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MILITIA MISSILEMEN:

THE ARMY NATIONAL GUARD

IN

AIR DEFENSE

1951-1967 (U)

(ARADCOM HISTORICAL MONOGRAPH ARAD 3-M)

Headquarters

United States Army Air Defense Command

Ent Air Force Base

Colorado Springs, Colorado 80912

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by

Lieutenant Colonel Timothy Osato

OFFICE OF THE CHIEF OF MILITARY HISTORY
DEPARTMENT OF THE ARMY
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Preface

Like other facets of the Guard's long history, the subject of "The Army National Guard in Air Defense" is not without contentiousness. If only for this reason, the avowal that this study has been written from the point of view of the U.S. Army Air Defense Command, rather than that of the Department of the Army, is necessary.

This subject is also a big one. 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 has been closely engaged in the wartime air defense both of field armies and of the homeland. The pages of any comprehensive history of the Guard's total experience in air defense would thus be even more numerous than the battle streamers on its colors. Such scope being patently beyond the limits of any meaningful monograph, a narrower but hopefully sharpened focus is necessary.

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*According to Willard L. Jones in Army Antiaircraft Artillery, 1861-1955 (unpub. MS., 1955), pp. 8-9, a rifled six-pounder of this unit (the lineal forebear of the units now designated 1st, 2d and 4th How Bns, 141st Arty, Louisiana Army National Guard) fired upon a Union observation balloon, manned by Prof. T.S.C. Lowe, near Ball's Cross Roads, now the intersection of Wilson Boulevard and Glebe Road, Arlington, Va., on 31 August 1861. The Confederate battery commander claimed that the balloon, although unscathed, was "immediately drawn down"--a classic example of the deterrent effect of antiaircraft fire.

Because my primary reliance has perforce been placed upon sources readily accessible from the headquarters of the U.S. Army Air Defense Command (ARADCOM),* this study is written from the ARADCOM point of view, and encompasses only the record of ARADCOM's relatively recent partnership with the Army National Guard, within the parameters of the Guard's responsibility for the on-site air defense of the continental United States. This partnership goes back in time only to a date as recent as 1951; and because of my necessarily narrow definition of the term "air defense," the predominant role of the Army National Guard in the air defense of Hawaii, as well as its air defense role on myriad battlefields of the past, must be slighted. A precisely worded title for this study would thus be "An ARADCOM History of the Army National Guard's Participation in the On-Site Air Defense of the Continental United States, 1951-1967." If only for aesthetic reasons, a shorter and more general title is preferred.

Thus limited though it may be, this subject is not without current significance. The Guard's complex partnership with the active Army in meeting the cold war's imperative

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*Although ARADCOM's full designation is U.S. Army Air Defense Command, ARADCOM has been the authorized acronym for this command since 1 May 1961. Army Antiaircraft Command (ARAACOM), ARADCOM's lineal forebear, was established 1 July 1950, and its abbreviated designation changed to USARADCOM on 27 March 1957.

and unremitting requirements for continental air defense is not only without precedent; it is also a striking (if little-known) example of what in wider areas of national concern has come to be characterized as "cooperative federalism," and quite possibly a harbinger of future developments within the Guard itself.

If this study can clarify these aspects of the subject, it will have served an academic purpose. But military history must also be of use in the solution of current and future military problems; and in a day when professional, political, and public attention alike is drawn increasingly to problems of continental air defense, an analysis of past experience with Army National Guard manning of air defense weapon systems may well find its most useful relevance. With this end in mind, the somewhat unorthodox organization of this study is deliberate in that the problems that arose in past implementation of Army National Guard on-site air defense programs have been isolated for consolidated description and analysis, rather than chronologically diffused throughout a narrative.

As for the narrative itself, the planning aspects of the Guard's experience are stressed, primarily because description and analysis of these aspects may prove to be

useful in future planning for Guard participation in air defense. Throughout the narrative, emphasis is placed upon the firing battery, not because higher headquarters in the Guard's chain of command were unimportant, but because the firing battery has naturally constituted the basic unit of measure in planning, and the tactical muscle of on-site operations, throughout all phases of the Army National Guard's air defense experience.

Responsibility for errors of commission or omission, of fact or interpretation, is mine alone. The invaluable help of at least five individuals must nonetheless be acknowledged, without implicating these mentors in any way. In a generous display of interservice and interdisciplinary cooperation, Lieutenant Colonel Lawrence G. Campbell, USAF, Tenure Associate Professor of Mathematics at the U.S. Air Force Academy, provided indispensable advice and painstaking review of all graphs to insure their statistical validity. Without the help of Colonel Robert D. Cowan and Major Giles A. Bax, both of the National Guard Bureau, Department of the Army, dusty but essential documents for research in the period of the early 1950s would have remained uncovered. The unstinting aid of Lieutenant Colonel Neil E. Allgood, Commanding Officer of California's 4th Missile Battalion,

251st Artillery, provided otherwise unobtainable information on the pioneering role of his unit in the Guard's Ajax program. Finally, I owe to Colonel Max E. Billingsley, Chief of the Office of Reserve Components, Headquarters ARADCOM, my initial orientation in this subject and, through numerous and time-consuming interviews, a glimpse of the wealth of detailed knowledge he has amassed in over eight years of personal experience in the planning and implementation of the Army National Guard's participation in the on-site air defense of the continental United States.

TIMOTHY OSATO
Lieutenant Colonel, Artillery

Colorado Springs, Colo.
30 June 1968

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CHAPTER I

Impetus And Inception

Of the 112 Nike Hercules missile units which in 1967 stood guard over the major population centers of the continental United States, 48--or almost 43 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 48 fire units[1] 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 in the atomic era, 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 48 Guard batteries constituted, in time of at least technical 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.[2] When impending war in Europe impelled a "careful survey and re-calculation" 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 majority of units were thus of Guard origin.

This World War II experience offers 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 anti-aircraft 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 current situation, in which tactically deployed and combat-ready ARNG missile units remain under State command but have been integrated, as a component of ARADCOM subject to the operational control of the Commander in Chief, Continental Air Defense Command (CONAD),[3] into the ceaseless "peacetime" service of on-site air defense, is 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 novel 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.[4] 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 its Air Defense Command (ADC).[5] Such developments led Lt. Gen. 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."[6]

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."[7] 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.[8] The gap between so miniscule a force and grandiose Air Force estimates of antiaircraft requirements which in 1948 reached a high of 325 battalions,[9] 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,"[10] marked another milestone not only of the cold war, but of the road which has led 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[11] 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,"[12] 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 for) by the Congress and subsequently relegated to administrative limbo by the new and economy-minded Secretary of Defense, Louis M. Johnson.[13] In January of 1950, Hq USAF accorded to its air defense units the same personnel-priority basis enjoyed by the Strategic Air Command and overseas air force units,[14] and in the same month authorized round-the-clock air defense operations over the Atomic Energy Commission works at Hanford, Washington.[15]

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 primary 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."[16] The necessary JCS guidance, however, was conspicuous by its continuing absence,[17]

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, at least, 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 25 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 today's Army Air Defense Command (ARADCOM). Ten days later, Maj. Gen. 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."[18]

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 by JCS inaction, the Memorandum of Agreement signed by General J. Lawton Collins, Army Chief of Staff, and his Air Force counterpart, General Hoyt S. Vandenberg.[19] 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 procedural 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.[20] 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.[21] Altogether, a total of 61 ARNG antiaircraft combat battalions were to be called up during the Korean conflict,[22] of which some 47 eventually joined ARAACOM for two-year hitches in the task of continental air defense.[23] By April 1952 the phase-out of these 47 units, jointly planned by ARAACOM and Army Field Forces (AFF) as early as December of 1951, had commenced;[24] and by the end of 1953 all ARNG antiaircraft units had reverted to inactive status.[25]

So far as actual ARNG participation in on-site anti-aircraft 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 discomfiting 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.[26] In paring the list to 60 critical localities recommended for AAA defense,[27] the committee also made a general recommendation for use of ARNG antiaircraft units;[28] 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.[29]

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

GENERAL J. LAWTON COLLINS,
Army Chief of Staff, 1949-1953

of critical areas at or near their home stations."[30] This guidance, it is clear, was fully consonant 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."[31] This authoritative opinion became Promethean action when, on 10 January 1951--a date which can be regarded as the birth-pang of the current ARNG air defense program--General Collins directed his G-3, Maj. Gen. Maxwell D. Taylor, to undertake "without delay" a study of "Preferential Treatment of Selected National Guard (AAA) Units."[32] 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 at DA

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.[33] Of this total, 20 were 90-mm gun battalions not yet organized and 23 were organized 90-mm gun battalions not 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 percent strength and be provided with full (reduction table) equipment,"[34] it was the future employment of these needed but State-controlled units which concerned General Collins.

As action officer for the required study, Lt. Col. 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 90-mm 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 appropriations 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."[35]

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.[36] 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 1951, 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 full 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.[37] Given the loci of previous interest in the problem, this omission 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 negative 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[38] 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."[39]

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 NGB. Pointing out that "instances can be shown where non-divisional NGUS (AAA) Gun Battalions are federally recognized in locations far removed from any planned vital objectives for air defense,"[40] 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, Maj. Gen. Raymond H. Fleming stated that "the National Guard Bureau will cooperate with any proposals necessary in the best interest of National Security."[41]

Three stipulations only were made by the NGB, and of these only one was somewhat unrealistic. 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 appropriations."

Considering chronic congressional uncertainties and constitutional insistence upon the annual nature of appropriations, this desire of the Guard for stability of Federal commitments, while understandable, was perhaps more wistful than practicable.

The other 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.[42]

The further study directed by General Collins on 27 February materialized on 26 March in a staff study prepared, again, by Lt. Col. Ralph E. Hood. And 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.[43] 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"[44] 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 90-mm gun problem.[45] An amendment to Section 67 of the National Defense Act had been drafted by the Judge Advocate General,[46] and as a quick fix the Comptroller of the Army was altering the language of the pending appropriations bill to permit declaration of equipment needed by the Guard as excess to active Army needs.[47]

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.[48] 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.[49] And, perhaps best of all, this source consisted of organized units in being.[50] 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 en 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.[51]

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.[52] Some, if not all, of the basic principles for 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,"[53] 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.

Notes

[1]In ARADCOM usage, the term "fire unit" is usually synonymous with "firing battery" in that both terms refer to a tactical unit organically capable of engaging a target with fires directly controlled from a single source. The need for distinction between the two terms arises from the fact that three active Army batteries in ARADCOM are organized as "double batteries" of two fire units each, tactically capable of engaging two targets simultaneously, but commanded and administered as an entity. As this situation does not exist within the ARNG component of ARADCOM, the terms "fire unit" and "battery" are, as used herein, synonymous.

[2]Stetson Conn, Rose C Engelman, and Byron Fairchild, The Western Hemisphere: Guarding the United States and Its Outposts, UNITED STATES ARMY IN WORLD WAR II (Washington, 1964), p.57. The information in this and the following two paragraphs is based upon this work, particularly pp.57-60.

[3]CONAD is the unified command which constitutes the U.S. contribution to the combined U.S.-Canadian North American Air Defense Command (NORAD), but because both have the same Commander in Chief (CINC), the better-known term CINCNORAD is often used herein. Strictly speaking, however, it is to the operational command of the CINCONAD that ARADCOM and its ARNG units are subordinated, and the frequent use of the terms CINCNORAD and NORAD in this study should be viewed with this important qualification in mind.

[4]The New York Times, 1 Dec 47. A flight of 48 B-29-type aircraft, the Soviet TU-4 "Bull" bomber, was observed in Russia on 23 October 1947 and reported in Intelligence Review No. 102 of the Intelligence Division, Department of the Army, 5 Feb 48.

[5]It is of interest to note that the Air National Guard was designated as ADC's major source of units for mission accomplishment in peacetime, and that all ANG units would be initially available to ADC in the event of a war emergency. See C.L. Grant, The Development of Continental Air Defense to 1 September 1954, USAF HISTORICAL STUDIES: NO. 126 (Maxwell AFB, Alabama, undated), p.12.

[6]Ltr to CG First Air Force, 17 Dec 47, as quoted in Grant, op.cit., p.12.

[7]Walter Millis, ed., The Forrestal Diaries (New York: The Viking Press, 1951), p.390. The two quotations that follow are from Secretary of Defense Forrestal's diary entries, p.387.

[8]Robert L. Kelley, Army Antiaircraft in Air Defense, 1946 to 1954, ADC HISTORICAL STUDY NO. 4 (Colorado Springs, 1954), p.46. Hereafter cited as Kelley, Army Antiaircraft. The information in this paragraph comes from this source, pp.19, 46.

[9]In 1946, the Air Force's ADC had asked for 140 AAA battalions. In the crisis summer of 1948, ADC estimated antiaircraft requirements not only of 325 gun and automatic-weapons battalions, but of 83 similarly nonexistent guided-missile groups. Ibid., p.46.

[10]Harry S. Truman, Memoirs by Harry S. Truman, Vol. 2, Years of Trial and Hope (New York: Doubleday & Company, 1956), p.306.

[11]Ibid., p.307, See also Millis, op.cit., pp.495-496, for evidence of high-level miscalculations of the Soviet nuclear potential.

[12]Grant, op.cit., p.30.

[13]A temporary "model" network of obsolescent radar, LASHUP, had been completed in the northeastern United States by June 1949. In commencing construction work on an improved, "Permanent" AC&W system, the Air Force relied for funding upon congressional authorization for the Secretary of Defense to use up to $50,000,000 of Air Force appropriations for the purpose, plus JCS assurances of support for further needed funding "as a matter of highest priority." Ibid., pp. 25-26, 29-30.

[14]Ibid., p.30.

[15]Kelley, Army Antiaircraft, p.28.

[16]Joint Army and Air Force Bulletin No. 13, as quoted in the Army Almanac (Washington, 1950), p.37.

[17]See Kelley, Army Antiaircraft, pp.20, 29, 30-32, for evidence of JCS inaction in this field. The remaining information in this and the following paragraph is drawn from this work, pp.19-30.

[18]Ltr, DA to Maj. Gen. Willard W. Irvine, 11 Jul 50, sub: Command and Staff Structure for an Army Force in Air Defense of the United States, AGAO-I.

[19]All information in this paragraph is from this source.

[20]Command Report of the Army Antiaircraft Command, 1951, p.3. Unless otherwise indicated, the remaining information in this paragraph is drawn from this source, pp.5, 84-85. These reports are hereafter cited as ARAACOM (or ARADCOM) Report, with the appropriate date.

[21]Specific component ratios in ARAACOM as of December 1951 were the following:

TYPE OF UNIT	TOTAL ASSIGNED	ARNG	ARNG PERCENTAGE
Brigade	6	3	50
Group	12	10	83
90-mm gun battalion	35	31	90
120-mm gun battalion	15	5	33
Automatic weapons (AW) battalion	6	1	16
AA operations detachment	14	11	79

[22]Kelley, Army Antiaircraft, p.54.

[23]ARAACOM Conference Brochure, National Guard AAA Units in Defense of United States, 19 Sep 52, p.3. Hereafter cited as ARAACOM Brochure.

[24]ARAACOM Report, 1951, pp.84-85.

[25]Kelley, Army Antiaircraft, p.54.

[26]Estimated AAA requirements for the defense of military installations alone amounted to roughly 125 gun battalions. Interv, 18 Oct 67, with Col. Max E. Billingsley, who in 1951 was serving in the Deployments Branch of Operations Division, G3, DA, and reviewed these requirements for impact upon deployments planning.

[27]ARAACOM Brochure, p.3.

[28]Unsigned Memo for record, NGB liaison officer to ARADCOM, 10 Jan 57, sub: National Guard AAA Program, Chronology of Actions and Events.

[29]ARAACOM Brochure, p.3. The original list of 23 objectives to be defended was changed to 22 in the fall of 1951, Sandia-Kirtland and Los Alamos being deleted and Los Angeles added. See Kelley, Army Antiaircraft, p. 48.

[30]DA Operation Plan, US-1-50, para. 3g(2).

[31]DF, G-3 to Chief, NGB, 15 Mar 51, sub: Location of NGUS (AAA) Units, G-3 325. See also Memo for record, OCS, 27 Feb 51, sub: Preferential Treatment of National Guard (AAA) Units, CS 322.

[32]Memo, CofS for G-3, 10 Jan 51, CS 322. The remaining information in this paragraph is from this source.

[33]Staff study, O&T Div, G-3, DA, 13 Feb 51, sub: Preferential Treatment of Selected National Guard Units, G-3 325. From this invaluable source, hereafter cited as G-3 Study, 13 Feb 51, is drawn, unless otherwise indicated, all information for this and the following ten paragraphs.

[34]Memo, CofS for G-3, 10 Jan 51.

[35]See DF, NGB to G-3, 5 Feb 51, sub: Study Concerning Preferential Treatment of Selected National Guard Units, NG-AROTO 325.4.

[36]Colonel Hood's recommendation was based on Memo, JAG for G-3, 19 Jan 51, sub: Preferential Treatment of Selected National Guard Units, JAGA 1951/27.

[37]In addition to Generals Collins and Taylor, only the following officers were present at this meeting, which took place at 1215 hours on 27 Feb 51: General Wade H. Haislip, Vice Chief of Staff; Lt. Gen. John E. Hull, Deputy Chief of Staff, Operations and Administration; Maj. Gen. William O. Reeder, Deputy ACofS, G-4; Lt. Col. Henry P. Van Ormer, Plans Div., G-3; Lt. Col. Ralph E. Hood, Organization and Training Div, G-3; Lt. Col. Vincent C. Guerin, G-4; Col. Martin F. Hass, Secretary of the General Staff; Col. Dwight B. Johnson, Deputy to Special Assistant to Chief of Staff for Civil Component Affairs; and Col. David P. Gibbs, Assistant Secretary of the General Staff. See Memo for record, CofS, 27 Feb 51, sub: Preferential Treatment of National Guard (AAA) Units, CS 322. Unless otherwise noted, the information in this and the following four paragraphs is drawn from this source, hereafter cited as CofS Memo, 27 Feb 51.

[38]By this time, the number of units in this category had risen from Lt. Col. Hood's earlier figure of 20 to 22, according to CofS Memo, 27 Feb 51.

[39]The wide-ranging nature of DA concern at this time regarding the air defense manning problem was also reflected by experiments with volunteer civilian auxiliaries. A 1967 letter to the author from Henry P. Van Ormer, now a retired Colonel and in 1951 a Lieutenant Colonel assigned to the War Plans Branch, G-3, indicates that in 1951 this branch

sponsored a test with personnel from the Canal Zone which "proved that civilians can perform the duties associated with air defense." However, "the training problem...defeated the project." ARAACOM, in February 1952, also submitted to DA a plan for the use of unpaid, volunteer civilian auxiliaries; like the G-3 test, nothing ever came of this ARAACOM plan. See Kelley, Army Antiaircraft, pp.56-57.

[40]DF, G-3 to NGB, 15 Mar 51, sub: Location of NGUS (AAA) Units, G-3, 325.

[41]DF, NGB to G-3, 26 Mar 51, sub: Location of NGUS (AAA) Units, NG-AROTO 325.4. The information in this and the following two paragraphs is based on this source.

[42]DF, G-3 to NGB, 4 Apr 51, sub: Location of NGUS (AAA) Units, G-3 325. This document called for a "firm troop basis" of 81 gun battalions and 31 AW battalions of the ARNG and specified as "desirable home stations" some 30 locations, with the number of battalions, by type, desired in each location.

[43]DF, G-1 to G-3, 15 Mar 51, sub: Assignment of Selectees to NG (AAA) Units, G-1 220.3, the major points of which were paraphrased in Colonel Hood's second staff study, 15 Mar 51, sub: Subsequent Study on NG (AAA) Units, G-3 325, hereafter cited as Subsequent G-3 Study, 26 Mar 51.

[44]Ibid.

[45]DF, G-4 to G-3, 9 Oct 51, sub: Preferential Treatment of Selected NG Units, G4/B2, an input to Hood's Subsequent G-3 Study.

[46]Memo, JAG for G-3, 19 Jan 51, sub: Preferential Treatment of Selected National Guard Units, JAGA 1951/27, an input to Subsequent G-3 Study. This action was never completed, as the latest amendment to Section 67 on record (32 USCA, Sec. 107, para. a, as amended by Chap. 321, 45 Stat 406) bears the date 6 April 1928.

[47]Subsequent G-3 Study, 26 Mar 51.

[48]Summary sheet, G-3 to CofS, 27 Oct 51, sub: Preferential Treatment of Selected National Guard Units, G-3 325. Unless otherwise indicated, the information in this and the following paragraph comes from this source.

[49]Ibid. In order to preserve and enhance the level of training attained by Guard AAA personnel during Federal service, Maj. Gen. Clyde D. Eddleman, General Taylor's deputy G-3, proposed in this paper that each of the Guard's federalized AAA battalions be brought to an overstrength of 150 personnel, all of whom must have at least completed 16 weeks of advanced individual training, and that Military Occupational Specialties (MOS's) in excess within a particular unit be frozen rather than considered as surplus.

[50]As pointed out by Col. Max E. Billingsley in an interview of 18 Oct 67, DA's concern in the field of air defense centered, in 1951, around the limited availability of organized units, rather than a desire to effect savings in active Army personnel spaces by exploitation of the Guard's air defense potential.

[51]This unit was Battery A, 245th AAA Gun Battalion (120-mm), of the New York City Defense. See DA fact sheet, DCSOPS, 4 Aug 59, sub: Background and Status, ARNG On-Site Program, 1950-1959, ODCSOPS/OPS SW ADO-11, hereafter cited as DA Fact Sheet, 4 Aug 59.

[52]Col. Van Ormer, in the letter cited in n. 39, states that "all action officers" involved in the problem "were convinced that the Guard had to be used for 'on-site' missions," and that the "top level" (specifically, Generals Collins and Taylor) "more than supported the use of the Guard." Col. Van Ormer adds that the National Guard Bureau, while supporting the principle, "rightly showed concern re how nondivisional National Guard unit commanders could be promoted."

[53]Subsequent G-3 Study, 26 Mar 51.

CHAPTER II

The Gun Era: Planning And Implementation, 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."[1] Although allocations of Guard units to ARAACOM were at that time as nonexistent as were those of active Army units, General Irvine and the miniscule staff of his newly established headquarters[2] 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[3] reflected a keen appreciation of the fact that the advent of the guided missile in air defense was

not only certain but imminent,[4] 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 overseas 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,[5] 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.[6] 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,[7] 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."[8] On the heels of this authorization, General Irvine and his small but hyperactive headquarters[9] 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.[10] 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, with customary Army terseness, as "Change 11 to AA-OP-US-1-51."[11]

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.[12] 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 battalions 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 (SSF), 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 (ZI) Army commanders its 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."[13] Based upon this authority, the ARAACOM plan now specified that upon 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 objective 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 unavailable at the time of emergency, the SSF unit would occupy 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 AAOCs.

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,[14] 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 NGB, Maj. Gen. 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.[15] Among the speakers would be, in addition to General Fleming himself, Lt. Gen. Maxwell D. Taylor, who had moved up from G-3 to become the Army's Deputy Chief of Staff for Operations and Administration; Lt. Gen. 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."[16] 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[17] 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, civilian 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 Congressional or 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 Army 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 problem 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 originally suggested by General Collins, in February of 1951,[18] 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.[19]

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, communications, 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 today's 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.[20] 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.[21] 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 turnover 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 room. 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, if ever, in the unstinting 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."[22] 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.[23] 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 250 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[24] covering the entire spectrum 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 a 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.

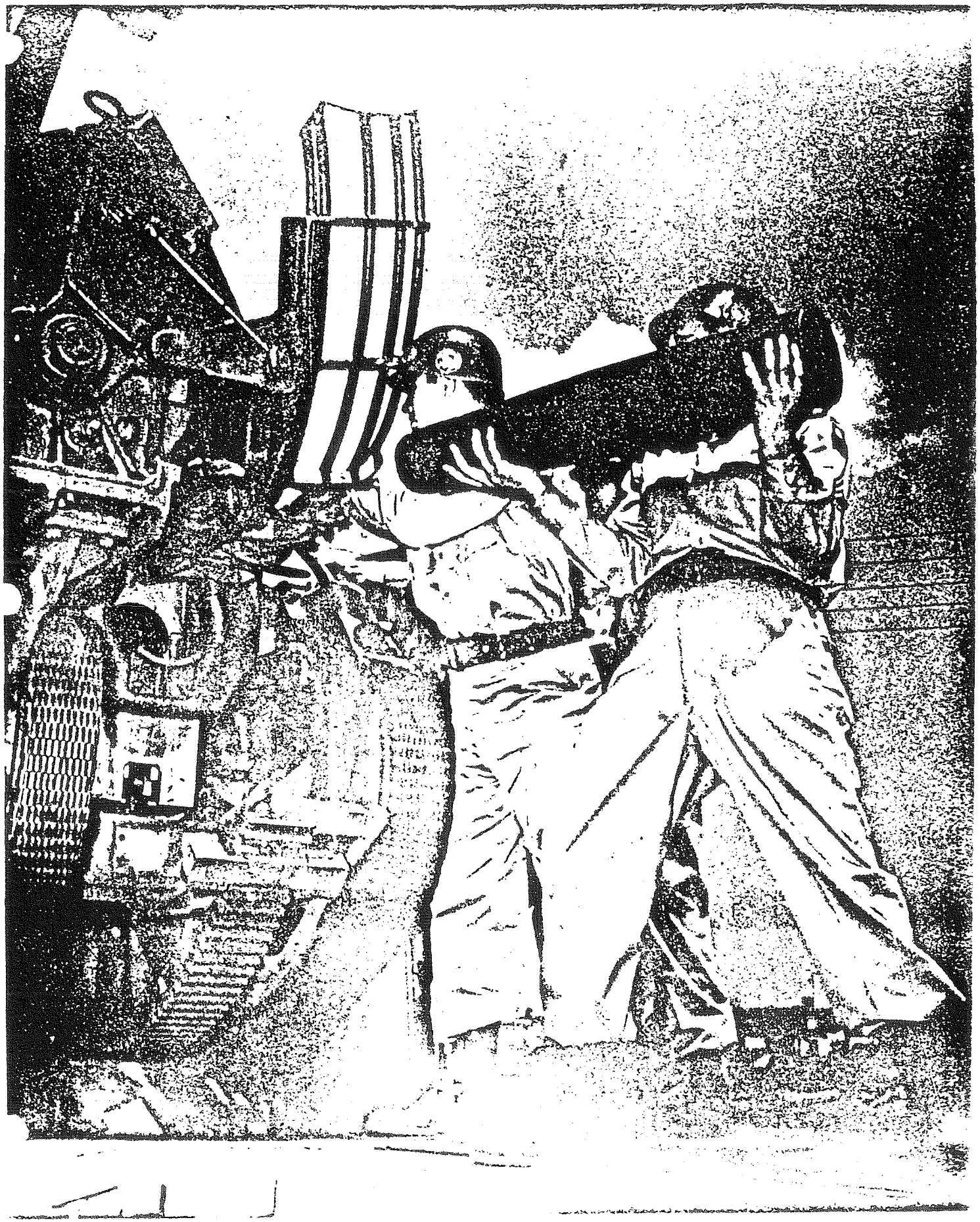
Although the DA directive consolidated and reiterated most of the previous planning accomplished by ARAACOM, the NGB, and AFF, it upped the ARAACOM estimate of 39 battalions as a feasible force level for the ARNG on-site program. Now envisaging a total Guard potential of 91 rather than 90 battalions, DA's program for fiscal years 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 (120-mm gun) officially joined the active Army's New York City defense.[25] By end of fiscal year, subsequent deployments during the course of the on-site program raised the total in battalion equivalents to $2\frac{1}{2}$ battalions by 1954; $12\frac{1}{2}$ by 1955; 19 3/4 by 1956; and $25\frac{1}{4}$ by 1957.[26] When the entire gun program ended in October of 1957, there were 101 batteries, or $25\frac{1}{4}$ battalion equivalents, on site in the CONUS (plus one battalion in Hawaii).[27]

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 (SSF). 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 of its equipment for operational purposes. Once organized and qualified for SSF status, a unit might find that an active



GUARDSMEN OF NEW YORK'S BATTERY "A",
245th AAA BATTALION
load a 120-mm gun at 92nd Street and
23rd Avenue, New York City, 1955

Army site was not available for turnover. Theoretically, virgin sites could be acquired and developed for such SSF units;[28] 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.[29] This solution appears to have been followed in every case.[30]

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.[31] 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.

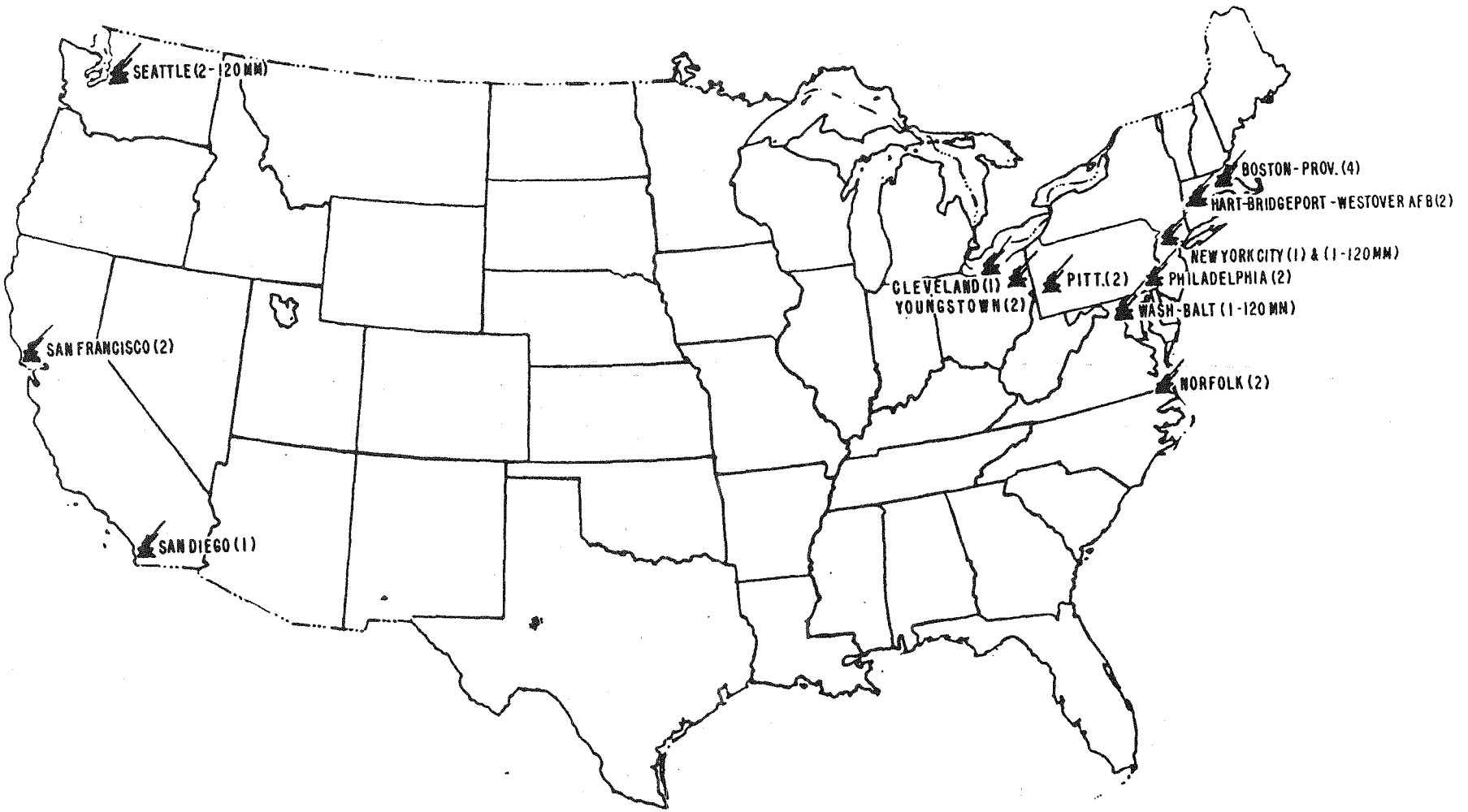
An "imperative goal" of DA policy was for all on-site units to be "qualified and designated as Special Security Force as expeditiously as possible."[32]

Realization fell far short of the goal. In the on-site program, the total of 25¼ 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 1956, shows that at that time 23 of these 25¼ on-site battalions were also SSF units.[33] Since SSF units only were authorized to store ammunition on site,[34] it was only this force of 23 battalions which constituted a quick-reacting Guard antiaircraft 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,[35] and that unit standards of training had remained at the level attained at the time of the unit's qualifying Army Training Test. Deployments of these on-site SSF units are shown by the map on page 57.[36]

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

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



*Exact number of batteries unknown

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.[37] 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.[38] 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 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 antiaircraft 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[39] can be viewed with respect, particularly when the current performance of North Vietnamese antiaircraft guns against U.S. Air Force and Navy fighter-bombers is borne in mind.

Costs

Turning to the question of costs--the other side of a coin which 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 Brig. Gen. Joseph B. Frazer, a Georgia ARNG officer then on active duty.[40] 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 annual 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 of actual savings derived from the ARNG gun program is 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. To the figures given in Table 1 on page 61 should be added at least part of the FY 1958 costs, as the Guard's gun mission was officially terminated as of 8 October 1957. An admittedly arbitrary inclusion of 25 percent of this FY 58 figure[41] yields a total cost for technicians of $22,455,526 and $3,491,729 for sites, or a grand total of almost $26,000,000.

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 outweighs 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

TABLE 1 - TECHNICIAN STRENGTH AND COSTS RELATED TO THE ARNG ON-SITE GUN PROGRAM - FY 1954 - FY 1957

FISCAL YEAR	TECHNICIAN STRENGTH	TECHNICIAN COSTS[a]	SITE COSTS[b]
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

a. Includes Social Security payments as well as salaries.

b. Includes security fencing and lighting, plus utilities, maintenance, and miscellaneous supplies.

Source: Annual Report of the Chief, National Guard Bureau (for fiscal years ending 1954, 1955, 1956, and 1957).

technological advances in strategic weapons systems, the active Army had relied upon the 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 envisaged 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 fleshing out, 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."[42] 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."[43] The active Army's conversion program to Nike Ajax had ended in June of 1957.[44] 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.

Notes

[1]Ltr, DA to Maj. Gen. Willard W. Irvine, 11 Jul 50, sub: Command and Staff Structure for an Army Force in Air Defense of the United States, AGAO-I.

[2]When General Irvine moved his headquarters from Mitchel Air Force Base, Long Island, to Colorado Springs in January of 1951, the entire staff and command group of ARAACOM occupied a single room at Ent Air Force Base. When the headquarters was moved to the Antlers Hotel in Colorado Springs at the end of February 1951, there were, in addition to General Irvine, only four other officers, two WACs, and three or four civilian

employees. Interv with Mrs. Roy C. Howell (a member of the original group at Ent AFB), 15 Jan 68.

[3]Unless otherwise noted, the information in this and the following paragraph is drawn from Ltr, ARAACOM to DA, 30 Nov 51, sub: Integration of National Guard AAA Battalions not in the Active Army into the Antiaircraft Defense of the United States, ADOAA-5.

[4]A press "backgrounder" briefing by the Office of Public Information, Department of Defense, 24 Dec 54, sub: Detailed Summary of the National Guard AAA Program, states that "back in 1951...it became evident that the Nike (Ajax) missile was soon to be a success," and noted that "even with its aid our air defense would still need more antiaircraft batteries than the Regular Army could possibly man." Hereafter cited as DOD Summary, 1954.

[5]See n. 29, p. 31. The additional defenses were: St. Louis, Indianapolis, Cleveland, Buffalo, Duluth, Hartford, Oak Ridge, Savannah River, and Barksdale Air Force Base.

[6]Ltr, ARAACOM to DA, 30 Nov 51, sub: Integration of Surface-to-Air Missiles (SAM) into the Antiaircraft Defense of the United States, ADOAA-5.

[7]Ltr, DA to ARAACOM, 4 Feb 52, sub: Integration of National Guard AA Battalions not in the Active Army into the Antiaircraft Defense of the United States, G-3 381 No. American.

[8]DA Fact Sheet, 4 Aug 59.

[9]According to Mrs. Howell in the interview cited in n. 2, by the end of 1951 ARAACOM headquarters had grown to a total strength of only 21 individuals, including clerk-typists. This small headquarters, during 1951, not only assumed command of some 100 subordinate units (including 45 combat battalions), but completed detailed plans for the defense of 23 vital areas and for the integration of guided missile units for these defenses, as well as the subject plan for Guard participation. See ARAACOM Report, 1951, pp. i-iii, 5-6.

[10]Ltr, DA to ARAACOM, 30 Apr 52, sub: Participation of National Guard AA Units in the Continental Air Defense System, G-3, 381 No. American.

[11]Although this change was not effective until 1 August 1952, the ARAACOM draft was forwarded to DA less than three weeks after dispatch of the DA directive to ARAACOM. See Ltr, ARAACOM to DA, 19 May 52, sub: Operation Plan for National Guard AAA Units in the Air Defense of the United States, ADOAA-5, 381 & 325. The ARAACOM plan itself was entitled Operations Plan for Antiaircraft Defense of the United States - 1951, hereafter cited by its short title, AA-OP-US-1-51, with annual changes indicated as appropriate.

[12]Unless otherwise noted, the information in this and the following five paragraphs is drawn from Annex D, with appendices 1 and 2, to AA-OP-US-1-51, passim.

[13]Ltr, DA to CGs of Continental Armies, 21 Nov 51, sub: Subdelegation to Continental Army Commanders of Authority to Order Certain Units of the NG into Active Military Service, AGAO-S 325, G3-M.

[14]Lt. Gen. John T. Lewis, CGARAACOM, as quoted in an unpaginated stenographic record published by the NGB under the title National Guard Bureau Antiaircraft Artillery Conference, 19 Sep 52, hereafter cited as NGB Conference 1952. Unless otherwise noted, the information in this and the following three paragraphs comes from this source.

[15]In addition to the District of Columbia, the States involved in air defense plans at the time were the following: Alabama, California, Connecticut, Delaware, Florida, Georgia, Illinois, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Virginia, and Washington.

[16]This ARAACOM publication, entitled National Guard AAA Units in Defense of (the) United States and dated 19 Sep 52, was devoted largely to detailed description of the ARNG operation plan discussed above. Hereafter cited as AAA Units in Defense.

[17]Dated 22 Aug 52, sub: Integration of National Guard Antiaircraft Artillery Units into the Army Antiaircraft Defense of the Continental United States. Unless otherwise noted, the information in this and the following three paragraphs comes from this source. The draft was published under the same title, and with only minor changes, on 20 Nov 52, NGB File No. NG-CO 325.4.

[18]At the meeting of 27 February 1951, described on pp. 20-24 above, General Collins had directed further study of the ARNG manpower problem with particular attention to its Selective Service aspects. In response to a subsequent query by Lt. Col. Ralph E. Hood, G-1 indicated "no objection to filling selected National Guard AAA units with personnel not eligible for induction under the draft, provided that when the units are ordered into active military service fillers so provided will not be screened out." See DF, DA, G-1 to G-3, 20 Mar 51, sub: Subsequent Study on NG (AAA) Units, 220.3 NG Units.

[19]NGB Conference 1952, remarks of Maj. Edward L. Black, Army Personnel Branch, NGB. ARNG regulations currently authorize an age limit of 54 for enlistment in on-site CONUS air defense missile units, in the case of men who have had at least one year's service in the regular forces.

[20]Ibid., remarks of Lt. Col. G.E. Miller, Office of the Chief of AFF. Unless otherwise noted, the information in this and the following two paragraphs comes from this source.

[21]Ibid., remarks of Lt. Col. Ernest W. Posse, Logistics Branch, NGB. The information in this and the following two paragraphs comes from this source.

[22]Ibid., remarks of Lt. Gen. John T. Lewis, CGARAACOM. All quotations in this paragraph are from this source.

[23]Ltr, ARAACOM to AFF, 18 Mar 53, sub: Determination of Effective Combat Potential Required of NG AA Units Planned for Integration into Continental AA Defense, ADOAA-3 PL 325. This letter, which concerned training, testing, and MOS fillings for SSF qualification, supplemented an earlier ARAACOM letter to DA, dated 26 Mar 52, sub: Minimum Personnel and Equipment Requirements for National Guard AA Units to Participate in Air Defense, ADOAA-5 320.3. The upshot of this correspondence was a conference at DA of representatives of ARAACOM, AFF, and the NGB on 30 April 1953, the result of

which was the DA policy promulgated in Ltr, DA to CGs of Continental Armies and MDW, 6 Jul 53, sub: Criteria, Methods and Procedures for Nomination of National Guard AA Units for Designation as Special Security Force, AGAC-C (M) 325 G3. The information in this paragraph comes exclusively from this source.

[24]Dated 9 Nov 53, sub: Requirements for Antiaircraft in Continental United States (CONUS), G3 381 NA. The information in this and the following two paragraphs is based on this source.

[25]See n. 51, p. 34.

[26]DA Fact Sheet, 4 Aug 59.

[27]ARADCOM Report, 1 Jul - 31 Dec 1957, pp.2-3.

[28]For procedural details, see Ltr, DA to Chief, NGB; Chief of Engineers; and CGs of Continental Armies, MDW, and ARAACOM, 18 Oct 54, sub: National Guard Onsite Program, AGAC-C (M) 601 G-3. Hereafter cited as DA Ltr, On-Site Program, Oct 54.

[29]Ibid. See also App 1 to Annex D of ARAACOM's AA-OP-US (1 Nov 53), pp. D-1-1 and D-1-2, and Ltr, DA to Chief, NGB; Chief of Engineers; and CGs of Continental Armies, MDW, and ARAACOM, 15 Dec 53, sub: Policy for National Guard Antiaircraft Site Requirement, AOAC-C (M) 601 G3.

[30]Annual Report of the Chief, National Guard Bureau, Fiscal Year Ending 30 June 1957 (Washington, 1958), pp. 27-28, 38. This and other such reports are hereafter cited as NGB Report, with appropriate fiscal year.

[31]See Ltr, DA to Chief, NGB and CGs of ARAACOM and CONARC, 30 Mar 55, sub: Nomination of National Guard Antiaircraft Onsite Units for Designation as Special Security Forces, AGAC-C (M) 325 G3. Unless otherwise noted, the quotations in this and the following paragraph are drawn from this source.

[32]In addition to the source cited in n. 31, see NGB Briefing for State Adjutants General, 3 Jun 57, sub: National Guard Antiaircraft Program. Hereafter cited as NGB Briefing 1957.

[33]See Annex A, Task Organization, ARAACOM AA-OP-US (1956). Although this is the most authoritative source for information regarding actual on-site SSF deployments, the troop list did not reflect the number of on-site SSF batteries per battalion. There is thus no way of knowing that the 23 listed battalions represented 23 full battalion equivalents, which was unlikely. It should be noted that this necessary reservation reinforces, rather than weakens, the interpretation that follows.

[34]Appendix 2 to Annex E, Ammunition Allowances, to ARAACOM AA-OP-US (1955). See also DOD Summary, 1954, p.7, and NGB Briefing 1957, p.5.

[35]Ltr, ARAACOM to region commanders and CG, 53rd AAA Bde, 14 Apr 55, sub: Integration of National Guard On-Site Special Security Force Units into the Air Defense of CONUS, ADOAA-3 P&O 325.

[36]See also the list of on-site SSF gun units in Appendix C.

[37]Kelley, Army Antiaircraft, pp.52-53.

[38]Ibid., p.52.

[39]Subsequent to publication of the September 1956 change to Annex A, AA-OP-US, 25 more ARNG battalions attained SSF status, the total reported by 31 December 1957 being 78. See ARADCOM Report, 1 Jul - 31 Dec 1957, p.7.

[40]Unfortunately, the report of this board has been destroyed. The information in this and the following two paragraphs is thus, perforce, drawn from abstracts of the report contained in a memo for record of the NGB liaison officer to ARADCOM, 10 Jan 57, sub: National Guard AAA Program, Chronology of Actions and Events, and DA Fact Sheet 1959.

[41]The totals reported by the NGB for FY 58 were $8,027,131 for the Air Defense Technician program and $583,626 for routine maintenance and operational costs of sites, as well as for "erection of metal prefabricated buildings at active Army missile sites for use by personnel of ARNG missile battalions (Nike) training at those sites." See NGB Report, FY 1958, pp.31, 49.

[42]Quotations in this paragraph are from NGB Briefing 1957, p.5.

[43]Address of Lt. Gen. Robert J. Wood, CG of ARADCOM from 1 Aug 60 to 13 Apr 62, to the 1960 meeting of the National Guard Association in Hawaii.

[44]ARADCOM Report, 1 Jul - 31 Dec 1957, p.1. Active Army Ajax deployments started with achievement of operational status by Battery "B," 36th AAA Battalion, at Fort Meade, Md. on 30 May 1954.

CHAPTER III

On Site With Missiles: Planning And Implementation, 1955-1965

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 continuously and effectively" in that system "under the operational control of CINCNORAD."[1]

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.[2]

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.

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.[3] Neither Lt. Col. William I. King, in 1957 the OCDCSOPS action officer for the program at DA, nor Major Gervaise L. Semmens, an action officer for the project in G-3 Plans at Hq ARAACOM from 1956 to 1959, can recall the specific kind of individual impetus that General Collins had earlier provided the gun program.[4] General Maxwell D.

Taylor, Army Chief of Staff during the inception of the Guard's Ajax program and the first two years of its implementation, could be presumed--from his key role in the Guard's gun program[5] and his espousal as Chief of Staff of a strong CONUS air defense[6]--to be highly sympathetic to a concept that became a DA decision; but there is no evidence that the novel idea of the Guard's Ajax program emanated specifically from him. Like Topsy, the program apparently "jes grew."

The Influence of the New Look

This is not to say that the factors which combined to produce the Guard's Ajax program cannot be discerned and described. There was the encouraging precedent of the on-site gun 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.[7] And overshadowing all, there was the Eisenhower Administration's "New Look" in defense policy, with its emphasis upon strategic air power and its ever-tightening squeeze on active Army budgets and personnel spaces[8]--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,[9] 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, then Army Chief of Staff, directed ARAACOM's CG, Lt. Gen. Stanley R. Mickelsen, to submit recommendations "as to how to effect further personnel reductions" within the command,[10] 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."[11]

This indirect reference to the civilian technicians of caretaker crews for the Guard's on-site gun units apparently brought a negative reaction from General Mickelsen. 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."[12] 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."[13] 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 a personnel augmentation of about 150 men per battalion, an increase that would "markedly reduce the Army effort in other important areas" if made solely at the expense of the active Army's personnel resources "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."[14] 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 281 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."[15]

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. At the action-officer level in OCDCSOPS, Lt. Col. King was aware only of the fact of the decision and of his own responsibility, assigned in 1957 prior to May of that year, to "work out the details" of the test program and eventual DA policy for full-time ARNG participation in missile air defense.[16]

The Test Directive

On 17 May 1957, DA published its directive for "deploying on-site in fiscal year 1959 a National Guard anti-aircraft battalion with NIKE (Ajax) equipment, for the purpose of evaluating National Guard capability to man NIKE units in the on-site air defense program."[17] 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,[18] California wired back its acceptance and designation of the 720th AAA Battalion (90-mm 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 (now the 4th Battalion, 251st Artillery) as "the 720th AAA Missile Battalion (NIKE), California National Guard."[19] 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 totalling approximately 545 personnel.[20] Of this total TOE strength of 26 officers, 21 warrant 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[21] 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 56 enlisted men while each of the two 3-hour batteries would have 2 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 "fireman" 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 experiment. The DA plan thus called for a training program, embracing school and troop 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.[22] 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.[23]

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 battalion, 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 NGB, 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 NGB 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 U.S. 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,[24] 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 NGB--had promptly initiated detailed planning and action for accomplishment of a mission whose far-reaching significance they fully grasped. In characteristically pithy style, Brig. Gen. 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 out.[25]

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"[26]--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

BRIG. GEN. CLIFFORD F. BEYERS,
Commanding General of California's
114th AAA Brigade

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.[27] 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, apparently in furtherance of the goal of obtaining the best qualified personnel, command of the 720th would be changed and conferred upon Lt. Col. Julian A. Phillipson, 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.[28]

Implementation of these policies encountered obstacles which, in the matter of command, active Army commanders are

customarily spared. Somewhat disgruntled, the displaced commander of the 720th (who was to be transferred to the command of another battalion in the 234th Group) took his case for retention to a newspaper, which apparently published two articles on the matter. He also enlisted the aid of a veterans' group, which wrote in his support to the Governor of California. Undeterred, General Beyers and his superiors stood fast and Phillipson became commanding officer of the 720th on 20 May 1957, only three days after DA's publication of its plan for testing the battalion.[29]

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,[30] but by the time the 720th was formally redesignated as a missile battalion on 1 June, some 612 personnel of the entire 234th Group had been tested and the necessary administrative actions taken to bring the 720th up to authorized strength by assignments and reassignments of the resultant elite.[31]

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.[32] 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[33] 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.[34]

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, though in some instances retention of instruction by National Guardsmen (was) poor."[35] There was an "over-abundance of applicants" for technician school quotas,[36] all of which were carefully enough filled to eventuate in several honor graduates and only three failures.[37] Package training came off as scheduled, and by 23 July 1958 the full-time technicians of the 720th had reported to their prospective sites in ARADCOM's Los Angeles Defense.[38]

Several important matters, which eventually required some slippage in DA's wisely "tentative" schedule of events,[39] 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's sites by some 30 days.[40]

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 NGB 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 four missile batteries on 15-minute status with the remainder in three-hour status).[41] In turn, the NGB added yet another wrinkle 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.[42] 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.[43]

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,[44] they could not agree with 6th Region's initial suggestion that an air defense WARNING RED of imminent attack would "automatically constitute 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.[45] 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,"[46] and to provide unofficial oral assurances of full cooperation in an emergency.[47]

Even before the official turnover of the 865th's sites

to the 720th on 14 September 1958,[48] 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, except for officers and warrant officers." 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 the contractual limit of a 40-hour week "could not be granted due to alert, training and security requirements."[49] 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.[50] Unsatisfactory crew performance in early operational readiness checks by the training and testing team gradually improved,[51] and the battalion, by early October 1958, 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.[52]

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."[53] By the beginning of 1959, this objective had been attained. The results of the training and testing team's successful 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,[54] were adopted and prescribed for the technician structure of the 720th's 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 enough, 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 retrospect, 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[55] would have been significantly--perhaps decisively--reinforced by any fundamental failure in the performance of the 720th. Yet the fact that the test came after 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."[56] In July, the NGB was rather tersely notified by ODCSOPS 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 from 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 on-site NIKE (Ajax) missions; and retention of all employees for conversion of 101 on-site gun batteries to on-site Ajax units.[57] Understandably, the NGB recommended the 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.[58]

Undeterred by these caveats, ODCSOPS on 23 September informed ARADCOM, by telephone, that "Department of the Army is terminating the present on-site missions of NG 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."[59] 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.[60] 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."[61]

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[62] called for sites to be designated by the CG, ARADCOM "in conjunction with" the Chief, NGB, and approved by Hq DA. 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." Lengthy 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.

If this cursory directive left, as late as April 1959, both ARADCOM and the NGB with a self-proclaimed need for further high-level guidance[63] and "timely and adequate information..." regarding "...unresolved problem areas" which in turn stemmed from "...changing and uncertain concepts,"[64] frequent changes in programmed ARNG air defense force structure also posed fundamental questions.

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

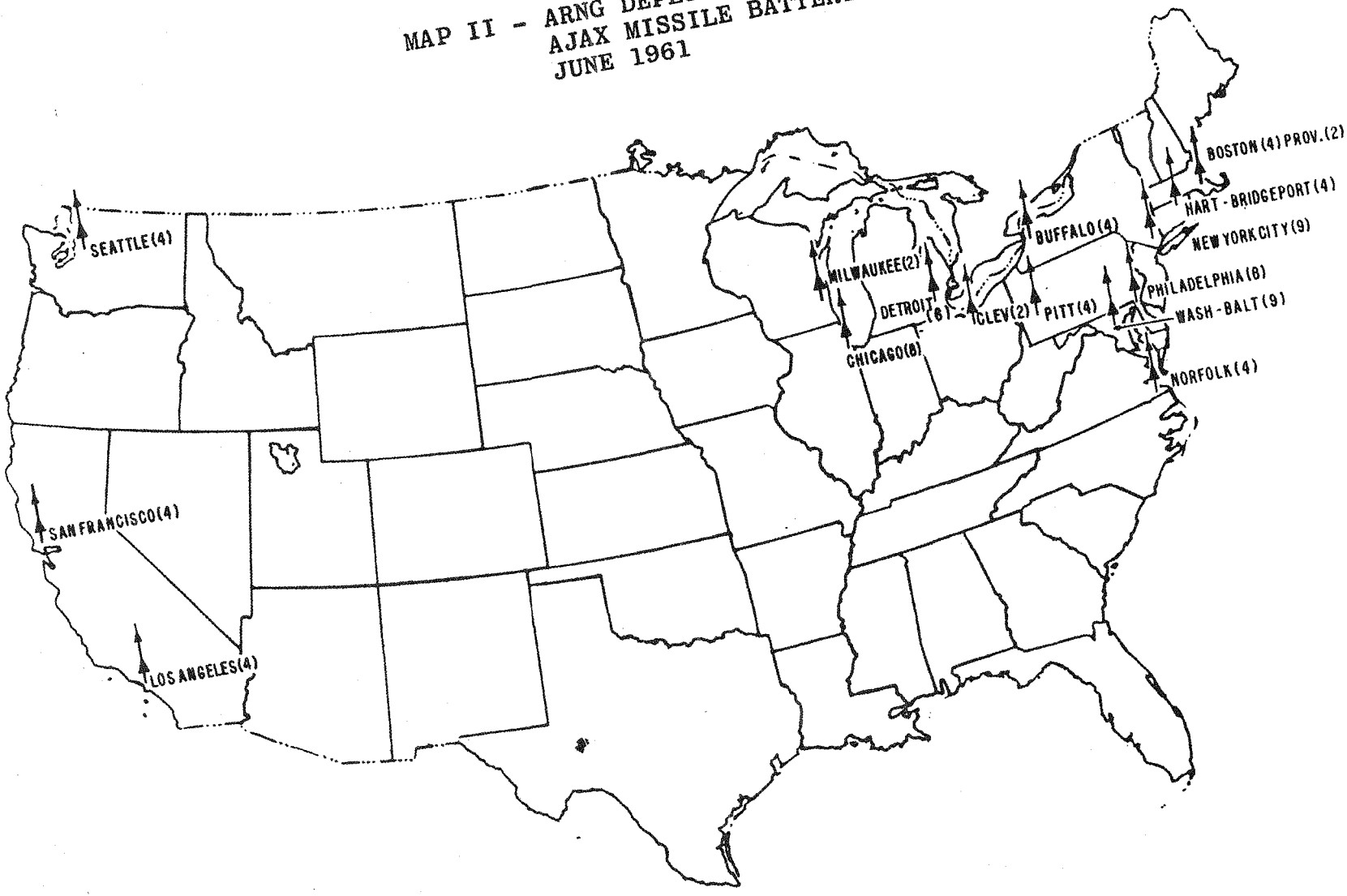
programmed for the end of FY 1961.[65] Despite DA assurances in May that the FY 1960 force structure was "firm,"[66] the program target for that year was reduced from 88 batteries to 58.[67] In August 1959, the programmed figures were 58 firing batteries by the end of FY 1960 and an ultimate goal of 76 batteries by the end of FY 1961.[68] By September of 1960, the Chief of the NGB 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.[69]

Ajax Deployments

These fluctuations in force-structure planning were accompanied by uneven progress in actual deployments. Utilizing as the planning base of reference an ODCSOPS 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:[70]

End of Fiscal Year	Planned	Actual
1959	12	8
1960	40	44
1961	24	24
Total Force	76	76

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



Comparison of planning and realization with respect to defended localities yields more symmetrical 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.[71]

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 personnel,[72] 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 the 720th's formal deployment on 14 September 1958 and ending with deployment of the Guard's first Nike Hercules unit, the 1st Missile Battalion, 70th Artillery on 11 December 1962, are shown in Table 2 by end of fiscal year.

A principal objective of DA in pushing the rather uneven implementation of the Guard's on-site Ajax program had been savings, both in dollars and active Army personnel

TABLE 2 - TECHNICIAN STRENGTH AND COSTS,

ARNG ON-SITE AJAX PROGRAM

FY 1959 - FY 1963[a]

Fiscal Year	Technician Strength	Technician Costs[b]
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[c]

a. Site costs of $187,861 available for FY 1959 only.

b. Includes Social Security payments as well as salaries.

c. Computed from average cost of $6,390 per technician.

Source: Annual Report of the Chief, National Guard Bureau (for fiscal years ending 1959, 1960, 1961, 1962, and 1963)

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 ODCSOPS in the summer of 1959,[73] these savings, actual and projected, were of considerable magnitude. 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 vainly fighting the New Look for the varying margins that would give it a 15-division force structure,[74] was a significant achievement. Total monetary savings through FY 1961 were projected to be $11,860,000.[75]

The effectiveness of the Guard's Ajax program, considered in terms of performance, can be gauged from the detailed performance data and interpretations reserved for presentation elsewhere in this study.[76] 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.[77] In taking over responsibility for operation of 76 active Army Ajax sites, ARNG units had kept up the guard of CONUS air defense[78] 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 Ajax system by taking over gun sites, the Guard's role had been one of full and unremitting responsibility.

By the time ARADCOM formally retired the Guard's last Ajax missile on 18 November 1964,[79] 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, Lt. Gen. Charles E. Hart, then CG of ARADCOM, had echoed to General Maxwell D. Taylor, then 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,"[80] 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," General Hart specifically recommended that "ARNG units not be considered for use in the NIKE HERCULES program."

General Taylor's reply agreed that "what you might call our 'main battery' weapon should be manned by the Regular establishment wherever possible (italics added), with the ARNG used to man those weapons of somewhat less effectiveness"[81]; and as late as July of 1960, ARADCOM was unaware of any firm DA thinking about a Guard role in Hercules.[82] By the end of 1960, however, DA had broached to ARADCOM the definite prospect of an ARNG Hercules program.[83]

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.[84] 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.[85] The potential pressure upon active Army resources of possible Zeus deployments, plus that generated by complete abandonment 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."[86] 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.[87] And by March 1961, ARADCOM's CG, Lt. Gen. Robert J. Wood, could pay a tribute to the Guard which indirectly, at least, 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," General Wood went on to say:

> Since taking over its first batteries in the Los Angeles area in September 1958, 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.[88]

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.[89]

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."[90] 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 strucutre. Considerations of economy dictated the turnover of active Army Ajax sites, rather than the acquisition of virgin Hercules sites, as the likely solution to the site-selection problem.[91] This in turn suggested to ARADCOM and NGB 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 related factor was the convenient 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 basis of approximately two Ajax batteries for one Hercules battery. This factor, in

turn, promised to take some of the edge off the sensitive problem of technician retention, as theoretically 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 complex 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.[92] Estimating that this decision would require "the organization, 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 creation 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 NGB the activation of 10 Guard units to help man five defenses new to ARNG participation: Cincinnati-Dayton, Kansas City, Dallas-Fort Worth, St. Louis, and Minneapolis-St. Paul.[93] This proved to be unacceptable to the NGB.[94] In compliance with an NGB 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.[95] Although not clearly specified by the NGB, the factor of maximum technician retention was clearly behind this counter-proposal. As subsequent developments were to show, this factor became the major 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.[96] Pointing out that the two-for-one ratio for conversion of ARNG Ajax batteries to Hercules 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, Colonel Max E. Billingsley 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."[97] The inflammatory consequences, which effectively repealed 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[98] was a model of its kind. The product of close coordination and frequent consultation between action officers in ODCSOPS 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.[99] 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 by 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,[100] 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.[101]

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."[102] For their part, ARADCOM defense

commanders, assisted by ZI commanders, would "render appropriate support, counter-intelligence information," and--in compliance with JCS policy[103]--"retain custody of Nike Hercules nuclear 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.[104] 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 CGARADCOM; 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 NGB and approved by DA.

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.[105] The structure prescribed by the 1962 directive proved to be far more durable.[106] 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, CINCONAD on 29 December 1961 had done so with the proviso 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."[107] Even earlier, in November 1961, ARADCOM and NGB planners had reflected awareness of this likely requirement by planning for a flexible technician structure designed to meet not only varying situations in radar augmentation equipment but varying CONAD-prescribed alert requirements for specific defenses.[108] Because these requirements called for 60 percent, 66 2/3 percent, or 75 percent of the units of particular defenses to be on a "hot," 15-minute alert status at any given time, the technician manning structure prescribed by the eventual DA directive of 1962 was tailored accordingly.[109] Given this prescience and realistic flexibility, it is not surprising

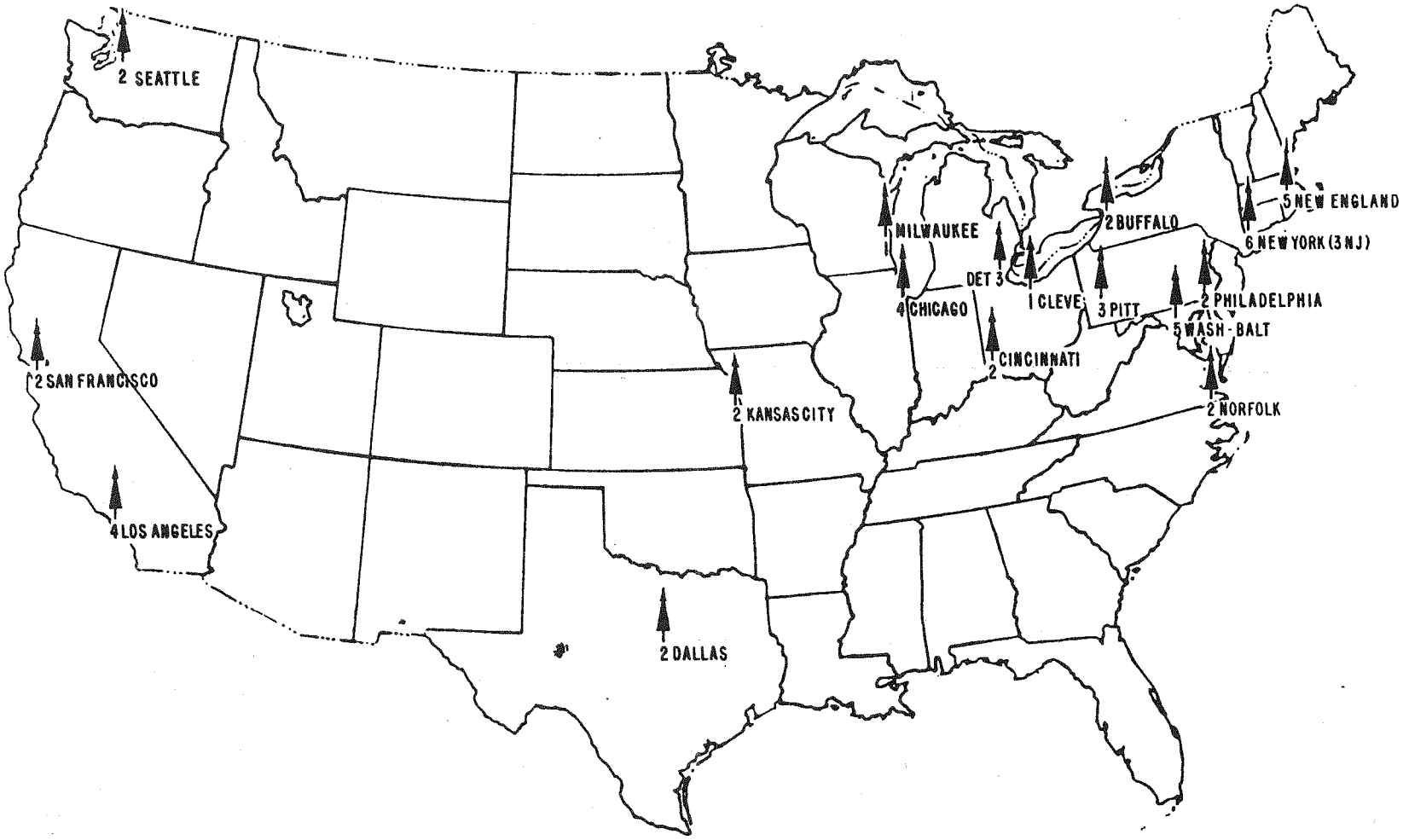
that the directive's prescriptions for 88 to 99 full-time technicians per Hercules missile battery, as well as its authorized technician spaces for battalion headquarters and State-level air defense positions, have been proved workable by half a decade of experience.[110]

Conversion Scheduling and Implementation

The quasi-political problem of technician retention having 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.[111] 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

MAP III - ARNG DEPLOYMENTS OF ON-SITE
HERCULES MISSILE BATTERIES
AS OF 1 FEBRUARY 1967



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[112] 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 NGB, 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.[113] The clock-like deployments which resulted from this virtually flawless planning are shown in Map III.

Costs and Effects

Technician strengths and costs associated with the Guard's Hercules program, from the initial deployment of Maryland's Battery "A," 1st Missile Battalion, 70th Artillery on 11 December 1962 to the end of FY 1967, are shown in Table 3. 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 reduced costs 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 essential to any sound estimate of true costs in the Hercules phase of that program.

TABLE 3 - TECHNICIAN STRENGTH AND COSTS,

ARNG ON-SITE HERCULES PROGRAM

FY 1963 - FY 1967

Fiscal Year	Technician Strength	Technician Costs[a]
1963	4,976	$31,796,640[b]
1964	4,795	$28,820,988
1965	5,027	$32,339,330
1966	4,970	$34,024,028
1967	5,043	$36,338,420

a. Includes Social Security payments as well as salaries.

b. Computed from average cost of $6,390 per technician.

Source: Annual Report of the Chief, National Guard Bureau (for fiscal years ending 1963, 1964, 1965, 1966, and 1967).

A study prepared for DOD in March 1967 by the Office of the Comptroller, Hq ARADCOM,[114] 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,[115] excluded several active Army fringe benefits which cumulatively would operate to increase by a substantial amount the total actual compensation of the "average" active Army battery member.[116] Viewed in this light, the total estimated savings of $10,176,000 per year resulting from implementation of the Guard's 48-battery Hercules program appear to be on the conservative side.

The five thousand air defense personnel spaces occupied by ARNG technicians 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,[117] the ever-growing wealth

U.S. ARMY

THE GUARD'S LAST HERCULES CONVERSION: Battery "A", 1st Battalion, 137th Artillery takes over at Felicity, Ohio, 14 April 1965

of Hercules air defense experience and skills which the Guard had accumulated from 1962 and constituted, by 1967, a major and practically irreplaceable ARADCOM asset.

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 detailed statistical analyses which follow.

Notes

[1]Ltr, DA to Chief, NGB and CGs, 20 Dec 57, sub: Policies for Deployment of Army National Guard On-Site Battalions, AGAM-P (M) 370.5, DCSOPS. Hereafter cited as Ltr, DA Deployment Policies, 1957.

[2]Record of proceedings, 7 Sep 60, Army Air Defense Conference Presented by National Guard Bureau, pp.16-17. Hereafter cited as NGB Conference Proceedings, 1960.

[3]See pp.242-244 below for detailed discussion of this curious omission.

[4]Ltr to author from King, now a retired Colonel, 20 Feb 68, and tel interv with Col. Semmens, now with DCSLOG, DA, 8 Feb 68.

[5]See pp.15-25 above.

[6]See General Maxwell D. Taylor, The Uncertain Trumpet (New York: Harper & Brothers, 1959), pp.155-161.

[7]According to Col. King in the Ltr cited in n.4 above, Maj. Gen. Donald W. McGowan, in 1957 Chief of the Army Division of the NGB, was interested in "getting the Guard as fully into the on-site air defense as the active Army and the States would accept." According to the tel interv with Col. Semmens also cited in n.4 above, the attitude of the States varied: for example, California and Washington were keenly interested, while Ohio, for unexplained reasons, was initially cool to the concept.

[8]For a first-hand description of the impact of the New Look upon the Army, see General Taylor's The Uncertain Trumpet, especially pp.39-42, 47-79, in which are described the steps by which the active Army's authorized strength fell by some 130,000 spaces from 1956 to 1959.

[9]Ltr to author by Ralph E. Hood, G-3 action officer at DA for the ARNG gun program (see pp.17-27 above), 10 Jan 68. Now a retired Colonel, Hood's memory extends over 17 years to permit the unqualified assertion of this point, which is also substantiated by a Ltr to the author, 30 Oct 67, from Aaron M. Lazar, now a retired Colonel who in 1951 was involved, as a member of the Air Defense Section of the North American Branch of G-3, DA, in planning of the gun program.

[10]DF, ARAACOM CofS to G-staff, 10 Feb 55, sub: Reduction in Strength of the Army Antiaircraft Command.

[11]Quoted in ibid.

[12]Undated draft of Ltr to General Ridgway, attached for record to ibid. All information in this paragraph is drawn from this source, which, while admittedly not definitive, is at least indicative of ARAACOM's position.

[13]Ltr, DA G-3 to CG ARAACOM, 18 Jul 55, sub: Use of Reserve Troops at NIKE Dual Sites, G3 OP NA 4. All information in this paragraph is drawn from this source.

[14]Ltr, CG ARAACOM to G-3, DA, 10 Nov 55, sub: Use of Reserve Troops at NIKE Dual Sites, ADOAA-3 P&O 200. The information in this paragraph comes from this source.

[15]Ltr, DA to Chief, NGB and CGs, 17 May 57, sub: Plan for Test of National Guard NIKE Battalion, AGAM-P(M) 325 DCSOPS, hereafter cited as DA Plan for Test, 1957.

[16]Ltr cited in n.4 above.

[17]DA Plan for Test, 1957.

[18]Sub: National Guard NIKE Test, as cited in Ltr, AG of California to NGB, 17 May 57, same sub, CALOTA. The remaining information in this paragraph is based upon the latter Ltr and upon Telg, AG of California to NGB, 26 Apr 57, CA 2145, as cited therein.

[19]Unless otherwise indicated, the information in this and the following six paragraphs is drawn from DA Plan for Test, 1957.

[20]Although this figure is taken from TOE 44-445 E, Air Defense Artillery Missile Battalion, NIKE-AJAX, CONUS, which was dated 22 Aug 60, there apparently was little difference in personnel strength or equipment between this TOE and the TOE in effect in the spring of 1957, when the DA test plan went into effect. Interv of 2 Apr 68 with Mr. William M. Proctor (Lt. Col., Ret'd), of the Organization Div, Directorate of Manpower and Organization, DCSOPS, Hq ARADCOM, who served as an Ajax battalion commander in 1959.

[21]In the letter cited in n.4 above, Col. King states that "one aspect of the ARNG on-site program in which DA planned in detail was the manning levels, because of the budgetary, as well as manpower, implications of the program."

[22]The battalion commander-supervisor, as well as the State AA Coordinator and a Defense AA Supervisor, were also scheduled for schooling at Fort Bliss, with their course (Associate SAM Officers Advanced Course) timed to end about one month prior to the commencement of package training.

[23]Not included in the package phase were six installation electricians, to be trained at the Engineer School, Fort Belvoir, between April and July 1958. In addition, five school spaces at Fort Bliss were programmed for officers who, although not to be employed as technician-supervisors, would occupy M-day positions of concern in the test of the battalion.

[24]See pp. 193-199 below for detailed discussion of this problem.

[25]This quotation is from the unpaginated manuscript notes, memos, and draft directives of General Beyers, who served as CG of California's 114th AAA Brigade from 1955 until his retirement in 1960. This invaluable collection of source material, amounting to some 37 pages of long-hand notes and hereafter cited as Beyers' Notes, indicates that General Beyers and Col. Carl H. Aulick, Deputy AG of California at the time, were aware of their State's involvement in a test program as early as 9 March 1957. The notes cover the period 9 March-28 May 1957.

[26]Interv, 7 Nov 67, with Lt. Col. Neil E. Allgood, who in 1957 was the 720th Missile Battalion's S-3. Col. Allgood has served with the unit throughout his ARNG career and is the present commander-supervisor of this veteran battalion, now the 4th Battalion, 251st Artillery. Source hereafter cited as Allgood Interv.

[27]Beyers' Notes. Unless otherwise indicated, the information in this and the following two paragraphs is from this source.

[28]Fact sheet provided for a briefing, 30 Mar 58, by Col. Phillipson to Maj. Gen. Edgar C. Erickson, Chief of the NGB. Hereafter cited as 720th Fact Sheet.

[29]According to ibid., Phillipson was subsequently employed as battalion supervisor on 2 January 1958.

[30]See ibid., as well as Beyers' Notes.

[31]Memo for Record by Lt. Col. Joseph H. Doyle, active Army Advisor to 234th AAA Group, probably written in early November 1957, describing progress of the test battalion through 29 Oct 57. Hereafter cited as Doyle Memo.

[32]Ltr, AG of California to Chief of NGB, 17 May 57, sub: National Guard NIKE Test, CALOTA. That General Beyers knew about this selection well before 17 May is shown by the unsuccessful struggle he waged, beginning on 13 May, against acceptance of the 865th's sites at Playa del Rey, which he considered to be an excessively remote location for personnel of the 720th. See Beyers' Notes.

[33]As described in Allgood Interv, these somewhat circuitous channels were the following, starting with the test battalion: 720th Battalion to 234th Group and thence to 114th Brigade and the AG of California; over to ARADCOM 6th Region, thence downward through 47th Brigade and 108th Group to the 865th Battalion--the test unit's active Army host and mentor.

[34]Ltr, 2 Oct 57, sub: Training Program-720th AAA Battalion, BRS3 325. The fact of General Beyers' prompt cooperation is substantiated by Allgood Interv.

[35]720th Fact Sheet.

[36]Doyle Memo. It is of interest to note that, according to Allgood Interv, the 720th required of each prospective technician an "Agreement for Continued Employment" by which, in return for school training, he pledged a period of two years employment with the battalion following such training.

[37]Briefing, 30 Mar 58, by Lt. Col. Phillipson to Maj. Gen. Edgar C. Erickson, Chief of the NGB. Hereafter cited as Phillipson Briefing.

[38]Ltr from Lt. Col. Robert E. Boughn (commanding officer of the ex-865th, redesignated as 4th Battalion, 62nd Artillery) to CG, ARADCOM, 5 Sep 58, sub: Training & Testing Team Report on the 720th AAA Missile Battalion, Period 3-15 August 1958, BNCO 325. This and other similar reports are hereafter cited, with appropriate dates, as Team Report.

[39]See DA Plan for Test, 1957, Appendix 1 to Annex C.

[40]See Hq 6th Region's 3d Ind, 19 Feb 58, to Ltr, Hq ARADCOM to Chief, NGB, 28 Dec 57, sub: Plan for Test of National Guard NIKE Battalion, ADGCN 353.

[41]Hq ARADCOM's 8th Ind, 27 May 58, to ibid.

[42]NGB's 9th Ind, 3 Jul 58, to ibid.

[43]See Hq 47th Brigade's 4th Ind, 11 Apr 58, to ibid., together with Ltr, CG 6th Region to CG ARADCOM, 16 Jun 58, sub: Inspection and Testing Procedure, 720th AAA Missile Battalion, ADF - 3 NG 325.

[44]Interv, 4 Dec 67, with Col. John P. Goettl, Director of Materiel Requirements, DCS Plans and Combat Developments, Hq ARADCOM and in 1958 G-3 Executive Officer in Hq, 6th Region. As 6th Region action officer for obtaining, in the spring of 1958, the required agreement with California, Col. Goettl was told by the State AG's representative that it might take "about a year" to conclude the matter. When Col. Goettl stressed the urgency of the matter and requested completed action within one month, the ARNG representative promised that he would approach the Governor that night, and 6th Region received its response three days later.

[45]Ltr, AG of California to CG, 114th AAA Brigade, 18 Apr 58, sub: Operational Control.

[46]Ibid.

[47]Interv with Col. John P. Goettl, 4 Dec 67.

[48]Although operational responsibility was also passed, on 12 September, to the 720th, the CG of the 47th Brigade, Brig. Gen. W.A. Perry, concluded a "local agreement" with General Beyers to permit the integration of the 865th's training and testing team into the 720th in the event of an actual emergency, with "command of tactical equipment" in active Army hands if directed by the defense commander. See Team Report, 1-30 Sep 58. Whether General Beyers cleared this agreement with the AG of California can only remain an interesting subject of speculation. The remaining information in this paragraph is drawn from Team Report, 3-15 Aug 58.

[49]Team Report, 1-30 Sep 58. All information in this paragraph comes from this source.

[50]Suggested in September 1958 by Lt. Col. Robert E. Boughn, CO of the training and testing team's parent 4th Battalion, 62nd Artillery, this variation from the test plan was approved by active Army and ARNG authorities on 31 October and initiated on 3 November. See Boughn's letter to CGARADCOM, 24 Sep 58, sub: Organization of the 720th AAA Missile Battalion, NG, BNCO 325, and ARADCOM Commanders' Conference Brochure, February 1959, pp. IV-13, 14.

[51]Team Report, 1-30 Sep 58.

[52]Ltr, Colonel (now Maj. Gen.) R.L. Shoemaker to the CO, 720th Missile Battalion, 3 Oct 58, sub: Results of 6th Region Operational Evaluation, GPCO. General Shoemaker is now ARADCOM's Deputy CG and Chief of Staff.

[53]DA Plan for Test, 1957.

[54]Team members were from ODCSOPS, DA; the NGB; Hq ARADCOM and Hq 6th Region, ARADCOM; Office of the AG of California; and senior active Army advisors of the California ARNG. This and the following information in this paragraph is drawn from ARADCOM Commanders' Conference Brochure, February 1959, pp. IV-13, 14.

[55]See pp.195-199 below for detailed discussion of this problem.

[56]DF, ARADCOM G-3 to CofS, 3 Jun 57, sub: Plan for Conversion of NG Battalions to NIKE AJAX, ADOAA-3 O&T.

[57]DF, DCSOPS, DA to NGB, 17 Jul 57, sub: National Guard AAA On-Site Program, OPS OD AD 7.

[58]Cmt No. 2 to ibid., NGB to DCSOPS, 19 Jul 57, NG - AROTA 381.

[59]DF, ARADCOM G-3 to CofS, 30 Sep 57, sub: Conversion of National Guard Units to Missile, ADOAA-3, P&O. The termination date was subsequently changed to 4 October and then to 8 October.

[60]Ibid.

[61]Interv with Colonel Gervaise L. Semmens cited in n.4 above. These planning uncertainties in all likelihood emanated from the review of overall military force structure, by DOD as well as the Congress, which was in progress at the time. See NORAD Historical Summary, January-June 1958, pp. 76-77.

[62]Including its long list of addressees, the basic document covered only about two and one-half pages. See Ltr, DA Deployment Policies, 1957, the source upon which the information in this paragraph is based.

[63]See Ltr, Maj. Gen. Edgar C. Erickson, Chief of the NGB, to Lt. Gen. Charles E. Hart, CG ARADCOM, 8 Apr 59.

[64]See Ltr, Hart to Erickson, 22 Apr 59. For a detailed discussion of major problems encountered in implementation of the Guard's on-site Ajax program, see Chapter V below.

[65]See ARADCOM Commanders' Conference Brochure, 13 January 1958, p.IV-9, and NORAD Historical Summary, January-June 1958, pp.75-76.

[66]ARADCOM Commanders' Conference Brochure, 13 October 1958, P.IV-11

[67]NORAD/CONAD Historical Summary, July-December 1958, p.105.

[68]ODCSOPS, DA Fact Sheet for CofS, 4 Aug 59, sub: Background and Status, ARNG On-Site Program, 1950-1959, OCDCSOPS/OPS SW ADO-11, hereafter cited as DA Fact Sheet, 1959. This total did not include the two Hercules battalions, with eight fire units, programmed for the Hawaii ARNG in FY 1960.

[69]NGB Conference Proceedings, 1960, pp.1-2.

[70]Planning data are from DA Fact Sheet, 1959. Actual data are from NORAD/CONAD Historical Summary for Jan-Jun 59, p.58; Jan-Jun 60, pp.75-76; and Jan-Jun 61, P.57.

[71]See DA Fact Sheet, 1959 for planning data and ARADCOM Organization Chart, compiled by G-3 Section, Hq ARADCOM, 26 Jun 61, for actual deployments as of that date. A list of all on-site ARNG fire units deployed during the Guard's Ajax program is provided in Appendix D.

[72]Ltr, DA to Chief, NGB and CGs, 15 Mar 60, sub: Policies for Army National Guard CONUS Air Defense Units, AGAM-P (M) 322 DCSOPS. See also Ltr, DA, to Chief, NGB and CGs, 5 Mar 62, sub: Policies for National Guard Participation in CONUS Air Defense, AGAM-P (M) 322 DCSOPS. For a detailed description of the technician structure of an ARNG Nike Ajax battalion, see Appendix F.

[73]Fact Sheet appended to Summary Sheet, DCSOPS to Asst Secretary of the Army (Manpower, Personnel and Reserve Forces), 18 Aug 59, sub: Employment of National Guard Units, OPS SW ADO-11. The information in this paragraph, unless otherwise indicated, is drawn from this source. Although the Chief of the NGB questioned the catholicity of the basic factors employed in the cost comparisons, he concurred in

this fact sheet, and it is reasonable to assume that whatever "firm cost data" the NGB subsequently developed was even more favorable to the Guard. For the NGB's doubts regarding the adequacy of the Fact Sheet's basic factors, see DF, NGB to DCSOPS, 31 Jul 59, sub: Fact Sheet on Air Defense Active Army - ARNG Personnel Space and Costs, NG-AREX.

[74]See Taylor, op.cit., Chap.IV, passim.

[75]Two general factors were used for the monetary comparison: annual personnel cost and annual operating cost. The units of measure were an active Army battalion of 465 personnel and an ARNG battalion of 455 personnel, M-day as well as technicians. Specific factors and associated cost estimates were the following:

Factor	ARNG Costs	Active Army Costs
Drill and active duty pay	$ 223,587	-
Technicians' pay	1,019,000	-
Personnel operating cost	1,242,587	$1,500,000
Travel for replacements	4,000	100,000
Personnel sub-totals:	$1,246,587	$1,600,000
Support, to include medical, costs, supply activities, communications, miscellaneous overhead	-	$ 400,000
Support, to include supply activities, communications, POL, utilities, minor site maintenance	$ 360,000	-
Operating sub-totals:	$ 360,000	$ 400,000
Total Costs	$1,606,587	$2,000,000

[76]See Chapter IV, passim., below.

[77]For ARADCOM's acknowledgement of this contribution, see the address of Lt. Gen. Robert J. Wood, CG of ARADCOM from 1 Aug 60 to 13 Apr 62, to the 1960 meeting of the National Guard Association.

[78]As of the end of June 1961, shortly after completion of the Guard's Ajax program, the ARNG's 76 Ajax fire units represented almost a third of ARADCOM's total of 240 fire units. See ARADCOM Organization Chart, compiled by G-3 Section, Hq ARADCOM, 26 Jun 61.

[79]Ajax missile No. 12062 was retired by Battery "B," 4th Missile Battalion, 111th Artillery, of the Virginia ARNG, in a ceremony presenting the missile to the Smithsonian Institution. See Remarks by Lt. Gen. Charles B. Duff, CGARADCOM, at the Smithsonian Institution, 18 Nov 54, an ARADCOM news release of that date.

[80]See Memo, General Earle E. Partridge to General Hart, 17 Apr 59, sub: Utilization of Reserve and National Guard Forces, and General Partridge's letter to Secretary of Defense Neil H. McElroy, 2 Jul 59. General Hart's letter to General Taylor, which quoted and concurred in the views expressed in General Partridge's memo, was dated 1 May 59. The quotations in this paragraph are from this letter. For a detailed discussion of the problem of high-level opposition to ARNG participation in on-site air defense, see pp. 195-199 below.

[81]Ltr to Gen Hart, 5 Jun 59.

[82]Briefing, ARADCOM Office of Reserve Components to CG-designate of ARADCOM, Maj. Gen. Robert J. Wood, 7 Jul 60, sub: Army National Guard Air Defense On-Site Program. Hereafter cited as Wood Briefing.

[83]Tab C, Plans for Converting ARNG On-Site Units to Hercules, to DF, ARADCOM Ofc of Reserve Components to DCS P&O, 18 Apr 61, sub: NG Conference, 26 Apr 61, ADSN. This document, hereafter cited as Hercules Plans, indicates that ARADCOM in Nov 60 received a telg (DA 985487) from ODCSOPS, DA, "relative to the establishment of an Army National Guard NIKE-HERCULES program."

[84]Tab D, ARADCOM Nike Ajax Phase-out Program, to DF cited in ibid.

[85]Hercules Plans.

[86]Interv with the ARADCOM representative referred to, Colonel Max E. Billingsley, 17 Oct 67. Obviously, these spaces were not to be filled directly by ARADCOM personnel, but would be otherwise filled at ARADCOM's eventual expense.

[87]Wood Briefing.

[88]Ltr to Maj. Gen. Donald W. McGowan, Chief of NGB, 10 Mar 61.

[89]Wood Briefing.

[90]Hercules Plans. All information in this paragraph comes from this source.

[91]This and all other information in this paragraph comes from an Interv with Colonel Max E. Billingsley, 17 Oct 67.

[92]Ibid. See also Hercules Plans, the source of the remaining information in this paragraph.

[93]Interv, Colonel Max E. Billingsley, 17 Oct 67.

[94]See undated Ltr, Maj. Gen. Donald W. McGowan, Chief of NGB, to Lt. Gen. Robert J. Wood, CGARADCOM, and General Wood's reply, dated 28 Dec 61.

[95]NGB counter-proposal and ARADCOM acceptance thereof are outlined in ARADCOM telg 1056 ADSN to Region CGs, 29 Dec 61.

[96]Sub: Retention of Army National Guard Technicians, ADSN. The exact date of the study was 6 Nov 61. The remaining information in this paragraph is from this source.

[97]See DF, ARADCOM Office of Reserve Components to CofS, 11 Dec 61, sub: Trip Report, ADSN. This fruitful conference was attended not only by representatives of the 14 States then involved in the ARNG on-site air defense program, but by representatives of the NGB, CONARC, and DA's DCSOPS and DCSLOG. Because this conference and its results were of crucial significance in overcoming major problems of the ARNG on-site program, detailed discussion of these subjects is reserved for Chapter V, pp. 223-228 below.

[98]Ltr, DA to Chief of NGB and CGs. Hereafter cited as Hercules Policy.

[99]Interv, Colonel Max E. Billingsley, 17 Oct 67.

[100]For detailed discussion of this problem, see Chapter V, pp.199-207 below.

[101]Indicative of the close coordination of planning in the Hercules program was the fact that the NGB alerted, well in advance, the AGs of all States involved in the program regarding the exact wording proposed by DA for the nuclear clauses of the agreement. For an example of this action, see Ltr, NGB to AG of Texas, 13 Feb 62, sub: Conversion of ARNG On-Site Units to Nike-Hercules, NG-AROTA.

[102]Annex D, Standard Mutual Agreement format, to Hercules Policy. Unless otherwise indicated, the information in this paragraph comes from this source.

[103]See JCS Memo, 5 Jan 62, sub: Policy Statement for Federal Custody of Nuclear Warheads for Army National Guard Nike Hercules Units, MJCS 1-62. See also DOD Directive No. 5105.31, 22 Jul 64.

[104]For detailed discussion of this problem, see Chapter V, pp.232-238 below. The information in this paragraph is based upon Hercules Policy.

[105]The final changes resulting from these factors were published on 15 March 1960, in the form of a revised Appendix I to Incl No. 1 to Ltr, DA to Chief of NGB and CGs, sub: Policies for Army National Guard CONUS Air Defense Units, AGAM-PCM 322 DCSOPS.

[106]For detailed description of this structure, see Appendix G.

[107]Ltr, Maj. Gen. P.H. Draper, Jr., Acting CGARADCOM, to Maj. Gen. Donald W. McGowan, Chief of NGB, 29 Dec 61. CINCONAD's other conditions were the following:

> The ARNG personnel will be fully trained in Hercules operation prior to assigning them to Nike Hercules fire units; Regular Army personnel will co-man the Hercules fire unit with the ARNG personnel for 60 days prior to transfer of the unit to the ARNG; phaseout of Ajax will be completed by or before the end of FY 65; and maximum effectiveness of each defense will be maintained during the conversion from Ajax to Hercules.

[108]Ltr, CGARADCOM to Region CGs, 21 Nov 61, sub: National Guard Conversion to Hercules, ADSN.

[109]The number of technicians prescribed for the three types of batteries could be equated to the alert requirement for a defense in that a 60-percent battery, for example, had sufficient personnel to maintain a 15-minute alert status 60 percent of the time.

[110]As 1967 ended, technician authorizations for the positions of First Sergeant and Records Clerk in the firing battery, a long-felt need, were being staffed at DA for inclusion in the FY 1970 budget. See Briefing, Office of Reserve Components to ARADCOM Commanders' Conference, 14 Mar 68.

[111]Interv, Colonel Max E. Billingsley, 17 Oct 67. Unless otherwise indicated, the information in this and the following paragraph comes from this source.

[112]Logistic phaseout of an ARNG Ajax site took approximately three months, commencing with a phaseout date upon which the unit was relieved of its mission and initiated turn-in of mission equipment to supporting CONARC agencies. Regarding the sites themselves, it is of interest to note that ARADCOM retained 37 of the Guard's 76 Ajax sites for "future weapons systems," i.e. Nike Zeus. See Ltr, Hq ARADCOM to Region CGs, 3 Jul 62, sub: Administrative and Logistical Guidance for Phaseout of National Guard Nike Ajax, ADGDP.

[113]In summary, this schedule called for the phased input to individual and package school training of 13 consecutive battalion packages aggregating 48 fire units. Training termination dates permitted achievement of operational status by 16 fire units during FY 1963; 20 more fire units by the end of FY 1964; and the remaining 12 of the total of 48 by 14 April 1965. See Ltr, Hq ARADCOM to DA and CGs, 2 May 62, sub: ARNG Nike Hercules Program, ADSN. Although there were no changes to this plan in the time dimension, a change of designated site locations in New York was directed in 1963, with Rocky Point, Long Island, and Amityville substituted for Fort Tilden. See Ltr, Hq ARADCOM to DA and CGs, 15 May 63, sub: ARNG Nike Hercules Program, ADSN.

[114]Entitled Comparison - Nike Hercules Battery Costs, RA vs NG, the study was presented to DOD representatives on 9 Mar 67.

[115]Two general factors were used for the comparison: annual investment and annual operating costs. Specific factors and associated costs were the following:

Factor	Active Army Costs	ARNG Costs
Military construction	$ 47,000	$ 13,000
PEMA (Procurement of Equipment and Missiles, Army) and O&M (Operations and Maintenance)	$ 142,000	$ 142,000
Defense family housing	$ 24,000	-
Operations	$ 476,000	$ 231,000
Training (schools)	$ 21,000	$ 5,000
Central supply	$ 49,000	$ 49,000
Depot maintenance	$ 156,000	$ 156,000
Medical support	$ 18,000	-
Army general	$ 9,000	-
Military pay and allowances	$ 641,000	$ 80,000
NG civilian pay and allowances	-	$ 695,000
Total annual battery cost	$1,583,000	$1,371,000

[116]According to an Interv of 15 Apr 68 with Mr. Robert A. Liby, Office of the DCS, Comptroller, Hq ARADCOM, the "military pay and allowances" factor for the active Army did not include several items used by DA Career Teams in computing the total actual compensation of active Army personnel. Specifically, the following fringe benefits were excluded: prorated reenlistment bonus; accrued leave pay; death gratuity insurance; loss-of-pay insurance; commissary savings; post exchange and barber shop savings; laundry and dry cleaning savings; motion picture theater savings; and income tax savings. Although such other benefits as retirement fund insurance were included in the study, the omitted items total up to an appreciable cash value which add considerably to the $641,000 figure used for active Army pay and allowances. The most recent Career Team Data, drawn from an undated Statistical Chart, Army Career Pattern, DA Career Team Presentation based on 1963 pay scales, shows that the 1963 cash value of the omitted fringe benefits would total some $161.10 per month for an "average" battery member estimated by the writer to be a married and childless E-5 with six years of service. Given these assumptions, the study's cost figure

for active Army annual pay and allowances could be conservatively increased by about $276,000 per battery, raising the active Army pay total to $917,000 as compared to the technician pay total of $695,000. Considering that this added increment amounts to an annual total of about $13,000,000 for a 48-battery program, the reconciliation of DA Career Team formulas with other definitions of military compensation would appear to be desirable in future comparisons of active Army and ARNG air defense costs.

[117]Interv with Colonel Max E. Billingsley, 17 Oct 67.

CHAPTER IV

Performance, 1958-1967

Given the catastrophic context in which the ultimate test of continental air defense would probably take place, one can be thankful indeed that the performance of ARADCOM and its subordinate units, active Army as well as National Guard, has never been subjected to the supreme test of actual nuclear 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 all major aspects--operations, training, technical proficiency, logistics, and administration--of unit performance. Because ARADCOM has applied these yardsticks with little discrimination between the active Army and ARNG components of the command,[1] 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.

As indicated by the notes accompanying the charts and graphs which follow, the sources of all the information presented were score-sheets and other official records of operational, training, technical, logistical, and administrative evaluations on file, as of 31 December 1967, in Hq ARADCOM. With the exception of firing score-sheets of the pre-Short Notice Annual Practice (SNAP) era, the records of ARADCOM-conducted evaluations are as complete as retirement and destruction regulations permit.

In scope, the statistics hopefully 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 usually been deliberately disregarded, as they often give considerable weight to AADCP operations (in which the ARNG is not yet 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 mélanges of "apples and oranges," and all statistics have been carefully reviewed for validity by an impartial specialist. Specifically, a binomial test was applied to percentage-type graphs, and for average-type graphs, standard deviations were computed and differences between means tested at the five-percent level.[2] Those cases in which statistically significant differences were thus revealed are described in detail in discussion accompanying the relevant graphs.

To a battery commander or supervisor straining for the one one-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--each of which, it must be recognized, has its own kind of human validity.

Caveats

Before turning to detailed comparative analysis of the results of evaluations of ARNG and active Army units, caveats other than statistical are in order.

The first of these must be that the early phases of the Guard's on-site missile program inevitably suffered from the growing pains that accompany bold and large-scale new ventures. These growing pains are not always reflected in the data which follow.

In 1960, for example, the Guard's Ajax program underwent a virtual crisis of poor performance in Annual Service Practice (ASP) and Operational Readiness Inspections (ORI) conducted by regional headquarters--neither of which yardsticks is included, owing to lack of existing records, among those considered below. "Seriously alarmed" by ARNG failures in these two areas, Maj. Gen. Donald W. McGowan, then Chief of the NGB, felt that this "current low performance" put the on-site program, and with it, "the prestige of the entire ARNG" in "grave danger."[3] In the conference of Adjutants General and key air defense personnel of the States which General McGowan subsequently summoned, it was pointed out that 22 of 30 Region ORIs of ARNG units had resulted, as of 30 June 1960, in ratings of "non-operational," and that so far in 1960, "no National Guard battalion was able to meet the active Army <u>average</u> in ASPs."[4]

In the auto-critical discussion that followed this gloomy accounting, the NGB attributed this performance to

"inadequate training; inadequate supervision; lack of attention to detail; accepting low standards; carelessness; complacency";[5] and considerable time was devoted to outlining the necessary corrective action. That such action proved to be effective can be shown by statistics; but the fact that such action proved to be necessary cannot. To point this out is only to flesh out statistics with an historical appreciation of the intangible but crucial factor of leadership--especially that of General McGowan--which does not appear in numbers, curves, and charts.

Another general and more obvious caveat is the fact that the results of a particular evaluation reflect only the status of a unit at the time of evaluation; and there is always the sad possibility, in all species of collective effort, of inexplicable one-time aberrations in customarily excellent performance. There is also a requirement for catholicity, in that a true evaluation of a unit's overall effectiveness can be determined only by complete analysis of the results of all relevant evaluations. To quote ARADCOM's regulation on Operational Readiness Evaluations (ORE), "any attempt to rate a unit on the results of any one (type) of evaluation can be misleading and must be avoided."[6] With these general precautions in mind, detailed comparative analysis of the results of ARADCOM evaluations of ARNG and active Army units can become more meaningful

than would otherwise be the case.

Yardsticks

In this study, seven 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: Short Notice Annual Practice (SNAP); Operational Readiness Evaluation (ORE); Annual General Inspection (AGI); Quarterly Unit Readiness Report (REDCON Report); Defense Combat Evaluation (DCE); Command Maintenance Management Inspection (CMMI); and Technical Proficiency Inspection (TPI). 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.

SNAP (Short Notice Annual Practice)

SNAP is a highly appropriate acronym, as the "short-notice" feature of "annual practice" for ARADCOM units gives a unit only about 48 hours' advance notice of the unit's move from its home tactical site to the McGregor Range, New Mexico. Although ARADCOM units conducted annual service practice firings prior to 1961,[7] this short-notice feature

was not initiated until the beginning of FY 1962. Since that time, each ARADCOM unit, regardless of component, has been required to fire in SNAP once each year.

In its current form and content, SNAP for Nike units differs very little from the original version.[8] As in 1962, the concept of operations still calls for five major phases, in addition to the short-notice movement. The major changes since then have occurred in the weighting of values assigned to these phases.

The preparation phase, in which the unit is given not more than seven hours in which to prepare integrated fire control (IFC) and launching area equipment (provided by the U.S. Army Air Defense Center, Fort Bliss), culminates in the unit's assumption of a 20-minute state of alert, and award of a maximum of 100 points. In the second phase, missile assembly, the unit assembles a Hercules missile within maximum time limits of 13 or 15 hours, depending upon the absence or presence of an accessory power supply for the missile. This phase is worth a maximum of 300 points. In the prefire testing phase, an Operational Readiness Evaluation accounts for up to 250 points, and two courses of a Tactical Effectiveness Evaluation come to a total of 450 possible points. In the climactic live firing phase, two missiles

SNAP FIRING at McGregor
Range, New Mexico

are launched against real or electronically simulated targets. The first salvo launches one simulated and one live missile from a 20-minute alert status and the second a simulated and a live missile from a quick-reaction, five-minute alert status. A critique constitutes the fifth and final phase of SNAP.

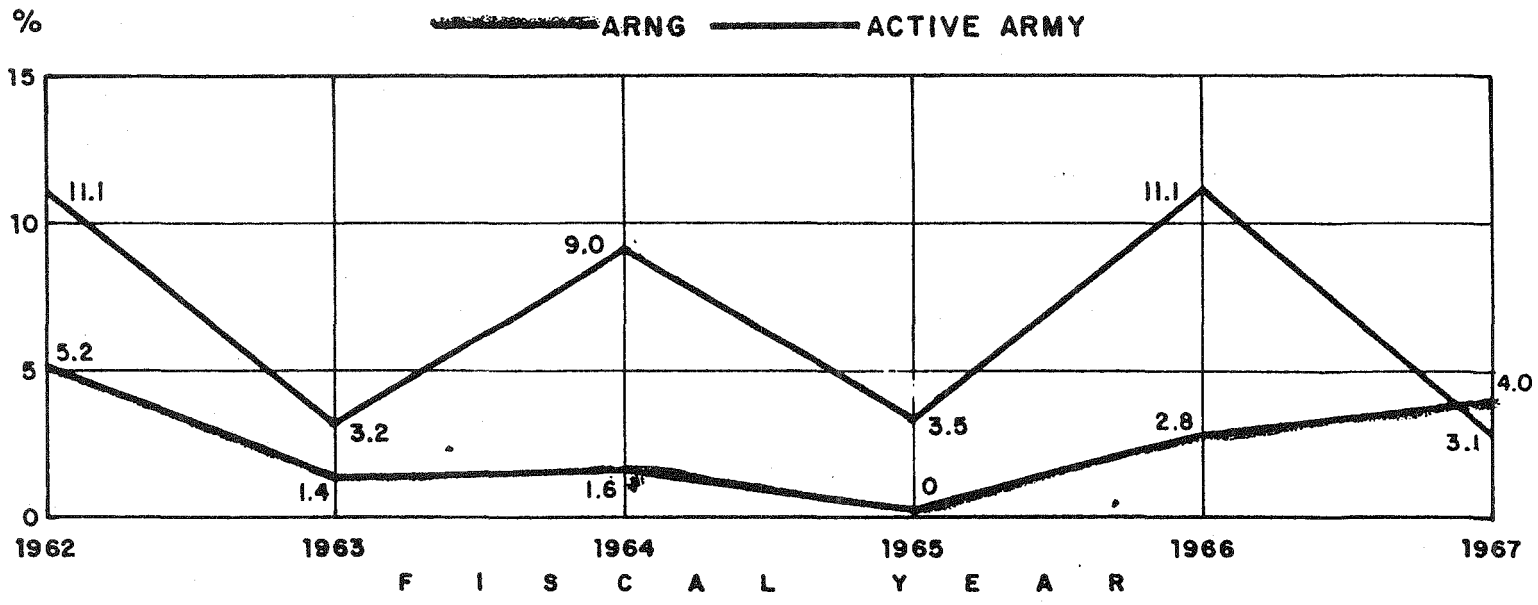
The cardinal importance of the firing phase is reflected by the weight of 450 points assigned to each salvo, and by the fact that the maximum of 900 points that can be earned in the firing phase represents 45 percent of the maximum total SNAP score. After converting raw scores to percentiles, this maximum total of 2000 points equals a 100-percent score, with 70 percent required for a passing score.

In interpreting the SNAP results shown in Charts 1 and 2, the different chronologies of ARNG and active Army conversion from the Ajax to the Hercules weapon system might, at first glance, threaten a serious case of the "apples-and-oranges" syndrome of statistical incompatability.

Fortunately, further analysis diminishes the threat. It is true that the ARNG had barely completed its conversion from guns to Ajax missiles by the end of 1961, by which time the last active Army unit had already completed conversion from the Ajax to the Hercules system; and the ARNG conversion

CHART 1

PERCENTAGE OF NIKE UNIT FIRINGS EVALUATED AS UNSATISFACTORY IN SHORT-NOTICE ANNUAL PRACTICE (SNAP) BY HQ ARADCOM, FY 1962-1967 (WITH NUMBERS OF FIRINGS)



NO. OF FIRINGS

FISCAL YEAR	62	63	64	65	66	67
ARNG	77	72	63	46	49	50
ACTIVE ARMY	135	125	111	85	80	65

Source: ARADCOM Forms 1153, Service Practice Score Sheet, FY 1962-1967, on File in Directorate of Evaluations, DCSOPS, Hq ARADCOM.

program from Ajax to Hercules, measured from the first deployment in December 1962, was not completed until April 1965. However, it is also true that with the exception of the missile-assembly phase, SNAP requirements and procedures varied very little as between Ajax and Hercules systems, and to this day as many as 75 percent of the missiles actually fired in SNAP are, in the interests of optimizing economy and realism, Ajax missiles.[9] In any event, the thrust of ARNG performance in SNAP did not sharply deviate after 1965, by which time both components were on an identical footing with respect to weapon systems.

Chart 1 shows the percentage of Nike unit firings evaluated as unsatisfactory in SNAP from FY 1962 to FY 1967. Obviously, a low position on this graph, which includes the re-firings of units initially evaluated as unsatisfactory, is desirable. Equally obvious is the fact that the ARNG has consistently occupied this enviable position. Statistically significant differences, all of which favor the ARNG and reflect true differences in quality, can be noted in the case of all but one of the six fiscal years for which records exist. The year in which the difference was statistically insignificant was FY 1967.

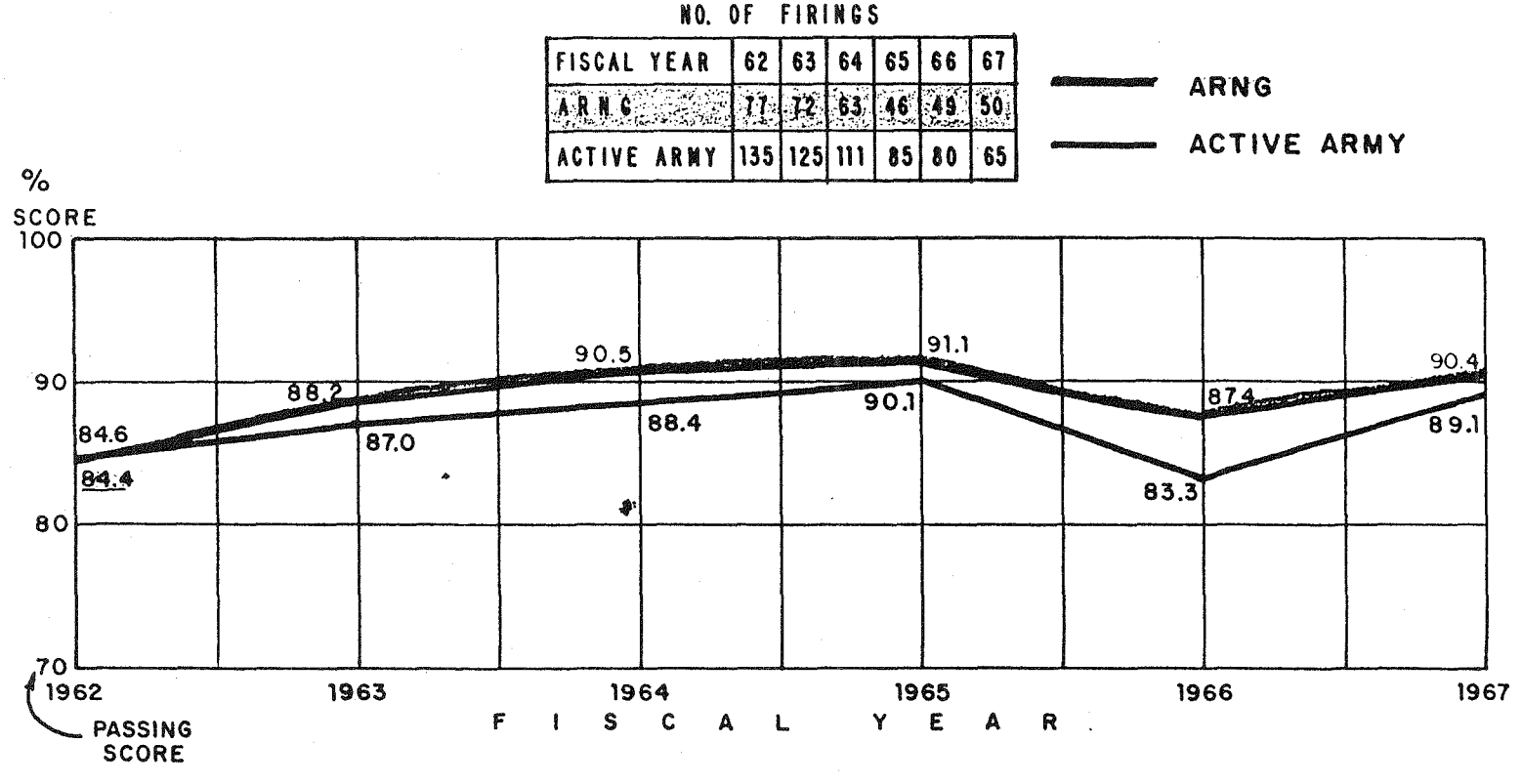
Chart 2 shows the average scores of Nike unit firings for the same period. Again, the scores of re-firings of

CHART 2

AVERAGE SCORES OF ARADCOM NIKE UNIT FIRINGS IN SHORT-NOTICE ANNUAL PRACTICE (SNAP) FY 1962-1967 (WITH NUMBERS OF FIRINGS)

NO. OF FIRINGS

FISCAL YEAR	62	63	64	65	66	67
ARNG	77	72	63	46	49	50
ACTIVE ARMY	135	125	111	85	80	65



Source: ARADCOM Forms 1153, Service Practice Score Sheet, FY 1962-1967, on File in Directorate of Evaluations, DCSOPS, Hq ARADCOM.

units initially evaluated as unsatisfactory are included. Here, a high position on the graph is desirable. Although the ARNG consistently occupies this favored position, the differences between means are relatively narrow, and only in the case of FY 1966 is there a statistically significant difference.

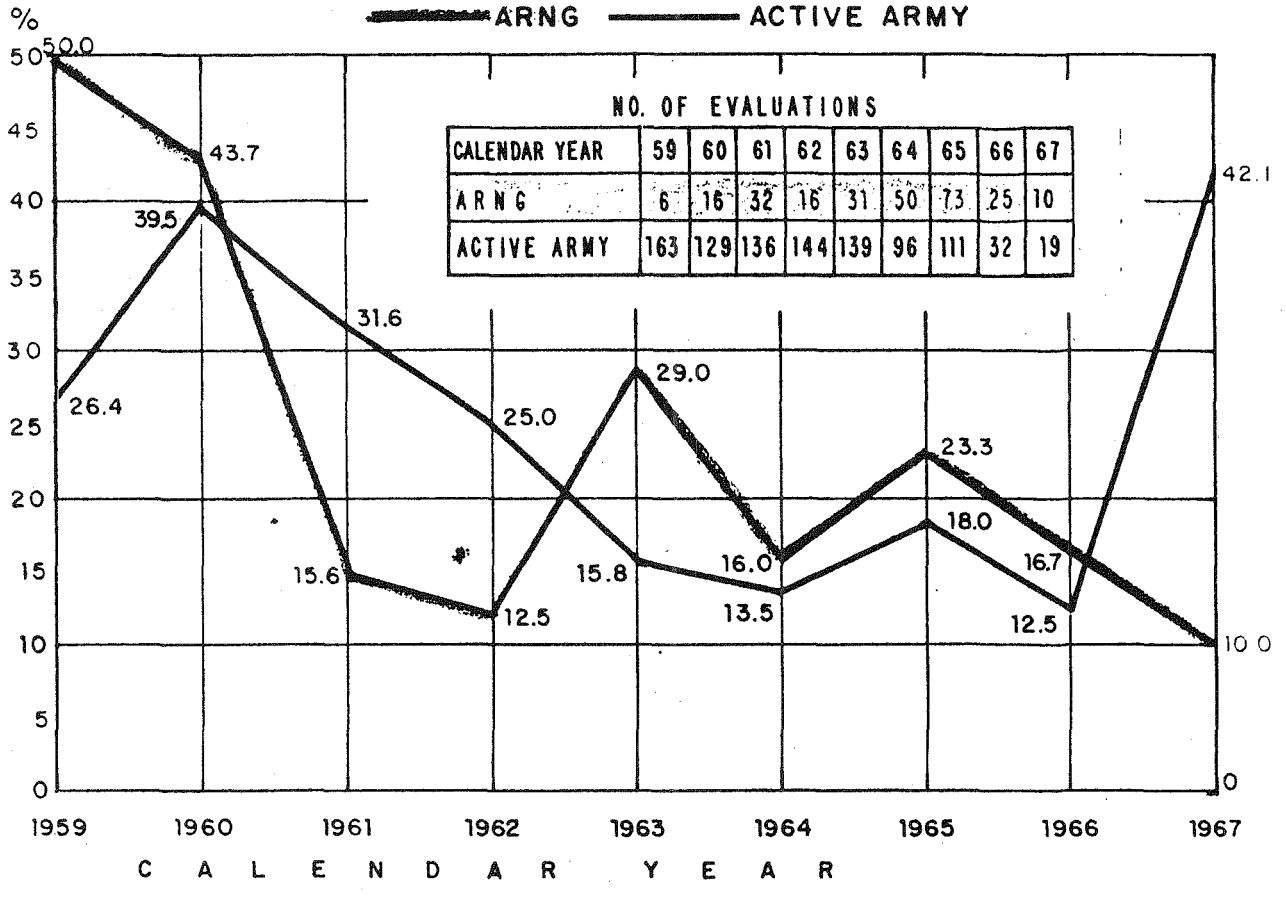
In the light of these two graphs, the overall conclusion with respect to ARNG and active Army performance in SNAP can only be that the statistically significant differences noted invariably show that the ARNG is qualitatively superior to the active Army in this important regard.

ORE (Operational Readiness Evaluation)

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, are 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."[10] It is this last category which has provided the statistical basis for the graphs used in this study.

CHART 3

PERCENTAGE OF NONOPERATIONAL EVALUATIONS IN OPERATIONAL READINESS EVALUATIONS (ORE) OF NIKE FIRE UNITS BY HQ ARADCOM CY 1959-1967 (WITH NUMBERS OF EVALUATIONS)



NO. OF EVALUATIONS

CALENDAR YEAR	59	60	61	62	63	64	65	66	67
ARNG	6	16	32	16	31	50	73	25	10
ACTIVE ARMY	163	129	136	144	139	96	111	32	19

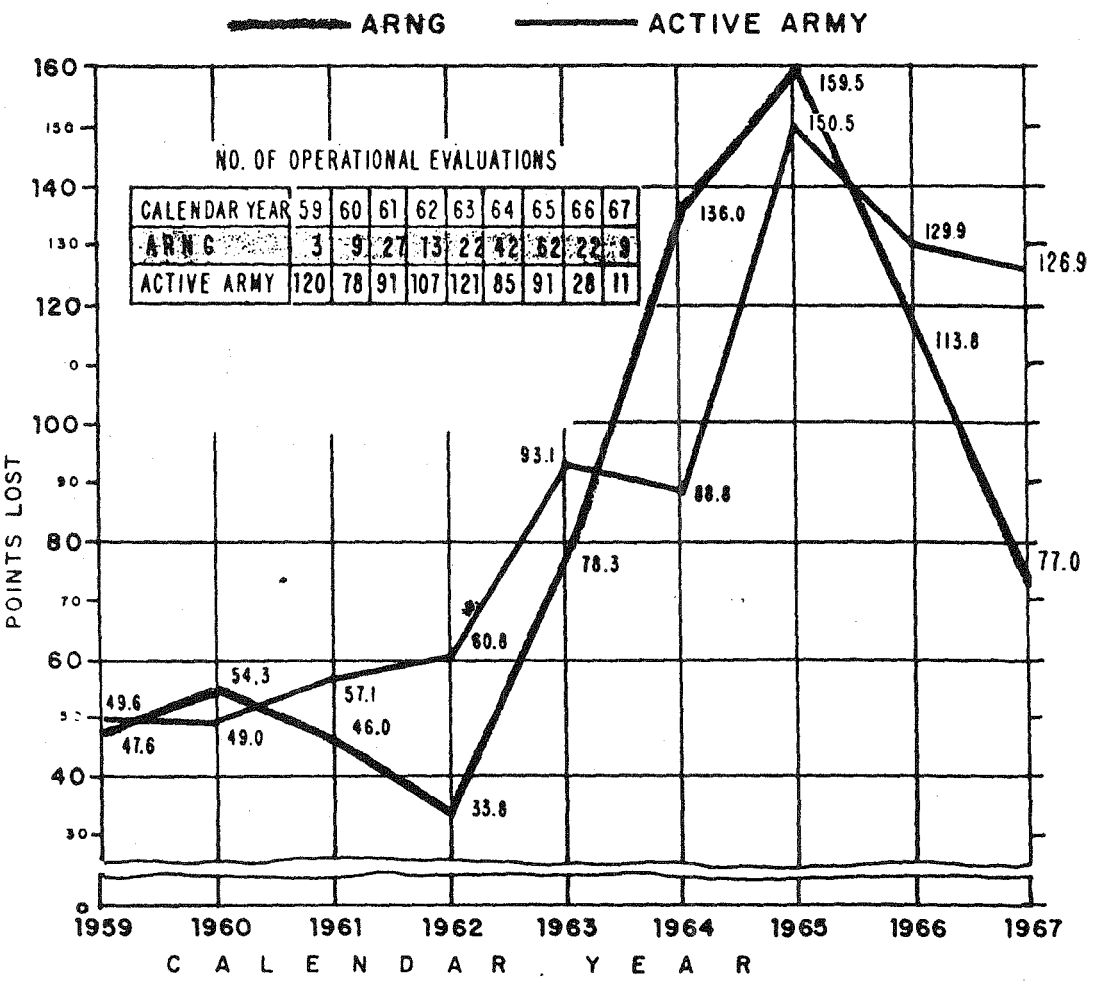
Source: ARADCOM Forms 123, Nike Fire Unit Score and Status, CY 1959-1967, on file in Directorate of Evaluations, DCSOPS, Hq ARADCOM.

The ARADCOM ORE, which normally takes a field-grade officer and two warrant officers about 3½ hours to complete, is a detailed evaluation[11] of unit personnel and equipment readiness to engage a target successfully within the time limits 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 "nonoperational."

Charts 3 through 6 reflect four salient aspects of ARADCOM OREs, each of which offers an equitable basis for comparison of ARNG and active Army performance in this area. Although existing ORE records go back as far as CY 1957, only the years from 1959 on are reflected in the charts. This is because only the experimental 720th Missile Battalion of the Guard's Ajax units received an ORE prior to that year, and because Hq ARADCOM was disinclined to add to the burdens of ARNG units during 1958, the first year of the Guard's conversion from guns to Ajax missiles.

CHART 4

AVERAGE NUMBER OF POINTS LOST BY OPERATIONAL ARADCOM NIKE FIRE UNITS IN OREs BY HQ ARADCOM 1959-1967 (WITH NUMBERS OF OPERATIONAL EVALUATIONS)



Source: ARADCOM Forms 123, Nike Fire Unit Score and Status, CY 1959-1967, on file in Directorate of Evaluations, DCSOPS, Hq ARADCOM.

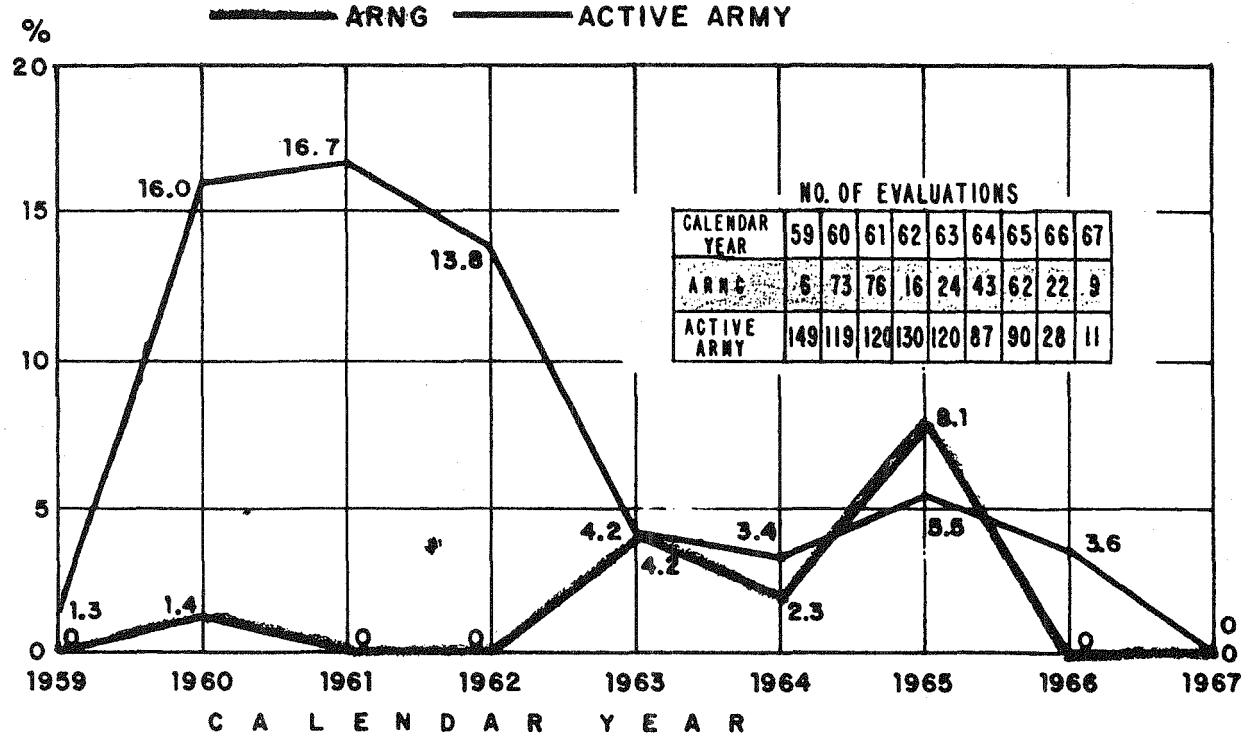
As in the case of SNAP, a lack of absolute congruity in weapon systems underlies the annual statistics shown for all years prior to 1965. But here again, the numerous similarities in procedure and materiel between the Ajax and Hercules systems, as well as the thrust of ARNG performance after completion of the Hercules conversion program in 1965, combine to diminish the apparent danger of statistical incompatability.

Chart 3 reflects the percentage of nonoperational evaluations in ARADCOM ORE's of Nike fire units from calendar years 1959 through 1967, including re-evaluations of units initially rated nonoperational.[12] The picture here is much less mixed than might at first appear. In five of the nine years shown, there is a statistically significant difference between ARNG and active Army performance: 1959, 1961, 1962, 1963, and 1967. In three of these five cases--1961, 1962, and 1967--the difference is favorable to the ARNG.

In interpreting the average ORE scores shown in Chart 4, it must be borne in mind that ORE scores are like golf scores: the lower the better. The average figures shown thus reflect assessments rather than awards, and a low position on the graph is desirable. Here again, the seemingly mixed picture is deceptive. Statistically significant

CHART 5

PERCENTAGE OF UNSATISFACTORY NIKE FIRE CONTROL AREA CREW PERFORMANCES IN OREs BY HQ ARADCOM 1959-1967 (WITH NUMBERS OF EVALUATIONS)



CALENDAR YEAR	59	60	61	62	63	64	65	66	67
ARNG	6	73	76	16	24	43	62	22	9
ACTIVE ARMY	149	119	120	130	120	87	90	28	11

Source: ARADCOM Forms 123, Nike Fire Unit Score and Status, CY 1959-1967, on file in Directorate of Evaluations, DCSOPS, Hq ARADCOM.

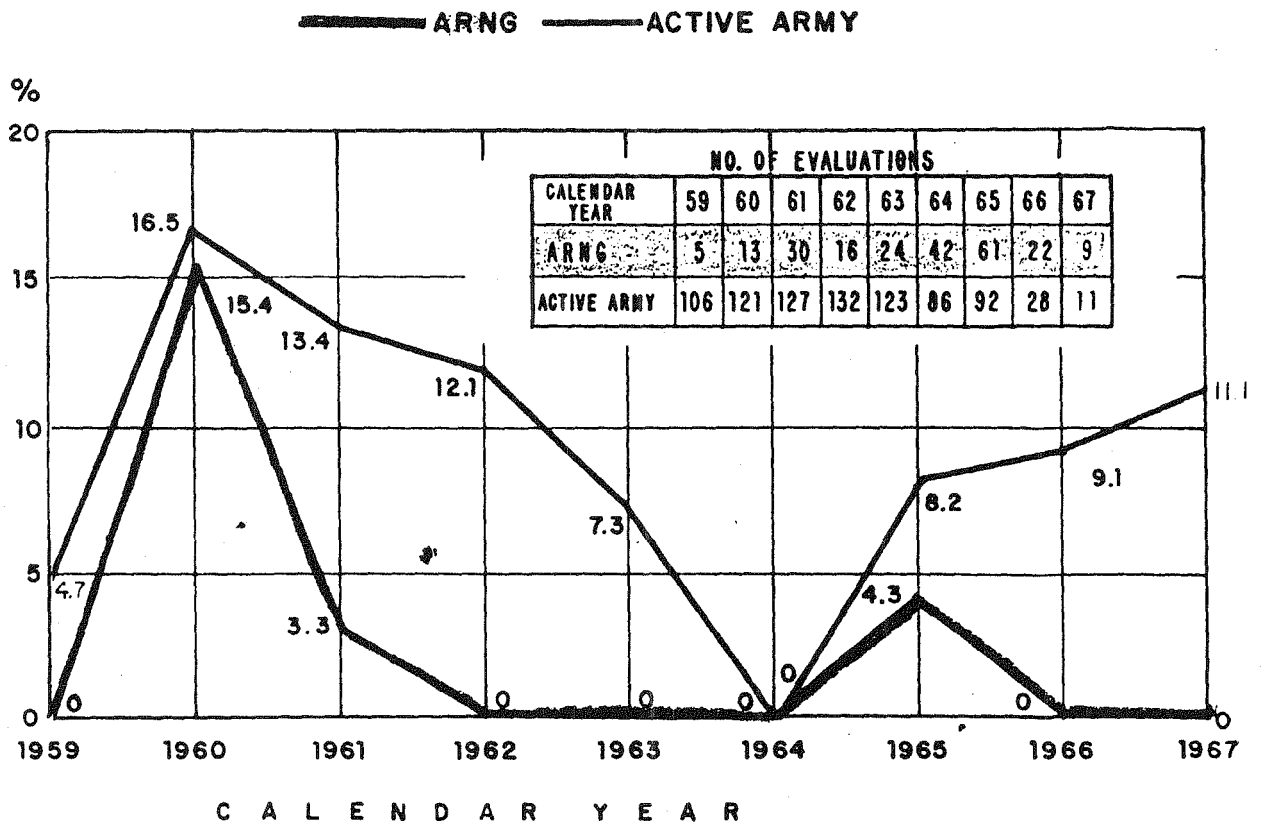
differences between component means exist in only two of the nine years from 1959 to 1967; 1962 and 1964.[13] The comparison is unfavorable to the Guard in the case of 1964.

Differences between component crew performances in the fire control and launcher control areas, shown in Charts 5 and 6 respectively, present a clear picture of ARNG superiority. In the fire control area, OREs for four of the nine years from 1959 through 1967 yielded statistically significant differences: 1960, 1961, 1962, and 1966. All of these differences markedly favor the Guard. The picture in the area of launcher crew performance (Chart 6) is similarly favorable to the ARNG. Statistically significant differences exist in six of the nine years from 1959 through 1967: 1959, 1961, 1962, 1963, 1966, and 1967. In four of these six cases--1959, 1961, 1962, and 1963--the ARNG has a significant margin of superiority over active Army launcher crew performance.

Taken together, these four graphs support an overall conclusion that ARNG performance in OREs conducted by Hq ARADCOM, over the nine-year period from 1959 through 1967, has on balance been superior to that of ARADCOM's active Army units.

CHART 6

PERCENTAGE OF UNSATISFACTORY NIKE LAUNCHER CONTROL AREA CREW PERFORMANCES IN OREs BY HQ ARADCOM 1959-1967 (WITH NUMBERS OF EVALUATIONS)



NO. OF EVALUATIONS

CALENDAR YEAR	59	60	61	62	63	64	65	66	67
ARNG	5	13	30	16	24	42	61	22	9
ACTIVE ARMY	106	121	127	132	123	86	92	28	11

Source: ARADCOM Forms 123, Nike Fire Unit Score and Status, CY 1959-1967, on file in Directorate of Evaluations, DCSOPS, Hq ARADCOM.

AGI (Annual General Inspection)

Of the ARADCOM yardsticks used here for comparative component measurement, the Annual General Inspection (AGI) by the Inspector General of ARADCOM most unequivocally shows, at first glance, marked ARNG superiority, especially when it is recalled that the wide and statistically significant lead in percentage of "Superior" ratings achieved by ARNG Hercules missile batteries and battalion headquarters and headquarters batteries is based upon a disproportionate ARNG troop list which amounts to less than half that of counterpart units of the active Army.

In the ARADCOM AGIs of these types of units, which alone offer fair basis for comparison of components, inquiry is made "into all functional areas of inspected units to appraise mission performance and to determine the state of discipline, efficiency, and economy."[14] Although this objective holds for AGIs of both components, there are appreciable differences in the scope as well as the conduct of these inspections. Because Guard units by design lack many of the facilities found on active Army sites, such as dispensaries, clubs, theaters, and craft shops, their potential gig list for inspection of such facilities is nonexistent. On the other hand, ARNG units are inspected for