, November 1963.

(2) Research Memorandum: Vigilance as a Function of Sensory Deprivation and Social Isolation, November 1963.

(3) Research Memorandum: Reported Visual Sensations as a Function of Sustained Sensory Deprivation and Social Isolation, November 1963.

(4) Research Report: Experimental Studies of Sensory Deprivation and Social Isolation, in preparation.

b. Potential Benefits:

As a consequence of concepts of future battle conditions with increasing dispersion, the potentiality of extreme and long lasting isolation for individuals and small groups is greatly increased. This basic research effort has been directed towards developing data and understanding about the likely effects of such isolation.