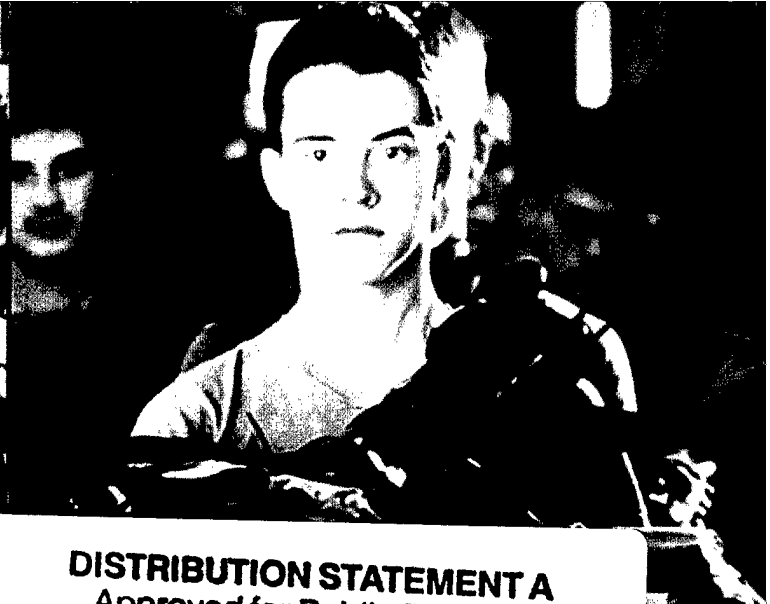
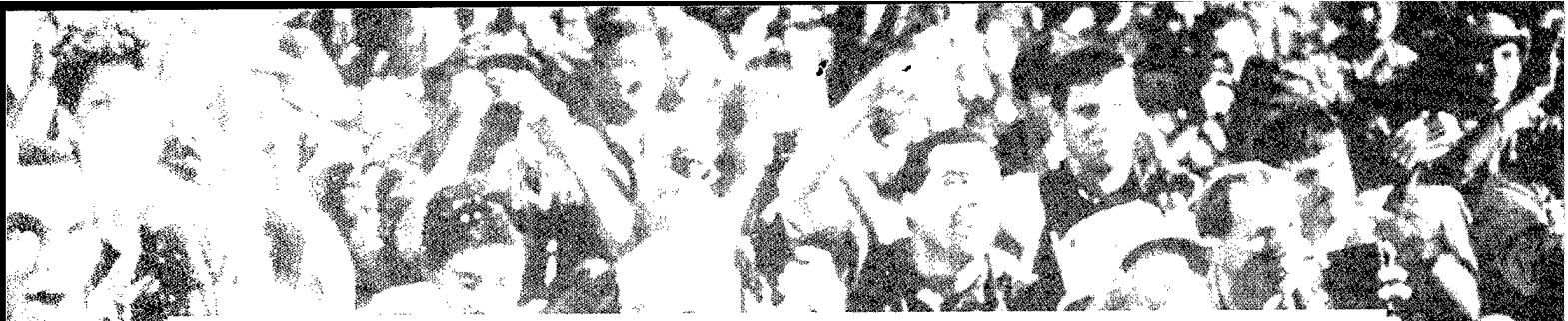


ARI's Contributions to the All-Volunteer Force



Foreword

The first shots of Desert Storm were fired in the middle of the night by AH-64 Apache flight crews. Their job was to neutralize Iraqi radar sites so the Air Force could begin an intense air bombardment preceding ground action. The Apache crews performed their mission flawlessly and kicked off what would become a very short, very successful war.

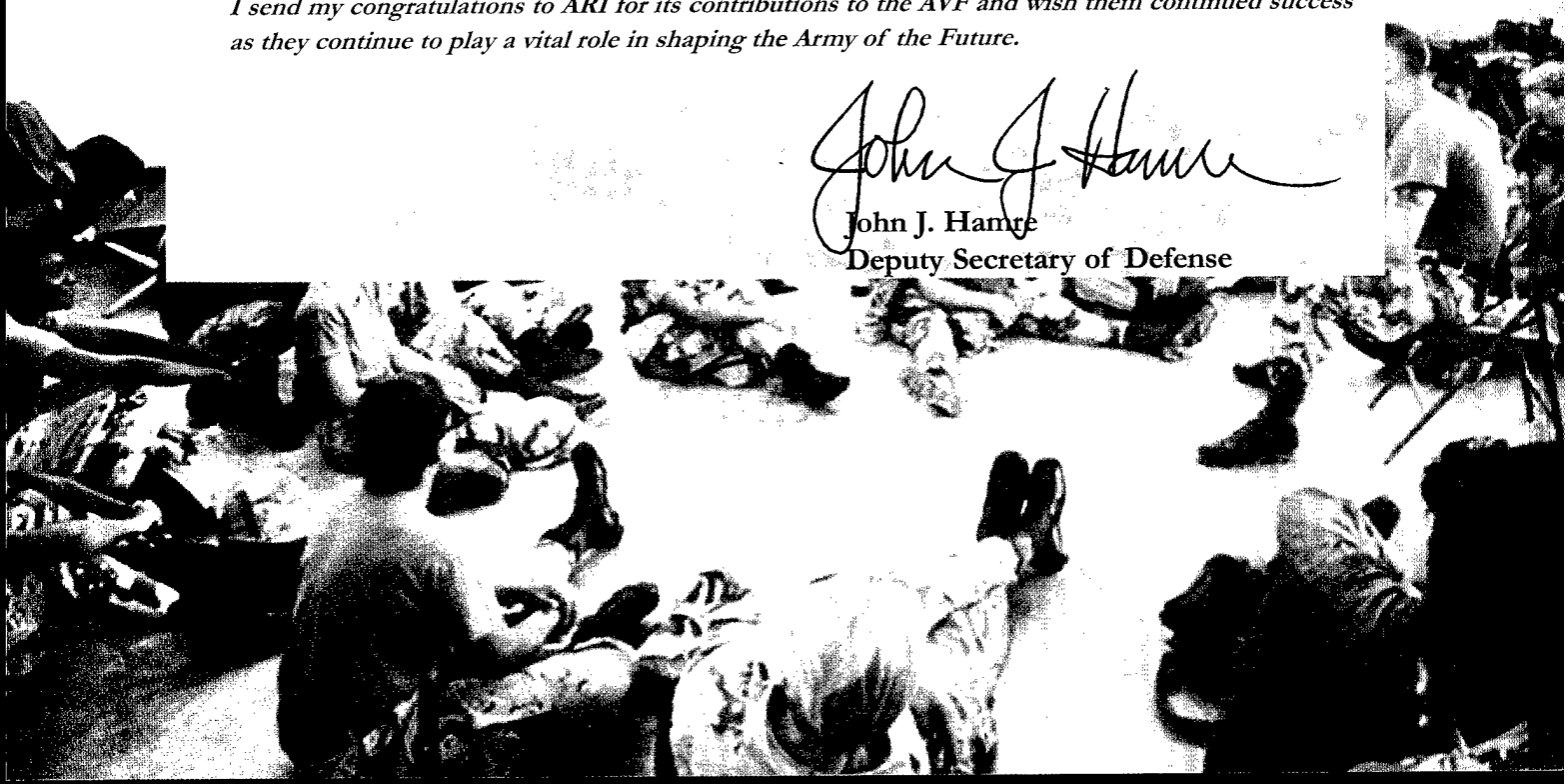
That precision attack was testimony to the power of the U.S. Army's combined approach: high-tech equipment, top-notch volunteer soldiers, and superb training (in this case, simulator training that exactly matched what would happen in combat). The business of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to support that combination: to help the Army as it seeks to bring in the best people, give them excellent training, develop equipment and tactics that can mean success, and join all these elements to make the most of their potential.

The beginnings of ARI, and of the study of military psychology which it embodies, can be traced back more than 80 years — back to 1917 when some Harvard experimental psychologists met to discuss how psychology and scientific methods could be applied to support the nation in World War I. Since that time, ARI has continued to develop many of the tools and procedures of modern military personnel management.

The All-Volunteer Force (AVF) beginning in 1973 posed considerable manpower, personnel, and training challenges for the Army. Consequently, taskings for ARI have become ever broader, all aimed at making the soldier more effective in a more effective defense system for the nation. ARI has made significant contributions over the 25-year history of the AVF through programs of behavioral and social science research and applications. Their research and studies continue to inform recruiting, selection and classification, training, performance, personnel management, and a host of other human resource concerns. Through its research and development activities, ARI is a vital link in helping the Army "Be All It Can Be".

I send my congratulations to ARI for its contributions to the AVF and wish them continued success as they continue to play a vital role in shaping the Army of the Future.

John J. Hamre
Deputy Secretary of Defense



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14. ABSTRACT *(Maximum 200 words*

In recognition of the 25th anniversary of the All-Volunteer Force, the U.S. Army Research Institute (ARI) developed this brochure to document its accomplishments on behalf of the Army. The brochure offers a concise, non-technical overview of an immense body of research on a wide range of subjects. It presents research highlights in the areas of Recruiting; Selection and Classification; Training; Transition and Downsizing; and Personnel Management, plus highlights from special projects and programs such as Manpower and Personnel Integration (MANPRINT). This document is of historical importance to ARI. It also communicates to current military leaders and planners our past and potential progress in the manpower, personnel, and training research areas.

15. SUBJECT TERMS

All-Volunteer Force | Manpower | Personnel | Training | Recruiting | Selection and Classification | Personnel Management | Research and Development

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ARI's Contribution to the All-Volunteer Force

A Word on the All-Volunteer Force

Before 1973, the draft ensured an ample supply of military manpower. As the largest Service, the U.S. Army relied heavily on the power of conscription to fill its ranks and fulfill its ground combat and substantial support responsibilities. With the onset of the All-Volunteer Force (AVF), the Army had to learn how to attract and keep quality soldiers. At the same time, it had to be sensitive to the growing diversity of the force. Not only has the AVF seen high participation on the part of African Americans, but the Army has become more gender-integrated and family-oriented. The past 25 years also have witnessed advances in technology, increasing job complexity, and various roles and missions from warfighting to peacekeeping. Attention to recruitment, morale, training, performance, retention, and readiness coalesce to improve the ultimate smart weapon—the American soldier.

Army/ARI Response to AVF Issues and Concerns

In the 25 years during which ARI has been serving the volunteer Army, its research scientists have worked on hundreds of projects over an immense range of subjects. To describe all of these would take—and has taken—volumes. The areas of interest discussed here represent a small sampling of ARI's contributions to the success of the AVF.

ARI's present-day program can be grouped into five major areas:

- Quality Personnel
- Leadership
- Training and Technology
- Attitude and Opinion Surveys
- Occupational Analysis

Through decades of work on Army concerns, ARI has helped to develop and continues to maintain qualified and ready volunteers for the modern Army.

RECRUITMENT – When the Army turned from the draft to a volunteer force, those charged with recruiting were in a strange new world. They were supposed to go out and find qualified young men and interest them in a military career. ARI was called in to help, and work began on determining the factors that might influence recruiting and retention and how to select and train recruiters as a sales force. Opinions and attitudes of recruits were explored, incentives were offered, and the positive aspects of Army service were brought into the foreground. It was a tough learning process but it was a success.

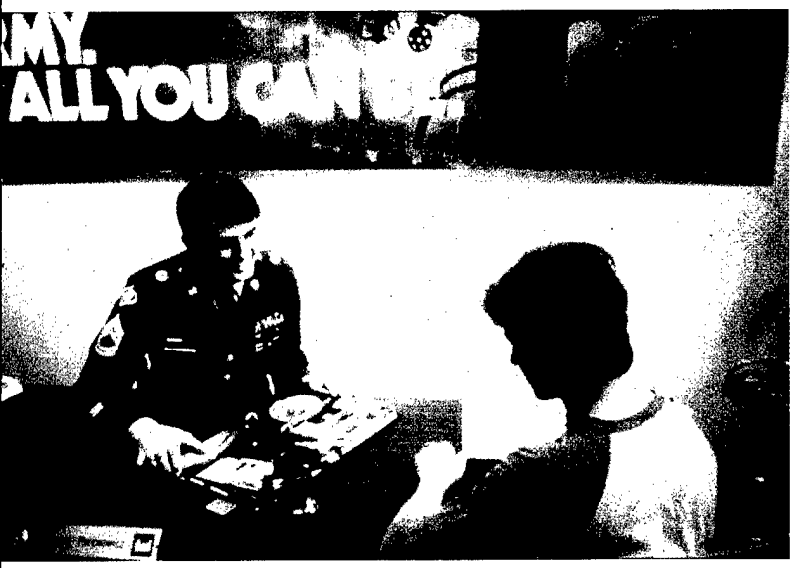
SELECTION AND CLASSIFICATION – When resources are limited, you have to get it right. The slogan, "Be All You Can Be," holds just as true for the Army as for its soldiers. The Army needs to select and attract the right people into service and it has to see that they are routed into the jobs they are best fitted to do. That means analyzing the skills many specialized jobs require, and finding out what aptitudes are needed to learn these skills and which people have them. And, in a mirror image to all this, you have to learn how to identify people who won't succeed and screen them out, to minimize wasted training time and money with no return in service.

TRAINING – Once you've managed to find the people who seem to have the "right stuff" and attracted them to service, the predictions have to be turned into reality. First, there is individual training, both in common soldiering skills and in the special skills of a Military Occupational Specialty (MOS). Next, there is training to work as part of a team, first in a small unit, then in battle-sized coordination. Along the way, they undergo leadership training, from squad to staff level. And someone has to look at the training system itself—the techniques used and their effectiveness.

RETENTION AND TRANSITION – Soldier to civilian – sooner or later, the life-change occurs for everyone in the Army. Knowing how individuals fare in the transition, and how they feel about their service years, provides information that the Army can apply all the way from "pitching" recruiting, through promoting retention, to aiding the job search for separating veterans. It has special value during a period of downsizing, when willing warriors may be asked to cut short a valuable career even as the Army necessarily continues to sign up new soldiers.

PERSONNEL MANAGEMENT – Personnel diversity has grown with the AVF. At the base of all this diversity is the fact that the Army is one of the largest employers in the world – about 500,000 active duty members and a similarly large contingent of civilian employees. That means setting a lot of personnel policies – pay scales, promotions, allowances, movement, retirement – and trying, continuously, to stay abreast of how these policies are affecting people. It also means attending to an array of important issues and concerns confronting soldiers. Two such broad concerns are touched upon in the pages that follow — the place of families in the Army, and the new emphasis on "peacekeeping" missions. There are, and will be, many more such "special" issues in ARI's research programs.

Project Highlights

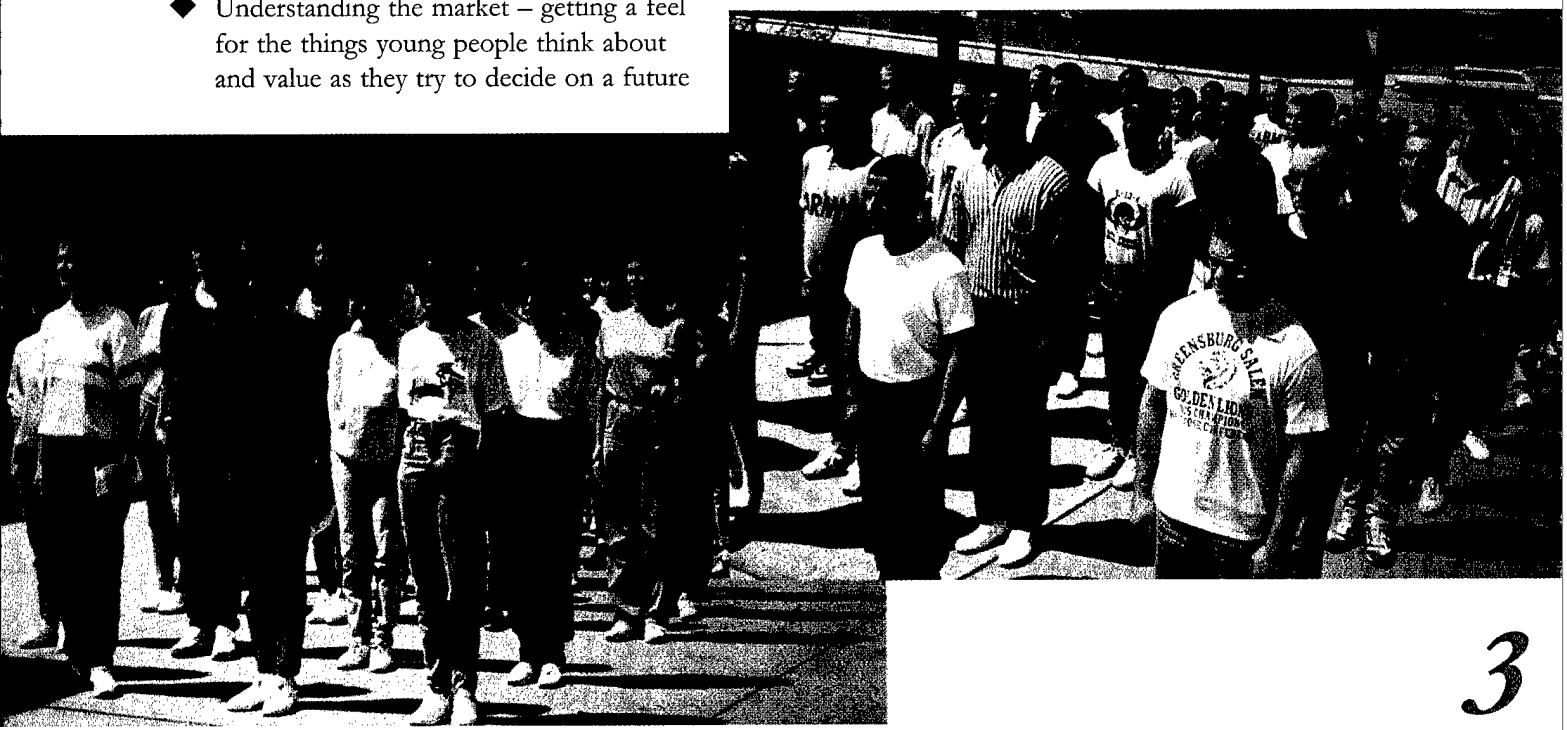


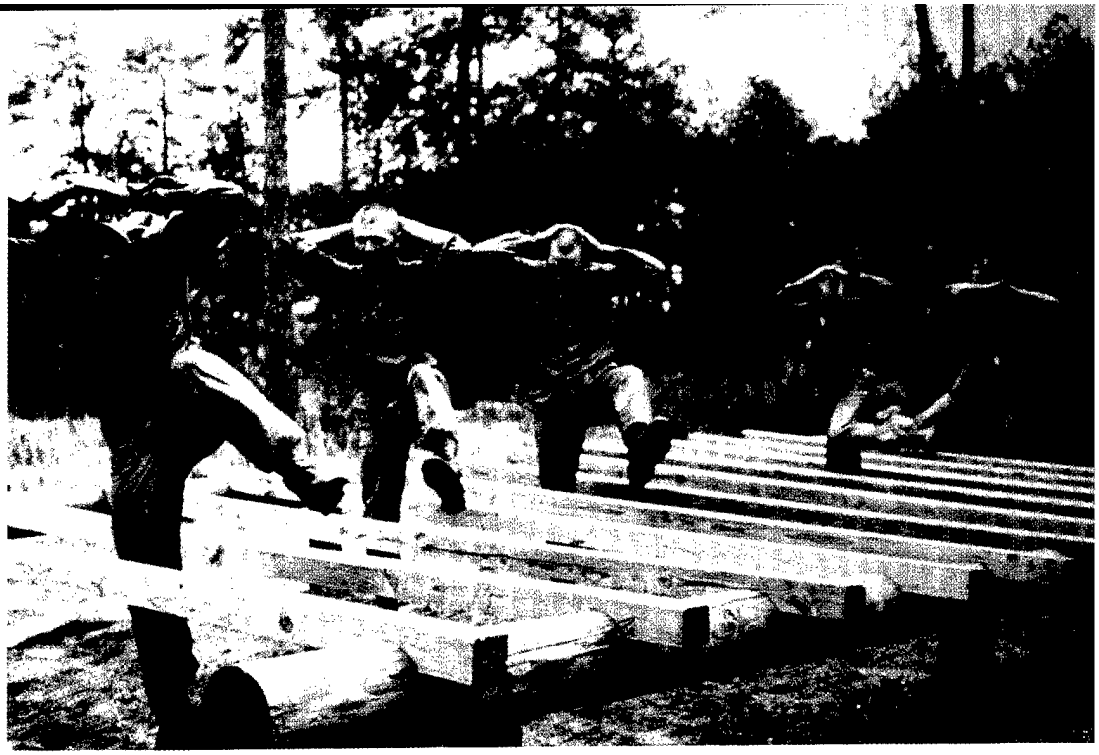
Recruiting

- One day you're screening from an ample supply of draftees and draft-motivated "volunteers" and the next day you're looking at a few hundred thousand young people free to pursue any job they like. Without conscription, the Army's task was not only to choose quality recruits but to persuade them to choose the Army. That's the reversal the new volunteer Army faced 25 years ago, and from the beginning ARI has been helping the Army identify how and whom to recruit.

- Understanding the market – getting a feel for the things young people think about and value as they try to decide on a future course – is the essential first step for the volunteer Army. In the early 1980s, ARI recruiting studies led to the implementation of a **Dual Market Strategy**. Different marketing strategies were applied to two segments of youth: 1) work-oriented; and 2) college bound. The Army College Fund was initiated to target the latter group. ARI recruiting research continues to investigate youth enlistment motivators. What sparks their interest? What turns them off? How do these youngsters reach a decision? How do civilian job prospects vary, year by year? ARI surveys, national in scope, indicated that the receptiveness of parents was the strongest single influence in a young man's decision to enlist. A stated favorable attitude toward the Army as a source of self-development was also a strong predictor. High school students headed toward "work" were better Army prospects than those planning on college. ARI continues to examine enlistment decision making, in particular looking for turning point clues from the many who initially express no interest in an Army career, but change their minds and go on to enlist.

- Understanding Army needs complements the recruiting process by establishing minimum physical and educational standards for recruits, looking for specific aptitudes needed to successfully perform each of the tremendous





number of Army jobs, developing incentives to attract high-quality prospects for high-demand slots, factoring in the long-term elements of attrition, reenlistment, and retirement. All these are in the background as recruiter meets prospect, the final step in implementing Army manpower policies and decisions.

- How would recruiting be affected by certain changes in pay, allowances, or incentives? Planners trying to shape tomorrow's Army now have a tool provided by ARI that enables them to forecast effects of various alternatives in personnel policy: the Enlisted (or Officer) Personnel Inventory, Cost and Compensation **Model (EPICC or OPICC)**. A personnel inventory is a stock of soldiers at a particular point in time, by key characteristics such as grade, years of service, and accession quality. The model predicts how the inventory would change, over time, in response to variations in such factors as pay scales, enlistment incentives, benefit packages, and projected end-strengths. Alternative effects, for costs, personnel, or both, can be calculated.

- Educational benefits, in varying degrees, have long been an important enlistment incentive used to attract high-quality volunteers. ARI has been examining participation of soldiers in the Army College Fund program, collecting information on who used the benefits, when and where. These data are useful in developing budget estimates, as well as in planning enlistment benefit offerings.

Selection and Classification

- Many a recruiter has looked at the youngster across the desk and wished for a nice crystal ball that would indicate if this person is a good prospect. ARI has obliged by providing a modern version, the **Computerized Adaptive Screening Test (CAST)**. In Joint Service efforts to develop better selection tests, early Navy research resulted in pools of calibrated test items. In an innovative effort to make maximum use of what had been regarded as a research by-product, ARI partnered with the Navy to use these items as the basis for CAST. It provides Army recruiters with a short and effective prescreen for enlistment prospects by yielding predicted scores on portions of the ASVAB. This lets recruiters manage their resources better, spending more time with higher quality prospects and less time with those unlikely to meet AFQT standards. While CAST was used only by the Army for years, the other Services have since followed ARI's lead and are using CAST in their own recruiting.

- Who will make a good soldier? The Army cannot ask a more productive question, because everything else in the military complex finally comes to rest on the quality of the individual soldier. However, an even more fundamental question must be answered first: What *is* a good soldier? In the hundreds of kinds of jobs and the boundless variety of military situations, what characteristics does the soldier need?

Army efforts to define and use applicant abilities go back as far as World War I. Many rounds of tests and studies eventually led, entering the 1970s, to the Armed Services Vocational Aptitude Battery

(ASVAB). This is the set of cognitive subtests used by all the Services to select recruits. With the 1973 change from assigning draftees to attracting volunteers, the fine points of selection and allocation assumed a new importance. In the early 1980s, ARI began the **Project A** research program—long term and large scale—to evaluate and improve these procedures.

ASVAB tests were known to be good at predicting recruit success through Advanced Individual Training (AIT), but there was no information about predicting outcomes on the job. Project A (and its successor, Building the Career Force, 1989-1995) followed two major cohorts of soldiers in 21 MOS through their first and second tours to obtain such comprehensive data.

For job performance to be predicted, it must be understood. Project A developed multiple hands-on, paper-and-pencil, computer, rating, and administrative ways of measuring performance on the job. Intensive analysis of the results for the huge soldier sample yielded five common dimensions. Two of them —Core Technical Proficiency and General Soldiering Proficiency—were termed the "Can Do" dimensions; three—Effort and Leadership, Personal Discipline, and Physical Fitness and Bearing—were termed "Will Do" dimensions.

This view of performance on the job made it possible to determine not only whether the ASVAB predicted performance, but in what way. The test turned out to predict "Can Do" performance very well, but "Will Do" performance not so well. This helped focus

The Essential Elements of the Army Research Institute

The Mission

To maximize individual and unit performance and readiness to meet the full range of worldwide Army missions through advances in the behavioral and social sciences.

The People

A dedicated core staff of research scientists grounded in the behavioral and social sciences, aided by a support staff skilled in many fields, and augmented on special assignment by outstanding experts from academic, governmental, and military sources.

Many hundreds of Army officers and NCOs who provide military expertise, practical competence, and an incredible supply of patience in setting up innumerable studies, surveys, and exercises to further research aims.

Many thousands of soldiers who personally do the down-to-earth work in these projects, often not knowing that what they are doing will play a part in achieving the research goal: a stronger and better Army of the Future.

development of other tests that might be used to supplement the ASVAB. For example, Project A found that a self-report temperament measure—**Assessment of Background and Life Experiences (ABLE**)—improved prediction of discipline, attrition, and physical fitness. Computerized psychomotor tracking tests and spatial tests proved to be especially useful in predicting specific types of performance, such as gunnery.

We now know that the ASVAB is working well but it can be improved; the Department of Defense is adding a Project A spatial test to the ASVAB. Other results of Project A provide the basis for Army decision making in many areas—classification, reenlistment, and promotion, among others. The impact of this landmark program will be felt for years to come.

◆ You have three recruits awaiting assignment. You have three MOS needing trainees. All three recruits have test scores high enough (though different) to qualify for all three MOS. The Army's Recruiting Quota System (REQUEST) considers them one at a time and assigns each to an MOS on a priority basis. As it happens, none of the three is assigned to the MOS for which he or she has the highest test score; it could happen that all three end up in their lowest-score MOS. Results: More training effort for the Army and less satisfaction for the soldier.

The system is efficient in filling training class seats with qualified trainees but it is not "the best it could be." That is the goal of the prototype **Enlisted Personnel Allocation System (EPAS**) developed by ARI, which makes it possible to simultaneously consider the periodic flow of applicants and training seats over the recruiting cycle, so that the differing abilities of recruits can be taken into account in making assignments. Activating the system would be expected to improve on soldier performance and reduce attrition, with no added burden on recruiting and training. Prototype testing has been completed, and the project is moving toward implementation to enhance the REQUEST system.

◆ How and where to use soldiers of lower aptitude to good effect in the Army has been a long-term question. The answers have depended, in part, on the nation's military manpower needs at the moment. Aptitude level scores based on the ASVAB are grouped into five categories, I through V, with persons scoring in the Category V range ineligible for enlistment. Those within Category IV are enlisted sparingly. While candidates at the higher levels are preferred in many cases, the Army needs – and provides opportunities for – individuals over a wide range of capabilities. ARI has used various methods to explore the potential of lower-aptitude personnel.

Well before the long-term Project A aptitude/performance work, two episodes gave the Army

extensive experience in training lower-aptitude soldiers. Project 100,000, starting in 1966, was a DOD experiment to aid the disadvantaged through military service opportunities. The second episode, some years after the advent of the volunteer Army, was the inadvertent misnorming of the ASVAB (1976-1980) which inflated scores in the below-average range. Continuing ARI programs have analyzed data from Project 100,000 and the misnorming to isolate traits that might predict job success for those of **lower aptitudes**, identified types of MOS in which soldiers of average and below average ability can perform most and least effectively, tried out a variety of training methods geared to different capabilities, and reviewed efforts by other countries.

- Project A has been completed but ARI continues to advance soldier performance measurement and prediction. In the **Soldier Performance Research Project (SPRP)** and other research, ARI and others have linked the AFQT levels of soldiers with their performance on actual jobs. They have identified jobs, selected activities that were hands-on and relevant and visible, and repeatedly demonstrated different levels of performance depending on the AFQT levels of the soldiers performing the jobs. Since one can't have highest-quality soldiers occupying every Army job, this link of specific information on levels of performance from different categories can be used in such manpower decisions as percentages of volunteers accepted in each category, or in classification decisions such as setting the AFQT levels for specific MOS.

- Among the salient performance issues of the AVF is a rise in attrition – the departure of soldiers who have not completed their committed first term of service. It is expensive in terms of time and money, and the earlier the exit the greater the waste. So, working back to the first step, the Army constantly strives to improve the screening of applicants, to identify those who may look good but are at risk of early failure if they are chosen.

  ARI, in studying the many-sided nature of performance as noted above, learned that the "Will Do" aspects of performance are not predicted by ASVAB as well as the "Can Do" dimensions. From measures developed under Project A, ARI is developing and testing a new fake-resistant measure of the "Will Do" attributes. A sample of some 20,000 recruits will be given the **Assessment of Individual Motivation (AIM)** questionnaire at entrance, and detailed attrition data will be gathered for the first six months of their service (the time of highest attrition), to test AIM predictor value.

- They are called, very simply, the **Special Forces (SF)**. But their mission is far from simple, and the demands placed upon them are special indeed. Volunteers all, the "Green Berets" are combat arms that can respond rapidly throughout the world, alone or with conventional forces. They are organized, trained, and equipped to gain military, political, economic, or psychological objectives by unconventional means. Choosing and training such soldiers is not easy.

  The typical candidate is a 26-year-old sergeant (or, for officers, a captain) who has been in the Army 5 years and meets strict medical, physical, and aptitude standards. Attrition is heavy; it takes about four such recruits to result in one SF

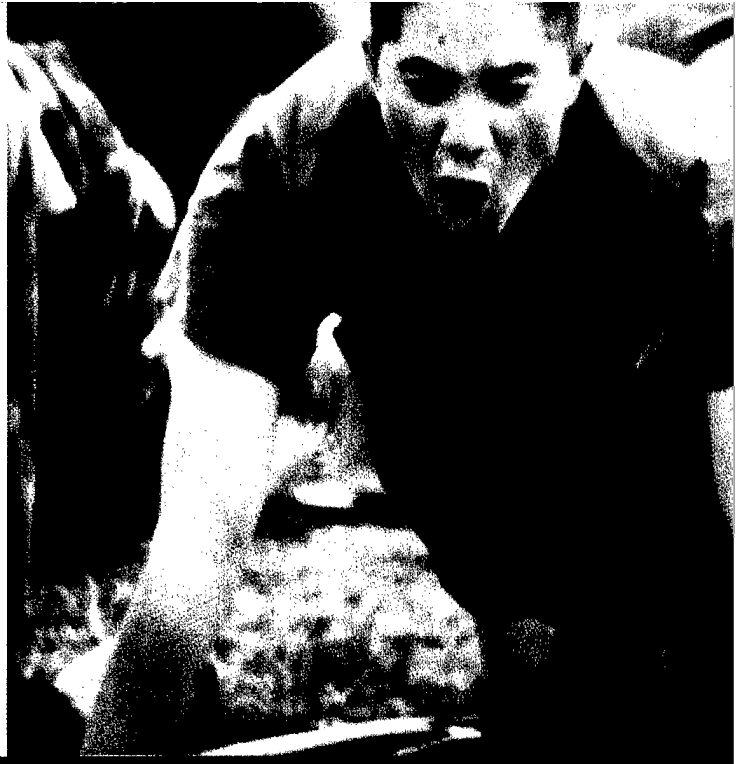
soldier. Acquisition is in two phases and merges with training. Roughly half of the recruits survive the 3-week selection phase and enter the 6-month qualification phase, which begins field and MOS training; again, about half survive and go on to further MOS, language, and regional training. In 1992-93, for example, of 2673 recruits 46% were selected, 36% (969) started training, and 26% (703) graduated.

With world instability intensifying the demands on Special Forces in both number and diversity, in 1990 ARI joined with SF and Army personnel agencies in a comprehensive 8-year program of manpower, personnel, and training (MPT) research. Seeking to cut the time and expense inherent in the 4-to-1 qualification ratio, ARI developed a database that tracks soldiers through the pipeline, pinning down the times and reasons for departures. Inquiry into the rank and military background of recruits, for example, showed that 80% of Ranger applicants were selected and 58% graduated, while 35% of noncombat specialists/corporals were selected and 15% graduated.

Other analyses related ASVAB aptitude scores with SF success rates. Data on physical failures suggested that initial screening standards be strengthened, and that physical trials come early in the process to avoid wasting precious training time. Land navigation had been one of the biggest hurdles for trainees, so ARI made use of the new Assembling Objects spatial test for screening, and to identify individuals who would benefit from close attention in navigation training. Standards and training were developed for the cadre making the assessments, to ensure fair and uniform treatment of students being judged. Two handbooks were developed and used by SF as recruiting tools, both to attract the kind of soldiers needed and to provide realistic information about the physical and other demands of SF life. Many other projects were carried out—most recently, field surveys to identify soldier concerns and ways of making this "special" force even more effective.

Project Highlights

Training



- How to "practice" combat in anything resembling real-world conditions without endangering the trainees posed a whole range of problems. More than 20 years ago, ARI developed the first practical, realistic field training system for Army tactical units. Begun as a simple method for the essential task of assessing casualties, **SCOPES** (Squad Combat Operations Exercise [Simulation]) was quickly expanded into the collective training system now known as Tactical Engagement Simulation (**TES**). The system includes casualty assessment and feedback, a control subsystem of observers and critics, and a many-sided training management subsystem. TES exercises can achieve a close parallel to combat.

- The early SCOPES work with infantry squads was quickly picked up for the mounted force. In **REALTRAIN,** scopes mounted on tanks and antitank weapons allowed observers to assess target hits; assessment of the effects of simulated mortar and artillery fire was soon added. Such field maneuvers gave soldiers a much more accurate picture of what actual combat would be like and the actions they would need to take.

Adoption of the REALTRAIN approach was slowed by the need for more (and trained) observers. Fortunately, in a parallel development MILES (Multiple Integrated Laser Engagement System) became available. It used an eye-safe laser to perform much of the casualty assessment function, substantially reducing the observer requirement. Complete forecasts and plans for conducting MILES-TES maneuvers were developed by ARI to encourage broad application in training. Follow-up studies provided further assistance in developing practices that truly equated combat conditions. Such research has led to training capabilities captured at the National Training Center.

- The spotlight in training tends to fall on the soldiers on active duty, the full-time Army on public view. But there is also the thorny problem of training the great numbers of part-time and on-call soldiers, those in the Army Reserve and the Army National Guard. And there is a different kind of training that will be crucially important on the battlefield, that of higher officers – for example, at brigade level – who must control their own units and coordinate operations with other major units.

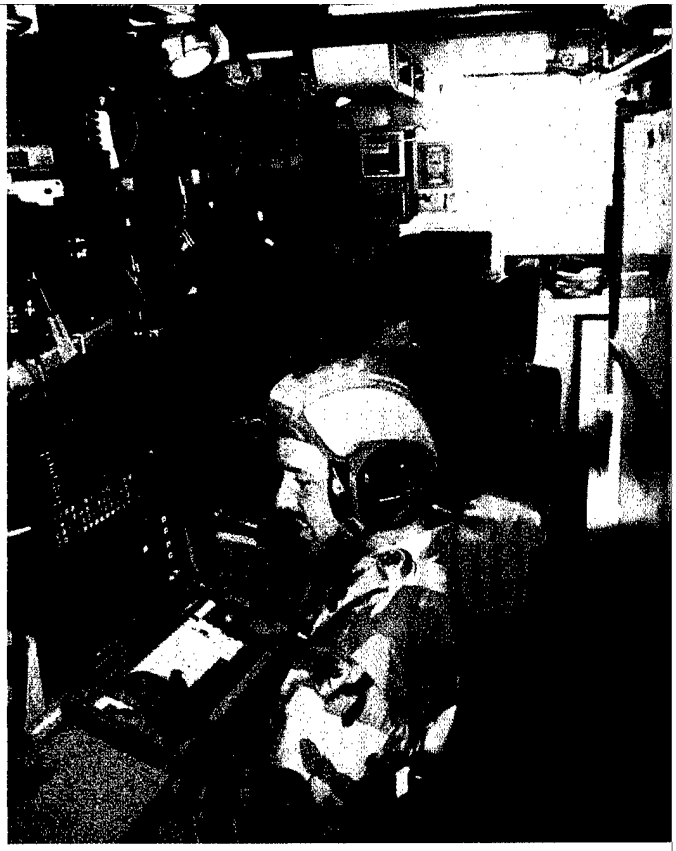
  The typical National Guard unit is restricted to 39 days of training annually and the equipment and supplies needed for field training may be limited or almost non-existent. As one kind of solution, the U.S. Congress established the Virtual Training Program at the Mounted Warfare Simulation Training Center at Fort Knox, Kentucky. There, ARI has created a training program that is cost effective for units pinched for time and training space, but that still gives the standby armored unit soldiers a chance for real practice on focused tasks. The training is simulation based and strongly structured to emphasize critical tasks. A complete training support package provides not only the nuts-and-bolts simulation elements, but also full guidance for unit preparation and review of practice efforts. A whole library of exercises has grown to cover a wide array of command levels and unit types. All of the simulations stem from a common set of higher-echelon missions but they provide practice opportunities for units all the way from platoons to brigade.

  When National Guard units began using the Virtual Training Program, word got out to the active component units at Fort Knox that this approach could give them the power to train more with less. Needed was scenario-based training for brigade staff that would let them practice all aspects of an operation from planning through follow-on. Further, the training had to be flexible enough to be used by differently organized and situated units and had to entail integration with combat support and service units — and be so close to "turn-key" that it could be exported directly to field training units. ARI used two approaches: small-group, low-overhead vignette exercises and a large-scale exercise integrating critical staff processes in a high-intensity simulated setting.

- **Skill retention** complements the processes of recruiting and training quality soldiers. Once skills are attained, the challenge is to keep them well honed. This is particularly true for the Individual Ready Reserve (IRR). The questions of how fast skills decay when they are not used and how fast they can be reacquired have a strong bearing on how the Army should proceed in mobilizing IRR soldiers. In 1990-91, ARI tested

IRR soldiers called up for service in Desert Storm in five MOS. As expected, when tested before any training, they showed the steepest declines in job knowledge and less loss in physical skills, in the first few months after separation. The best predictors of performance were previous level of learning in skill qualification tests, length of prior active duty, and general aptitude; time out of service was not significant.

A follow-up study with IRR soldiers called up for a mobilization training exercise some years later was expanded to include skill reacquisition. Rapid train-up instruction by both hands-on and lecture significantly improved performance. Both before and after training, soldiers' scores were strongly tied to length of prior duty and AFQT scores, but not to the length of time since they had left active duty.



Transition and Downsizing

As the volunteer Army acquired years of service experience, people began asking how those who had volunteered might have gained or lost by choosing a military career, or even a single tour. It was evident that such evaluations reflect the ongoing history of the times — Desert Storm and Bosnia, for example, or the evolving participation of women and minorities. Various surveys have been designed, not only to get feedback for current use, but also to look at the lifetime benefits and costs of military service.

- The Army Experience Survey, for instance, was administered in 1985 to enlisted veterans (2,566 responded) who had completed one tour during the 1981-84 period. More than 85% felt that their Army experience had been valuable, and about 75% said that, if given the chance, they would join the Army all over again. A majority reported that self-growth had been the most valuable aspect of their service.

- A different viewpoint was sought in 1990 in an ARI Survey of Employers, which contacted 2,145 companies sampling 6.7 million American businesses. These employers identified 11 Army-acquirable skills they want in employees (e.g., dependability, listening to instructions and carrying them out, seeking clarification when something is unclear). Comparing Army veterans to entry-level employees in general, they felt that veterans possessed 20% to 40% more of these attributes than applicants in general. The survey provided information useful to soldiers being downsized, such as what types of companies were most favorable to hiring veterans, how companies locate new hires, and what job seekers should emphasize in applying for jobs.

- Insights into the transition from military to civilian life were sought from an evaluation of the **Army Career and Alumni Program (ACAP)**. In 1994 a survey was sent to 9,000 Army veterans who had completed one term and left the service between 1982 and 1989. Nearly 80% rated themselves as successful in their post-service careers. Fifty-six percent had taken advantage of educational benefits after leaving the Army. Large majorities said they felt their Army service had made them more disciplined, mature, and self-confident, and that they would enlist again if they had it to do over.

Personnel Management

- Long-term trends and short-term reactions to Army policies can both be tracked through the Army **Sample Survey of Military Personnel (SSMP)**. It has been conducted regularly since 1943, through periods of war and of peace, and with both draftee and volunteer soldiers. Twice a year, ARI questions 10% of officers and 2–3% of enlisted personnel on as many as 10–20 issues important both to the Army and to individual soldiers and their families. The survey is an efficient tool for assessing current attitudes and opinions and comparing them over time or across different segments of the Army population.

- Toward the goal of fair treatment for all racial/ethnic and gender groups, the Army uses many methods to keep track of numbers and trends in enlistments and assignments, and to understand differences that may exist between groups in attitudes and perceptions of military life. For example, a recent annual survey of officers (not in special branches) recorded 77% White, 12 % Black, and 5% Hispanic; these groups did not differ on level of commitment to the Army, but Blacks were significantly more likely than White or Hispanic officers to plan to stay in the Army until retirement and to report higher satisfaction with supervisors, promotions, the work they do, pay, and family issues.

  The question of "whether" to have women serve in the Army was answered long ago, but the "how-when-where-how many" debates continue. Numbers fell after World War II but rose again with the end of the draft when the all-volunteer Army had difficulty in attracting and retaining enough high-quality males. The percentage of women in the Army has risen steadily (now about 13%) and more and more career fields have been opened to them, but restrictions remain on combat and combat-related jobs. ARI researchers have contributed to the Army's diversity management through study and analyses of contemporary gender and race issues.

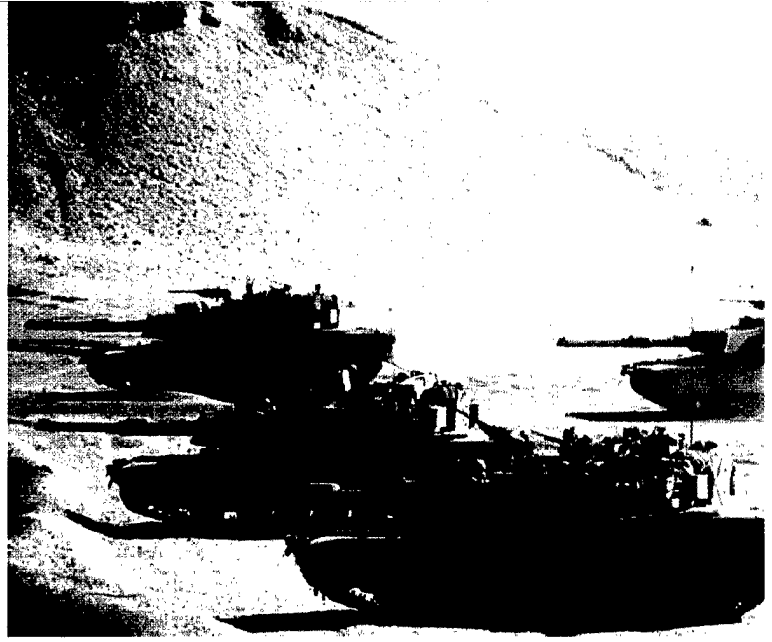
- What does the Army need from its soldiers in leadership positions, both noncommissioned and commissioned officers alike? And what is needed

by the soldiers under their command? Putting technical qualifications aside in this inquiry, ARI sought to determine how leader requirements differ (or do not differ) by grade or rank, by branch of service, and by type of organization and designated responsibility. Getting detailed answers and analyzing them to identify various patterns in leader functioning was undertaken through a task analysis of what Army leadership entails.

More than 5,000 officers and almost 6,000 NCOs went over a list of 560 tasks to indicate what they did and how important the named tasks were in their position. Four broad duty areas were evident: train, teach, and develop; motivate; resource; and provide direction. This much-needed information on the leadership patterns in diverse groups within the Army provided a foundation for updating and improving the content of the varied programs aimed at developing leaders.

- Awareness of trends in the attitudes and career intentions of the members of the officer corps helps Army personnel managers in both long-term and operational planning and decision making. ARI has obtained this kind of information through an ongoing review of officer career matters: the **Longitudinal Research on Officer Careers (LROC)** in 1988, 1989, 1990, and 1992, and the Survey of Officer Careers (SOC) in 1996. More than 10,000 officers responded to the SOC, and from 4,000 to 6,000 to each LROC.

  Many matters of interest can be explored because of the large samples, varied questions, and continuing nature of the surveys. The 1996 responses, for example, yielded analyses of officers' intentions to remain in the Army, attitudes by source of commission, expectations and attitudes by type of branch assignments, and differences in attitudes toward the Army among racial and gender groups.



Special Issues

- What good does complex technology do in battle if it is not linked to the knowledge, skills, and abilities of soldiers? ARI developed the **Man**power and **Per**sonnel **Int**egration (**MANPRINT**) program designed to take a total force perspective early in the procurement process of major military weapon systems.

  Before transferring the program to the Army Research Lab (ARL) in the early 1990s, ARI developed methods to incorporate human performance data into the acquisition decision. Getting good performance out of the system necessarily involves focusing on the needs and capabilities of soldiers. Integrating hardware, software, and the soldier is accomplished by developing tools through benchmarking comparable systems and relying on expert judgment to consider the number of people and their aptitudes, experiences, and other characteristics in designing weapon systems. In many ways, machines are simple. But they must be operated and maintained reliably for given missions, functions, tasks, under realistic conditions, and to specified performance requirements. The complexity of a weapon system is in the people.

- The increasing complexity of Army weapons also increases the need for strong reading and math skills in the soldiers who operate them. Even with large proportions of high school graduates among

Project Highlights

recruits, a substantial number of trainees, especially those for whom English is a second language, need to improve these basic skills. In 1987, for example, with 91% of the accessions holding high school diplomas, over 94,000 soldiers were enrolled in the Basic Skills Education Program. To assess and improve work in this area, ARI conducted a series of projects throughout the 1980s.

Evaluations of Army basic skills programs demonstrated their value both to their students and to the Army; soldiers taking the courses had slightly higher pay grades and MOS skill scores, were less likely to attrit, and were more likely to reenlist than soldiers of comparable aptitudes who did not take the courses. ARI analyzed the various types of courses, experimented with new instructional technologies such as videodisc-based training, and improved the spread of information on educational resources. Their study of curricula led to the inclusion of much more job-related subject matter as content, so soldier students were improving their job skills as well as their basic skills while taking the courses.

◆ From uncertainty to unpredictability –that would be one way of labeling the general trend of world affairs in the years since the end of the Cold War. Instability has been the norm in many areas. Still charged with national defense, American military forces have increasingly found themselves adjusting to new missions of "keeping the peace." ARI has been investigating what these new requirements mean for participating Army units, and for soldiers and their families.

In support of the Camp David Accords, the **Multinational Force and Observers (MFO)** have been stationed in the Sinai Desert since 1982, with an American infantry battalion (rotated on a 6-month basis) as part of the three-nation force. ARI has made a continuing study of the skills soldiers need in such a situation in contrast to more traditional military duties. One rotation included a large proportion of Reserve Component volunteers, to test the pros and cons of having Reserves as well as active duty soldiers in such assignments. In the meantime, United Nations and other "peace" missions have arisen – Grenada, Haiti, Somalia, Bosnia. To identify what

we have learned about conducting "Operations Other Than War," ARI conducted a Peace Operations Workshop in 1994, bringing together a varied group to share experiences and ideas about such ventures.

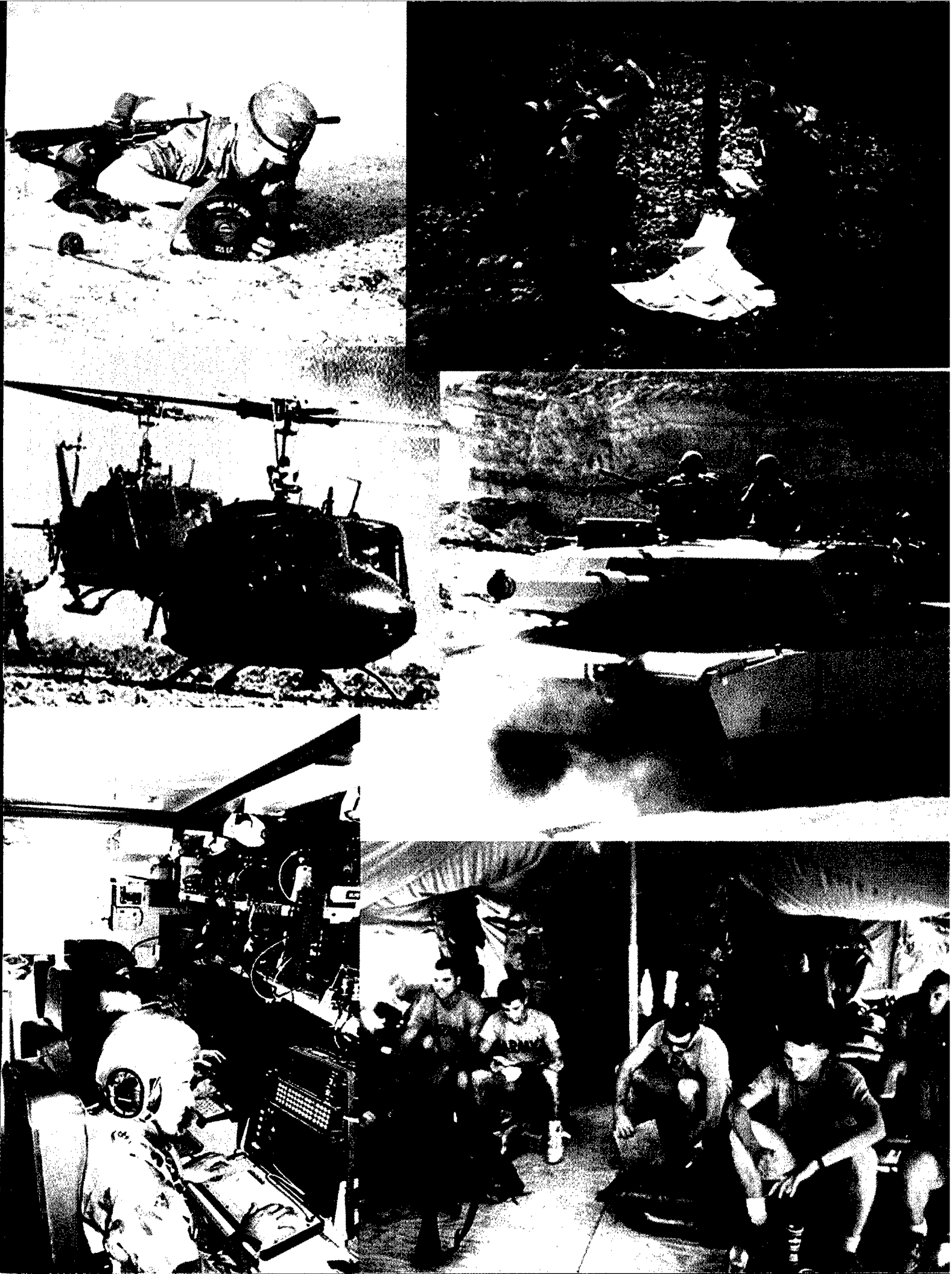
- Recognizing the close ties between Army families and soldier outcomes such as readiness and retention, in 1986 ARI began a 6-year study of Army family attitudes and problems. The end product was "**What We Know About Army Families**," a wide-ranging look at family make-up, adaptation to Army life, Army and community support, and influence on reenlistment decisions. Particular emphasis was given to recommendations to authority figures, from unit commanders to Army personnel policy planners. Another product was "How to Support Families During Overseas Deployments: A Sourcebook for Service Providers," which has been a valuable resource for deployed troops and their families.

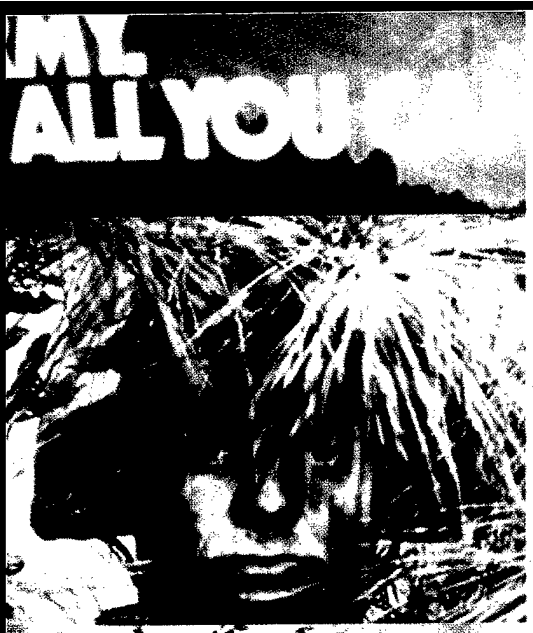
Future Directions

The AVF has succeeded to a level far outstripping the expectations of many who opposed the end of the draft. This has been accomplished in a number of ways, all of which are grounded in solid knowledge of the problems or issues being addressed. In order for the volunteer Army to remain a vital force in the defense of America's national interests, knowledge gained in the past must be updated and expanded on as we move into the new millennium.

ARI's contributions to personnel performance and training concerns will continue to shape Force XXI. Understanding what motivates quality youth to enlist and college graduates to seek a commission as an officer, for instance, must be a continuing line of inquiry. So too is listening to the attitudes, opinions, and concerns of those already in uniform in order to promote equal opportunity, job satisfaction, retention, cohesion, and readiness, to name just a few dimensions. Advances in selection and classification will extend beyond the improved measurement of cognitive ability. ARI researchers are making headway in assessing the "will do" as well as the "can do" aspects of performance. They strive to unlock the keys to job and mission requirements and fit the knowledges, skills, abilities, and other characteristics of soldiers to these requirements. Mapping out the complicated terrain of performance is no small task, but one that ARI continues to champion particularly as the Army moves toward the future digitized battlefield. Training will always be a core activity of the Army, with ARI offering support via sophisticated, realistic training systems and learning technology at the individual and unit levels.

Indeed, ARI's efforts on behalf of the Army have contributed to the success of the All Volunteer Force. Its behavioral and social scientists are ready to take up the human resource challenges of tomorrow and the Army After Next.





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