THE ARMY NATIONAL GUARD IN AIR DEFENSE 1951 - 1974

January 1975

Departments of the Army and the Air Force
NATIONAL GUARD BUREAU
Washington, D. C.

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INTRODUCTION

Beginning with the August day in 1861 when the Washington Artillery of New Orleans fired the first antiaircraft shot in American history, the Army National Guard (ARNG) has been closely engaged in the wartime air defense both of field armies and of the homeland.

Calender Year 1974 was the 20th consecutive year of successful participation in CONUS Air Defense by the Army National Guard. It was also during this year that a major Army portion of CONUS air defense was inactivated. These inactivations eliminated the final 27 ARNG batteries and 11 battalions from the Army Air Defense Command (ARADCOM) Task Organization and signaled the end of an era of outstanding performance by dedicated ARNG air defense elements. Some evaluations and inspections of on-site units were terminated effective with the announcement of the phase-out i.e., Annual Service Practive (ASP) and Defense Combat Evaluations (DCE). Annual General Inspections (AGI), Operational Readiness Evaluations (ORE's) and Technical Proficiency Inspections/ Technical Standardization Inspections (TPI/TSI) were continued for all units.

Though inactivations were imminent, units continued to perform in a superb manner. The results of the major evaluations and inspections which were conducted are indicated on the accompanying chart.

Again during this final year an ARNG unit scored 100% at Annual Service Practice and qualified for the ARADCOM Commander's Outstanding Firing Battery In Annual Service Practice Trophy. The California ARNG accomplished this feat for the second time, having fired a maximum score previously in FY 71.

It should be noted that seventy-five percent of the units firing ASP scored above an outstanding 95%.

Over the years, California ARNG air defense units had been awarded the ARADCOM Commander's Outstanding Hercules Firing Battery and the ARADCOM Commander's Outstanding Hercules Battery in Annual Service Practice trophies more times than any other element of the ARADCOM Task Organization. As a tribute to this sterling performance, the Commander, ARADCOM, awarded these trophies to the Adjutant General of California for permanent retention.

Eight automatic weapons battalions (40mm-M42) in a total of five states, each associated with a specific ARNG combat division remains in the Guard structure with the inactivation of the Nike Hercules units.

Today, the Army National Guard provides 46 percent of the combat power of the United States Army. And in the Air Force, the Air National Guard provides 73 percent of the fighter interceptor alert for the Aerospace Defense Command, 31 percent of the fighter squadrons in the Tactical Air Command and 10 percent of the refueling aircraft of the entire United States Air Force. The National Guard is truly part of the Total Force. The history that follows is the history of the ARNG in Air Defense.

TABLE 1

RESULTS OF AIR DEFENSE

EVALUATIONS AND INSPECTIONS - 1974

ANNUAL GENERAL INSPECTIONS (AGI)

(11 HHB - 27 Firing Btrys)

SATISFACTORY	UNSATISFACTORY
38 - 100%	0

ANNUAL SERVICE PRACTICE (ASP)

(12 Btrys Fired ASP)

100%	1	8%
99.9 - 95%	8	67%
94.9 - 90%	2	17%
89.9 - 85%	1	8%

OPERATIONAL READINESS EVALUATIONS (ORE)

(29 Inspections Conducted)

Fully Combat Ready [1]	19	65%
Combat Ready [2]	8	28%
Not Combat Ready [3]	2	7%

1. All equipment fully operational.
2. Some equipment limited capability.
3. Major items of equipment out of action.

TECHNICAL PROFICIENCY INSPECTIONS (TPI)

AND

TECHNICAL STANDARDIZATION INSPECTIONS (TSI)

(29 Inspections Conducted)

SATISFACTORY	27*	93%
UNSATISFACTORY	2	7%

* Of the 27 SATISFACTORY ratings, 5 were Closed Reports; Indicating no deficiencies.

CHAPTER II

OVERVIEW

A NEW DEPARTURE

Viewed as an entity, the ever-evolving role of the Army National Guard (ARNG) in the peacetime air defense of the continental United States constitutes a unique phenomenon. The annals of no other major Western power can offer an historically valid precedent for this venture.

In one of the few historical summaries of the ARNG on-site program still extant, the somewhat conjectural statement is made that "the origin of the concept for utilization of the ARNG in an active air defense role may date from British and German employments of military auxiliaries during World War II." If the Guard's on-site role can be defined as the full-time participation in time of peace, of "organized militia" in air defense under the operational control of active Army authority, even a brief survey of German and British experience shows that any resemblance of this role to such experience is marginal. This is true even when the political factor of American Federalism, with its reflection in the dual status of the National Guard and command and control implications is excluded from comparative consideration.

Even if Guardsmen were wrongfully considered to be equivalent to the Heimatflak who supplemented the regular AAA forces of the Luftwaffe--there would be no valid parallel. Use of these auxiliaries was not initiated until 1943, long after the outbreak of war; before the war, German air defense was the exclusive province of the regular forces, first the Army and then, after 1935, the Luftwaffe. The contrast with the ARNG program, is that full-time

to their sites; "the wealthier members of the unit either financed the poorer members, or gave them lifts in their cars." The state of training in these Territorial units was indicated by the fact that it was not until "later on in the War, when the country became accustomed to the noise of guns (that) what was known as 'on site' practice was permitted..."

Neither German nor British experience, can provide a valid precedent or parallel for the on-site air defense program of the Army National Guard of the United States. When General J. Lawton Collins in 1951 took the first step toward "preferential treatment" for selected AAA units of the National Guard, he was breaking new ground; and from the subsequent development of the program emerged a truly unique phenomenon.

MAJOR ACHIEVEMENTS

The conclusion that this unprecedented experiment has been a success rests upon three pillars of demonstrated fact.

The first of these has been the high quality of Guard performance. No objective scrutiny of ARNG performance data gleaned by the evaluations of Headquarters ARADCOM can yield any interpretation other than success. Indeed, on balance and with due allowance for the growing pains experienced at the outset of the Ajax phase of the Guard's on-site missile program, ARNG performance has more than matched that of ARADCOM's active Army component, particularly in the vital areas of shooting ability and operational readiness. Bearing in mind that this performance has been achieved by units which had constituted 56 percent of the Nike Hercules defense of the CONUS, quantity has combined with quality to produce a major Guard contribution to national security.

A second species of success has been the smooth transition from one weapons system to another effected, in coordinated tandem, by first the active Army and then the Guard. The Guard has kept in step with the rapid pace of air defense technology. The fact that it has been one step behind the active Army has been deliberate: by taking over an established weapon system of the active Army, the Guard has helped to keep the CONUS air defense guard up while the active Army moved on to a more advanced weapon system. In doing so, the Guard itself has spanned the same weapons spectrum as the active Army, moving, in less than a decade, from a gun system that shot 25 pound projectiles up to 36,000 feet onward to a nuclear-tipped missile system that reaches an ionospheric ceiling more than 30 miles high. Because the end of such metamorphoses is not yet in sight, it is "comforting," as a former ARADCOM CG once noted, to reflect on the fact that the past challenges of rapid technological change have not found the Guard wanting.

Lastly, there can be no doubt that the Guard's air defense program has resulted in significant Federal savings, not only in funds but in active Army personnel spaces; and the quality of Guard performance proves that these savings have been gained at no expense to air defense capabilities.

Precise calculations of all the dollars saved since the inception of the Guard's CONUS air defense program are almost impossible, owing to the absence of detailed cost data from the gun era of Guard participation and the uncertain bases of the cost comparisons computed during the Ajax phase of the program. Nevertheless, it is clear that substantial monetary savings have been realized; and the conservative cost accounting used in the most recent and comprehensive comparison of ARNG and active Army costs, which yielded an

annual saving of $212,000 for each of 27 ARNG Hercules batteries, could probably be legitimately expanded to show even greater savings.

The personnel space savings realized by the active Army have been timely as well as significant. The exigencies of New Look economies and Viet-Nam emergencies alike were eased for the active Army by the Guard's air defense program: every Guard technician on site has meant, in the long run, that an additional combat soldier could be made available for overseas duty without lowering the air defense guard of the homeland or increasing the authorized strength ceilings of the active Army. In the contemporary era of "flexible response" to an international situation in which the classic capabilities of ground combat forces have proved to be at a premium, such personnel savings have been of perhaps even greater value than the monetary advantages derived from the Guard's participation in continental air defense.

COOPERATIVE FEDERALISM IN NATIONAL SECURITY

In a brief but penetrating essay on American federalism, Daniel J. Elazar defines "cooperative federalism" as "the sharing of responsibilities for given functions by the federal and state governments," as distinct from a more commonly held concept of "dual federalism" that "implies a division of functions between governments as well as a division of governmental structures." Tracing the pragmatic tradition of cooperative federalism back to the joint Federal-State canal-construction projects of the early nineteenth century and even further, to the Bank of North America established by the Confederation Congress in 1784, Elazar finds that the architects of this tradition, "avoiding the premises of legalistic thought...did not view the two planes (of Federal and

State government) as rivals, but as partners in government who were to share responsibility for a wide range of activities for the mutual benefit of the nation as a whole and for its constituent states."

In its political dimension, the participation of the Army National Guard in peacetime air defense is a novel but consistent extension, in the field of national security, of this little-known but venerable tradition of cooperative federalism. The fact that air defense is basically a Federal mission, and that the original impetus for State participation therein came from the Federal Government rather than from the States does not change the conclusion that the Guard's on-site air defense program has provided a distinguished and heartening example of cooperative federalism in action.

Nor does the fact that numerous States have found it to be in their enlightened self-interest to share in the accomplishment of the air defense mission alter the incoercible, cooperative, and voluntary basis of their effort, or detract from its value. And the fact that several States, during the Guard's conversion to the Hercules system, aggressively sought greater shares than those planned for them--shows that a State's voluntary participation in air defense, once obtained, could be counted on to continue. Such obdurate consistency of cooperation can pose problems of its own, as active Army deployment planners ruefully discovered; but over-cooperation is perhaps better, in the long run, than non-cooperation.

LESSONS LEARNED

The most salient lessons that can be learned from the record of planning and implementation in the Guard's successive waves of CONUS air defense

deployments can be summarized under three generalized headings; relative immobility, in a legal and socio-economic rather than tactical sense; permanence; and professionalism.

Unlike active Army units, which can be activated and deployed with virtually untramelled freedom to follow the dictates of purely military necessity, successful exploitation of the Guard's air defense potential requires careful assessment of many non-military factors. A particular State's potential supply of high-aptitude applicants for employment as technicians; the proximity of desired sites to population centers; commuting distances; availability of low-cost or government housing; legal obstacles to the use of one State's troops in another State, and to command of the troops of one State by officers of another State--such factors impose limits upon the utilization of Guard forces not found, to a similar extent, in the active Army. These limits tend to tie the possibility as well as the actuality of Guard deployments to locations within a reasonable radius of large cities.

As the resolution of the technician retention problem in the Hercules phase of the program would demonstrate, the participation of a particular State in the program, once established, was a permanent as almost anything could be on the ever-shifting scene of Federal-State relationships. Units can and have been moved within a State; but an overall deployment plan that proposes to eliminate or seriously reduce the established technician strength of a particular State is sure to encounter serious and probably successful resistance. A corollary of this principle is that the technicians of those States long established in the Guard's air defense program must first be

accommodated in any proposed changes, before breaking ground in States new to the program.

Finally, the high degree of professionalism attainable--and in fact attained--by ARNG technicians is, of all the salient lessons learned, perhaps the most valuable. Even if no monetary or active Army personnel savings had been realized from the Guard's air defense program, the capital of specialized skills and experience built up by the program would make of it a major contribution to national security. Nurtured in active Army schools, tested by active Army yardsticks, and sharpened by the unbroken experience which results from stability of job and unit assignment the active Army component of ARADCOM could not hope to match, these skills have become an indispensable asset in the life-or-death business of contemporary air defense. By dedicated and indisputably professional performance as well as active Army policy, the Guard's on-site units became organically inseparable members of an ARADCOM team which embodied, in the ceaseless reality of round-the-clock readiness, the One-Army concept.

In this highly specialized professionalism there may well be a lesson of pointed pertinence for the Guard itself. Martha Derthick, in her study of the Guard as a political phenomenon, observes that the validity of its "claim to primacy as a reserve force" is in the long run dependent upon its "capacity...to adapt to environmental circumstances," rather than upon its ". . .political influence." If "environmental circumstances" can be interpreted to include the threat of aerospace attack against the United States, the Guard has shown, by its highly professional response to the unremitting requirement for continental air defense, its capacity to adapt to

to a vitally important "environmental circumstance."

CHAPTER III

IMPETUS AND INCEPTION

Of the 48 Nike Hercules missile batteries which in 1974 stood guard over the major population centers of the continental United States, 27 or 56 percent of the total shooting force--were manned by Army National Guardsmen. In a radically new departure from the traditional pattern of Guard contributions to national security, these 27 fire units were in position and ready to fire, 24 hours a day and every day of the year, before an outbreak of war or onset of national emergency. In thus helping to meet the unremitting readiness requirements of continental air defense, the Army National Guard (ARNG) had clearly become more than a reservoir of augmentation forces for the active Army: as an integral part of the Army Air Defense Command, these 27 Guard batteries constituted, in time of peace, a fully deployed and combat-ready force in being.

THE ABSENCE OF PRECEDENT

Reliance upon the Guard in meeting the wartime needs of continental air defense is nothing new. As early as 1937, when heightened tension with Japan produced Army plans for procurement of enough guns to equip 34 mobile antiaircraft regiments, eventual use of the Guard was envisaged. When impending war in Europe impelled a "careful survey and recalculation" of antiaircraft needs by the War Plans Division of the Army General Staff in the spring and summer of 1939, "it was apparent to the planners at the outset that the National Guard and Organized Reserves would have to furnish the bulk of

antiaircraft forces, since the Regular Army could not hope to maintain enough units of this sort in peacetime to meet the needs of a real war emergency." The resultant planning goal of 37 antiaircraft regiments, of which 28 were to be drawn from the National Guard, was actually achieved by the fall of 1941; and of the varying force of 24 to 32 regiments employed in continental air defense during World War II, the great msjority of units were thus of Guard origin.

World War II experience offered no real precedent, however, for the current full-time commitment of ARNG units to the mission of continental air defense.

For one thing, prewar implementation of planned antiaircraft force levels for the Guard took place after President Roosevelt's callup of the Guard on 27 August 1940. For another, the Guard antiaircraft units thus federalized, which were "even shorter in equipment and ammunition than in training," were not tactically deployed within the continental United States until after the Japanese attack on Pearl Harbor. The contrast with the former situation, in which tactically deployed and combat-ready ARNG missile units remained under State command but had been integrated, under the operational control of the Commander in Chief, Continental Air Defense Command (CONAD) into the ceaselss "peacetime"service of on-site air defense, was so sharp as to preclude even a parallel, much less a precedent.

THE COLD WAR CONTEXT

The context to which the true conceptual roots of this development can be traced was not World War II, but the later onset of the cold war, with its

ominous obbligato of major advances in Soviet strategic weapons technology and capabilities. Even a cursory review of cold-war chronology and consequent developments in continental air defense serves to substantiate this conclusion.

In the context of the high-level concern over Greece and Turkey which led to promulgation of the Truman Doctrine in March of 1947, the existence of a Soviet strategic-bomber program became a matter of public knowledge in December of that year, following the published testimony of General Carl Spaatz, Chief of Staff of the newly created U. S. Air Force, in hearings of the Finletter Commission on air policy. Less than a month after the appearance of General Spaatz before the commission, Hq USAF on 17 December 1947 for the first time issued a "definite mission directive" and allocated means to the Air Defense Command (ADC). Such developments led LTG George F. Stratemeyer, the commander of ADC, to record his impression that "at the Washington level ever-increasing importance is being placed on requirements for the air defense of the continental United States."

Emphasis upon air defense was soon forthcoming in the Army as well, with 1948 as a watershed year.

In the chronology of the cold war, 24 February 1948 saw the climax of the Communist coup in Czechoslovakia, followed by the modern Prague defenestration of Jan Masaryk--an opaque event which "added enormously to the initial shock of Czechoslovakia's subversion." On 5 March, General Clay urgently signaled to Washington from Berlin his admittedly impressionistic but highly influential hunch that war with Russia "may come with dramatic suddeness"--a warning which "fell with the force of a blockbuster bomb." It was in this

context that President Truman on 17 March successfully presented his case for revival of the draft before a joint session of the Congress. And throughout the summer of 1948, the noose of Soviet blockade tightened around Berlin.

Against this somber backdrop of increasing cold-war frigidity and emerging Soviet strategic bomber capabilities the active Army could count, as of July 1948, a grand total of two antiaircraft battalions. The gap between so minuscule a force and Air Force estimates of antiaircraft requirements which in 1948 reached a high of 325 battalions, was as obvious as the urgent need for more antiaircraft units. The summer of 1948 thus saw the preparation of an Army plan for the activation and training of 26 active Army antiaircraft artillery (AAA) battalions, with a projected leadtime of 18 months for achievement of on-site operational status by the entire force.

The detection by the Air Force's Long Range Detection System of a nuclear detonation "somewhere on the Asiatic mainland...between August 26 and August 29 of 1949," marked another milestone not only of the cold war, but of the road which has lead to the current role of the Army National Guard in air defense.

The surprise which the timing of the first Soviet nuclear explosion occasioned at the highest levels of the Truman Administration was soon translated into further emphasis upon air defense. At the Joint Chiefs of Staff (JCS) level, General Hoyt S. Vandenberg, Air Force Chief of Staff, immediately urged upon his colleagues "the desperate need for a vastly more effective air defense for the continental United States," and within the Air Force itself,

concrete measures were soon taken to improve its air defense posture. In December of 1949, construction started on 24 priority radar stations of the "Permanent System" of aircraft control and warning, previously authorized (but not appropriated) by the Congress and subsequently relegated to administrative limbo by the new and economy-minded Secretary of Defense, Louis M. Johnson. In January of 1950, Hq USAF accorded to its air defense units the same personnel priority basis enjoyed by the Strategic Air Commad and overseas air force units, and in the same month authorized round-the-clock air defense operations over the Atomic Energy Commission works at Hanford, Washington.

Within the Army, the expansion of antiaircraft resources undertaken during the crisis of 1948 was not matched by improvements in organization, nor by much-needed promulgation of authoritative doctrine regarding the AAA role in continental air defense. Moreover, these weaknesses were to remain even after the advent of a Soviet nuclear capability.

The Key West Conference of March 1948 had resulted in assignment to the Air Force of responsibility for defense of the United States against air attack, and one of the primary functions assigned to the Army was "to provide Army forces as required for the defense of the United States against air attack, in accordance with Joint Doctrines and procedures approved by the Joint Chiefs of Staff." The necessary JCS guidance, however, was conspicuous by its continuing absence, even after the Soviet nuclear explosion which in 1949 had imparted added impetus to improvement in other aspects of air defense. In the resultant vacuum, lack of coordination in air defense matters prevailed not only between the Army and the Air Force, but within the Army itself.

Antiaircraft artillery units were assigned not to an AAA command--which in any case was nonexistent--but to the Zone of the Interior (ZI) armies; and they were to be employed in the local air defense of these armies, rather than in a coordinated defense of vital population and industrial centers. Although Sixth Army was willing to place AAA units under the operational control of the Air Force for the defense of the vital Hanford AEC installation, "all the (ZI) Armies," in 1949, still "insisted that operational control over antiaircraft artillery was strictly a matter of Army jurisdiction." Antiaircraft rules of engagement, priorities for defense, and site locations were other key issues around which interservice controversy centered throughout 1949 and the first half of 1950, with all efforts of ZI army commanders and regional Air Defense Force commanders to resolve these questions ending in failure.

THE KOREAN CATALYST

Again, it was a crisis of the cold war which served to break this impasse and bring major improvements in the Army's contributions to continental air defense. Without doubt, it was the implications of the imperious catalyst provided by the Communist invasion of South Korea on 26 June 1950 which soon compelled not only drastic action in all areas of army air defense, but searching and comprehensive consideration of the air defense role of the Army National Guard.

Four days after the outbreak of the Korean conflict, the earlier recommendation of a Department of the Army (DA) study culminated in an activation date of 1 July 1950 for the Army Antiaircraft Command (ARAACOM), the lineal

predecessor of the Army Air Defense Command (ARADCOM). Ten days later, Major General Willard W. Irvine was instructed by DA to assume command of ARAACOM and directed, among other things, "to support the Commanding General, Continental Air Command, on the basis of joint agreements between the Department of the Army and the Department of the Air Force pertaining to policies and procedures for joint air defense of the Continental United States."

The joint agreements mentioned in General Irvine's charter materialized a few weeks later with the publication on 1 August 1950 of a bilateral Army-Air Force move into the doctrinal void created the Memorandum of Agreement signed by General J. Lawton Collins, Army Chief of Staff, and his Air Force counterpart, General Hoyt S. Vandenberg. In brief, this agreement provided for joint decision, at departmental level, upon the targets to be defended by AAA; for the location of defenses to be "prescribed geographically" by mutual Army-Air Force agreement, with tactical dispositions to be determined by AAA commanders; for Army staff representation at each echelon of the Air Force command structure charged with air defense; and for operational control by USAF air defense division commanders over AAA units "insofar as engagement and disengagement of fire is concerned."

With doctrinal and procedureal decks thus cleared for action, ARAACOM was also to benefit from the vast expansion of AAA resources set in reflex motion by the Korean crisis. Of most direct interest here was the prominent part played by the Army National Guard in this buildup. On 10 April 1951, ARAACOM assumed command of all AAA units allocated to continental air defense, a force of some 20,000 men that included 23 of the 26 active Army combat

battalions initially programmed in the crash expansion of 1948. In June of 1951 the command gained 10 gun battalions, all of them ARNG units federalized in the flood of Guard callups which followed in the immediate wake of the outbreak of war in Korea. By the end of 1951, over 60 percent of ARAACOM's 88 assigned units were of ARNG origin. Altogether, a total of 61 ARNG antiaircraft combat battalions were to be called up during the Korean conflict, of which some 47 eventually joined ARAACOM for two-year tours in the task of Continental Air Defense. By April 1952 the phaseout of these 47 units, jointly planned by ARAACOM and Army Field Forces (AFF) as early as December 1951, had commenced; and by the end of 1953 all ARNG antiaircraft units had reverted to inactive status.

So far as actual ARNG participation in on-site antiaircraft defense of the Continental United States (CONUS) was concerned, the crucial Korean chapter of cold-war history was basically a repetition of World War II precedents. Starting in August of 1950, the Guard's AAA units had first been called to active duty before being assigned to ARAACOM. The States had therefore lost command over their units to the Federal authority exercised by ARAACOM. When the immediate need for them had passed, and as the draft swelled active Army ranks, the Guard's AAA units had been released from Federal service. But the Korean crisis was only one round in the wider and continuing struggle of the cold war, and as early as January 1951 it was clear to Army planners that continued and long-term exploitation of the Guard's AAA potential would, in some new way, be necessary if an adequate Continental Air Defense were to be assured for an uncertain and ominous future.

Even earlier, in March of 1950, consideration by an ad hoc interservice

committee in the Pentagon of the areas which could be defended by antiaircraft had resulted in a realization that it was impossible to provide effective AAA defense for all the critical industrial complexes, vital military installations, and population centers of the nation. In paring the list to 60 critical localities recommended for AAA defense, the committee also made a general recommendation for use of ARNG antiaircraft units; and the 23 localities finally agreed upon by the Army and the Air Force were actually defended during the Korean conflict by a federalized ARNG force which reached a total of 47 battalions.

THE IMPETUS OF GENERAL COLLINS

The DA directive which designated these localities for AAA defense also directed ARAACOM to insure that "National Guard Antiaircraft units not in the active Army will be used to the maximum extent practicable" and that "insofar as possible, National Guard units should be used for the defense of critical areas at or near their home stations." This guidance, it is clear, was fully consistent with the views of General J. Lawton Collins, Army Chief of Staff from 1949 to 1953, and the prime mover behind a long-range, systematic program for the active participation of non-federalized ARNG units in the peacetime air defense of CONUS.

To at least one of his principal staff officers, it was well known in early 1951 that General Collins had, "for some time past, been of the opinion that non-divisional AAA gun battalions of the reserves should be organized in the areas where such defense is needed." This authoritative opinion became Promethean action when, on 10 January 1951--a date which can be regarded as

the birth-pang of the ARNG air defense program--General Collins directed his G-3, Major General Maxwell D. Taylor, to undertake "without delay" a study of "Preferential Treatment of Selected National Guard (AAA) Units." Here, the Chief of Staff's concern for the long-range future of ARNG participation in air defense, extending beyond the immediate requirements of the Korean conflict and the foreknown phaseout of ARNG units, could be clearly discerned in his "suggestion" that the study include a consideration of possible changes in legislation, and that any such change be worded "so that it can ultimately be applied to any other selected National Guard Units which it may be desirable in the future to accord the same preferential treatment."

G-3 STAFF STUDIES

When General Collins in early 1951 thus turned his attention to the Guard's antiaircraft potential, there were a total of 112 AAA battalions authorized the ARNG. Of this total, 20 were 90mm gun battalions not yet earmarked for Federal service. It was around these 43 battalions that the problem centered, as the balance of the Guard's authorized AAA units at the time were either in active Federal service, already earmarked for imminent Federal service, or "not needed" for continental air defense. In expressing his "desire" that "Antiaircraft Units of the National Guard, that are to be employed for the defense of the major target areas in the United States, be brought up to 85% strength and be provided with full (reduction table) equipment," it was the future employment of these needed but State-controlled units which concerned General Collins.

As action officer for the required study, LTC Ralph E. Hood, of G-3's

Organization and Training Division, was compelled to point out knotty problems in the areas of personnel procurement and training, as well as equipment availability.

Estimating the additional ARNG personnel requirement for the 43 battalions to be "over 20,000 officers and men," he noted that the Selective Service drain imposed by the Korean emergency upon the Guard's manpower potential made it "highly improbable that the strengths desired can be attained by the National Guard through voluntary enlistments."

For the 20 battalions yet to be organized, 12,220 specialists would have to be trained, in the face of overall Army training requirements of the Korean emergency which already "overtaxed" Army service schools. Furthermore, it was "not reasonable to assume that all specialists in the existing organizations" were "already qualified"; and unit training would have to be provided for all 43 battalions after they reached the desired 85 percent personnel strength level.

The gap between immediate equipment availability and the needs of the 43 ARNG 90mm gun battalions also posed a major problem. With respect to guns, 129 were on hand and 504 required. To meet the reduction-table requirement for 126 M9 Directors--World War II equipment made obsolete by the new T33 Fire Control System--only 41 were immediately available. The situation with respect to the M9's companion radar, the SCR 584, was even more critical, with 168 sets required and only 44 available, all of which were in repair shops as of February 1951.

These materiel problems were not only logistical but legal in nature, as the necessary equipment could be issued to ARNG units only as authorized by

the National Defense Act or by Federal appropristions for State funding of equipment declared to be excess to Army requirements. Section 67 of the National Defense Act posed the greatest obstacle, as it required apportionment of National Guard funds "in direct ratio to the number of enlisted men in National Guard units by States and territories, thus requiring apportionment on the same basis of equipment purchased with National Guard funds."

The only area in which Colonel Hood foresaw no major problems was that of maintenance and safeguarding of equipment. Noting that the experience of the Korean emergency proved that Guard units "could bring their equipment with them without any loss of time," he reasoned that the readiness of ARNG antiaircraft units would be greatly enhanced by "placing this equipment in (their) hands" and charging the States, as customary, with primary responsibility for its maintenance and safeguard.

The solutions which Hood proposed for the major problems noted were, in some respects, as novel as they were drastic.

To meet ARNG personnel needs in a time of "dwindling manpower potential," he recommended adoption of a "New concept" of assigning mobilization designees from the Organized Reserve Corps to fill vacancies in the 43 ARNG antiaircraft battalions in question.

To meet training requirements, Hood suggested that "civilian institutions such as Westinghouse, General Electric, or colleges could be utilized to give the required training for radar specialists and communications specialists." His main reliance, however, was placed upon a recommendation of the National Guard Bureau (NGB) to order the AAA units involved to active Federal service "for the specific purpose of adequately training the units and the

individuals assigned and earmarked thereto" for a period of "not less than one year."

Hood's solution to the complex equipment problem recommended circumvention of legal obstacles by declaring the necessary materiel excess to Army requirements "pending enactment of legislative authorization either through appropriations acts or amendment of Section 67 of the National Defense Act," preferably the former. As for procurement, he recommended the withdrawal of some of the needed items from depot stocks (to include items to be available from the repair pipeline in the future) and, for the bulk of the total requirements, diversion of needed materiel from allocations of the Military Defense Assistance Program (MDAP). If the Guard's AAA materiel needs were to be met by a date that Hood estimated could in no event be earlier than December 1941, it was clear that something else would have to give. And even if MDAP allocations were in fact diverted and the 43 ARNG battalions brought up to fill reduction-table strength by December of 1951, the brightest future Hood could predict for the program was that by that date it "may produce units that can effectively accomplish a static mission with a considerably reduced training time after mobilization."

REFINEMENTS AND INITIAL DECISIONS

In the discussion and decision-making which followed General Taylor's oral summation of Hood's study for General Collins on 27 February 1951, there were negative as well as positive aspects which are worthy of particular note.

For one thing, it is significant that no representative of the National Guard was present at this meeting. Given the loci of previous interest in

the problem, this ommission further attests to the fact that the impetus and initial thinking behind the germinating program for peacetime ARNG participation in Continental Air Defense came from the Active Army, not the Guard itself.

Another aspect of this important meeting was the reaction of General Collins to the G-3 recommendations regarding personnel procurement and training.

When the Chief of Staff's queries brought out the fact that federalization of Guard AAA units for training purposes would have the result of exceeding the Army's authorized strength ceiling by approximately 45,000 spaces, this recommendation died a tacit death. As for personnel procurement, Colonel Hood's suggested use of Reserve mobilization designees was met by the Chief of Staff's unspecified but decisive doubts and guidance for further study of the problem, with particular attention to be paid to the possibility of filling Guard units then earmarked for active duty with draftees drawn from the same localities as the units themselves. In response to General Taylor's suggestion that WACs be used to fill these units, General Collins agreed that "such use would be appropriate and should be considered."

Reflecting his appreciation of the Guard's dichotomous Federal-State status and his desire for stability and permanence of Guard participation in air defense, General Collins further stressed the need for detailed consideration of the legal implications of funding the personnel, training, and logistic aspects of such participation, and specifically directed that DA's Chief of Legislative Liaison "be advised as to the purpose and nature of the legislation required and proposed to permit preferential treatment of selected

National Guard units."

The most positive and immediate result of this meeting was the initiation of steps to insure that the future locations of non-federalized ARNG antiaircraft units would be in the vicinity of defended areas. When the discussion disclosed that prior selection of the 23 Guard units then on active duty in the air defense of CONUS had not been based upon the locality in which they might be used, General Collins again expressed his longstanding view that "AAA units of the reserves should be organized in the areas where such defense is needed"; and when Colonel Hood indicated that Hq AFF selected the ARNG units to be called, the Chief of Staff reminded him, possibly with some asperity, that "Field Forces does not select; it recommends. Selection of units is made by the General Staff."

The highly productive upshot of this exchange was G-3's submission, on 15 March 1951, of a brief but crucial request to the Chief of the National Guard Bureau. Pointing out that "instances can be shown where non-divisional ARNG (AAA) Gun Battalions are federally recognized in locations far removed from any planned vital objectives for air defense," General Taylor requested that proposed locations be approved by G-3 before the NGB made any further allocations of such units.

The response of the NGB struck a note of wholehearted cooperation that was to prevail throughout most of the unfolding, long-range program to follow. Acting for his chief, MG Raymond H. Fleming stated that "the National Guard Bureau will cooperate with any proposals necessary in the best interest of National Security."

Three stipulations only were made by the National Guard Bureau. Because

"organization of any National Guard unit required "the expenditure of considerable effort and time" as well as "great outlay of funds," organization must be on "a firm basis and not constantly subject to temporary new priorities based on temporary requirements or on current available appropriattions." Considering chronic congressional uncertainties and constitutional insistence upon the annual nature of appropriations, this desire of the Guard for stability of Federal commitments, was understandable.

Two stipulations were to be more easily met: the NGB wanted to know what locations were to be defended, and how many units, by type, DA desired for the defense of each location. Within less than a fortnight, the NGB received G-3's answer to both questions.

The further study directed by General Collins on 27 February materialized on 26 March in a staff study prepared, again, by LTC Ralph E. Hood. Again, the results were somewhat negative in nature.

In the area of personnel procurement, the G-1 found that it was not feasible to coordinate ARNG unit needs with local draft quotas of the Selective Service System, as suggested by General Collins. Not only would such a scheme drastically disrupt a quota system that was based upon local population, credit for local fulfillment of previous quotas, and the overall requirements of the service; it would also create a "distinct morale problem" by the "favoritism" shown to those selectees tapped for predesignated duty at home, while other draftees from the same locality remained subject to the workings of the replacement pipeline for combat duty in Korea or other overseas service. As for General Taylor's suggestion for use of WACs in manning of Guard AAA units scheduled to be called to active duty, the study passed this intriguing

question by in apparently unquestioned silence.

To solve the training problem now that active duty for training purposes was out of the question, Colonel Hood could only recommend the formation of active Army technical instruction teams to conduct "week-end instructional clinics" for selected Guard AAA units.

The one bright note was in the area of logistics. The limited availability of SCR 584 radars could be expected to increase, owing to increased production of the more modern T33 fire control system, and prospective conversions of Active Army units from guns to missiles would similarly alleviate the 90mm gun problem. An amendment to the National Defense Act had been drafted by the Judge Advocate General, and as a quick fix the Comptroller of the Army was altering the lanquage of the pending appropriations bill to permit declaration of equipment needed by the Guard as excess to Active Army needs.

If only by a process of elimination, the eventual solution to the key problem of personnel procurement was becoming increasingly clear. By the end of October 1951, G-3 was espousing the view that the 43 non-divisional Guard AAA battalions then in Federal service constituted the most practicable potential source of personnel for a long-range program of non-federalized Guard participation in continental air defense. Such a source promised also to alleviate the training problem, as many of these personnel would have received adequate training during their obligated tours of federal service. And, perhaps best of of all, this source consisted of organized units in being. The immediate problem, then, was how best to preserve the potential of these units for an effective contribution to air defense after their release from

Federal service and reversion to control by their respective States.

It was doubtless in this light that G-3 recommended that the personnel of these 43 battalions, who were then scheduled for individual release after serving 24 month tours of active duty, be released on bloc by battalion increments, phasing incremental releases from the nineteenth through the twenty-fourth month of unit active-duty time. Unit designations would revert to appropriate State control at the time of release, and "minimum organizational equipment to perform an operational mission" would be issued from Army stocks to each ARNG unit at the time of its reversion to State control.

The obvious cost of this new approach was time. Where Colonel Hood's earlier proposals envisaged a commencement date of December 1951 for a non-federalized Guard AAA program, there would now be increased delay until termination of Federal service permitted Guard participation in such a program. And even though all of the Guard's AAA battalions had ended their Korea-engendered service by the end of 1953, it was not until 25 March 1954 that a Guard AAA unit was to be officially assigned a non-federalized, peacetime mission of augmenting active Army defenses.

Nevertheless, important ground had been broken. Prompted by the catalyst of the Korean crisis and its wider cold-war context, the personal impetus in turn provided by General Collins had generated creative thought and study. Some, if not all, of the peacetime participation of the Guard in air defense had emerged.

BASIC PRINCIPLES

Clearly, such participation was to be regarded not merely as desirable: in view of the limited air defense resources of the active Army, it was essential. Such participation would be without specific limits in time: the continuing crisis environment of cold and hot wars would require, at least tacitly, quasi-permanent participation. Such participation would be by ARNG units brought to levels of strength, training, and equipment that would enable them to carry out a static operational mission on short notice. Equipment would be in the hands of the units, permitting "immediate utilization of these units in the event of an emergency," and unit selections would be closely coordinated with the locations of the objectives to be defended. At all times, the legal aspects of the Guard's dichotomous Federal-State status would be borne in mind.

This much, at least, was clear to Army planners as 1951 drew to its close. Much remained to be done, in planning as well as implementation; but the sine qua non, the conceptual first step, had been accomplished.

CHAPTER IV

THE GUN ERA: 1951-1957

While the principles of Guard participation in the Army's sphere of continental air defense were being hammered out during 1951 at the highest level of the Army Staff, ARAACOM, for its part, had not been idle.

ARAACOM PLANNING

When ARAACOM was activated in July of 1950, General Irvine's letter of instructions had delineated planning responsibilities which included the development of "detailed plans for the tactical deployment of antiaircraft units allocated for the air defense of the United States." Although allocations of Guard units to ARAACOM were at that time as non-existent as were those of active Army units, General Irvine and the small staff of his newly established headquarters had nonetheless viewed this responsibility as a mandate to develop some plans of their own for exploitation of the ARNG's antiaircraft potential. By November of 1951, an ARAACOM plan had been completed and forwarded to DA.

The proposed plan reflected a keen appreciation of the fact that the advent of the guided missile in air defense was not only certain but imminent, and that the factor of technological change was directly germane to realistic planning for ARNG participation in air defense. Thus, ARAACOM advanced four prime objectives for Guard participation, the first of which was to "maintain balanced gun-SAM (surface-to-air missile) defenses." Secondly, Guard AAA units were to replace active Army AAA units scheduled for redeployment over-

seas from M-day to M+6 months. Thirdly, Guard units were to augment existing defenses as necessary to obtain "minimum acceptable effectiveness." Lastly, the Guard alone would be used to establish additional defenses for vulnerable areas not included in DA's list of 23 critical objectives to be defended by antiaircraft artillery.

The task organization proposed for the attainment of these goals totalled some 125 AAA battalions, 35 of them active Army units, with the balance of 90 being the 81 gun and nine AW battalions earlier specified by DA as the ARNG's "firm non-divisional AAA troop basis. Of the active Army units, ARAACOM planned for 32 to be converted from guns to Nike Ajax missiles by 31 October 1954; all of these missile units, to ARAACOM's way of thinking, should be replaced "on-site" by Guard gun battalions. The ARAACOM plan also proposed that DA's list of 23 defenses be lengthened by the addition of nine more, with the ARNG alone to man these additional defenses in the event of emergency.

In a simultaneous but separate action forwarding its plan for conversion of active Army gun battalions to the Nike Ajax system, ARAACOM proposed the turnover of gun sites by converted units to the ARNG, in order to cover Nike dead areas as well as maintain balanced gun-SAM defenses. Although not specified, ARAACOM's desire to minimize the problem of ARNG site acquisition by such turnover can safely be inferred.

By early February of 1952 all of these ARAACOM proposals had received DA approval, and on 26 February ARAACOM was granted DA's specific authorization to "proceed in the coordination of planning for utilization of National Guard AAA units." On the heels of this authorization, General Irvine forwarded to

DA, in March, recommendations regarding minimum personnel and equipment requirements for what was to become the ARNG's antiaircraft "Special Security Force", and in April, ARAACOM was directed by DA to consolidate its plans for the Guard in the form of a National Guard annex to its basic operation plan. Within less than a month ARAACOM had complied, and the first definitive plan for ARNG participation in the "peacetime" air defense of the continental United States was promulgated.

In addition to reiterating the four basic objectives previously approved by DA, the ARAACOM plan amplified the concept of a Special Security Force (SSF) of ARNG antiaircraft units. Pointing out that DA "contemplated making available 90 National Guard AAA battalions...not in the Active Army" for achievement of these objectives, the important stipulation was made that "only those non-divisional National Guard battaions which have attained a status of demonstrated combat potential will be ordered to active military service in an emergency for implementation of this plan." It would be only these units which would constitute the Special Security Force, a Guard elite fully ready to move on short notice to predesignated positions for immediate implementation of predetermined operational missions. Units which were not qualified for SSF status would, on M-day, "be ordered into active military service to necessary training at training centers in accordance with mobilization capabilities."

The mechanics of mobilizing this Special Security Force would, of legal necessity, be rather intricate. Prior to publication of the ARAACOM plan, DA had sub-delegated to Continental Army commanders it authority, following a Presidential proclamation, to order into active Federal service "such units of the National Guard...as have been or may be designated special security

forces for critical installations." Based upon this authority, the ARAACOM plan now specified that upon the request of the Commanding General (CG) ARAACOM, SSF antiaircraft units would be ordered to active duty at home armories by Continental Army commanders, for use in the defense of objectives preferably "nearest home stations" but also, if need be, of "any approved objectives regardless of State boundaries." The ZI army commanders concerned would be responsible for moving the units as requested by ARAACOM, and upon arrival on site the units would be assigned to ARAACOM.

The sites to be occupied also posed a complex question. ARAACOM's answer divided the problem into two major categories, each of which contained several possible variations.

For SSF units earmarked to augment existing Active Army defenses, three possible cases were envisaged. Should it be likely that all Active Army units would be present in a given defense on D-day, ARAACOM's subordinate Eastern, Central, and Western commands were to pre-select additional sites for ARNG gun batteries, procure rights of entry for radar testing only, and plan for occupancy only during an emergency. Should an Active Army unit be absent or unabailable at the time of emergency, the SSF unit would occpy the vacated site. The third alternative described what in fact was to eventualize as the program unfolded: "positions vacated by the conversion of Active Army units to SAM (would) be available for occupancy by the National Guard." In all cases, control of Guard units assigned to established active Army defenses would be exercised through the Active Army AAOC (Antiaircraft Artillery Operations Center).

For the nine defenses planned to be manned exclusively by ARNG units, sites would be selected by ARAACOM's major subordinate commands concerned, and rights of entry for radar testing and training would be obtained "without cost, or at nominal fees." When the units attained SSF status--"an operational status sufficient to justify the costs involved"--it was "anticipated" that funds would be made available for "essential engineering of communications and site development for emergency operations." Control in this case would be effected by Guard AAOC's.

Turning to the subject of training, the ARAACOM plan for the time being left unquestioned the DA decision fixing responsibility for supervision of SSF training upon Army Field Forces and the ZI Army commanders concerned. However, ARAACOM would "at all appropriate echelons...assist in the training program to the extent facilities can be made available and within manpower capabilities, as mutually agreed between ARAACOM and the responsible training agencies." In furtherance of this principle, ARAACOM would designate "host units" to sponsor and help train nearby ARNG units: active Army sites and facilities would be made available for ARNG training exercises; and assistance during ARNG summer field training and practice firing would be rendered. Adding a stipulation which was to become a pivotal point of future developments, ARAACOM also called for ARNG units to "participate in air defense exercises to the extent practicable."

PENTAGON CONFERENCE

This ARAACOM plan had been closely coordinated with the National Guard Bureau prior to its approval by DA, but the all-important States, upon whose

unstinting cooperation the success of the program would ultimately depend, had yet to be brought into the picture. For this purpose, the Chief of the National Guard Bureau, Major General Raymond H. Fleming, arranged for a conference to take place in the Pentagon on 19 September 1952, to be attended by ARNG representatives from the 30 States involved. Among the speakers would be, in addition to General Fleming himself, LTG Maxwell D. Taylor, who had moved up from C-3 to become the Army's Deputy Chief of Staff for Operations and Administration; LTG John T. Lewis, General Irvine's successor as CG, ARAACOM, and several staff officers from DA, the NGB, ARAACOM, and AFF.

Although exposition of the ARAACOM plan provided the prime content of this momentous meeting, several newer developments were revealed. The most seminal of these was ARAACOM's thinking with regard to an on-site program for the ARNG units allocated to the command by DA. As stated in the brochure provided the conference participants by ARAACOM, the objective of the program would be to "have the National Guard units organized, trained, equipped, oriented in their mission and with their equipment permanently located on site at the positions the personnel would report to in an emergency." Here, in conceptual embryo, was the shape of things to come.

As for the sites themselves, ARAACOM indicated increasing inclination toward the "turnover" solution, according to which gun sites vacated by Active Army units converted to SAM would be made available to ARNG units. Considering such factors as the number and location of units to be converted as well as the locations of ARNG units, ARAACOM estimated that 39 ARNG gun battalions could achieve on-site status.

ARAACOM thinking at this time also linked on-site status for ARNG units

with their designation as SSF units, although the actual implementation of the Guard AAA program was later to show that the two terms would not necessarily be synonymous. Even in 1952, however, ARAACOM had the prescience to envisage situations in which the home station of an otherwise combat-ready SSF unit might be so located as to preclude pre-M-day utilization of a tactical gun site vacated by an active Army SAM unit. In such a case, ARAACOM considered that attainment of SSF status by the unit would justify the costs of acquiring and developing a site.

For their part, spokesmen of the National Guard Bureau also had some new ideas to present to the conference, and the thrust of their proposals reflected the dove-tailing of NGB and ARAACOM thinking. The vehicle for these proposals was the draft of an NGB letter to the Adjutants General of the 30 States involved in air defense plans, copies of which were provided to each conference participant and commented on in detail by two NGB spokesmen. Three of the topics covered in this draft policy statement were to be of lasting significance: command authority; age limits of personnel; and full-time technicians for on-site ARNG units.

The draft reiterated quasi-constitutional provisions which, then and now, vest the peacetime command of the National Guard in the Governors of States and require Presidential proclamation prior to its federalization, but it allowed for the possibility of active Army "coordination, control and supervision of operational training" in accordance with agreement between the States and the ZI commanders concerned. The meaning assigned "operational training" of the ARNG units was "that training which is conducted 'on-site' in the area of tactical employment" and "such other training as pertains to

their mission in...antiaircraft defense." This was far short of operational control by field commanders in the continental air defense system, but it was at least a first and important conditioning step in that direction.

Tackling the problems of personnel procurement, the NGB's draft policy paper reflected Colonel Hood's earlier concern over the Selective Service pinch on the Guard's manpower potential. The proposed solution followed a lead orginally suggested by General Collins, in February of 1951, by authorizing enlistment of men over 35, and as old as 45, in designated Guard AA units "with the understanding that they will serve in the antiaircraft defense of the United States and that they will not be employed...outside the continental limits of the United States without their consent." With this end in view, a change to National Guard enlistment regulations, which previously had set the age of 34 as a ceiling for enlistment, had already been effected.

The final point in the NGB's draft policy paper strongly reinforced ARAACOM's view by stressing that the on-site feature of the program required provision for "a certain minimum of full-time personnel,...specialists in administration, communication, radar operations and maintenance, and artillery repair." Although the structure of this full-time complement had yet to be established, approximately 15 men per battery would be needed. They would, of course, be Guardsmen and members of the battery, but they would be "procured in a civilian status, and managed along the general principles governing the present caretaker program of the National Guard." Funds for the "pay, subsistence, and housing" of these full-time civilian technicians would be provided to the States by DA, through the NGB.

Here again, a new departure from the traditional pattern of Guard

participation in air defense was being taken, a necessary supplement to the similarly innovative on-site concept. If Guard guns and fire-control equipment were to be posted in tactical sites prior to an actual emergency, people would also have to be on site, on a full-time basis. Here, the traditional pattern of weekly drill periods would not suffice; and the origins of full-time operational manning of ARNG missile units can be clearly discerned in the 15 man battery maintenance crews successfully called for by the NGB at this momentous conference in 1952.

Speaking for the command charged with responsibility for supervision of ARNG training, the Army Field Forces spokesman described the policies his headquarters planned to apply in this field. Recognizing the dual status and missions of ARNG units, he acknowledged the need for training directed toward effective State use of Guard AAA units in "local disasters or domestic disturbances,"--a point which would later become a matter of serious question. Two other limiting factors were, with greater perspicacity, acknowledged: the ever-present problem of funds, and the limited availability of time for ARNG training.

Recognizing that "most National Guard officers and many enlisted men... devote much more time to the National Guard program than appears on the drill-attendance reports," the AFF spokesman nonetheless stressed that existing limits upon training time would have to be observed, at least for planning purposes. These limits prescribed a total of 48 armory drill periods of two hours each; six eight-hour days, or three weekends; and 15 days of annual field training.

As to the content of training, primary emphasis should be upon live firing by gun batteries, "since they are the units that deliver the punch." The

"host-unit" or sponsor concept advanced by ARAACOM could be counted upon to solve most of the training problems of those ARNG units located close to active Army sites, an arrangement which should facilitate weekend firing practice by rotation of ARNG units through the AAA firing points located in the vicinity of Active Army defenses. As for those ARNG units whose relatively remote locations might make this sponsor system impracticable, live firing would have to be limited to the annual 15-day field training period. However, AFF was recommending to DA the formation of full-time, travelling instructional teams of Active Army AAA specialists for use by ZI Army commanders in training ARNG units within their respective areas. Field Forces was also recommending substantial increase in annual training ammunition allowances to Guard AAA units. Increased training emphasis upon firing would also necessitate modification of the existing training program for Guard AAA units, at the expense of such subjects as "individual tactical training, drill, ceremonies...inspections, and probably some battery commander's time."

The logistical aspects of DA thinking were divulged by an NGB spokesman who outlined a two-phase program for meeting equipment needs. In the first phase, minimum needs for training, including as major items one 90-mm (or 120-mm) gun and one SCR 584 radar (or, if available, the more modern M33 fire control system) per battery, would be allocated by DA to the NGB for further reallocations to the States and issue to the units. The additional equipment required for operational readiness would be forthcoming to units in accordance with their "demonstrated capability to use and maintain the equipment."

During the second phase, DA would designate gun sites which the Guard

would be charged to maintain in operational readiness. Supporting ARAACOM's preference for the turn-over solution, the NGB plan called for DA to "surrender" sites of active Army gun units converted to SAM, and for the NGB itself to "take steps to have the States assume accountability and maintenance of active Army equipment and facilities left on site."

Department of the Army also joined with the NGB in supporting ARAACOM's suggestion for State procurement of full-time, on-site civilian technicians. Conceding that it would be difficult to match competing industrial pay scales, the NGB spokesman put this problem in perspective by observing that "if we can afford to spend millions of dollars in equipment to preserve billions of dollars of industrial installations plus the people and their homes, we can afford to pay thousands of dollars in salaries for qualified people."

The conference adjourned sine die on the afternoon of its convocation, dutifully making way for a church service which had somehow been scheduled to use the same roon. In this short and borrowed time, the Guard representatives of 30 States had been presented with a complex blueprint in which several architects had had a hand: DA, the NGB, ARAACOM, and AFF. None of these architects had had, or could have had, complete responsibility for the eventual structure, given the unique and constitutional dual status of the National Guard; and the key to its completion could only be found, in the uncoercible cooperation of the States and the dedication of their Guardsmen.

Despite these necessarily divided responsibilities, General Lewis, for one, was confident that the plan was workable. Paying tribute to the close cooperation accorded ARAACOM by the NGB, he went on to point out that the burden of

proof lay with the States and upon Guardsmen who would be"willing to sacrifice...their otherwise spare-time hours." Progress would and should "be made slowly," as "development...must begin at the bottom, battery by battery." General Lewis was confident that Guardsmen, knowing full well that "the barriers of time and space have been removed from the defense scene," would "respond as they have always done"; and to their assistance, he pledged "every resource of the Army Antiaircraft Command."

PLANNING REFINEMENTS

During the 19-month interval between this conference and the first deployment of a Guard gun unit on site, planning was further refined in several key areas of the program.

In March of 1953, ARAACOM submitted detailed proposals to AFF which in July of that year resulted in DA's delineation of specific criteria for the Guard's antiaircraft Special Security Force. At least 50 percent of a battalion's Table of Organization and Equipment (TOE) complement of officers and warrant officers were required to be qualified in their assigned positions. Minimum enlisted strength for a 90-mm battalion was set at 240 men, of whom 75 percent were to be "capable of performing the operational functions required by assignment to appropriate MOS (Military Occupational Specialty) positions." Ideally, officer and enlisted strength would be evenly distributed throughout the batteries of the battalion, as it was envisaged that a battalion would probably qualify for SSF status gradually, or as General Lewis had put it, "battery by battery." For operational purposes, a full complement of primary AAA weapons and fire control equipment was required to be "on hand, on site,

or otherwise available." In the case of units whose equipment could not be located on site, there was a requirement for sufficient prime movers or tractors to move equipment, by shuttle if necessary, to tactical sites or railheads. As for training, the acid test of qualification for SSF designation was the passage by batteries of a modified version of the Army Training Test for AAA units, ATT 44-1.

THE DA DIRECTIVE

By the end of 1953, policy for Guard participation had crystalized in a formal DA directive covering the entire spectum of continental antiaircraft defense. Affirming the primordial principle that a combination of Active Army and ARNG battalions was the "most practical" means of meeting emergency requirements for antiaircraft defense, this policy paper necessarily devoted considerable attention to the role of the Guard.

The Active Army would provide all Nike missile battalions "at least through FY 1956," and all antiaircraft units required overseas. The Guard would provide all battalions, except Nike units, required for continental air defense, including M-day battalions needed to replace Active Army units programmed for post-D-day deployment overseas. Guard battalions assigned D-Day CONUS mission would have equipment located on site on a permanent basis, thus permitting their personnel to "report directly to battle stations." Whether assigned to augment existing active Army defenses or to man all-Guard defenses on D-day, or to replace Active Army units after D-day, all units would be ordered to active duty on D-day.

Although the DA directive consolidated and reiterated most of the previous

planning accomplished by ARAACOM, the NGB, and AFF, it increased the ARAACOM estimate of 39 battalions as a fensible force level for the ARNG on-site program. Now envisaging a total Guard potential of 91 rather than 90 battalions, DA's program for fiscal year 1954 through 1956 called for 50 battalions to be on site, with the balance of 41 to consist of M-day units earmarked for replacement of departing Active Army units after D-Day. As the reality of subsequent implementation was to show, this program was over-ambitious. Even ARAACOM's more modest estimate of 39 battalions was to prove more than could be actually achieved in the on-site program.

IMPLEMENTATION

Implementation of the on-site program commenced on 25 March 1954, when Battery "A" of the 245th AAA Battalion (120mm gun) officially joined the Active Army's New York City defense. By end of fiscal year, subsequent deployments during the course of the on-site program raised the total in battalion equivalents to 2½ battalions by 1954; 23 by 1955; 25 by 1956; and 30 by 1957. When the entire gun program ended in October of 1957, there were 105 batteries, or 30 battalion equivalents, on site in the CONUS (plus one battalion in Hawaii).

In assessing the effectiveness and significance of the ARNG gun program, it is important to note that on-site status for a unit was not necessarily synonymous with continuous inclusion in the select ranks of the Special Security Force. A particular unit could, in practice, achieve the personnel, training, and equipment standards set for SSF designation, but its location or mission could be such as to preclude on-site positioning and maintenance

TABLE 2

GROWTH OF THE ON-SITE GUN BATTERIES, 1955-1957

END FY	GUN BTRYS ON-SITE	ARNG BATTALIONS	STATES	DEFENDED AREAS
1955	50	23	14*	17
1956	79	25	14*	11
1957	105	30	14*	13

* Includes District of Columbia

of its equipment for operational purposes. Once organized and qualified for SSF status, a unit might find that an active Army site was not available for turnover. Theoretically, virgin sites could be acquired and developed for such SSF units; but the ever present problem of funding in practice blocked this possibility, and it was DA as well as ARAACOM policy to stress turnover of gun sites vacated by converted Active Army SAM units as the preferred solution to the Guard's site acquisition problem. This solution appears to have been followed in every case.

Conversely, a unit could be "on-site" but, for a variety of possible reasons, absent from the ranks of the Special Security Force. For example, individual batteries of a battalion might meet SSF criteria, but the battalion as a whole might be incapable of doing so. The location of a unit might permit its occupancy of a site for the training essential to achievement of SSF status, yet the unit might fail to pass its training test, or to meet personnel strength, training attendance, or MOS criteria. And an on-site unit which had achieved SSF status could, in theory at least, be temporarily relieved of its operational responsibilities by the CG of ARAACOM if, "at any time," he determined the unit to be "not capable" of performing such responsibilities.

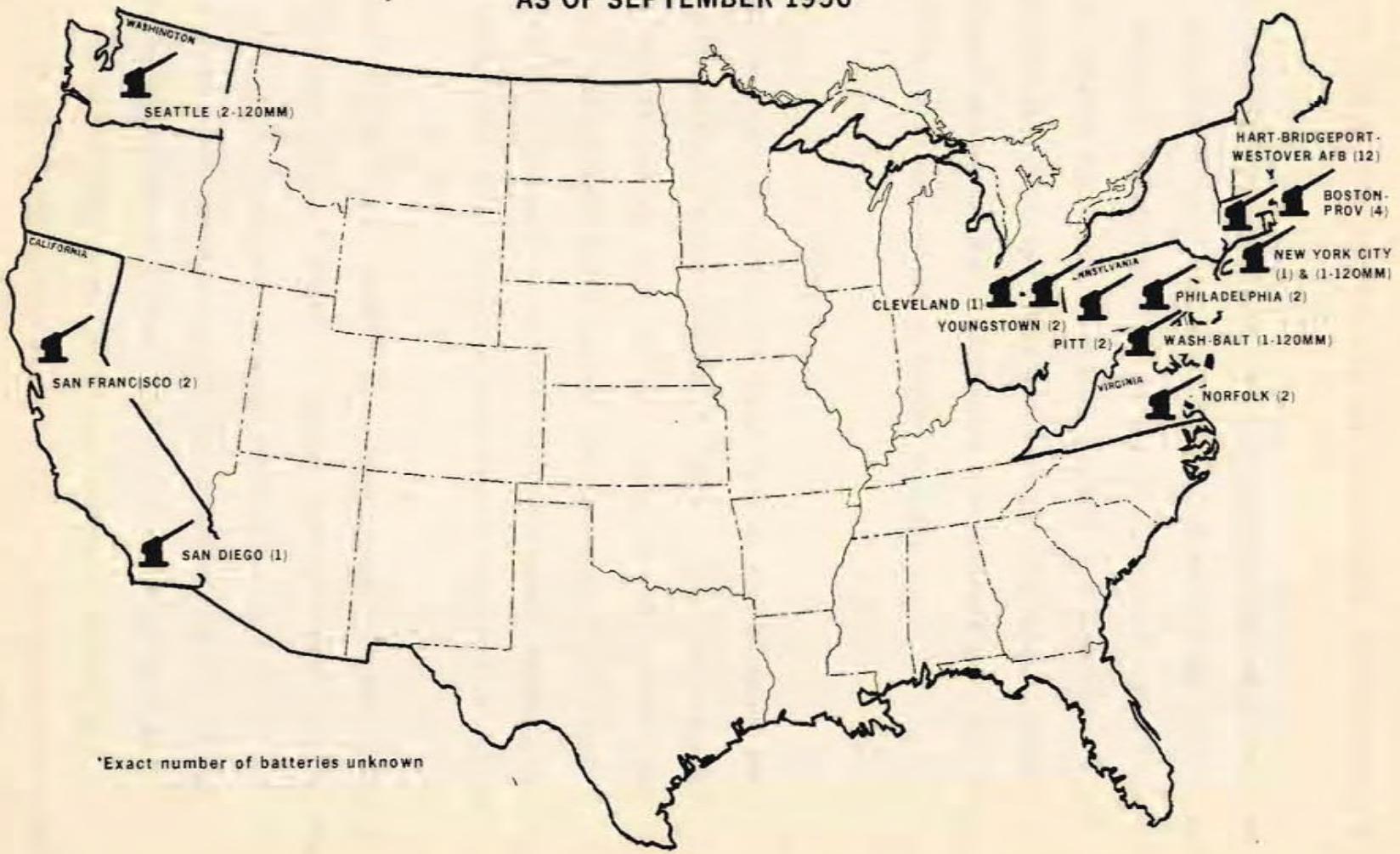
An "imperative goal" of DA policy was for <u>all</u> on-site units to be "qualified and designated as Special Security Force as expeditiously as possible." Realization fell far short of the goal. In the on-site program, the total of 30 battalion equivalents actually deployed represented little more than half of DA's announced goal of 50 battalions. The last complete troop list of ARNG gun units in ARAACOM's task organization, published in September of 1956,

shows that at that time 23 of these 30 on-site battalions were also SSF units. Since SSF units only were authorized to store ammunition on site, it was only this force of 23 battalions which constituted a quick-reacting Guard anti-aircraft force in being--assuming that all of these units could meet DA's desired (but not required) time limit of four hours for emergency assembly of unit personnel on site, and that unit standards of training had remained at the level attained at the time of the units's qualifying Army Training Test. Deployments of these on-site SSF units are shown on the accompanying map.

A narrowly arithmetical approach to analysis would thus lead to the conclusion that the Guard gun program, in terms of goals versus the kind of deployments that would count against a sudden air attack, probably achieved an effectiveness of no better than about 46 percent, or 23 on-site SSF battalions of a planned goal of 50 such units.

Such an approach, however, overlooks other important indices of value, some of which are amenable to quantitative estimates if not detailed analysis. For example, ARAACOM's 1951 plan for the defense of New York City estimated that, without Guard augmentation, the 10 Active Army gun battalions assigned to this defense could expect to exact from the enemy an attrition rate of 31 percent, the highest rate ARAACOM expected of any of the 23 defenses then planned. Obviously, the addition of five on-site Guard battalions to this defense, all of which succeeded in achieving and retaining SSF status by the end of 1957, brought this attrition rate considerably closer to the theoretical ceiling of 60 percent postulated by AAA school experts. Augmentation of other defenses by on-site SSF battalions similarly increased the potential combat effectiveness of those defenses against relatively short-notice attack, assuming that

MAP 1
ARNG DEPLOYMENTS OF ON-SITE SSF GUN BATTALIONS AS OF SEPTEMBER 1956*



*Exact number of batteries unknown

DA's desired alert status of four hours for SSF units could, in all cases, be met.

Furthermore, the Army's overall posture against air attack had benefited, as of September 1956, by the presence of 30 SSF battalions in the M-day anti-aircraft force structure. Even today, in an era of supersonic aircraft and sophisticated air defense missilery, the on-site and M-day combat potential of the Guard's 53 SSF gun units can be viewed with respect, particularly when the current performance of North Vietnamese antiaircraft guns against US Air Force and Navy fighter-bombers is borne in mind.

COSTS

Turning to the question of costs--the other side of a coin which now enjoys considerable currency--it is of interest to note that no systematic consideration of this factor was effected until April of 1952, well after major decisions affecting Guard participation had been made and detailed planning set afoot. Prompt response to military requirements apparently took precedence, in those days, over exhaustive preliminary computations of cost effectiveness.

The factor of costs was first studied in a report, dated 9 April 1952, by a board of officers headed by BG Joseph B. Frazer, a Georgia ARNG officer then on active duty. The approach of the study was comparative in nature, comparing the costs of an Active Army gun battalion with those of an on-site (and presumably SSF) Guard battalion under the rubrics of "initial" and "annual" costs. The study came up with estimated savings, in the case of a Guard battalion, of $1,900,000 in initial cost ($7,740,000 versus $9,640,000

for an Active Army battalion) and $1,990,000 in annaul cost ($1,430,000 versus $3,420,000).

Of perhaps greater practical significance was the fact that the Frazer Board also refined the civilian "care-taker" structure of ARNG units with on-site responsibilities, fixing requirements at 15 technicians per battery and thus permitting at least three men to be on site "at all times."

The total actual costs of the ARNG gun program, as well as the actual savings derived, are now impossible to compute with accuracy, owing to the absence of the cost accounting data and assumptions undoubtedly used as the bases of the Frazer Board's study. However, the NGB's statistics with respect to actual expenditures for technicians and sites permit a responsible estimate of the costs of these salient features of the Guard's gun program. The total cost for technicians of $22,455,526 and $3,491,729 for sites; or a grand total of almost $26,000,000 was computed when the Guard's gun mission was terminated as of 8 October 1957. This is an arbitray inclusion of 25 percent of the FY 58 budget which is not shown on the accompanying table.

PRECEDENT AND PRESAGE

In retrospect, the psychological significance of the on-site and SSF aspects of ARNG participation in continental air defense, while intangible, far outweighed the tangible advantages that were derived from the Guard program of the gun era. In the "sudden-death" international context brought about by the combination of cold war tensions and drastic technological advances in strategic weapons systems, the Active Army had relied upon the

TABLE 3

TECHNICIAN STRENGTH AND COSTS
RELATED TO THE ARNG ON-SITE GUN PROGRAM
FY 1954 - FY 1957

FISCAL YEAR	TECHNICIAN STRENGTH	TECHNICIAN COSTS	SITE COSTS
1954	30	$ 101,000	$ 19,303
1955	830	$ 2,000,000	$ 749,000
1956	1256	$ 7,131,549	$1,071,305
1957	1759	$11,216,194	$1,506,215

Guard in ways which represented a sharp break with the traditional pattern of post-D-day Guard participation in air defense; and the Guard had not been found wanting. Although the fundamental role envisoned and planned for the Guard's non-divisional AAA units was that of emergency augmentation, the groundwork and partial precedent for full-time participation had, in the on-site, SSF concept and provisions for small but full-time crews of civilian technicians, been largely established. By 1957, a skeletal structure was at hand which offered a practicable possibility for further expansion, and the structure was sound.

As the gun era ended in air defense, a DA inspection of the ARNG program found, in 1957, that on-site SSF units were "capable of performing their assigned mission." The 15 man battery teams of full-time technicians--nuclei from which greater things were soon to grow--had displayed in this inspection "a high degree of training and ability." The basic concepts of the on-site and SSF programs were found to be "sound," not only in terms of "economy in manpower and financial resources," but of "operational effectiveness." The inspection report to the Chief of Staff of the Army concluded with the prophetic view that "the Army National Guard is capable of expanded responsibility in the antiaircraft defense of the United States."

Already, by the summer of 1957, the nature of this "expanded responsibility" was discernible. From the ARADCOM viewpoint, at least, the prime functional value of the Guard gun program was that it had been an "augmentation program designed to facilitate conversion of Active Army units to the new Nike Ajax missiles, "a program which provided "a base from which...modernization of Army air defenses could be achieved smoothly," without "disruption of existing

defenses." The Active Army's conversion program to Nike Ajax had ended in June 1957. For the Active Army, conversion to Nike Hercules now lay ahead. For the Guard, the route to "expanded responsibility" lay through the Nike Ajax missile.

CHAPTER V

ON SITE WITH MISSILES: 1955-1974

With the move from guns to missiles, the Army National Guard entered upon a radically new role in air defense, a change of role which far transcended, in fundamental importance, the spectacular advance in weapon systems that accompanied it. Basically, even the "on-site" gun batteries of the SSF had been emergency augmentation forces, rather than fully operational units capable at any time of instantaneous response to unforeseen attack. Now, as 1957 drew to its end, ARNG units were to be integrated, on a full-time basis, into the continental air defense system, accepting an unprecedented mission "to operate continously and effectively" in that system "under the operational control of CINCNORAD."

The significance of this new departure was vividly expressed by a spokesman of the NGB in an ARNG air defense conference held in 1960, as the Guard's Ajax program was well under way:

> We cannot over-emphasize the importance with which we of the Army Staff regard the on-site missile program. These units are unquestionably performing the most important peacetime mission ever assigned to the National Guard. We do not know of any other job being done at the present time which is more important to the safety and well-being of our nation. It's a job which must be done perfectly every minute of the day and night, and every day of the year. Any failure here regardless of how slight could mean disaster.

THE ABSENCE OF SPECIFIC IMPETUS

Despite the novel implications and potential problems posed by the prospect of this true watershed of Guard participation in air defense, there appears to have been little of the intensive preliminary study at DA that so

markedly characterized the planning phase of the ARNG's gun program. In contrast to the generative role played by General J. Lawton Collins in the earlier program, the specific sources of impetus for the on-site Ajax program were less clear; and there is convincing evidence to support a conclusion that the Ajax program developed haltingly, in uneven response to a complex of converging factors, as an empirical extension of the far less revolutionary gun program.

THE INFLUENCE OF THE NEW LOOK

Unfortunately at no time during the planning phase of the Ajax program was there held the kind of coordinating conference, with representation from the numerous States, headquarters, and staff agencies involved, that had preceded implementation of the gun program. However, there was the encouraging precedent of the on-site program, with its seminal feature of small but full-time caretaker crews. There was the understandable interest of the NGB, and of some States, in a full-time air defense role for Guard units armed with missiles. And overshadowing all, there was the Eisenhower Administration's "New Look" in defense policy, with its emphasis upon strategic air power and the ever-tightening squeeze on Active Army budgets and personnel spaces--a constriction from which the full-time participation of ARNG units in air defense offered the possibility of at least partial relief.

Although DA planning for the Guard's gun program had never envisaged an eventual conversion to missiles and assumption of a full-time mission by ARNG air defense units, the New Look imperative of active Army belt-tightening operated, as early as 1955, to suggest this possibility.

APPROACHES TO SPACE-SAVING

In February of that year, a personal letter from General Matthew B. Ridgway, Army Chief of Staff, directed ARAACOM's CG to submit recommendations "as to how to effect further personnel reductions" within the command, and offered some specific suggestions:

> Among the means by which I foresee the possibility of effecting major reductions are...greater utilization of civilians within the limits of fund availability--both by obtaining services through contract and by further integrating civilian personnel into our organizational teams."

This indirect reference to the civilian technicians of caretaker crews for the Guard's on-site gun units brought a negative reaction. In the draft of his reply to General Ridgway, ARAACOM's CG noted that these technicians were "trained for combat assignments" rather than "miscellaneous duty" as "cooks, clerks, and mechanics." To integrate such personnel into active Army units, where a "60 to 80 hour work week" prevailed, would adversely affect the morale of the soldier "when he compares his working hours with those of a civilian working with him." On the other hand, a "long-range solution" was offered by use of "National Guard, Reserve, or para-military personnel" to back up skeletonized active Army units when needed. In this way, active Army firing battery personnel strength could possibly be reduced "in the order of 40 percent."

A few months later, DA broached another approach to the goal of personnel economy by requesting ARAACOM's comments on the feasibility of "integrating reserve troops with Regular Army troops in a dual battery." The concept here called for active Army personnel to "man one complete set of Nike equipment with a Regular Army cadre and reserve augmentation to man the second set of

equipment" at each of a battalion's four sites. This doubling of a battalion's firepower would require about 150 men per battalion, an increase that would "markedly reduce the Army effort in other important areas" if "made under the present Army manpower ceiling."

ARAACOM's reply fully acknowledged "the urgent necessity of conserving Active Army manpower during peacetime, "but cautioned that "any use of reserve personnel...in ARAACOM units would lower the operational capability of such units to some extent." With this reservation, ARAACOM's position was that 144 Ready Reservists per battalion, or 36 per battery, to be used only in the launching area, could be utilized in filling an augmentation for dual-siting estimated to require 231 rather than 150 additional spaces.

THE DECISION TO TEST THE GUARD

Having probed the possibilities of personnel savings through integration of civilians or Ready Reservists into active Army air defense units, DA's digestion of the returns apparently proved distasteful, as nothing further was heard, at least by ARAACOM, of these proposals. Indeed, there appears to have been a hiatus of some 18 months of outward silence between ARAACOM's reply to the Reservist proposal and DA's eventual directive, in May of 1957, to undertake a test of the ARNG's capability to "man NIKE units in the on-site air defense program."

The specific source and parameters of the thinking that produced this somewhat tentative but historically crucial decision at DA must remain, in the absence of such well-documented meetings, studies, and conferences as preceded implementation of the Guard's gun program, an enigma. The OCDCSOPS action

officer was aware only of the fact of the decision and of his own responsibility, to "work out the details" of the test program and eventual DA policy for full-time ARNG participation in missile air defense.

THE TEST DIRECTIVE

On 17 May 1957, DA published its directive for"deploying on-site in fiscal year 1959 a National Guard antiaircraft battalion with NIKE (Ajax) equipment, for the purpose of evaluating National Guard capability to man NIKE units in the on-site air defense program." Some time earlier, OCDCSOPS had apparently approached the NGB with the idea and requested nomination of an ARNG unit; and only three days after dispatch by the NGB to the AG of California on 23 April of a letter outlining the proposed mission, California wired back its acceptance and designation of the 720th AAA Battalion (90mm gun), an SSF unit on-site at Long Beach, as the test unit.

The DA plan thus called for redesignation and reorganization of this battalion (4th Battalion, 251st Artillery) as "the 720th AAA Missile Battalion (NIKE), California National Guard." The battalion was to be reorganized in accordance with TOEs then current for CONUS Nike Ajax units of the Active Army, with four missile batteries and a headquarters battery totallying approximately 545 personnel. Of this total TOE strength of 26 officers, and 498 enlisted men, 191 positions were authorized to be filled by full-time civilian technicians who were required to be Guardsmen and military members of the unit, as well as qualified in their MOS: 15 officers, 4 warrant officers, and 172 enlisted technicians.

This experimental technician structure, which was of fundamental importance and concern to DA in striking the optimum balance between the basic goal of

economy and the unit's mission "to operate continuously in the air defense system," was designed to permit the assumption of a 30 minute alert status by two of the missile batteries and a 3 hour alert status by the other two batteries. Each of the two 30 minute alert batteries would have 4 officers, 1 warrant officer, and 30 enlisted men. The austere battalion headquarters had a technician structure consisting of two officer positions and a clerk. To conserve manpower, minimum personnel for two launching sections per battery, rather than three, were provided by the technician structure. Organization of two alert crews within the 30 minute battery would provide the basis for "firemen" scheduling of each alert crew to be on duty status on-site during alternating 24 hour periods, with eight hours of work scheduled for each of these duty periods. In theory, at any rate, such scheduling would permit observance of the 40 hour per week work limit for civilian technicians.

Transitioning as they were from guns to the radically new world of air defense missilery, the training of technician personnel in the test battalion was of pivotal importance to the entire experiement. The DA plan thus called for a training program, embracing school and trooop training of specialists and "package" training and firing for the battalion, which in all extended over a carefully phased period of some 13 months.

Beginning in July 1957 and concluding almost concurrently in early May of 1958, a total of 29 specialists would be trained, in courses of varying length at the Antiaircraft and Guided Missile School at Fort Bliss, in fire control, missile, and electronic systems maintenance. School training of 12 of the battalion's officer-supervisory personnel at Fort Bliss would be timed to start in January 1958 and end, like that of the 29 preceding specialists,

in early May of that year. Six mechanical maintenance specialists would enter Fort Bliss in March and finish in May. In April, 104 personnel would start four weeks of troop specialist training at Fort Bliss. By mid-May, the schedule called for a confluence of these schooling tributaries into the unifying stream of unit package training at Fort Bliss, culminating in the live firing of missiles eight weeks later.

On-site training was also called for by the DA plan. The Active Army battalion which would eventually turn over its sites to the 720th would be responsible for such training, as well as for the actual conduct of the test. In addition to providing the first half of the eight-week period of troop training for specialists normally provided by Fort Bliss, the active Army unit would form a Training and Testing Team, with operations and supply specialists for a battalion element and four battery elements. Following the return of the 720th's technicians from Fort Bliss in July of 1958 and four weeks of site indoctrination culminating in operational status for the test battalion and inactivation of the Active Army battalions, this team would commence the five month period of observation and reporting which for DA would constitute the test of the pioneering Guard unit's ability to accomplish its mission.

During this five month testing period, the CG of ARADCOM would have command responsibility for the conduct of the test, to include prescription of inspection and testing procedures, and for the submission of monthly reports to DCSOPS, DA. The Chief of the National Guard Bureau, with concurrence of the CG, ARADCOM and DCSOPS, DA, would be responsible for the adjustments in authorized technician structure which test results might indicate to be

advisable. At DA, DCSOPS would monitor the test; coordinate the activities of the Guard, ARADCOM, and CONARC--especially Fort Bliss; authorize the necessary changes in on-site manning requirements recommended by the Chief of the National Guard Bureau and the CG of ARADCOM; and, subsequent to final evaluation of the test, "recommend requirements for National Guard participation in additional NIKE on-site programs."

The logistic clauses of the DA test plan were reminiscent of the procedures followed during the gun era. Upon relief from its operational mission by the 720th, the Active Army battalion would turn over the real estate of its sites, to include such relatively immobile mission equipment as radars, launchers, trailers, and generators, on the basis of a use permit issued to the State of California. Other mission type equipment, to include a basic load of repair parts, would be transferred by the Active Army unit to the US Property and Fiscal Officer in California for issue to the ARNG unit. Family housing provided for the Active Army unit would be made available to full time technicians on a reimbursable basis. Procurement of all supply would be an ARNG responsibility, except for ammunition and mission type repair parts, which would be provided through Active Army channels. Sixth Army would be responsible for field and depot maintenance of mission type equipment, as well as maintenance of real property, to include family housing.

In a brief but pregnant paragraph deserving of quotation in full, the DA test plan laid out its approach to the quasi-constitutional question of command and control--an approach that was to become, after considerable trauma, the eventual solution to this knotty problem:

> Prior to mobilization, the National Guard missile battalion on-site will be under the command of the Adjutant General, State of California, and will be under the operational control of the Army commander of the Los Angeles antiaircraft defense.

Here, in summary was the script. The stage was set. And upon the prologue played by California's 720th Missile Battalion would depend the future role of the Army National Guard in the air defense of the Continental United States.

THE 720TH BLAZES THE TRAIL

Well before the appearance of the official DA Directive for the test, California ARNG authorities--alerted by the NGB Letter of 23 April 1957 and even earlier by informal contacts with the National Guard Bureau--had promptly initiated detailed planning and action for accomplishment of a mission whose far-reaching significance they fully grasped. In characteristically pithy style, BG Clifford F. Beyers, CG of California's 114th AAA Brigade, recorded his awareness of the impending task's importance:

> The entire AAA National Guard of the United States is dependent upon the successful completion of the 720th's SAM mission...if we should possibly fail, we are completely through and the Guard's employment in this function is <u>out</u>.

Acting with alacrity and decisiveness, General Beyers--in civilian life a Shell Oil engineer who was to "spend more time with the 720th than at his office"--on 29 April convoked a meeting of some 22 key personnel in which he set the Guard's course for the task to come. Among the policies he promulgated to the assembled commanders of the 234th Group and its subordinate 682nd, 718th, and 720th AAA Battalions, those relating to personnel and command were of particular note.

If necessary, the entire 234th Group would be cannibalized in order to obtain full authorized strength of "the best available personnel," M-day as well as full time technicians, for the test battalion. A battery of aptitude tests would be administered by a board of officers, which would include the Active Army Advisor to the 234th Group, to all personnel of the Group. Candidates for employment as full time technicians would be obtained from this or any other source. The aptitude testing program would commence no later than 3 May, and an aggressive command information program, stressing the importance of the 720th's mission and the fact that "NO DEADWOOD WILL BE CARRIED," would be initiated "immediately" by the commander of the 234th Group.

The battalion commander and all battery commanders would be full time supervisory technicians; and, in furtherance of the goal of obtaining the best qualified personnel, command of the 720th would be changed and conferred upon a veteran of World War II and 19 years' service with the Guard, as well as a graduate of Army Schools up to and including the Command and General Staff College.

The extraordinary administrative load imposed upon the battalion and 234th Group by the personnel testing and screening procedures required by General Beyers also posed a problem, but by the time the 720th was formally redesignated as a missile battalion on 1 June, some 612 personnel of the entire 234 Group had been tested and the necessary administrative actions taken to bring the 720th up to authorized strength by assignments and re-assignments of the resultant elite.

Channels of communication with the Active Army posed another problem that

was promptly surmounted. By 17 May, ARADCOM's choice of the 865th Missile Battalion as the Active Army unit to train and test the 720th, and eventually turn over its sites to the test battalion, was officially known to the California ARNG authorities concerned. Until October, however, direct communication between the 720th and Active Army commanders was not requested by the Active Army, presumably in deference to the constitutional prerogatives of Guard Commanders. The resultant delays in routing correspondence up, over, and down Active Army and ARNG channels constituted a problem. When the CG of ARADCOM's 47th AAA Brigade requested of General Beyers authorization for "direct liaison" between his headquarters and the test battalion, the latter promptly waived his prerogatives and granted the potentially touchy request.

With decks thus cleared for action, the 720th proceeded to follow the time table of the DA plan with remarkably little slippage. The pre-school troop training provided on site by the 865th, which ended on 29 June 1957, was "excellent." There was an "over-abundance of applicants" for technician school quotas, all of which were carefully enough filled to eventuate in several honor graduates and only three failures. Package training came off as scheduled, and by 23 July the full time technicians of the 720th had re-- ported to their prospective sites in ARADCOM's Los Angeles Defense.

Several important matters, which eventually required some slippage in DA's wisely "tentative" schedule of events, had in the meantime been cleared up as the necessary preliminaries to the climactic testing phase of the pilot program.

Pointing out that the Los Angeles defense "must not be degraded during

the transition period" and that "experience with active Army units indicates that...it requires about 60 days on site to become operational," ARADCOM's 6th Region in February of 1958 had successfully initiated action to delay the 720th's assumption of operational responsibility for the 865th sites by some 30 days.

Where the DA plan had called only for testing of the battalion's ability to maintain two batteries on a 30 minute alert status and two on a three hour status, Hq ARADCOM in early July obtained the concurrence of the National Guard Bureau in adding a test of the unit's ability to meet CINCONAD's requirement for 25 percent of the fire units of a defense to be continuously on a 15 minute alert status (that is, one of its four missile batteries on 15 minute status with the remainder in three hour status). In turn, the National Guard Bureau added another aspect by requiring evaluation of the battalion's ability to maintain 25 percent, or one missile battery, on a continuous 30 minute alert, with the remainder in three hour status. On this altered basis, the adequacy of the technician manning structure would be tested by frequent operational readiness and maintenance inspections, practice alerts, and assemblies over a five month period beginning 3 August 1958.

Of basic importance to the entire prospect of a full time ARNG on site missile program was California's reaction to the DA test plan's formula for operational control of the 720th by the "Army commander of the Los Angeles Antiaircraft Defense." Although the attitude of California authorities was highly cooperative, they could not agree with 6th Region's imitial suggestion that an air defense WARNING RED of imminent attack would "automatically con-

stitute a Federal mobilization order for National Guard missile units," pointing out the necessity for "declaration of a National Emergency by the President of the United States" prior to mobilization. They were, however, willing to agree that "National Guard AAA Commanders, while in their State status, may fire air defense weapons at aircraft in consonance with the information, intelligence, and operational concepts provided by the Active Army air defense commanders," and to provide unofficial oral assurances of full cooperation in an emergency.

Even before the official turnover of the 865th's sites to the 720th on 14 September 1958, the former's training and testing team could discern problems in the area of officer training, particularly knowledge of crew drills, on the average, however, the battalion's technicians appeared to be of a "slightly higher caliber" than their Active Army counterparts. The fact that the battalion commander had only two full time technicians on his staff--a missile officer and a clerk--deprived him of the "capability of exercising his command authority through a staff in the normally accepted manner."

By the end of September, it was clear that the organization of full time technicians was faulty. In testing the various combinations of alert status, technicians were working "70 to 80 hours per week," and compensatory time for work above and the contractual limit of a 40 hours week "could not be granted due to alert, training and security requirements." Equipment maintenance and site security suffered; "morale in all units declined," especially among the school trained personnel; and "only the efforts of the battalion commander prevented loss of some of these personnel."

Thanks to an experiment with equal manning of batteries and rotation among

batteries of the 15 minute, "hot" alert status, the situation improved, and it was found that three launching sections per battery, rather than two, could be manned without increase in the total number of technicians. Unsatisfactory crew performance in early operational readiness checks by the training and testing team gradually improved, and the battalion by early October 1948, passed a 6th Region Operational Readiness Evaluation with three batteries found fully operational and the fourth non-operational as a result of equipment failure. In a morale boosting compliment to this "notable achievement," the commander of the Active Army's 108th Artillery Group paid tribute to "the hard work, esprit, and technical proficiency" that had made it possible, and conveyed to the 720th his confidence in the battalion's future.

The stated objective of the DA test plan had been to "determine the requirements in manning, procedures, and facilities of an operationally effective on site National Guard Nike battalion in the full time air defense system." By the beginning of 1959, this objective had been attained. The results of the training and testing team's sucessful experiment with equal manning of batteries and rotation of advanced alert status, after evaluation by a team of representatives from all interested headquarters and agencies, were adopted and prescribed for the technician structure of the 720th successors in an ARNG on site program. Where the test plan had called for 191 full time technicians unevenly distributed between two 30 minute and two 3 hour batteries, with only three full time personnel in battalion headquarters, there would now be 202 authorized technician spaces in the battalion, 48 per missile battery and nine technicians, in addition to the battalion

commander-supervisor, in battalion headquarters. Hard won experience, as usual, had refined theory.

POLICIES AND PLANS

Curiously engough, DA had taken long strides toward definite commitment to an ARNG on-site missile program well before the 720th Missile Battalion entered upon its test. In retorspect, this fact by no means lessens the pivotal importance of the 720th's pioneering role, for there can be little doubt that the skepticism and outright opposition of high-level air defense commanders would have been significantly--perhaps decisively--reinforced by any fundamental failure in the performance of the 720th. Yet the fact that the test antedated major moves by DA in the areas of ARNG program policy and force structure indicates that the New Look factors of Active Army budgetary and personnel savings were operating to produce decisions which did not wait upon the results of field testing of the basic concept.

As early as June 1957, only a few days after the 720th had been redesignated as a missile unit, ARADCOM had word from DA to the effect that "approximately 26 National Guard gun battalions are programmed for conversion to NIKE AJAX during FY 60". In July, the National Guard Bureau was notified by OCDCSOPS that "a proposed revision of the National Guard AAA program (was) under study by this office," and requested to provide estimates of costs and savings that would result form termination of the Guard's on site gun mission and three possible resultants: release of all on site employees and reversion of all on site units to M-day status; retention of employees of 74 on site gun batteries for conversion to onsite NIKE (Ajax) missions; and

retention of all employees for conversion to 105 on-site gun batteries to on-site Ajax units. Understandably, the National Guard Bureau recommended that last of these three courses of action, and called for definite "commitments of Department of the Army to the States" to see that "the jobs of the on site technicians are protected"; also, "a firm on site deployment plan" should precede any action to cancel the Guard's on site gun mission.

OCDCSOPS on 23 September informed ARADCOM, that "Department of the Army is terminating the present on site missions of National Guard gun units effective 30 September 1957," and that a DA Directive would be forthcoming for a "program of conversion of selected National Guard gun units to missiles." In a digest of some 31 "initial implications" of this DA decision, ARADCOM's G-3 noted that "specific information is quite limited"; and ARADCOM coordination of site selection with the Guard, a matter intertwined with the proposed missile force structure of the Guard, had not, as of 30 September, been effected. When a representative of ARADCOM's G-3 visited ODCSOPS on that date, he found that plans for the ARNG air defense force structure were in a state of "almost daily flux."

THE DA DIRECTIVE

The DA Policy Directive for the Guard's on site missile program was published on 26 December 1957. In summary, the salient provisions of this brief pronouncement called for sites to be designated by the CG, ARADCOM " "in conjunction with" the Chief, National Guard Bureau and approved by Headquarters, Department of the Army. Sites and equipment for ARNG units would be obtained through transfer of same by Active Army Ajax units. The

Guard's on site missile units would be under ARADCOM's operational control, for which ARADCOM would negotiate mutual agreements with the States. Reflecting the NGB's insistence upon technician retention, DA authorized retention of "all presently employed technicians...in their current status until required in the Nike Program." Lengthly annexes on organization, training personnel, and operations in essence reiterated the provisions of the earlier plan for testing the 720th--provisions which the experience of the test were largely to invalidate.

This directive left, as late as April 1959, both ARADCOM and the National Guard Bureau with a need for further guidance and "timely and adequate information..." regarding "...unresolved problem areas" which in turn stemmed from "...changing and uncertain concepts."

FLUCTUATIONS IN FORCE STRUCTURE

In January 1958, DA provided ARADCOM with admittedly "tentative" information for an ARNG force structure of 88 batteries, to emerge in CONUS by FY 1960 as on site Nike Ajax units, with a limit of 109 such batteries tentatively programmed for the end of FY 1961. Despite DA assurances in May that the FY 1960 force structure was "firm," the program target for that year was reduced from 88 batteries to 58. In August 1959, the programmed figures were 58 firing batteries by the end of FY 1960 and an ultimate goal of 76 batteries by the end of FY 1961. By September of 1960, the Chief of the National Guard Bureau felt sure enough of the DA ground to inform an ARNG air defense conference that "firm commitments" had been made for this ultimate FY 61 structure of 76 fire units.

AJAX DEPLOYMENTS

These fluctuations in force structure planning were accompanied by uneven progress in actual deployments. Utilizing as the planning base of reference an OCSCSOPS deployment schedule provided to the Army Chief of Staff in August of 1959, a summary comparison of plans with realization yields the following discrepancies in numbers of ARNG fire units deployed by end of fiscal years 1959 through 1961:

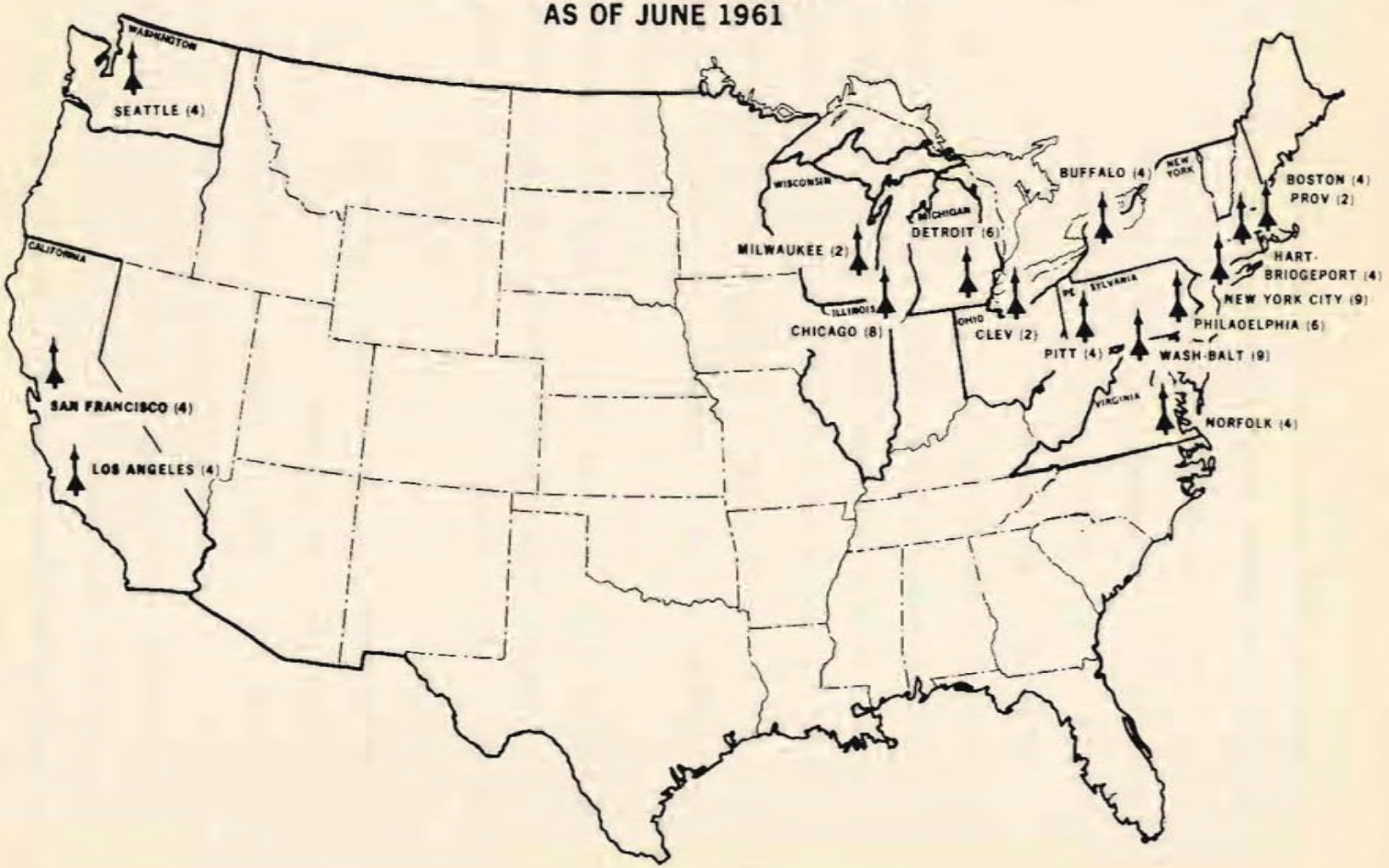
End of Fiscal Year	Planned	Actual
1959	12	8
1960	40	44
1961	24	24
TOTAL FORCE	76	76

Comparison of planning and realization with respect to defended localities yields more systematical results. In each case, planning objectives, in terms of ARNG units per defense, were realized, beginning with deployment of the 720th (4th Battalion, 251st Artillery) in September 1958 and ending with the achievement of operational status by Battery "B", 1st Battalion, 126th Artillery on 1 March 1961.

COSTS AND EFFECTS

By 1960, the full time technician structure of an ARNG Nike Ajax Battalion had stabilized at a uniform authorized strength of 204 personel, compared to an Active Army battalion strength (CONUS TOE) of 465. The total strength of air defense technicians and associated costs, for the period beginning with 720th's formal deployment on 14 September 1958 and ending with deployment of

MAP 2
ARNG DEPLOYMENTS OF
ON-SITE AJAX MISSILE BATTERIES
AS OF JUNE 1961



the Guard's first Nike Hercules unit, the 1st Missile Battalion, 70th Artillery on 11 December 1962, are shown in Table 4 by end of fiscal year.

A principal objective of DA in pushing the rather uneven implementation of the Guard's on site Nike program had been savings, both in dollars and Active Army personnel spaces. According to a detailed study of "Air Defense Active Army - ARNG Personnel Space and Cost Comparisons" prepared for Assistant Secretary of the Army, Dewey Short, by OCSCSOPS in the summer of 1959, these savings, actual and projected, were of considerable magniture. Total savings in personnel through FY 1961 were computed to be 8,836 spaces. Saving the equivalent of half a combat division, for an Active Army looking for the varying margins that would give it a fifteen division force structure, was a significant achievement. Total monetary savings through FY 1961 were projected to be $11,860,000.

The effectiveness of the Guard's Nike program, considered in terms of performance, can be guaged from the detailed performance date and interpretations reserved for presentation elsewhere in this paper. But factors other than performance must be included in any meaningful estimate of the effectiveness of the Guard's first venture into full time participation in continental air defense. Once again, the ARNG had eased the Active Army's transition to a more advanced weapon system. In taking over responsibility for operation of 76 Active Army Nike sites, ARNG units had kept up the guard of CONUS air defense while Active Army units underwent conversion to the Hercules system; and, unlike its earlier and superficially similar part in facilitating the Active Army's move to the Nike system by taking over gun sites, the Guard's role had been one of full and unremitting responsibility.

TABLE 4

TECHNICIAN STRENGTH AND COSTS,
ARNG ON-SITE AJAX PROGRAM
FY 1959 - FY 1963

FISCAL YEAR	TECHNICIAN STRENGTH	TECHNICIAN COSTS
1959	2,312	$10,638,975
1960	3,774	$15,198,257
1961	4,252	$23,512,596
1962	4,396	$25,500,000
1963	4,976	$31,796,640

By the time ARADCOM formally retired the Guard's last Ajax missile on 18 November 1964, the hitherto radical concept of full time Guard participation in the missile air defense of CONUS had become a principle, reflected by the fact that by that date, the ARNG was already well on the road to completion of its conversion from the Ajax to the Hercules weapon system.

FROM AJAX TO HERCULES: 1960-1965

The Guard's entry into yet another cycle of conversion to a more advanced air defense weapon system was not entirely free of controversy. Writing in May 1959, the CG of ARADCOM, had echoed to the Army Chief of Staff, CINCONAD's "deep concern over the trend toward employing National Guard units, in lieu of Regular units, to man first line weapons in the United States portion of the NORAD System," and expressed his own concern over "the present consideration on the part of Department of the Army for the possible use of ARNG units in the HERCULES Program for CONUS defenses." Pointing to the limited readiness status provided by the technician structure of ARNG Ajax units, the increased security and safety requirements of the nuclear capable Hercules System, and the "lack of authority for the immediate use of the National Guard units in case of emergency," the CG of ARADCOM specifically recommended that "ARNG units not be considered for use in the NIKE HERCULES Program."

The Chief of Staff's reply agreed that "what you might call our 'main battery' weapon should be manned by the Regular establishment wherever possible (added italics), with the ARNG used to man those weapons of some-

what less effectiveness"; and as late as July of 1960, ARADCOM was unaware of any firm DA thinking about a Guard role in Hercules. By the end of 1960, however, DA had broached to ARADCOM the definite prospect of an ARNG Hercules program.

Three major factors appear to have accounted for DA's espousal of such a program.

By 1960, the ever-accelerating advance of air defense technology was posing, as potential successor to the Nike Hercules, the promising possibility of Nike Zeus. This possibility already seemed concrete enough for ARADCOM, in its 1961 plan for the phaseout of 68 Active Army Ajax sites, to retain a tentative number of such sites for possible deployment of Active Army Zeus units. And in the meantime, because the Ajax system was unable to "satisfy CINCNORAD's requirement for weapon kill," all Ajax units--ARNG as well as Active Army--would have to go. The potential pressure upon Active Army resources of possible Zeus deployments, plus that generated by complete abandoment of Ajax for Hercules in existing defenses, thus called for conversion of the Guard's Ajax units to Hercules.

A second impelling factor was the impact of the international situation upon Active Army manning spaces. By early 1961, the Kennedy Administration's decision to step up the American advisory role in South Viet-Nam had resulted in a requirement for 7,000 Active Army spaces for such assignment, and an ARADCOM representative was informed by an ODCSOPS spokesman that, "to be quite frank about it, we plan to get these 7,000 spaces out of ARADCOM." Added to other pressures, this factor clearly called for ARNG assistance in manning sites for the only existing ARADCOM weapon system that could meet

CINCNORAD's requirements--Nike Hercules.

Lastly, there was the factor of precedent. Despite the growing pains encountered in the Guard's on site Ajax program, there was "no doubt" in 1960--at least at HQ ARADCOM--that "the high standards of the United States Army Air Defense Command...can be and will be maintained" by ARADCOM's Guard units. And by March 1961, ARADCOM's Commanding General paid a tribute to the Guard which acknowledged a precedent for Guard manning of Hercules. Congratulating the Guard upon "the completion of the current (Ajax) Army National Guard on site missile program," the CG went on to say:

> Since talking over its first batteries in the Los Angeles area in September 1953, the Army National Guard missile units have operated continuously and effectively, side-by-side with the Active Army, in the daily role of defending the United States against air attack. These units have established themselves as an integral part of the North American Air Defense Command's Continental Air Defense System.

In addition, there was the even more pointed precedent of the Guard's air defense program in Hawaii. Although the full program for ARNG manning of six Hercules sites by four batteries, as well as Guard manning of Hawaii's only AADCP (Army Air Defense Command Post) had yet to be completed as of mid-1960, the units to which the missile air defense of the newest State was to be exclusively entrusted had already completed package training and were preparing to occupy operational sites by February 1961.

Although the vectors of these stimuli cannot be charted with precision, their existence and relevance to the question of Guard manning of CONUS Hercules sites is apparent, and there is no doubt that detailed planning for such a program was under way by the end of 1960.

INITIAL PLANS

On 15 November 1960 ARADCOM, with the concurrence of CINCNORAD, proposed to DA a basic planning parameter that called for the Active Army "to continue to man not less than 50 percent of the Nike Hercules fire units in each CONUS defense." This "50 percent rule" operated to produce an ARADCOM proposal for ARNG manning of 38 Hercules fire units "in the 15 defenses which now include National Guard on site Nike Ajax fire units."

Factors other than the "50 percent rule" went into this recommended ARNG Hercules force structure. Considerations of economy dictated the turnover of Active Army Ajax sites, rather than the acquistion of virgin Hercules sites, as the likely solution to the site selection problem. This in turn suggested to ARADCOM and National Guard Bureau planners that the most practical solution in force structuring was to consider for conversion ARNG Ajax units whose proximity to existing sites suitable for Hercules deployments would minimize physical displacements of technician personnel. A major consideration was the fact that the internal technician structure of an ARNG Hercules battery would require about twice the number of 48 technicians then assigned to an ARNG Ajax battery. Conversion could thus be on a bisis of approximately two Ajax batteries for one Hercules battery. This factor, in turn, took some of the edge off the sensitive problem of technician retention, as the two-to-one battery conversion ratio meant that, specific site selection permitting, all of the technicians in the Guard's 76 Ajax batteries could find continuing employment in a 38 battery Hercules program. Such was the calculus that underlay ARADCOM's recommendation to DA for an on site ARNG force of 38 Hercules missile batteries.

DA AND NGB REVISIONS

For DA, ARADCOM's initial planning did not go far enough. Owing to the need for diversion of Active Army spaces to Viet-Nam and consequent reductions in ARADCOM's Active Army spaces, DA directed ARADCOM to plan for a 48 battery ARNG program. Estimating that this decision would require "the organizations, training, and deployment of five new ARNG Nike Hercules battalions of at least two fire units each," and observing that "the interest or capability of the States concerned in the creatinn of these battalions" was not, as of mid-1961, known to ARADCOM, that headquarters perforce continued further detailed planning with this total ARNG force structure of 48 batteries as a governing basis.

In planning for deployment of the 10 new units required by the DA decision, ARADCOM proposed to the National Guard Bureau the activation of 10 Guard units to man five defenses hitherto bereft of ARNG participation: Cincinnati-Dayton, Kansas City, Dallas-Fort Worth, St. Louis, and Minneapolis-St. Paul. This proved to be unacceptable to the National Guard Bureau. In compliance with an National Guard Bureau counter-proposal, ARADCOM in December of 1961 dropped St. Louis and Minneapolis-St. Paul from its list of new ARNG deployments, reallocating one each of the four batteries involved to established ARNG defenses in Seattle, Norfolk, Baltimore, and Boston. The factor of maximum technician retention was behind this counter-proposal and as subsequent developments were to show, this was to become the stumbling block in what was otherwise a soundly conceived and smoothly executed program.

That ARADCOM was not unaware of the pivotal importance of this factor was shown by an exhaustive staff study of the problem, prepared in November 1961 by its Office of Reserve Components. Pointing out that the two-for-one ratio for conversion of ARNG Ajas batteries to Hervules did not hold for

officer, warrant officer, and key NCO requirements, which were "practically on a 1-for-1 basis," and that requirements for battalion headquarters technicians would be reduced by about 50 percent, the office also emphasized that the limiting effect of the "50 percent rule" accentuated this problem of technician retention. Nonetheless, the conversion plan which this key ARADCOM staff officer on 7 December 1961 presented to a Pentagon conference of State Air Defense authorities necessarily observed the "50 percent rule". The volatile consequences which altered this rule were to show that the factor of technician retention was of decisive importance. They also cleared the way for definitive and realistic planning, not only of detailed conversion scheduling, but of refinements in overall policy for the Guard's on site program.

THE DA DIRECTIVE

The directive on "Policies for National Guard Participation in CONUS Air Defense" which DA promulgated on 5 March 1962 was a model of its kind. The product of close coordination and frequent consultation between action officers in OCDSOPS at DA and the Office of Reserve Components in Hq ARADCOM, it was thoroughly staffed within DA and ARADCOM and with the NGB and HQ CONARC. Although the 1957 Ajax directive served as a point of departure for the drafters of the 1962 version, four years of experience with ARNG participation in on site missile air defense provided a better basis for perspicacity than the four years of the augmentation gun program which lay behind the 1957 directive. In this light, it is not surprising that, unlike the sketchy 1957 directive which had served as the charter of the Guard's Ajax program,

virtually all policy questions which might arise in the Guard's Hercules program were foreseen and resolved in advance in the 1962 directive.

A standard format was provided for mutual agreements between ARADCOM and the States. In addition to specifying the terms of ARADCOM's operational control over ARNG units and other matters related to their responsiveness, this format clearly spelled out State and ARADCOM responsibilities associated with the nuclear capability of the Hercules system--a radically new element in the picture of ARNG participation in continental air defense.

Site safety and local security took on, with the advent of this nuclear capability, obviously enhanced importance. These responsibilities, as well as responsibility for the "safety, security, storage, and maintenance" of the warheads themselves, were assigned to State authorities, who would accomplish them" as desired by the Active Army air defense commander in accordance with the pertinent NORAD, DA and ARADCOM publications." For their part, ARADCOM defense commanders, assisted by ZI commanders, would "render appropriate support, counter-intelligence information," and--in compliance with JCS policy--"retain custody of Nike Hercules warheads."

Active Army training responsibilities, which in the past had been a point of contention between ARADCOM and CONARC, were definitively set forth in the directive. Although training per se was a command responsibility exercised through the ARNG chain of command within a particular State, supervision of that training, which also was to be exercised through State ARNG command channels, was an active Army responsibility to be divided between ARADCOM and CONARC. For the on site units of the ARNG Air Defense Task Organization, CONUS, responsibility for the supervision of training was assigned to CG ARADCOM;

and ARNG units which relieved Active Army units on site would, during a period of approximately 60 days of joint occupancy, receive training support from the Active Army unit. CONARC, on the other hand, would supervise the training of all ARNG air defense units not assigned an on site mission, and provide individual and package training at service schools to quotas requested by the Chief of the National Guard Bureau and approved by Department of the Army.

The technician structure prescribed by the 1957 directive was invalidated, by NORAD/CONAD alert requirements as well as by the experience of the pioneering 720th Missile Battalion, shortly after its appearance in the directive. The structure prescribed by the 1962 directive proved to be far more durable. A watchful eye on the varying alert requirements of CINCONAD, as well as four years of experience with ARNG manning of on site missile units, helps to explain this durability.

In concurring in the 48 battery ARNG Hercules program, CINCNORAD on 29 December 1961 had done so with the provision that "each ARNG Hercules fire unit will be staffed so as to maintain an advanced state of alert identical to that of a regular Army Hercules Unit." Even earlier, in November 1961, ARADCOM and National Guard Bureau planners had reflected awareness of this likely proviso by planning for a flexible technician structure designed to meet not only varying situations in radar augmentation equipments for specific defenses. Because these requirements fell into the three categories of 60 percent, 66 2/3 percent, or 75 percent alert status, the technician manning structure prescribed by the eventual DA Directive of 1962 was tailored accordingly. Given this prescience and realistic flexibility, it is not sur-

prising that the directive's prescriptions for 88 to 97 full time technicians per Hercules missile battery, as well as its authorized technician spaces for battalion headquarters and State level air defense position, have been proved workable by half a decade of experience.

CONVERSION SCHEDULING AND IMPLEMENTATION

The quasi-political problem of technician retention haveing been resolved in the immediate aftermath of the crucial conference of 7 December 1961, ARADCOM's conversion scheduling and deployment planning could proceed on a firm basis.

Realistic phasing was now the principal problem in such planning. Here, the fact that Fort Bliss could accommodate one ARNG package of four missile batteries at one time became the salient planning factor. Also, the prior experience of the personnel to be trained was a factor to be considered: obviously, the experienced personnel of existing Ajax units would require less Hercules training than would the novice technicians of units scheduled to be newly activated, rather than converted. In the latter case, it was estimated that a training lead time of 18 months, including 60 days of dual occupancy and on site training with an Active Army Hercules unit, would be required. For personnel of converting Ajax units, the necessary hiatus between Ajax phaseout and achievement of operational status on a Hercules site, including 60 days of dual occupancy, was estimated to be only six and one-half months.

By dint of close coordination and frequent conferences of representatives from Fort Bliss, the National Guard Bureau, and ARADCOM, the schedule published

by ARADCOM on 2 May 1962 was met almost to the letter, with no time slippage of more than one week. The clock like deployments which resulted from this virtually flawless planning are shown in Map 3.

COST AND EFFECTS

Technician strengths and costs associated with the Guard's Hercules program, from almost the initial deployment of Maryland's Battery "A", 1st Missile Battalion, 70th Artillery on 11 December 1962 to the end of FY 1974, are shown in Table 5. These figures tell only part of the cost story. Because the Guard in 1967 was manning 43 percent of ARADCOM's Hercules fire units and cost as well as personnel savings have long been an objective of the ARNG on-site program, a comparison of Active Army and ARNG costs, per Hercules battery, is worthwhile to a sound estimate of true costs in the Hercules phase of that program.

A study prepared for DOD in March 1967 by the Office of the Comptroller, HQ, ARADCOM, estimated the total annual cost of an Active Army Hercules battery to be $1,583,000. The same cost for an ARNG unit was put at $1,371,000, a differential of some $212,000 in favor of the Guard. The cost accounting basis used in this study, while comprehensive, excluded several Active Army fringe benefits which cumulatively would operate to increase by a substantial amount the total actual compensation of the the "average" Active Army battery member. Viewed in this light, the total estimated savings of $10,176,000 per year resulting from implementation of the Guard's Hercules program appear to be on the conservative side.

The five thousand air defense personnel spaces occupied by ARNG technicians

MAP 3
ARNG DEPLOYMENT OF ON-SITE HERCULES MISSILE BATTERIES AS OF FEBRUARY 1967

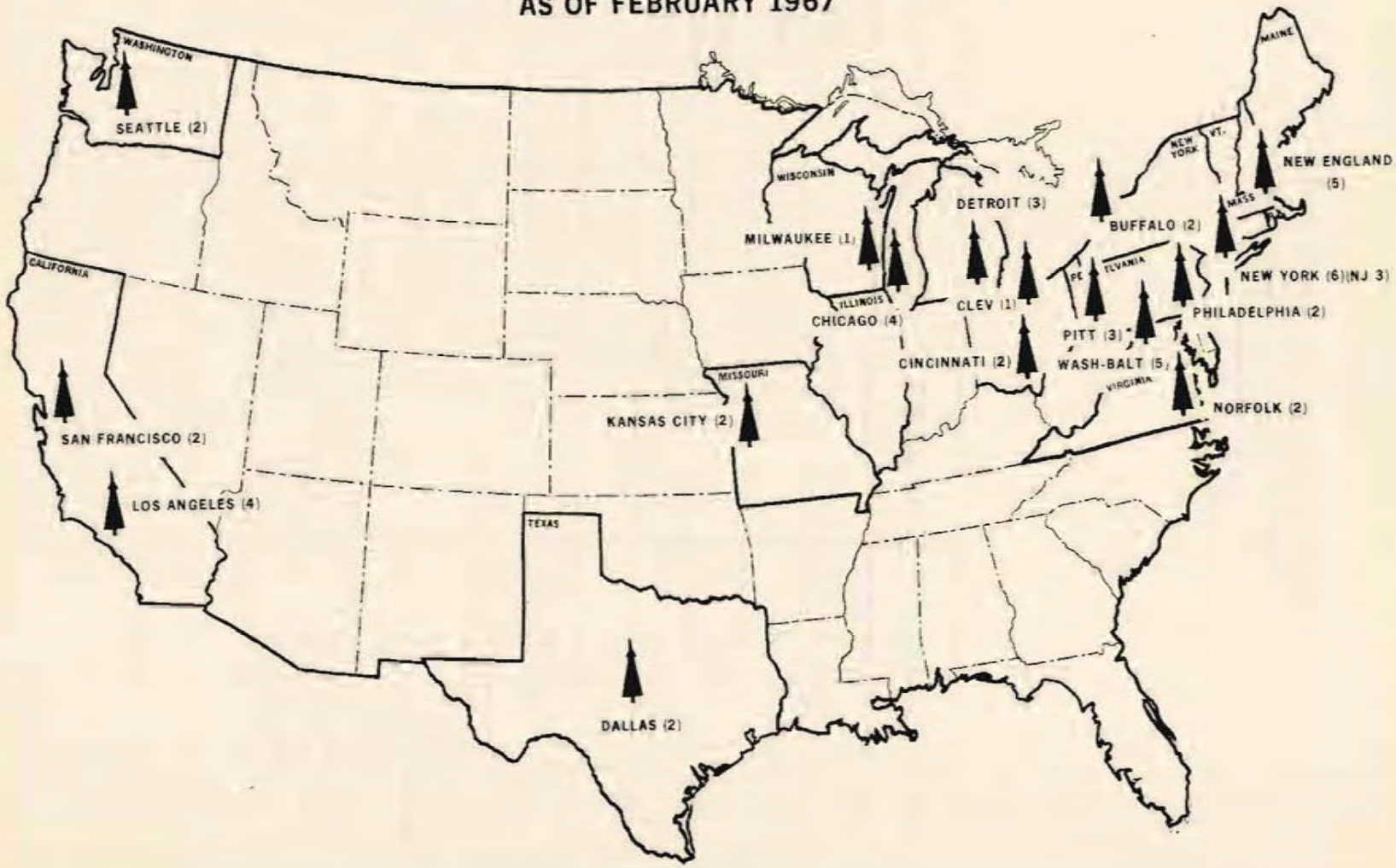


TABLE 5

TECHNICIAN STRENGTH AND COSTS,
ARNG ON-SITE HERCULES PROGRAM
FY 1964 - FY 1974

FISCAL YEAR	TECHNICIAN STRENGTH	TECHNICIAN COSTS
1964	4,795	$28,821,000
1965	5,027	$32,340,000
1966	4,970	$34,024,000
1967	5,043	$38,338,000
1968	5,128	$37,814,000
1969	4,742	$41,677,000
1970	3,613	$44,022,000
1971	2,667	$39,136,000
1972	2,707	$32,459,000
1973	2,670	$33,868,000
1974	1,620	$35,568,000

at the end of FY 1967 collectively constituted another beneficial effect of the Guard's Hercules program. Without these Guardsmen, DA in all likelihood could not have met, in the early sixties, concurrent needs for a strong air defense of CONUS and an increase, within prevailing Active Army personnel authorizations, of Army strength in Viet-Nam. Although the criticality of air defense space savings faded with the massive buildup of Active Army strength in 1965, the ever growing wealth of Hercules air defense experience and skills which the Guard had accumulated from 1962 constituted, by 1971, a major and practically irreplaceable ARADCOM assets. However, the end was foretold.

The advent of ICBM's, the wane of the manned bomber threat and the cancellation of the Nike-Zeus/Nike-X program foretold the end of the Army's on-site air defense program. There was a major cutback in 1971 and from then on, its days were numbered.

The payoff of the Guard's Hercules program lay, of course, in performance. That the Guard more than met this test is a conclusion that can be substantiated by the performance analyses which follow.

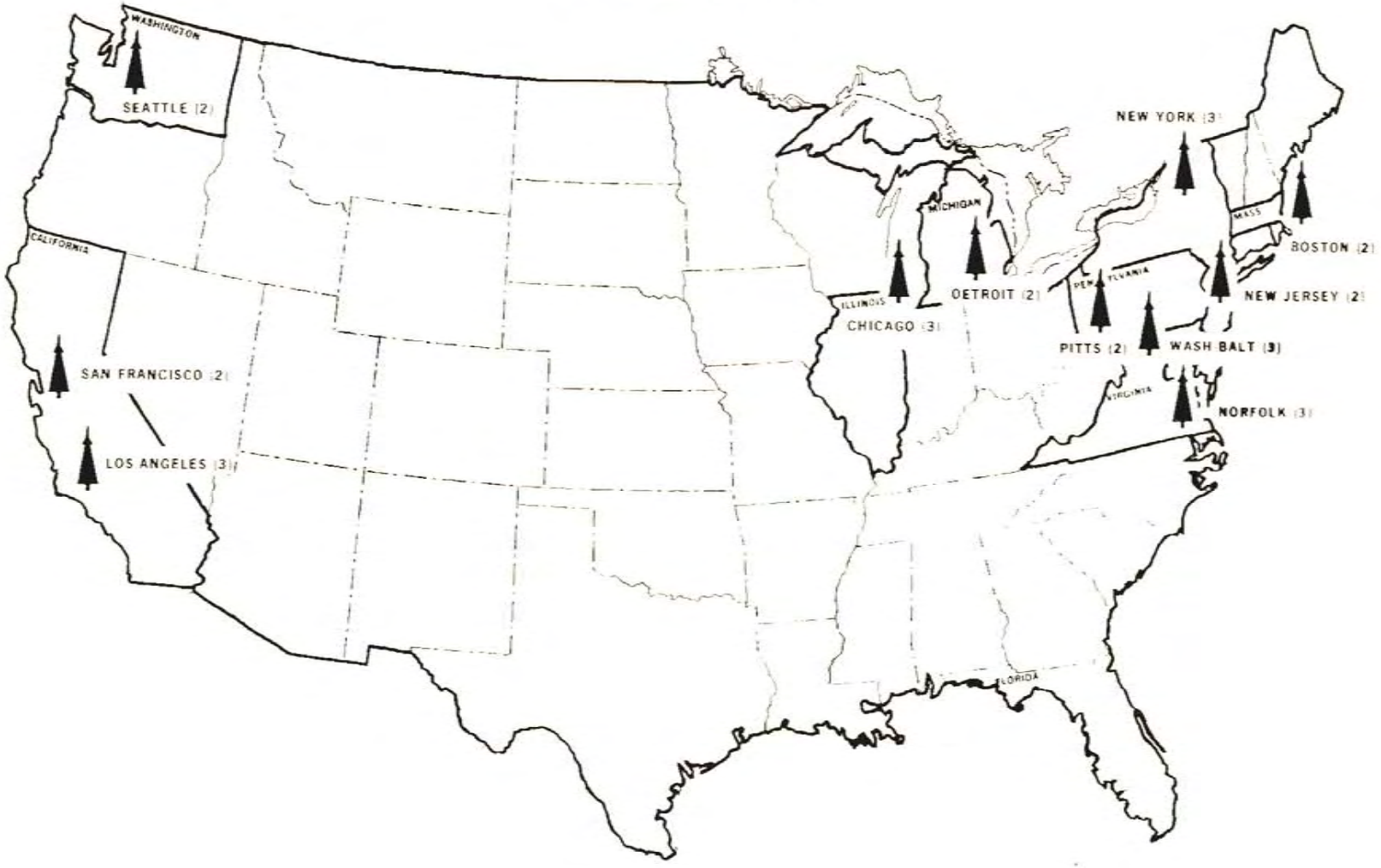
TABLE 6

RISE AND DECLINE OF THE ARNG NIKE PROGRAM

FY END	AJAX ON-SITE	AJAX ARMORY	HERCULES IN TRNG	HERCULES ON SITE	TOTAL STATES	TOTAL BNS	DEFENSE AREAS	REMARKS
1961	76	–	–	6[a]	15	34	16	
1962	69	45	2	6[a]	15	32	15	7 Ajax Btrys released.
1963	34	–	14	16	17	20	17	35 Ajax Btrys released; also 45 Ajax Armory Status Btrys.
1964	0	–	12	42	17	19[b]	17	34 Ajax Btrys released.
1965	–	–	0	54	17	19	17	
1966-68	–	–	–	54	17	17[c]	17	
1969	–	–	–	46	15	15	15	
1970	–	–	–	38	14	15	14	Hawaii program released.
1971-74	–	–	–	27	10	11	9	Program terminated CY 9/74.

a. Hawaii air defense.
b. Program at time included two Battalion HHBs plus Group HHB in Hawaii.
c. Hawaii Bn HHBs deleted; Group HHB remained to provide command and control.

MAP 4
ARNG DEPLOYMENTS OF
ON-SITE HERCULES MISSILE BATTERIES
AS OF MARCH 1974



CHAPTER VI

ARMY NATIONAL GUARD PERFORMANCE

Given the catastrophic context in which the ultimate test of Continental Air Defense would probably take place, one can only be thankful that the performance of ARADCOM and its subordinate units, Active Army as well as National Guard, had never been subjected to the supreme test of actual combat. Yet, in any meaningful study of the Guard's participation in the on-site air defense of the United States, performance must somehow be gauged; and other tests, less sanguinary but almost as demanding as actual combat, must provide the basis for evaluation.

Of obvious utility here are the yardsticks used by ARADCOM to evaluate the major aspects--operations, training and technical proficiency, of unit performance. Because ARADCOM had applied these yardsticks with no discrimination between the Active Army and ARNG components of the command, their comparative use also provides the most equitable (and practicable) basis for objective assessment of ARNG performance in the on-site air defense of CONUS.

METHODOLOGY AND SCOPE

Because all comparisons are potentially invidious, special care must here be taken to explain the bases, scope, and methodology of the largely statistical approach adopted for analysis of ARNG performance.

The sources of all the information presented were score sheets and other official records of operational, training and technical, evaluations on file, as of 31 December 1974 in HQ ARADCOM. These records of ARADCOM conducted

evaluations are as complete as retirement and destruction regulations permit.

In scope, the statistics represent only those areas and aspects of evaluation which provide opportunity for equitable comparison. The organizational level studied is thus, in almost all cases, that of the battery-size unit. Evaluations of organizations above battery level have been deliberately disregarded, as they often given considerable weight to AADCP operations (in which the ARNG were not represented in CONUS), or to other echelons of command and control which provide no fair basis for direct comparison of ARNG and active Army performance. At the level selected, HAWK batteries have also been eliminated from all statistical comparisons, as ARADCOM HAWK units are manned exclusively by Active Army personnel.

Statistics can easily be transformed into numbers rackets, knowingly or unknowingly. To avoid this possibility, every attempt has been made to minimize melanges of "apples and oranges," and all statistics have been carefully reviewed for validity.

To a battery commander or supervisor straining for the one on-hundredth of a point by which his unit may win special recognition, so minute a difference between his and other units looms understandably large. To a statistical expert, such differences are of no significance. Hopefully, the comparisons which follow will satisfy both points of view.

In this paper, five of the yardsticks used by HQ ARADCOM have been applied to compare the performance of ARNG and Active Army battery-size units. These, in order of appearance in no way reflecting relative importance, are the following: Annual Service Practice (ASP); Defense Combat Evaluations

(DCE); Operational Readiness Evaluations (ORE); Technical Proficiency Inspections/Technical Standardization Inspections (TPI/TSI).

In addition, two categories of awards have been considered: awards of the ARADCOM "E" for excellence in combat proficiency; and awards of selected trophies for performance directly related to combat readiness.

ANNUAL SERVICE PRACTICE (ASP)

The primary purpose of ASP was to determine the proficiency and combat effectiveness of each firing battery, using assigned personnel and employing its two best crews. Within this framework, the following was also determined:

System component improvements that would result in increased reliability and accuracy;

Deficiencies, problem areas, and adverse trends which degraded tactical effectiveness and;

Methods for perfecting personnel skills and procedures in the adjustment and maintenance of the Nike system.

ASP divided into four scored phases and one unscored phase, as follows was:

System Preparation	Scored	200 points
Missile Assembly	Scored	300 points
T-1 Phasing and Familiarization	Unscored	-
Tactical Effectiveness Evaluation (TEE)	Scored	900 points
Firing	Scored	600 points
		2000 points

Each battery was rated Satisfactory or Unsatisfactory, based on the final

numerical score achieved. Adjectival ratings were awarded as follows:

Satisfactory - 70-100% (1398-2000 points);

Unsatisfactory - below 70% (less than 1398 points).

TABLE 7

PERFORMANCE COMPARISONS - ACTIVE ARMY - ARMY NATIONAL GUARD

US ARMY AIR DEFENSE COMMAND

FY 1971 TO FY 1974

(All Numerical Scores Are FY Averages Expressed in Percent, Except as Noted)

	FY 1971		FY 1972		FY 1973		FY 1974*		
EVALUATION	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	NOTES
Annual Service Practice (ASP) (100% = Max. Score)	93.7	95.4	92.3	[illegible]	91.3	94.6	94.6	95.8	There have been 13 100% ASP firings in the history of ARADCOM. 11 of these were fired by ARNG units.

* Indicates Partial Year Evaluations. Notifications of pending ARADCOM inactivation brought a cessation of Evaluations just past mid FY.

DEFENSE COMBAT EVALUATION (DCE)

The Defense Combat Evaluation (DCE) is a relatively recent training and evaluation device, application of which dates only from the beginning of FY 1967. The primary aim here was to determine the ability of each of ARADCOM's 18 defenses to "protect (their) areas of responsibility from hostile air attack in a realistic combat environment."

Each defense is evaluated as an entity, with considerable weight assigned to the performance of the defense commander and his battle staff, as well as to each of the subordinate fire units of the defense. The Air Defense Artillery Director (ADAD) positions within the Direction Centers and Control Centers of the NORAD command and control system can also be evaluated, as DCEs are invariably held in conjunction with NORAD exercises.

Although for obvious reasons no live missiles are fired, the use of missile simulation equipment against NORAD "faker" aircraft, which employ electronic countermeasures (ECM) and often stage multiple "attacks," permits realistic evaluation of the defense's ability to prevent hostile aircraft from reaching their all-important bomb release lines (BRL). Enhancing this realism was the vigorous nuclear and CBR play--which often features actual use of tear gas against personnel in command and control installations as well as fire units.

Because of the weight assigned to Defense command-and-control and ADAD performance and the fact that ARNG personnel were not assigned such functions, neither these areas nor the overall DCE score offer equitable bases for comparison of ARNG and active Army performance in DCEs. Only the composite fire unit scores, which combine evaluations of operational status with less heavily weighted scores for performance against "enemy" nuclear and CBR attack, provide

TABLE 8

PERFORMANCE COMPARISONS - ACTIVE ARMY - ARMY NATIONAL GUARD

US ARMY AIR DEFENSE COMMAND

FY 1971 TO FY 1974

(All Numerical Scores Are FY Averages Expressed in Percent, Except as Noted)

	FY 1971		FY 1972		FY 1973		FY 1974*		
EVALUATION	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	NOTES
Defense Combat Evaluation (DCE) [illegible]	78.5	88.0	81.4	[illegible]	83.2	85.3	87.4	90.4	Only one battery has scored 100% on a DCE; that unit was an ARNG battery.

* Indicates Partial Year Evaluations. Notifications of pending ARADCOM inactivation brought a cessation of Evaluations just past mid-FY.

this basis. Unlike an ORE, which normally takes only 3½ hours, a DCE normally extends over 48 hours. This extended duration places far more demands upon both personnel and equipment than is the case with ASPs or OREs. During a DCE a fire-unit is required to assume an advanced state of alert at least four times, sometimes even 10 or 12 times; and the chances of equipment failure at critical moments, another heavily scored area of performance, are also greatly increased by the demanding duration of the DCE. The requirement for a fire unit to operate autonomously (not only, as in OREs, as a subordinate element of an integrated defense) also revealed that fire-unit personnel were initially, and understandably, somewhat less expert in target identification than the specialists of the AADCP.

OPERATIONAL READINESS EVALUATION (ORE)

Of all the yardsticks applied to ARADCOM units, the Operational Readiness Evaluation (ORE) is the most unremitting in application. All ARADCOM fire units, regardless of component, were subject to recurring OREs at four higher levels of command: by the unit's parent battalion, at a frequency determined by the battalion commander; by the unit's Defense Headquarters, a minimum of once every three months; by Region, a minimum of once every six months; and by HQ ARADCOM "as necessary," in part, "to provide the commander with an indicator of fire-unit capabilities." It is this last category which has provided the statistical basis for the table used in this study.

The ARADCOM ORE, which normally takes a field-grade officer and two warrant officers about 3½ hours to complete, is a detailed evaluation of unit personnel and equipment readiness to engage a target successfully within the time limits

TABLE 9

PERFORMANCE COMPARISONS - ACTIVE ARMY - ARMY NATIONAL GUARD

US ARMY AIR DEFENSE COMMAND

FY 1971 TO FY 1974

(All Numerical Scores Are FY Averages Expressed In Percent, Except as Noted)

	FY 1971		FY 1972		FY 1973		FY 1974*		
EVALUATION	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	NOTES
Operational Readiness Evaluations (ORE) Ratings: Fully Combat Ready (FCR); Combat Ready (CR); Not Combat Ready (NCR)	FCR - 14.3 CR - 71.4 NCR - 14.3	FCR - 33.3 CR - 66.7 NCR - 0	FCR - 25.0 CR - 33.0 NCR - 50.0	FCR - [illegible] CR - 25.0 NCR - 33.3	FCR - 14.3 CR - 57.1 NCR - 28.6	FCR - [illegible] CR - 45.2 NCR - 12.5	FCR - 56.0 CR - 32.0 NCR - 12.0	FCR - [illegible] CR - 27.6 NCR - 6.9	

* Indicates Partial Year Evaluations. Notifications of pending ARADCOM inactivation brought a cessation of Evaluations just past mid FY.

prescribed by the unit's state of alert, short of actual firing of a live missile. The use of sophisticated simulation equipment provides an economical substitute for live firings, and adherence to time limits is rigid. For example, a unit on three-hour alert status is given no more than two hours and forty minutes in which to attain 20 minute alert status, the common point of departure for all OREs. The unit which fails to reach this point within the prescribed time limits is summarily anathematized as "non operational."

TECHNICAL PROFICIENCY INSPECTION (TPI)

Reflecting "continuing conern, at national level, over the security, control and safety aspects of nuclear weapons operations," the primary objective of the TPI is to "insure high standards of performance in all operations involving nuclear weapons through strict adherence to prescribed procedures in accomplishing mission requirements." The broad scope of the inspection is implicit in this objective, and its thoroughness is suggested by the fact that it takes a team composed of a lieutenant colonel and two warrant officers two full working days to complete the TPI of an ARADCOM fire unit, regardless of component.

All ARADCOM fire units are subject to an annual TPI, either by a team from the Office of the Inspector General (IG), ARADCOM, or from the IG, Department of the Army. Although ARADCOM units are also subject to Technical Standardization Inspections (TSI) by the Defense Nuclear Agency (DNA), such inspections do not meet the annual TPI requirement, as crew proficiency in the launching area of the Nike Hercules system is not evaluated in DNA's TSI.

TABLE 10

PERFORMANCE COMPARISONS - ACTIVE ARMY - ARMY NATIONAL GUARD
US ARMY AIR DEFENSE COMMAND
FY 1971 TO FY 1974
(All Numerical Scores Are FY Averages Expressed in Percent, Except as Noted)

	FY 1971		FY 1972		FY 1973		FY 1974*	
EVALUATION	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG
Technical Proficiency Inspections/Technical Standardization Inspections (TPI/TSI) Rated SAT or UNSAT	SAT - 88.0 UNSAT - 12.0	SAT - 100.0 UNSAT - 0	SAT - 96.0 UNSAT - 4.0	SAT - 97.0 UNSAT - 3.0	SAT - 87.0 UNSAT - 13.0	SAT - 81.0 UNSAT - 19.0	SAT - 95.5 UNSAT - 4.5	SAT - 93.3 UNSAT - 6.7

* Indicates Partial Year Evaluations. Notifications of pending ARADCOM inactivation brought a cessation of Evaluations just past mid FY.

AWARDS AND TROPHIES

Strictly speaking, ARADCOM awards and trophies are incentives, rather than yardsticks. Nonetheless, they offer at least a "feel" for the quality of ARNG performance, especially in the area of operations.

This is particularly true of awards of the ARADCOM "E" for Excellence in Combat Proficiency, a program initiated in 1966 by the Commanding General of ARADCOM. The "feel" here is almost substantial enough to warrant use of the program as a yardstick applicable to all units, as only those batteries "which have had a nuclear accident/incident resulting from personnel error," or which have failed an ARADCOM TPI or ASPs, or a region-conducted ORE, are ineligible for award of the coveted guidon streamer.

HQ, ARADCOM in announcing the program (initiation of which took place during FY 1966 moratorium on award of commander's trophies), indicated "the old awards program failed to reflect the overall high level of readiness through out the command. Some units were nosed out by narrow margins in the competition but had exceptionally high credentials demonstrating ability to fulfill their combat missions."

Criteria for the award require, among other factors within a given fiscal year, a missile battery to achieve satisfactory ratings in the ARADCOM TPI and ASP; and operational ratings, to include satisfactory crew performance in both the IFC and launching areas, in all region-conducted ORE's during the year.

Turning to the award of trophies which are directly relevant to a missile unit's combat readiness, the comparative sample is patently restricted to a true elite of ARADCOM's large and varying troops list over the period.

TABLE 11

PERFORMANCE COMPARISONS - ACTIVE ARMY - ARMY NATIONAL GUARD

US [illegible] COMMAND

FY [illegible] 1974

(All Numerical Scores Are FY [illegible] Percent. Except as Noted)

	FY 1971		FY 1972		FY 1973		FY 1974*
EVALUATION	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	ACTIVE ARMY	ARNG	ACTIVE ARMY/ARNG
"E" [illegible] - For Excellence in Combat Performance [illegible] or [illegible] ([illegible]/Units Assigned)	8/21	20/27	9/21	11/27	6/21	14/27	Limited Awards Due to [illegible] Evaluation [illegible]

* Indicates Partial Year Evaluations. Notifications of pending ARADCOM [illegible] brought a cessation of Evaluations just past mid FY.

In the case of all but two of these trophies, the nature of, and criteria for, the award are virtually self-explanatory. These two, the trophy for the "outstanding Hercules battery in ARADCOM" and the "General Robert Ward Berry Memorial Trophy" (which, strictly speaking, was not an ARADCOM Commander's Trophy), require at least brief explanation.

The Berry Trophy, a memorial to a former CG of ARADCOM's 1st Region, gave "basic consideration for eligibility" to "a demonstrated high standard of performance in the Annual Technical Proficiency Inspection conducted either by (HQ ARADCOM) or the Technical Inspection Field Office of The Inspector General, Department of the Army." Although such other criteria as ORE and service practice standings were involved, the preliminary nominating process for this award was based exclusively upon TPI standings.

The ARADCOM Commander's Trophy for the "Outstanding Hercules Battery in ARADCOM," a relatively recent innovation, is awarded on the basis of outstanding performance in the two areas of TPI and ORE. Region commanders make the nominations, and the final competition consists of a composite evaluation in these two areas by a team from ARADCOM Headquarters. Of particular interest to this paper is the fact that none of the criteria for award of authorized ARADCOM Commander's trophies makes any official distinction between ARNG and Active Army components of the command, thus futhering the "One-Army" concept in an important field of unit endeavor.

TABLE 12

ARMY AIR DEFENSE COMMANDER'S TROPHY
TO OUTSTANDING ARNG BATTALIONS

YEAR	UNIT (Weapon)	STATE	COMMANDER
1957	708th AAA Bn (Gun)	PA	LTC Paul E. Benson
1958	527th AAA Bn (Gun) (Later 4th AW Bn, 141st Arty)	LA	LTC William B. Cox
1959	1/202 ADA Bn (Ajax)	IL	LTC Julius Schwartz
1960	4/251 ADA Bn (Ajax)	CA	LTC Neil E. Allgood
1961	No Award.		
1962	3/205 ADA Bn (Ajax)	WA	LTC Charles W. Grout
1963	2/202 ADA (Ajax)	IL	LTC Charles A. Conley
1964	1/241 ADA Bn (Herc)	MA	MAJ Paul E. Kincaid, Jr.
1965	2/205 ADA Bn (Herc)	WA	MAJ Thomas R. Stewart, Jr.

(Discontinued after 1965 Award)

TABLE 13

OUTSTANDING ARNG FIRING BATTERY AWARD*

YEAR	UNIT		AWARD	STATE	COMMANDER
1967	C-4/251		ASP	CA	CPT Howard G. Christ
	B-1/250		O/S	CA	CPT James R. VanDerVeen
1968	B-3/128	(Tied)	ASP	MO	CPT Philip K. Moore
	C-2/176		ASP	PA	CPT Robert A. Jackson
	B-1/137		O/S	OH	1LT Robert C. Bruce
1969	B-2/205		O/S	WA	CPT Deane A. Hudson
1970	B-4/251	(Tied)	ASP	CA	CPT Richard F. Thomas
	C-4/251		ASP	CA	CPT Howard G. Christ
1971	A-4/251		ASP	CA	CPT Frank Poulalion
	D-4/251		O/S	CA	CPT Harry S. Gwynne
1972	D-4/251	(Tied)	ASP	CA	CPT Harry S. Gwynne
	A-1/250		ASP	CA	CPT Michael V. Ivanoff
	A-2/205		O/S	WA	CPT Duane K. Keough
1973	A-1/250		ASP & O/S	CA	CPT Carmelo Patonia

* Replaced 1957 - 65 Outstanding ARNG Battalion Award.

** 1973 marked end of both awards; discontinued by ARADCOM

CHAPTER VII

OVERALL ASSESSMENT

Based upon the foregoing application of all these yardsticks and indicators, it becomes necessary to essay an answer to a question of importance not only to this history, but knowingly or unknowingly, to millions of Americans: In the performance of its on-site air defense mission, how good was the Army National Guard?

The answer to this key question must unavoidably be somewhat impressionistic, rather than purely statistical in nature. Many of the statistics scrutinized in this paper are nonadditive: Merely to tote up on algebraic sum of statistical results would be not only simplistic, but rank evasion of responsibility of historical judgement, and the result of even a computerized reckoning of pluses and minuses would be statistically false.

Nevertheless, these data provide substantial and indispensable support for this overall conclusion: operationally, ARNG Task Organization units were on balance better than their Active Army counterparts in ARADCOM.

There will in all likelihood be those, of both components, who will question this conclusion. Unfortunately, there are no other known studies which might serve as a basis for comparison and possible challenge.

THE FACTOR OF PERSONNEL TURBULENCE

Beyond doubt, a major factor underlying Guard superiority in several aspects of air defense performance is the greater degree of personnel stability within the ARNG Task Organization, a stability which stands in sharp contrast

to the personnel turbulence in the Active Army ranks of ARADCOM.

To a greater degree than is the case with many other types of combat organizations, the overall effectiveness of an air defense missile unit can be drastically degraded (or enhanced) by the individual performances of relatively few specialists. Whether or not an entire fire unit delivers effective fire--or any fire at all--can completely depend upon a single radar operator. A few seconds of indecision on the part of a Battery Control Officer can permit an attacking aircraft to reach its bomb release line, thus totally negating the combat potential of the BCO's entire unit. Improper assembly on maintenance of the unit's highly complex missiles can result in similarly disastrous impotence. In the performance of functions like these, personnel turbulence hurts--even in "peacetime."

Restricted by limitations of scope and availability of data, there is no feasible way for this paper to include a valid comparative analysis of personnel turbulence in the active Army and ARNG components of ARADCOM. There is good reason, however, for believing that this disruptive phenomenon is far more prevalent within Active Army units than it is within units of the ARNG Task Organization.

Personnel losses are only one factor in the complex equation of personnel turbulence, but a few authoritative estimates and spot-check statistics with respect to losses may be roughly indicative of relative turbulence among full-time ARNG air defense technicians and their Active Army counterparts. According to data provided by the States through the NGB, technician losses during a fairly typical month of a period prior to the Active Army's massive buildup in Viet-Nam, totalled 64 personnel. During August 1967, such losses totalled

65 personnel. For the Active Army, losses totalled an estimated 500 personnel during April 1965; as a reflection of training-base requirements for the Viet-Nam buildup, ARADCOM's actual Active Army losses in August 1967 totalled 1730, in enlisted men alone, 1026 of whom were levied from the command by other headquarters.

Admittedly, these figures in no sense represent a scientific sample, nor do they provide a raw-data base for the comprehensive and detailed analysis which alone could constitute a valid comparison of personnel turbulence within ARADCOM's Active Army and ARNG Components. Such an analysis would necessarily include loss-gain figures, by MOS, over a period of some 30 years--a task which records-retirement procedures, among the States as well as in the Active Army, clearly render impracticable. However, the fragmentary loss figures given above are backed by responsible estimates that ARNG attrition rates during the Ajax era were about two percent per year, and had run no higher than 15 percent, through 1974. The effects which such mute statistics might have on the cohesiveness and performance of an active Army unit, as it undergoes measurement by the yardsticks described herein, are perhaps best left to the imagination.

THE PROFESSIONALISM OF TECHNICIANS

In view of the foregoing, at least a silhouette, if not a portrait, of a full time Guard technician can be sketched.

From the viewpoint of performance as well as terms of employment, he is a professional. Trained in the same schools as his Active Army counterpart and repeatedly tested under identical criteria, with his individual skill and the smoothness of his contribution to collective effort enhanced by the

greater stability of his unit and job assignment, he is sometimes more professional than his active Army counterpart. Certainly, he is a far cry from the stereotype of the "comic soldier" and "weekend worrior" perpetuated in some sectors of the popular press; paradoxically, he is far more accurately described as an air defense professional who was only a part time Guardsman.

In her penetrating analysis of the Guard's role in politics, Martha Derthick remarks that "the greatest burden in the life of the Guard has been the (active Army's) contempt of the professional for the amateur." In the air defense business, there is no basis for such divisive condescension.

For the acid test of a true professional is performance. If ARADCOM's yardsticks of performance were valid, there can be no reasonable doubt that the ARNG Task Force was manned by proven professionals: in only a few instances, was Guard performance bested by ARADCOM's Active Army component.

GLOSSARY

AAA	Antiaircraft Artillery
AACC	Antiaircraft Artillery Operations Center
AFF	Army Field Forces
AG	Adjutant General
ARAACOM	Army Antiaircraft Command
ARADCOM	Army Air Defense Command
ARNG	Army National Guard
ATT	Army Training Test
AW	Automatic Weapon
BG	Brigadier General
CC	Commanding General
CINCONAD	Commander in Chief Continental Air Defense
CINCNORAD	Commander in Chief North American Air Defense
CONUS	Continental United States
DA	Department of the Army
DCSOPS	Deputy Chief of Staff for Operations
D-Day	Deployment Day
DOD	Department of Defense
LTG	Lieutenant General
M-Day	Mobilization Day
MOS	Military Occupational Specialty
NGB	National Guard Bureau
SAM	Surface to Air Missile

GLOSSARY (Continued)

SSF	Special Security Force
TOE	Table of Organization and Equipment
ZI	Zone of Interior (Continental United States)