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MILITIA MISSILEMEN:

THE ARMY NATIONAL GUARD

IN

AIR DEFENSE

1951-1967 (U)

(ARADCOM HISTORICAL MONOGRAPH ARAD 3 M)

UNITED STATES ARMY
AIR DEFENSE COMMAND
VIGILANT AND INVINCIBLE

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United States Army Air Defense Command
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Colorado Springs, Colorado 80912

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UNCLASSIFIED

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by

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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.

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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 recalculation" of antiaircraft needs by the War Plans Division of the Army General Staff in the spring and summer of 1939, "it was apparent to the planners at the outset that the National Guard and Organized Reserves would have to furnish the bulk of antiaircraft forces, since the Regular Army could not hope to maintain enough units of this sort in peacetime to meet the needs of a real war emergency." The resultant planning goal of 37 antiaircraft regiments, of which 28 were to be drawn from the National Guard, was actually achieved by the fall of 1941; and of the varying force of 24 to 32 regiments employed in continental air defense during World War II, the great 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 antiaircraft force levels for the Guard took place after President Roosevelt's callup of the Guard on 27 August 1940. For another, the Guard antiaircraft units thus federalized, which were "even shorter in equipment and ammunition than in training," were not tactically deployed within the continental United States until after the Japanese attack

on Pearl Harbor. The contrast with the 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 antiaircraft defense of the continental United States (CONUS) was concerned, the crucial Korean chapter of cold-war history was basically a repetition of World War II precedents. Starting in August of 1950, the Guard's AAA units had first been called to active duty before being assigned to ARAACOM. The States had therefore lost command over their units to the Federal authority exercised by ARAACOM. When the immediate need for them had passed, and as the draft swelled active Army ranks, the Guard's AAA units had been released from Federal service. But the Korean crisis was only one round in the wider and continuing struggle of the cold war, and as early as January 1951 it was clear to

Army planners that continued and long-term exploitation of the Guard's AAA potential would, in some new way, be necessary if an adequate continental air defense were to be assured for an uncertain and ominous future.

Even earlier, in March of 1950, consideration by an ad hoc interservice committee in the Pentagon of the areas which could be defended by antiaircraft had resulted in a 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


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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 <u>with their equipment permanently located on site</u> 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.

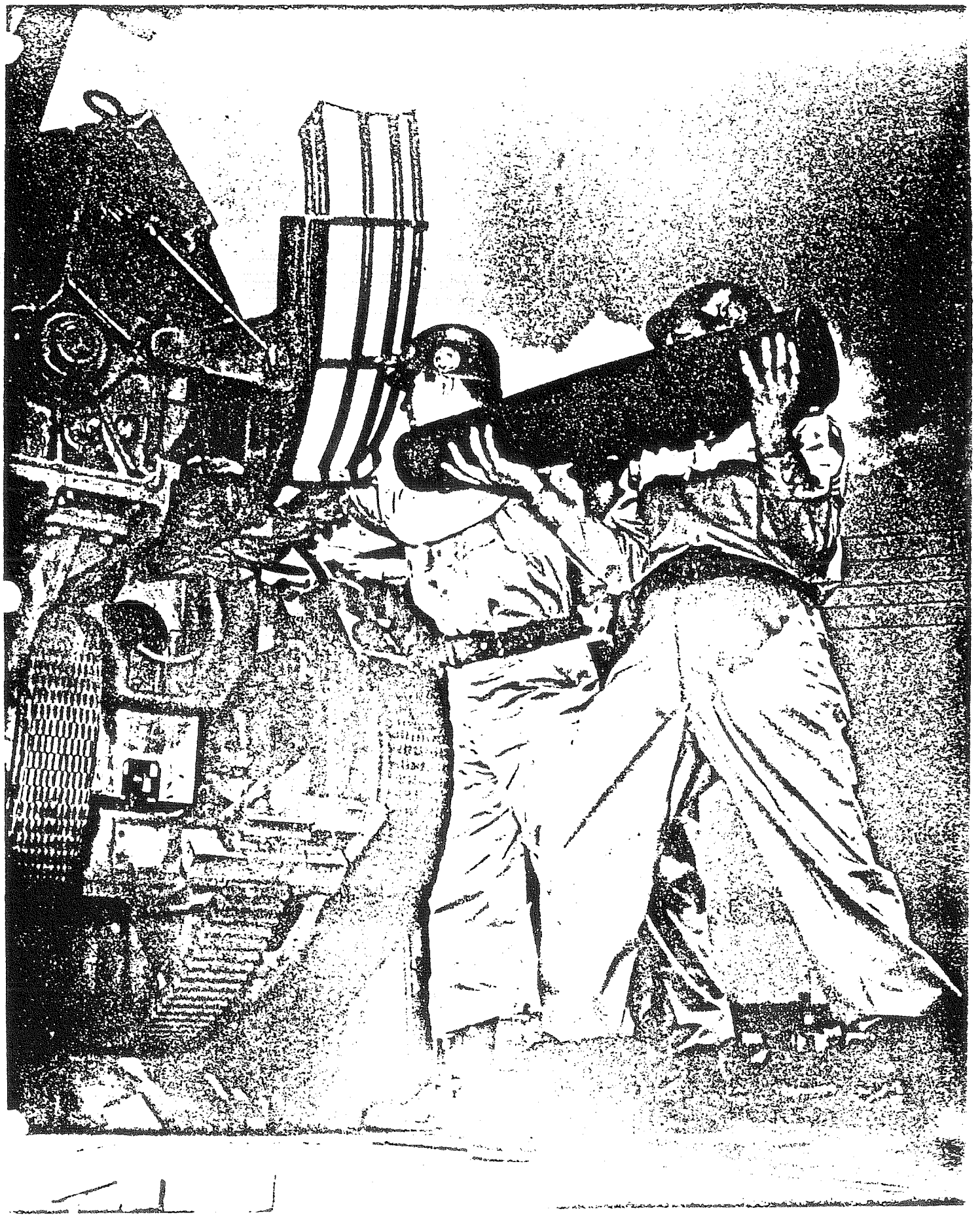
Although the DA directive consolidated and reiterated most of the previous planning accomplished by ARAACOM, the NGB, and AFF, it upped the ARAACOM estimate of 39 battalions as a feasible force level for the ARNG on-site program. Now envisaging a total Guard potential of 91 rather than 90 battalions, 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 2½ battalions by 1954; 12½ by 1955; 19 3/4 by 1956; and 25¼ by 1957.[26] When the entire gun program ended in October of 1957, there were 101 batteries, or 25¼ 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.

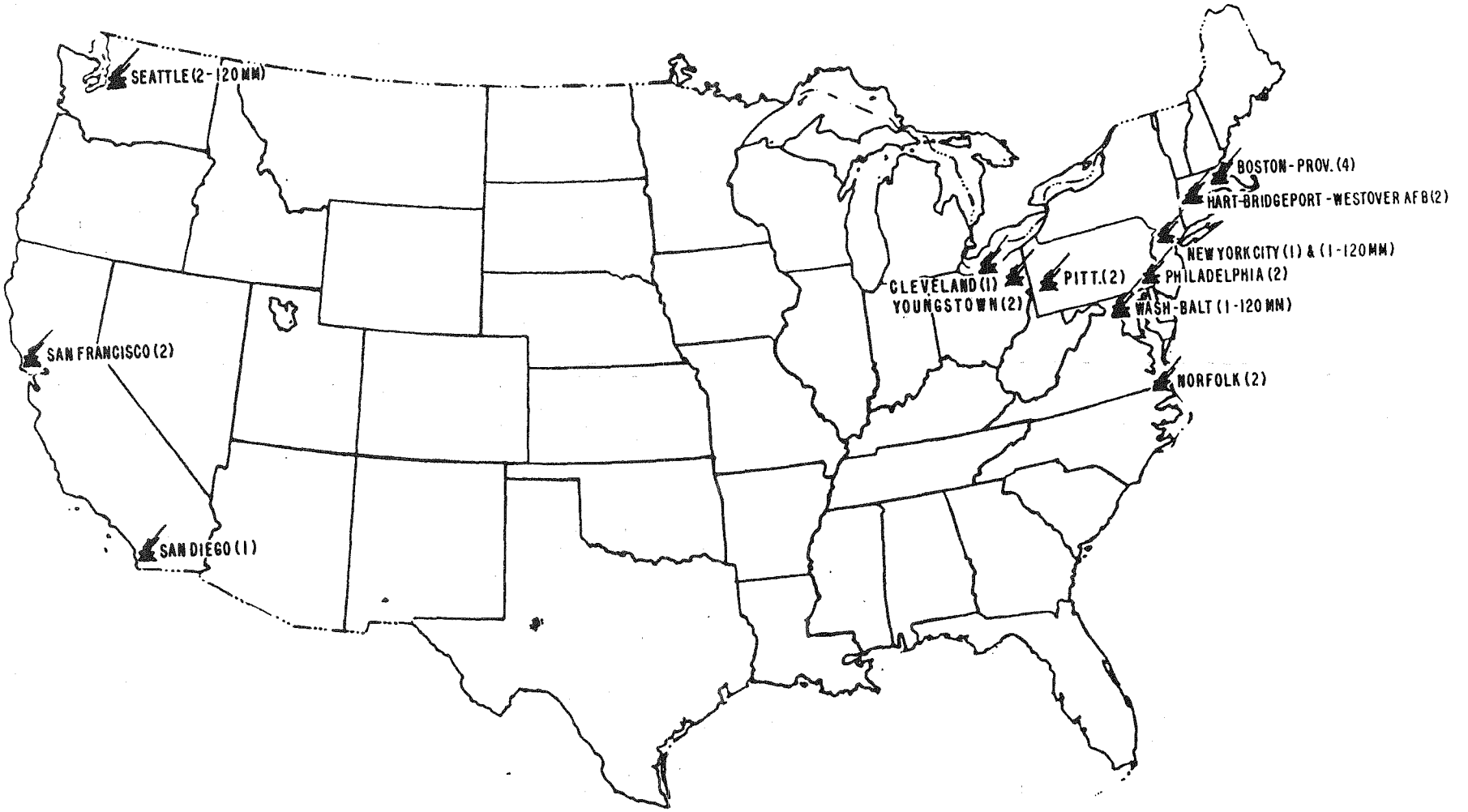
An "imperative goal" of DA policy was for all on-site units to be "qualified and designated as Special Security Force as expeditiously as possible."[32]

Realization fell far short of the goal. In the on-site program, the total of $25\frac{1}{4}$ 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 $25\frac{1}{4}$ 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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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

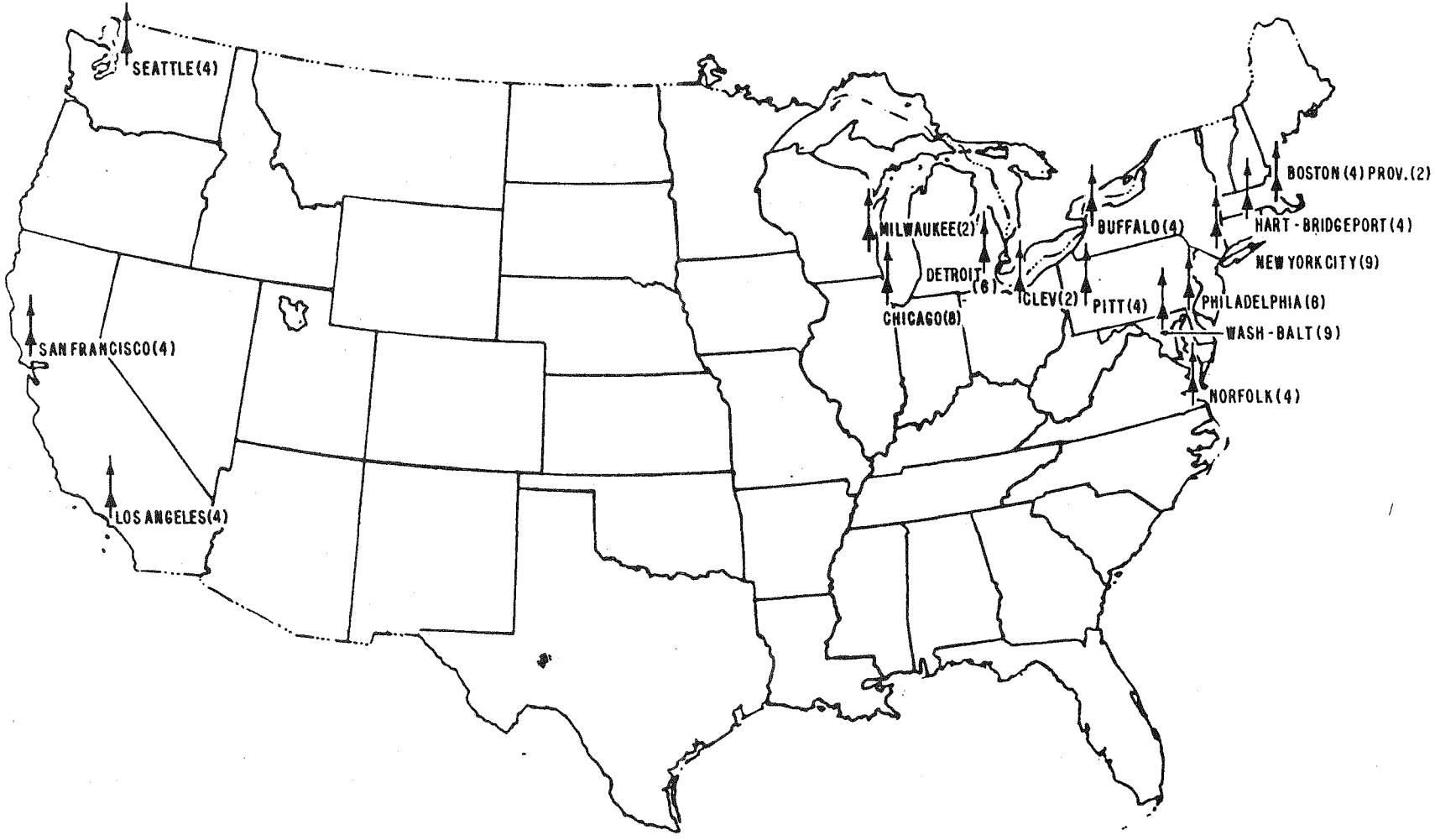
programmed for the end of FY 1961.[65] Despite DA assurances in May that the FY 1960 force structure was "firm,"[66] the program target for that year was reduced from 88 batteries to 58.[67] In August 1959, the programmed figures were 58 firing batteries by the end of FY 1960 and an ultimate goal of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

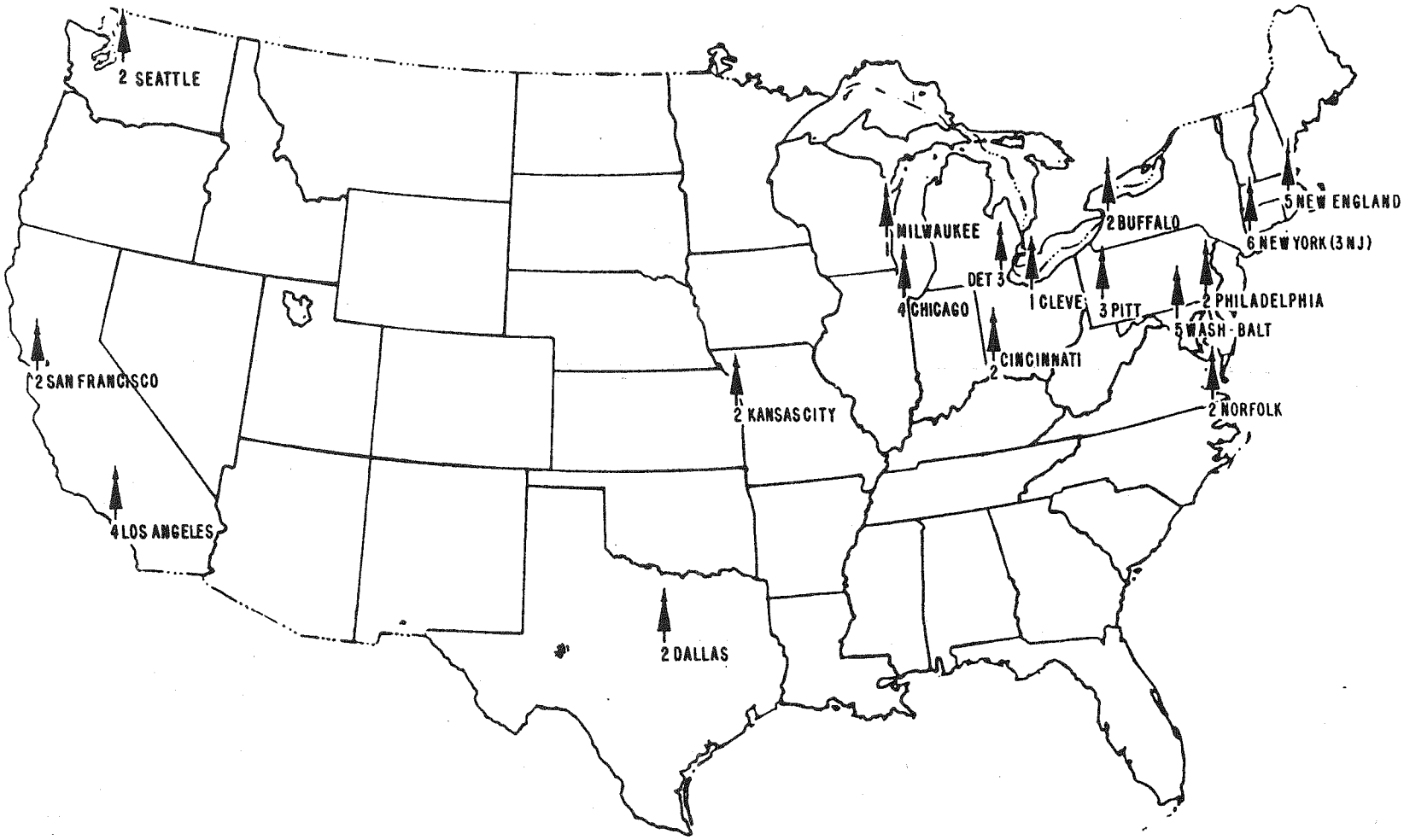
that the directive's prescriptions for 88 to 99 full-time technicians per Hercules missile battery, as well as its authorized technician spaces for battalion headquarters and State-level air defense positions, have been proved workable by half a decade of experience.[110]

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

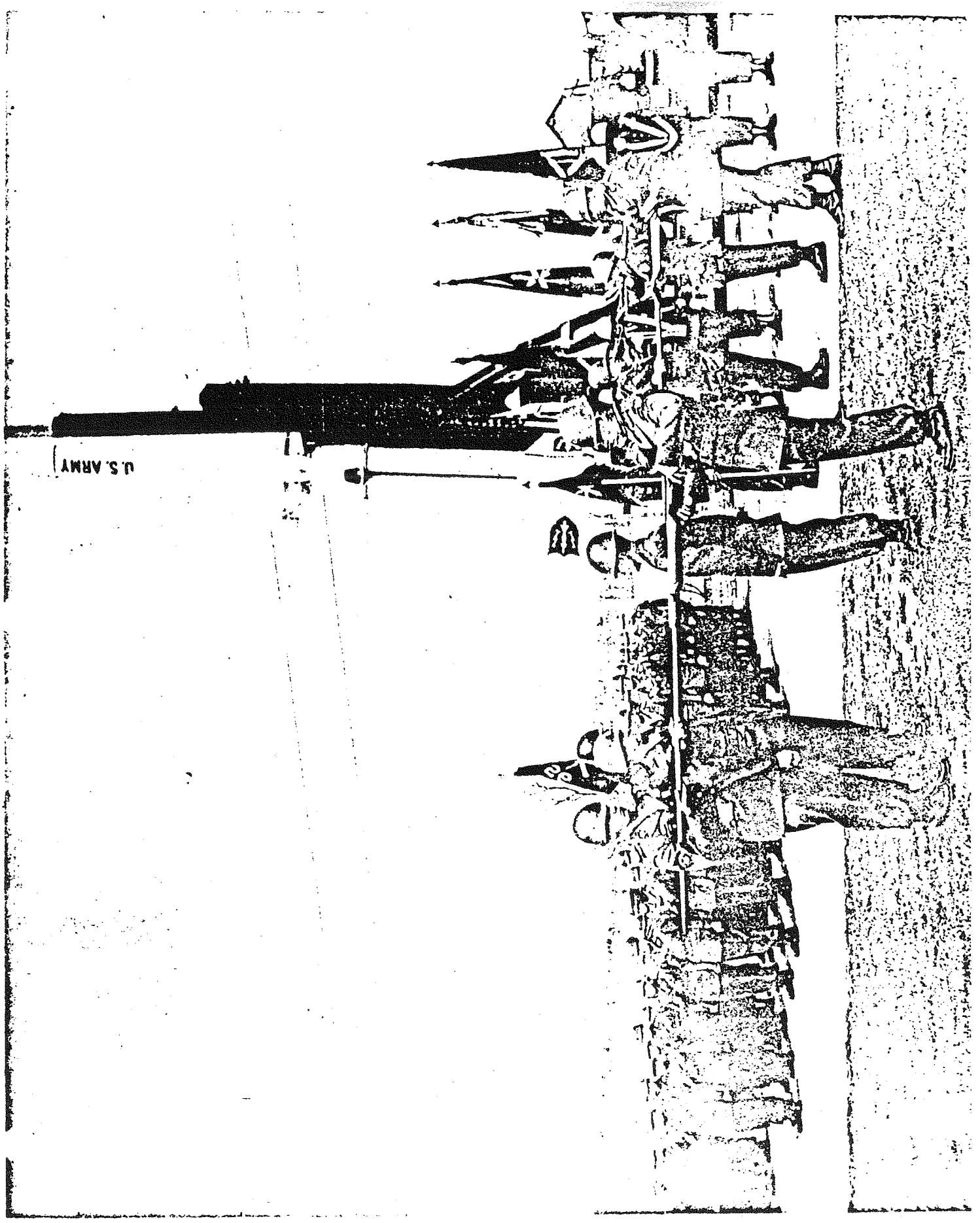
a. Includes Social Security payments as well as salaries.

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 longhand 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.

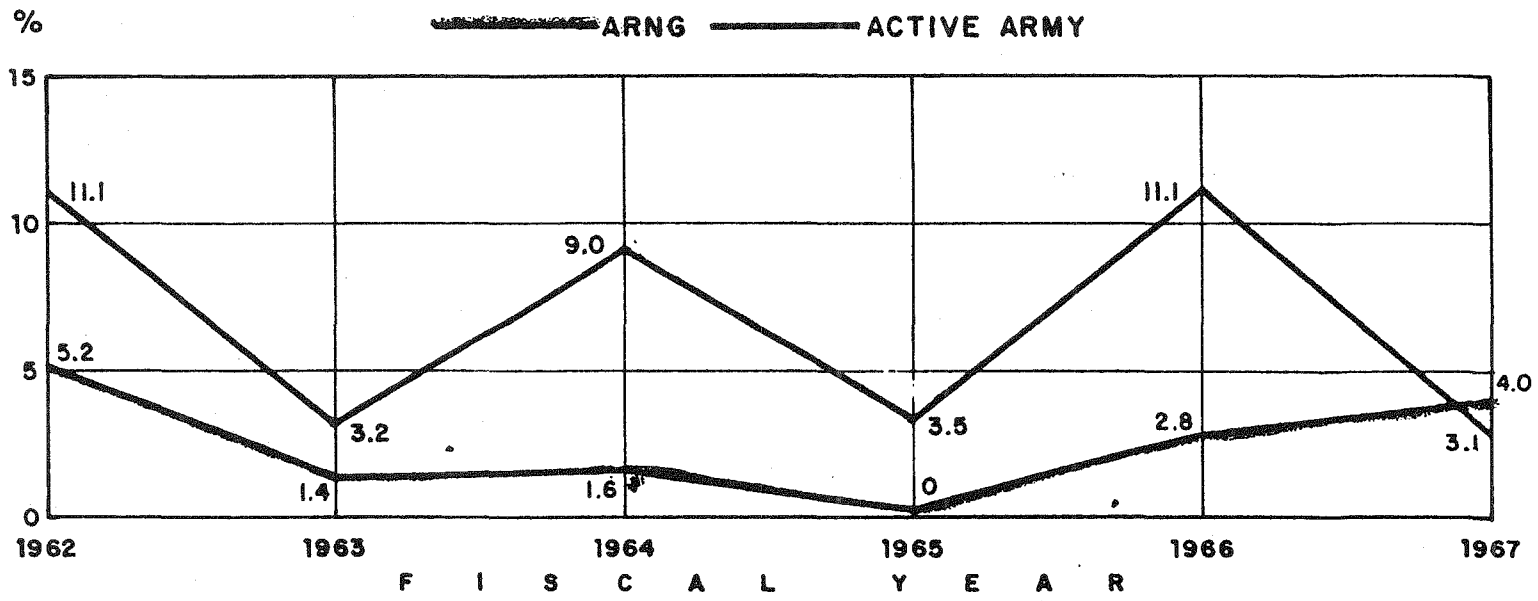
The cardinal importance of the firing phase is reflected by the weight of 450 points assigned to each salvo, and by the fact that the maximum of 900 points that can be earned in the firing phase represents 45 percent of the maximum total SNAP score. After converting raw scores to percentiles, this maximum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

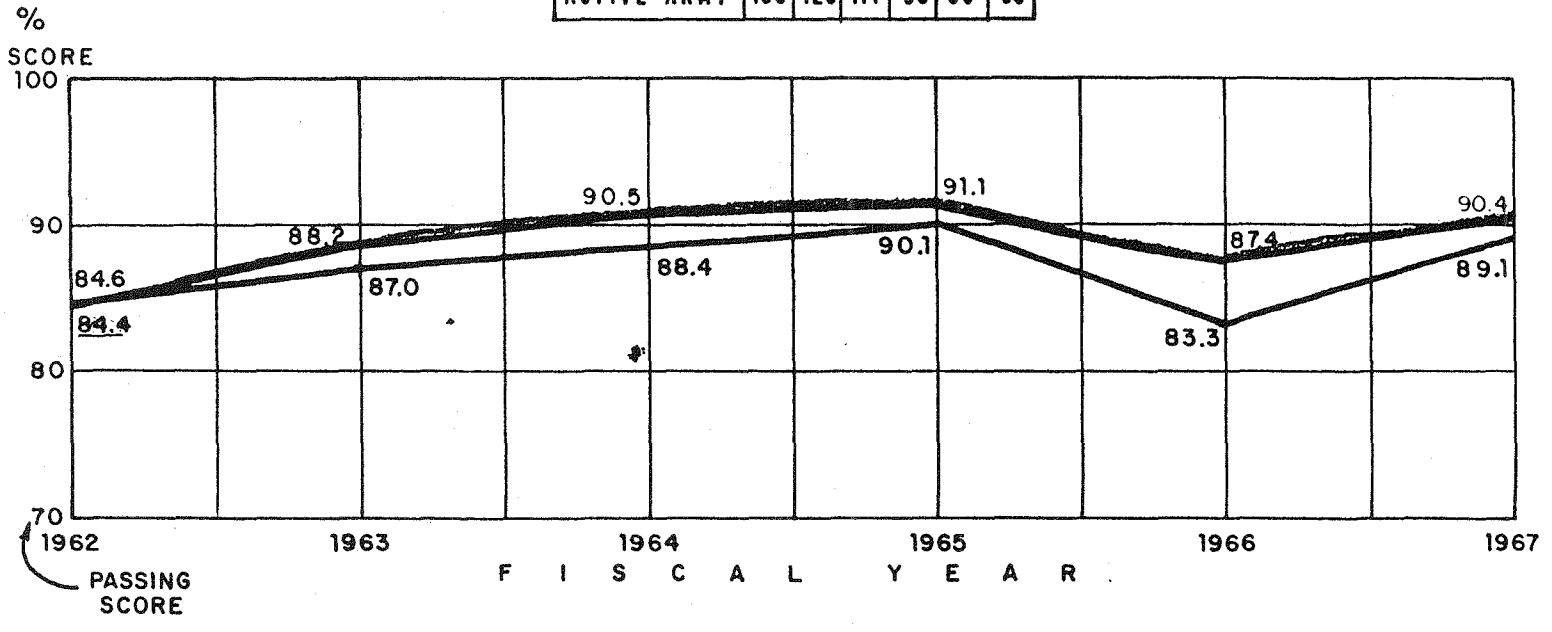
Chart 2 shows the average scores of Nike unit firings for the same period. Again, the scores of re-firings of

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.

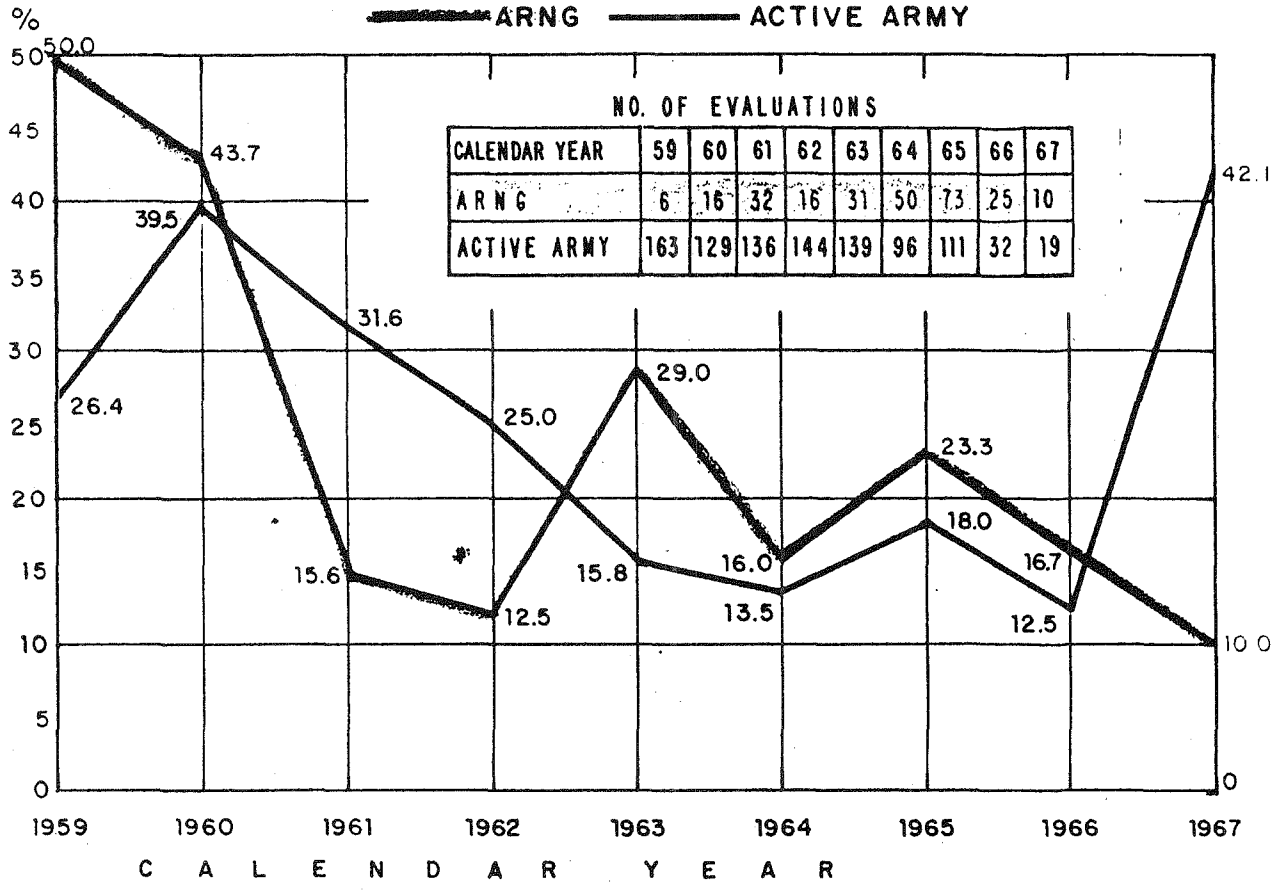
In the light of these two graphs, the overall conclusion with respect to ARNG and active Army performance in SNAP can only be that the statistically significant differences noted invariably show that the ARNG is qualitatively superior to the active Army in this important regard.

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

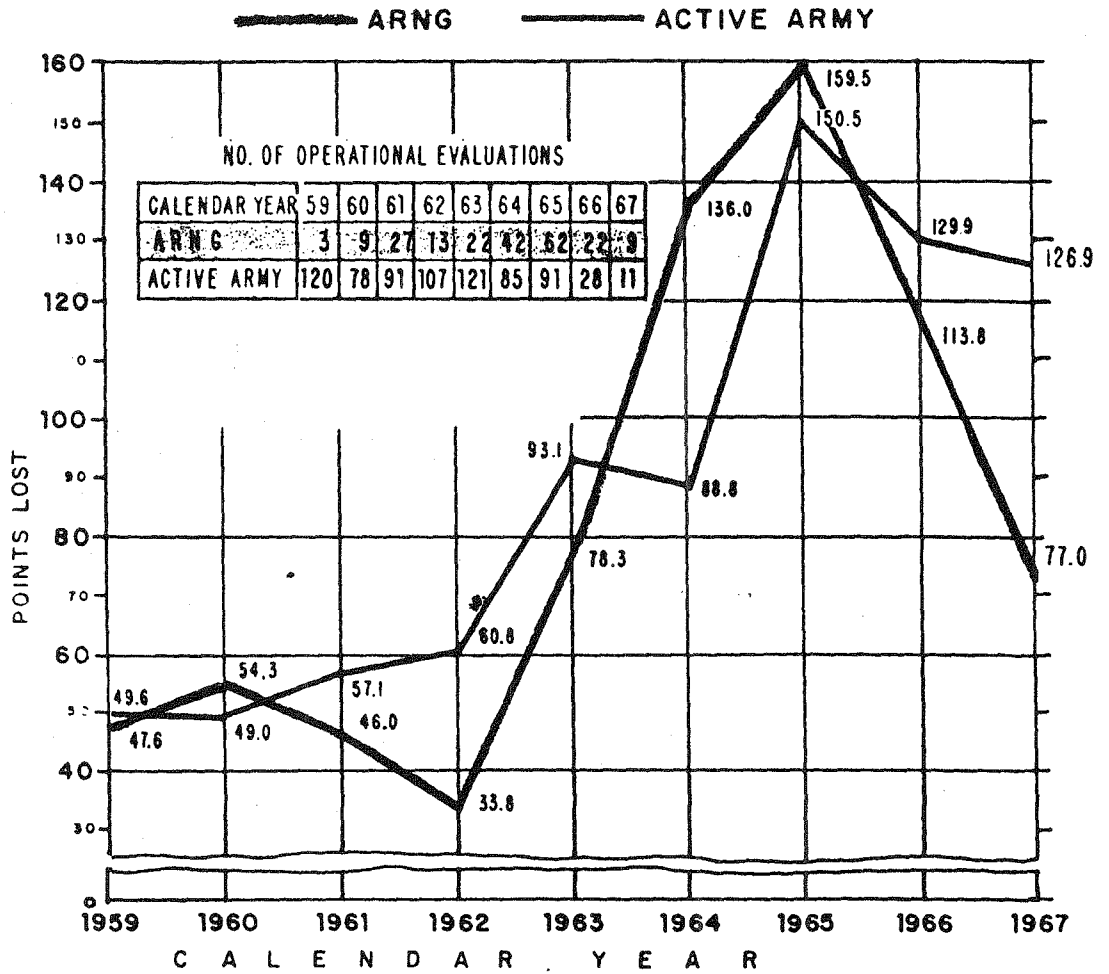
Source: ARADCOM Forms 123, Nike Fire Unit Score and Status, CY 1959-1967, on file in Directorate of Evaluations, DCSOPS, Hq ARADCOM.

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)



CALENDAR YEAR	59	60	61	62	63	64	65	66	67
ARNG	3	9	27	13	22	42	52	22	9
ACTIVE ARMY	120	78	91	107	121	85	91	28	11

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

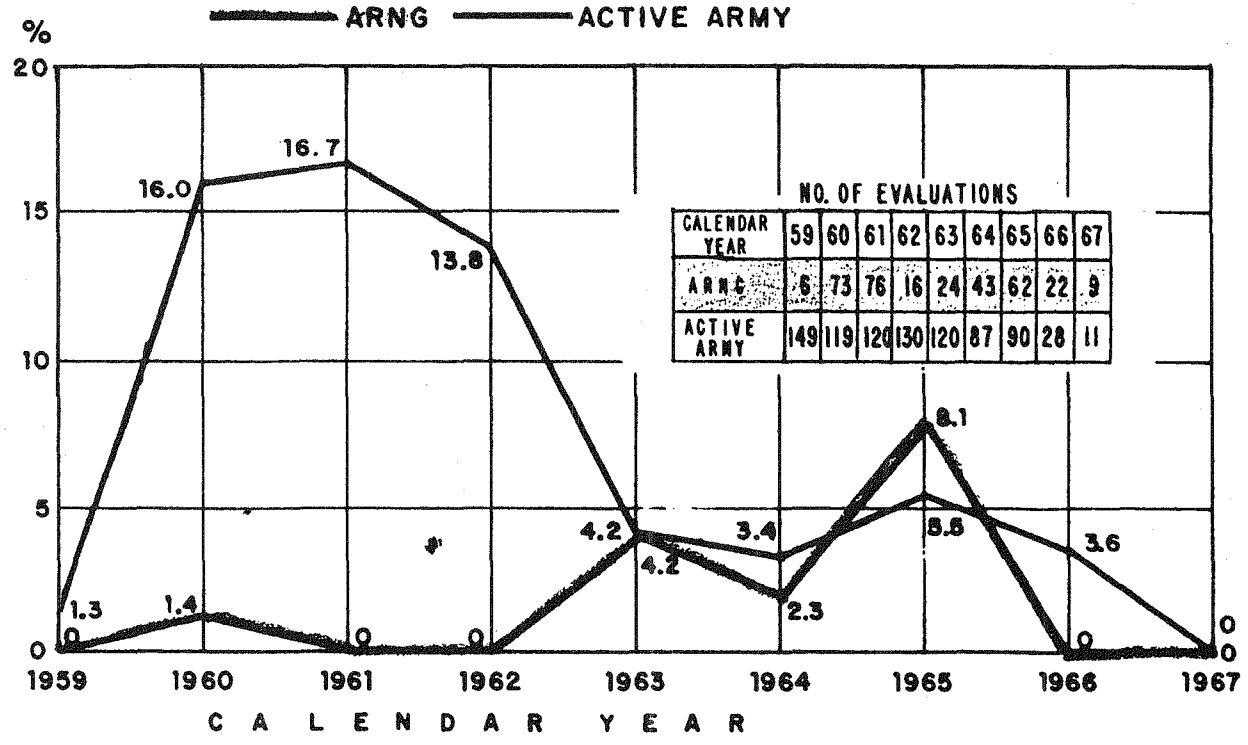
As in the case of SNAP, a lack of absolute congruity in weapon systems underlies the annual statistics shown for all years prior to 1965. But here again, the numerous similarities in procedure and materiel between the Ajax and Hercules systems, as well as the thrust of ARNG performance after completion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



NO. 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.

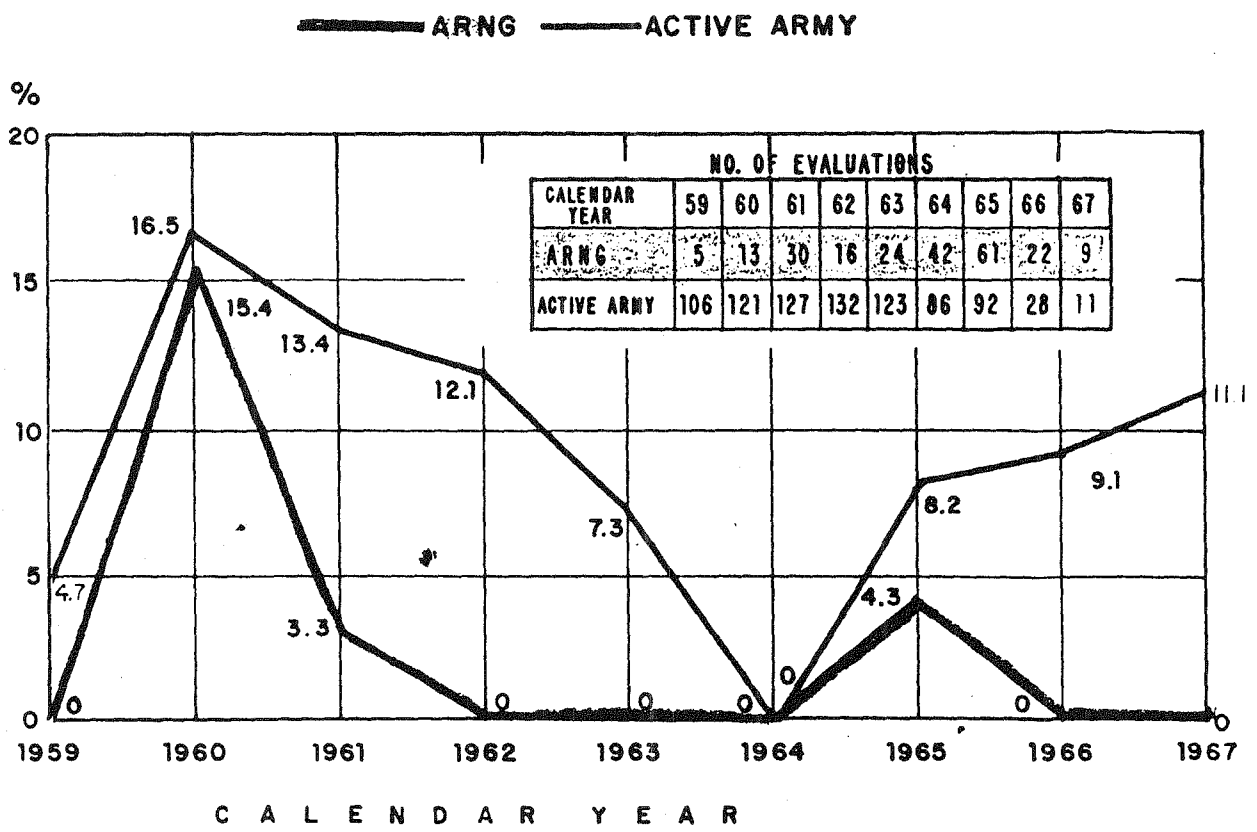
differences between component means exist in only two of the nine years from 1959 to 1967; 1962 and 1964.[13] The comparison is unfavorable to the Guard in the case of 1964.

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.

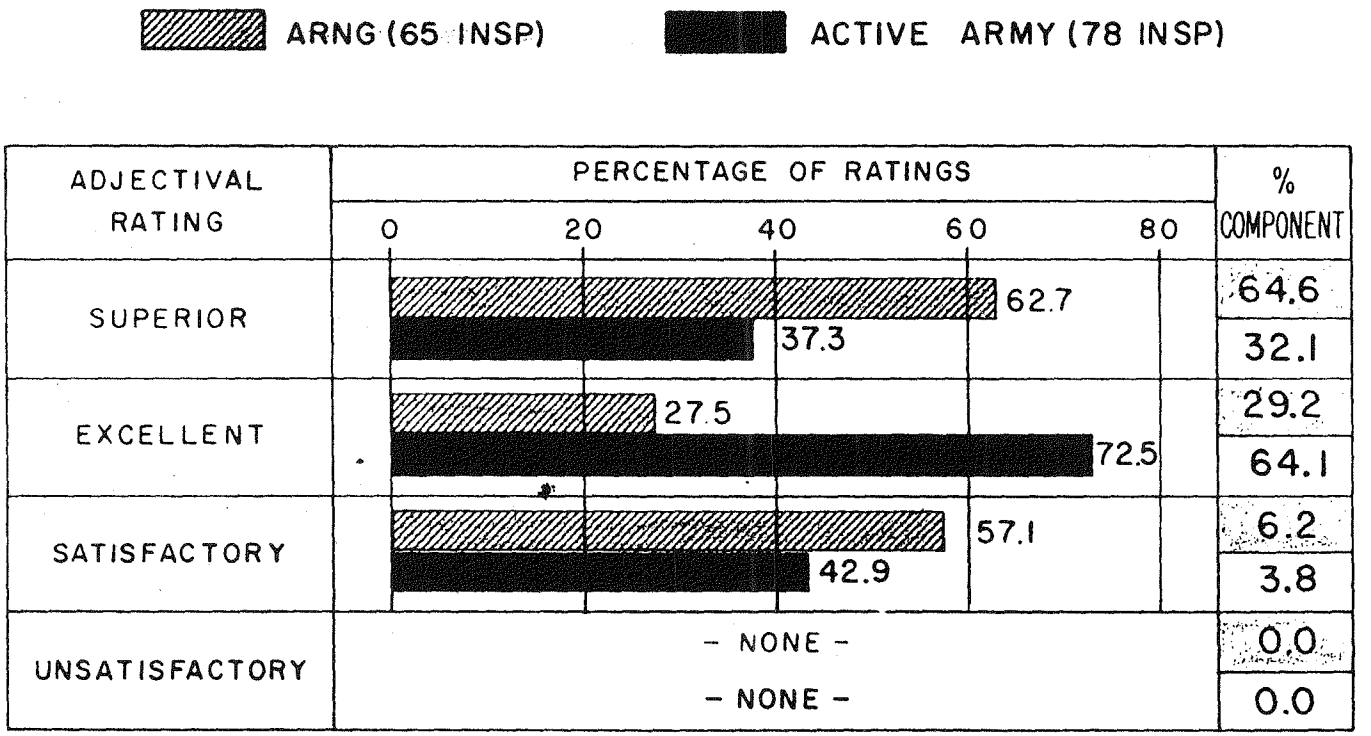
AGI (Annual General Inspection)

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

CHART 7

RATINGS BY HQ ARADCOM IN ANNUAL GENERAL INSPECTIONS OF NIKE HERCULES MISSILE BATTERIES AND BATTALION HQ AND HQ BATTERIES FY 1967



Source: DA Forms 854, Report of AGI, and ARADCOM IG Briefing Chart for FY 1967, on File in the Office of the Inspector General, Hq ARADCOM.

compliance with not only Department of the Army and ARADCOM regulations, but National Guard regulations as well--an area of potential vulnerability which does not jeopardize active Army units. For purposes of equitable comparison, however, the fact that AGIs of ARNG units are conducted by an ARADCOM team whose members inspect only ARNG units is a more serious handicap than these differences in scope: a common instrument for the measurement of both components is lacking.

Thus, a comparative interpretation of AGI statistics cannot escape the "apples-and-oranges" syndrome; but whether it is the active Army or ARNG component of ARADCOM which suffers the most from this ailment is a matter for debate.[15]

In the light of these limiting qualifications, the pronounced statistical superiority of Guard performance in AGIs cannot be viewed as conclusive. Nonetheless, the fact that there is much common ground covered in AGIs of the two components means that ARNG performance can rightfully be viewed with considerable respect.

The records upon which Chart 7 is based go back only to the beginning of FY 1967. This is because prior to that time, AGIs of the ARNG's air defense units were conducted by DA, rather than by Hq ARADCOM.

REDCON (Readiness Condition)

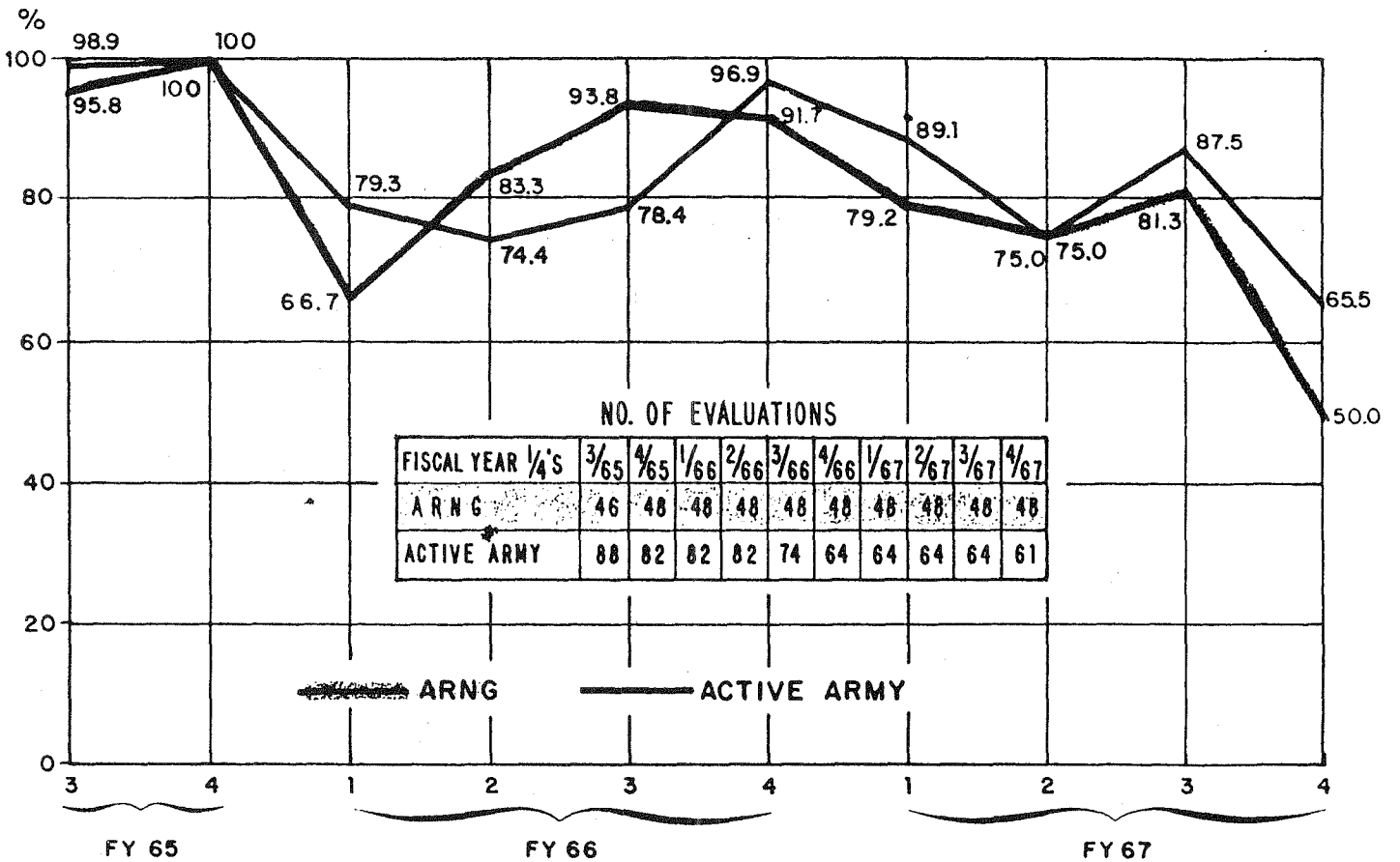
As set forth in Army regulations, the primary objectives of the Army readiness system are, "to insure that each unit has its authorized personnel with the required skills available for duty; that its authorized equipment is on hand and maintained in an operational condition; that its needed supplies are on hand; and that each unit is maintaining a state of training which will permit accomplishment of the mission reflected in the authorization document under which it is organized."[16]

The quarterly Unit Readiness Report is a basic tool of this system, "a means for commanders to identify problem areas in personnel, training, and logistics where command emphasis and/or corrective action may be required."[17] Given the unremitting operational mission of ARADCOM's active Army and ARNG units, as well as the complexity of air defense materiel and techniques, these reports take on more than routine significance.

Reporting criteria are summarized in Appendix I. In light of these criteria, each ARADCOM battery commander evaluates his own unit, forwarding the quarterly report to his next two higher commanders, who might be able to correct shortcomings by reallocation of the resources available to them. However, it is the Readiness Condition (REDCON) reported by the battery commander (from a possible spectrum of REDCON C1 through a low of REDCON C4) which forms the basis for the

CHART 8

PERCENTAGE OF ARADCOM NIKE HERCULES FIRE UNITS
EVALUATED AT READINESS CONDITION C1 IN TRAINING
BY UNIT COMMANDERS IN QUARTERLY UNIT READINESS REPORTS
3D QTR FY 1965 - FY 1967
(WITH NUMBERS OF UNITS EVALUATED)



NO. OF EVALUATIONS

FISCAL YEAR 1/4'S	3/65	4/65	1/66	2/66	3/66	4/66	1/67	2/67	3/67	4/67
ARNG	46	48	48	48	48	48	48	48	48	48
ACTIVE ARMY	88	82	82	82	74	64	64	64	64	61

CONFIDENTIAL

Source: DA Forms 2715, Unit Readiness Report, FY 1965-1967, on File in Directorate of Operations and Training, DCSOPS, Hq ARADCOM.

reports of Hq ARADCOM to DA, as well as for Charts 8 and 9.

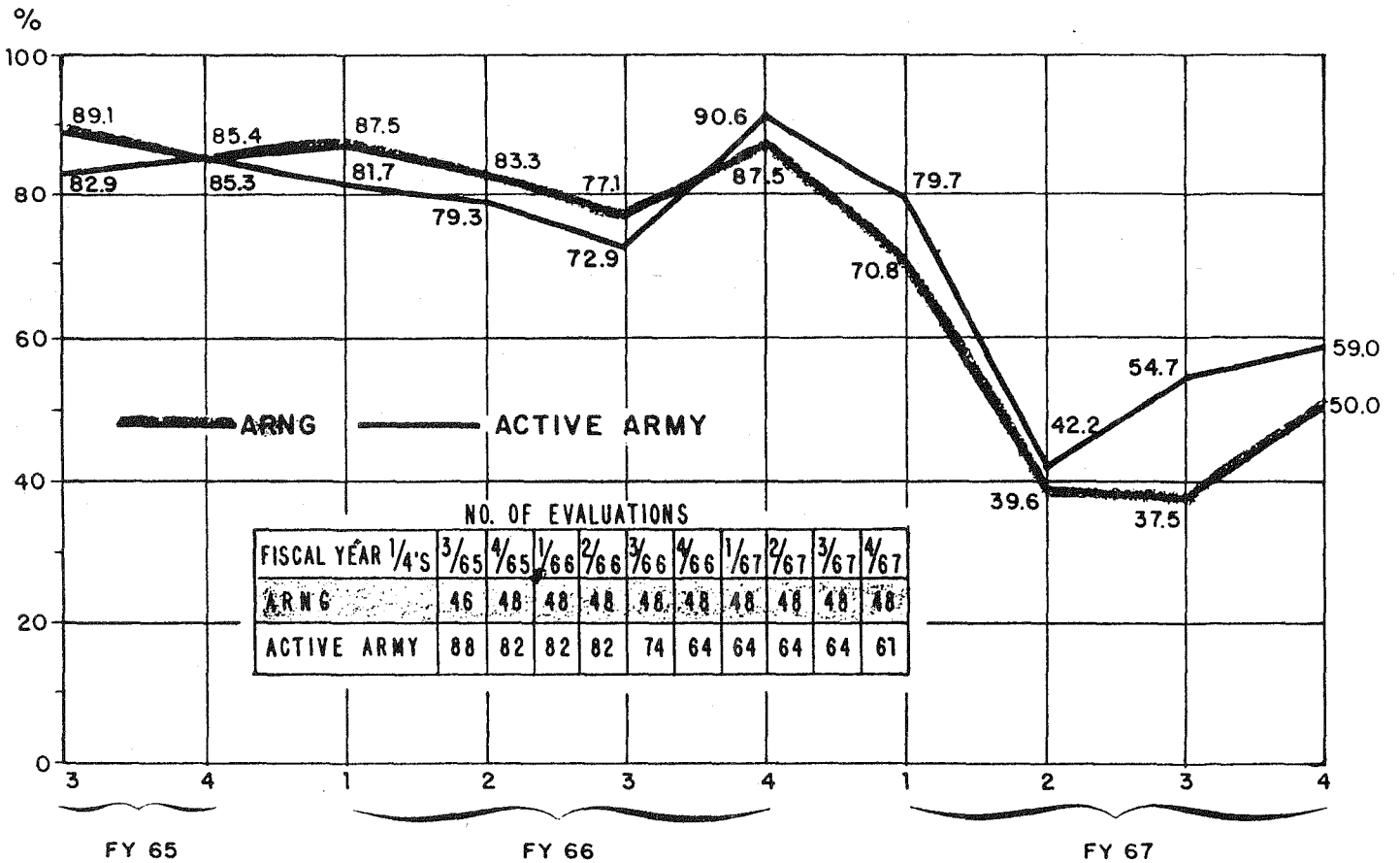
Although the DA and ARADCOM regulations on unit readiness are equally applicable to the command's active Army and ARNG components, a fair basis for comparison of the REDCON standards achieved by the two components requires some juggling.

Specifically, comparison of Personnel REDCON has been avoided, as the criterion for C1 in this area specifies a ratio of 95 percent operational strength to full TOE strength. Because ARNG fire units have until very recently been authorized only 85 percent of TOE strength, it has obviously been impossible for ARNG Task Organization units to achieve C1 ratings in Personnel REDCON. Comparison of component REDCONs has therefore been limited to the areas of training and logistics. In further refining the basis for comparison, battalion headquarters and headquarters batteries have been eliminated from consideration, as ARNG units of this type, unlike their active Army counterparts, currently have no tactical mission.

The REDCON charts therefore reflect only the percentage of Nike Hercules fire units[18] reporting the coveted C1 in training and logistics. Fortunately, the ARADCOM REDCON program was initiated almost concurrently with completion of the Guard's conversion to the Hercules system, thus providing an equitable materiel basis for comparison.

CHART 9

PERCENTAGE OF ARADCOM NIKE HERCULES FIRE UNITS
EVALUATED AT READINESS CONDITION C1 IN LOGISTICS BY
UNIT COMMANDERS IN QUARTERLY UNIT READINESS REPORTS
3D QTR FY 1965-FY 1967
(WITH NUMBERS OF UNITS EVALUATED)



NO. OF EVALUATIONS

FISCAL YEAR 1/4'S	3/65	4/65	1/66	2/66	3/66	4/66	1/67	2/67	3/67	4/67
ARNG	46	48	48	48	48	48	48	48	48	48
ACTIVE ARMY	88	82	82	82	74	64	64	64	64	61

CONFIDENTIAL

Source: DA Forms 2715, Unit Readiness Report, FY 1965-1967, on File in Directorate of Operations and Training, DCSOPS, Hq ARADCOM.

Analysis of the Training REDCON chart reveals only four statistically significant differences in a total of 10 reporting periods: the second and third quarters of FY 1966, and the first and fourth quarters of FY 1967. These four differences are evenly divided between the favorable 1966 and adverse 1967 ledgers of the ARNG Training REDCON account. The Logistics REDCON graph, Chart 9, yields two statistically significant differences, the third and fourth quarters of FY 1967. Both of these are adverse to the Guard.

In light of these few and relatively narrow differences, the conclusion is inescapable that the readiness conditions of ARADCOM's active Army and ARNG fire units have not materially differed, except in the field of logistics, since the inception of ARADCOM's current readiness reporting system.

DCE (Defense Combat Evaluation)

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

hostile air attack in a realistic combat environment."[19]

Each defense is evaluated as an entity, with considerable weight assigned to the performance of the defense commander and his battle staff, as well as to each of the subordinate fire units of the defense. The Air Defense Artillery Director (ADAD) positions within the Direction Centers and Control Centers of the NORAD command and control system can also be evaluated,[20] as DCEs are invariably held in conjunction with NORAD exercises.

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

Because of the weight assigned to Defense command-and-control and ADAD performance and the fact that ARNG personnel are not yet assigned such functions, neither these areas nor the overall DCE score offer equitable basis for comparison of ARNG and active Army performance in DCEs. Only the composite fire-unit scores, which combine evaluations of

operational status with less heavily weighted scores for performance against "enemy" nuclear and CBR attack, provide this basis. It is these scores which are reflected in Chart 10.

Because each defense was, as of late 1967, evaluated twice yearly--once by Hq ARADCOM and once by the appropriate Region headquarters--each ARADCOM fire unit was thus evaluated with identical frequency. Chart 10 reflects only the performance of fire units evaluated by Hq ARADCOM.

This chart presents a picture decidedly less favorable to the ARNG than is the case with the other types of evaluations analyzed to this point. To be more specific, the difference between component performance as reflected by the percentage of fire units bleakly rated as "not combat-ready," although not by average scores, is statistically significant and indicates active Army superiority.

The disturbing fact is that in FY 1967 the DCE performance of both components fell far short of the standards expected by ARADCOM, and attained by fire units in other types of evaluations. Given the realism and importance of the DCE as a yarkstick of ARADCOM's combat readiness, a

CHART 10

SALIENT FACTORS AND RESULTS OF DEFENSE COMBAT EVALUATIONS (DCE) OF NIKE HERCULES FIRE UNITS BY HQ ARADCOM, FY 1967

NO. ARNG NO. ACTIVE ARMY

F A C T O R	ACTIVE ARMY	ARNG
NUMBER OF FIRE UNITS EVALUATED	61	45
NUMBER OF FIRE UNITS NOT COMBAT-READY	19	20
% FIRE UNITS NOT COMBAT-READY	31.1	44.4
HIGH SCORE	98.0	97.4
LOW SCORE	24.1	27.5
AVERAGE SCORE	70.9	65.5

Source: ARADCOM Forms 216, Defense Combat Evaluation Recapitulation, FY 1967, on File in Directorate of Evaluations, DCSOPS, Hq ARADCOM.

word of explanation for this shortfall is required.[21]

Part of the difficulty stemmed from the growing pains which invariably occur in the early phases of any new program. Here it is well to remember that the DCE was initiated as recently as the beginning of FY 1967; and it is heartening to note that the DCE performance of fire units of both components showed marked improvement in early FY 1968.[22]

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

As for the statistically significant difference between active Army and ARNG performance in DCEs in FY 1967, a major explanatory factor was the initial lack of emphasis accorded this innovative evaluation by Guard commanders: it was not until the summer of 1967, for example, that a State Adjutant General first requested to be informed of DCE results.[23] Increased command emphasis, at any rate, was producing salutary results in FY 1968. By March of 1968 the Guard had reversed the pattern of the preceding year, achieving a statistically significant lead over ARADCOM's active Army component in percentage of combat-ready units as well as average score for fire units.[24]

CMMI (Command Maintenance Management Inspection)

The Command Maintenance Management Inspection (CMMI) is another area in which the performance of ARNG Task Force units is significantly below that of the active Army fire units in ARADCOM. And the fact that there is, in this instance, a fairly serious case of the "apples-and-oranges" statistical syndrome serves to enhance, rather than minimize, the relative superiority of active Army units in this area.

The ARADCOM regulation on CMMIs is equally applicable to active Army and ARNG units, and prescribes the same

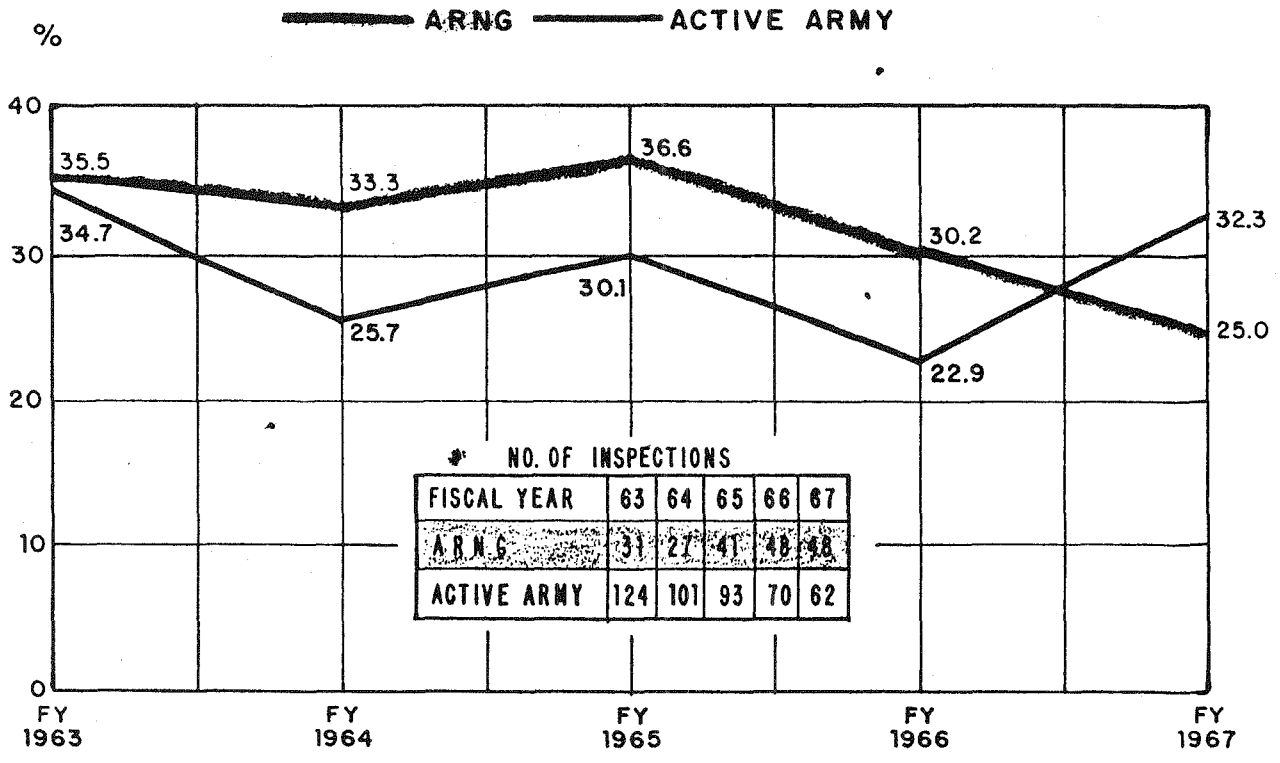
objective: "To provide the commander an overall indication of the status of materiel and maintenance management and operations in his subordinate units."[25] There nonetheless have been, and continue to be, significant differences in the conduct and scope of the inspections, which normally take a large team consisting of some dozen to as many as 26 members about eight hours to complete.

Specifically, the ARADCOM regulation on CMMIs provides for greater leniency in notification, recommending to the Region commanders responsible for conduct of the inspections that the "maximum notification (of six hours) be reserved (italics added) for selected ARNG batteries which because of known extenuating circumstances cannot meet the requirement with a lesser time notification."[26] Active Army units, which do not benefit from such reservation, are thus more often subject to a "minimum (no-notice) notification."[27] CMMIs of active Army and ARNG fire units also differ in scope: ARNG vehicles and small arms, being State-owned, are not subject to active Army inspection.[28]

Maintenance differences in weapon systems bestowed, during the period FY 1963-1965, an even greater advantage upon the ARNG. As pointed out in 1963 by Brig. Gen. John D. Stevens, CG of ARADCOM's 35th Brigade, the active Army's

CHART 11

PERCENTAGE OF NIKE FIRE UNITS
RATED AS UNSATISFACTORY IN
COMMAND MAINTENANCE MANAGEMENT
INSPECTIONS BY ARADCOM REGIONAL HQS
FY 1963-1967
(WITH NUMBERS OF UNITS INSPECTED)



NO. OF INSPECTIONS

FISCAL YEAR	63	64	65	66	67
ARNG	31	27	41	48	48
ACTIVE ARMY	124	101	93	70	62

Source: ARADCOM Forms 27, Command Maintenance Management Inspection, on File in Directorate of Materiel Readiness, DCSLOG, Hq ARADCOM.

"Nike Hercules system of 1963 with its (numerous) modifications" was "a very complex system from any viewpoint," and the axiom that "as sophistication occurs maintainability does not stay abreast with it" operated to produce, of six "distinguished maintenance" fire units in 1st Region for FY 1963, five ARNG Ajax units and only one active Army Hercules unit.[29]

Bearing such factors in mind, the active Army superiority reflected by Chart 11 is more clear-cut than the marginal differences indicated by the statistics, all of which are significant except those shown for FY 1963, would appear to indicate.

These statistics are limited to the period FY 1963-1967. Although CMMIs of active Army and ARNG fire units go back at least as far as CY 1961,[30] the earliest records on file in Hq ARADCOM go back only to FY 1963. Because ARNG battalion headquarters and headquarters batteries are subject to CMMIs conducted by the States rather than by ARADCOM, the statistics compare only the fire units of the ARNG and active Army.

TPI (Technical Proficiency Inspection)

In the area of the Technical Proficiency Inspection (TPI) ARNG performance is even less impressive than it is in

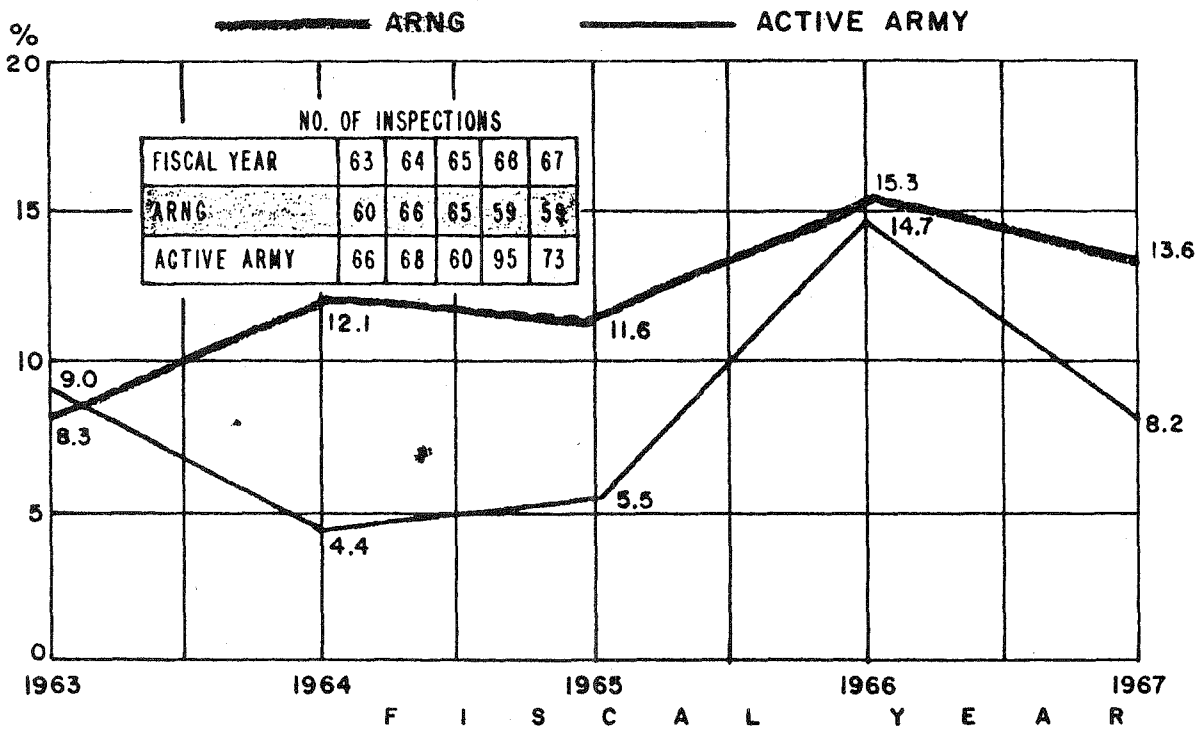
the case of the CMMI. Considering the nature and objectives of the TPI, this fact is particularly disquieting.

Reflecting "continuing concern, at national level, over the security, control and safety aspects of nuclear weapons operations,"[31] the primary objective of the TPI is to "insure high standards of performance in all operations involving nuclear weapons through strict adherence to prescribed procedures in accomplishing mission requirements."[32] The broad scope of the inspection is implicit in this objective, and its thoroughness is suggested by the fact that it takes a team composed of a lieutenant colonel and two warrant officers two full working days to complete the TPI of an ARADCOM fire unit, regardless of component.

All ARADCOM fire units are subject to an annual TPI, either by a team from the Office of the Inspector General (IG), ARADCOM, or from the IG, Department of the Army. Although ARADCOM units are also subject to Technical Standardization Inspections (TSI) by the Defense Atomic Support Agency (DASA), such inspections do not meet the annual TPI requirement, as evaluation of crew proficiency in the launching area of the Nike Hercules system, as well as detailed ready-weapon inspections, are not conducted in DASA's TSI.[33] In Chart 12, TPIs of the active Army custodial teams assigned to ARNG Task Force units are similarly excluded from

CHART 12

PERCENTAGE OF UNSATISFACTORY EVALUATIONS IN
TECHNICAL PROFICIENCY INSPECTIONS OF
ARADCOM NIKE HERCULES MISSILE BATTERIES
BY HQ ARADCOM AND DEPARTMENT OF THE ARMY
FY 1963–1967
(WITH NUMBERS OF INSPECTIONS)



Source: ARADCOM Forms 1059, "TPI Report Status", on File in the Office of the Inspector General, Hq ARADCOM.

consideration, as they obviously offer no basis for comparison with ARNG performance. Although records of TPIs conducted prior to FY 1963 are in existence at Hq ARADCOM, only the records of inspections conducted by Hq ARADCOM and DA from the beginning of FY 1963 have been used for this graph, as it was in that year that the earliest recorded ARADCOM TPI for an ARNG unit took place.[34] It should be noted that the numbers of inspections shown include re-inspections of unsatisfactory units and of five percent of all ARADCOM Hercules units, whether initially satisfactory or unsatisfactory. About 15 percent of the inspections shown were conducted by DA, rather than by ARADCOM.

Analysis of the TPI chart yields results which are significant and adverse to the ARNG. In the three years in which statistically significant differences exist between ARNG and active Army performance--FY 1964, 1965, and 1967--the comparison is unfavorable to the Guard.

The reasons for this ARNG shortfall are far less obvious than its existence. In 1964, Lt. Gen. Charles B. Duff, then CG of ARADCOM, pointed out that this weakness was particularly prevalent "in some NG units which did not have the opportunity to man Nike Ajax equipment prior to assignment with Hercules."[35] This was undoubtedly true at the time, but it does not explain continued ARNG weakness in this area. Moreover, a more recent diagnosis has failed to identify the

causes of this disturbing ailment.[36] Whatever the cause of the ailment, the personal emphasis of Lt. Gen. Robert Hackett, CGARADCOM, upon solutions to this problem was proving to be highly therapeutic as 1967 drew to a close. By mid-May of 1968, the Guard's failures had been more than halved, in sharp and statistically significant contrast to a large increase in unsatisfactory ratings of active Army units.[37]

Awards and Trophies

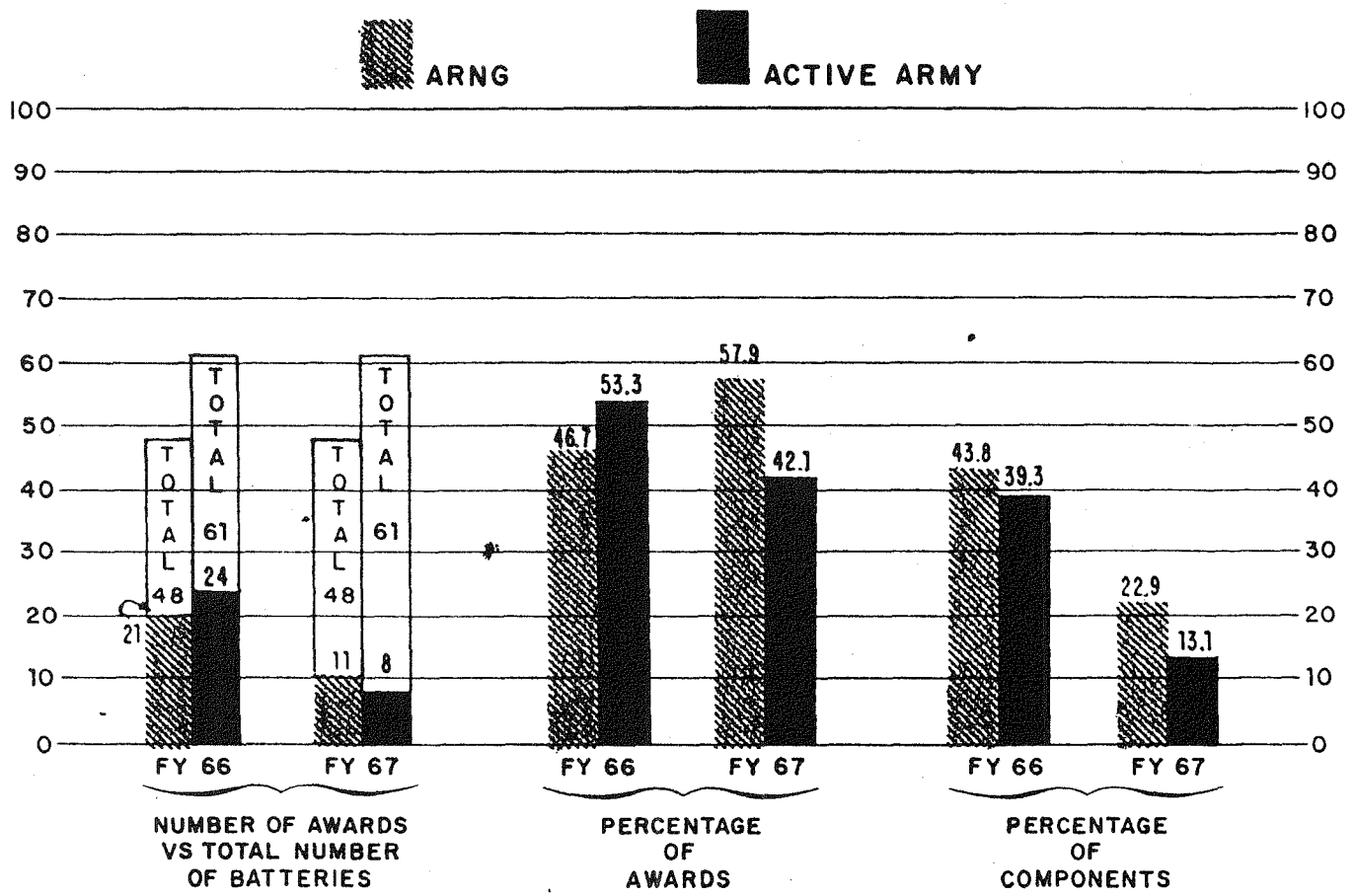
Strictly speaking, ARADCOM awards and trophies are incentives, rather than yardsticks. Nonetheless, they offer at least a "feel" for the quality of ARNG performance, especially in the area of operations.

This is particularly true of awards of the ARADCOM "E" for Excellence in Combat Proficiency, a program initiated in 1966 by Lt. Gen. Charles B. Duff, then CG of ARADCOM. The "feel" here is almost substantial enough to warrant use of the program as a yarkstick applicable to all units, as only those batteries "which have had a nuclear accident/incident resulting from personnel error," or which have failed an ARADCOM TPI or SNAP, or a region-conducted ORE or CMMI,[38] are ineligible for award of the coveted guidon streamer.

As explained by General Duff in announcing the program

CHART 13

AWARDS OF ARADCOM "E" FOR EXCELLENCE IN COMBAT PROFICIENCY TO NIKE HERCULES MISSILE BATTERIES FY 1966-1967



Source: ARADCOM GO No. 236, 15 Jul 66, as Amended by GO No. 243, 29 Jul 66, and GO No. 278, 8 Sep 66; ARADCOM Argus, Sep 67, p. 1.

(initiation of which took place during an FY 1966 moratorium on award of commander's trophies), "the old awards program failed to reflect the overall high level of readiness throughout the command. Some units were nosed out by narrow margins in the competition but had exceptionally high credentials demonstrating ability to fulfill their combat missions."[39]

Criteria for the award require, within a given fiscal year, a missile battery to achieve satisfactory ratings in the ARADCOM TPI and SNAP; a satisfactory rating in the region-conducted CMMI; and operational ratings, to include satisfactory crew performance in both the IFC and launching areas, in all region-conducted OREs during the year.[40]

Chart 13 presents the results of the "E" award program from three different but interrelated viewpoints. Although statistically significant differences are not present except in one case, this one case comes under the particularly important rubric of "percentage of components" for FY 1967, and it shows the clear-cut superiority of the numerically inferior ARNG Air Defense Task Organization.

Turning to the award of trophies which are directly relevant to a missile unit's combat readiness, the comparative sample is patently restricted to a true elite of ARADCOM's large and varying troop list over the period from CY 1958, the earliest date ARNG units were eligible, through

conversion to Ajax missiles, to FY 1967.

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

The Berry Trophy, a memorial to a former CG of ARADCOM's 1st Region, gave "basic consideration for eligibility" to "a demonstrated high standard of performance in the Annual Technical Proficiency Inspection conducted either by (Hq ARADCOM) or The Technical Inspection Field Office of The Inspector General, Department of the Army."[41] Although such other criteria as ORE and service practice standings were involved, the preliminary nominating process for this award was based exclusively upon TPI standings.[42]

In this light, it is not surprising that the ARNG failed to win this award throughout the trophy's life span from September 1961 to the beginning of FY 1966. For one thing, ARNG Task Force units did not become subject to TPIs until FY 1963, and the Guard's conversion to the Hercules system, the nuclear aspects of which are the subject of TPIs, was not completed until 1965. Further, as has been

demonstrated, the TPI is one of the weaker areas of Guard performance.

The ARADCOM Commander's Trophy for the "Outstanding Hercules Battery in ARADCOM," a relatively recent innovation, is awarded on the basis of outstanding performance in the three areas of TPI, CMMI, and ORE. Region commanders make the nominations, and the final competition consists of a composite evaluation in these three areas by a team from ARADCOM headquarters.[43]

All other types of trophies shown in the table were, or continue to be, awarded on the basis of highest numerical scores in annual service practice. Duplicate awards in the table thus reflect tie scores in these shooting-type awards, except in the case of "outstanding missile battalion" trophies for CY 1959 and CY 1960, which in those years were awarded separately to winning battalions with four or more fire units and battalions with three or less fire units.[44] The shift from calendar to fiscal year periods for competition[45] is also reflected in the table.

A word is in order regarding the table's notation of a one-year moratorium on the award of Commander's trophies during FY 1966. Behind this notation lies evidence of excessive emphasis, both at ARADCOM headquarters and in the field, upon scores and trophies--emphasis which drew

CHART 14

WINNERS OF SELECTED ARADCOM COMMANDER'S TROPHIES FY 1958-1967

[redacted] [redacted] ACTIVE ARMY FY 66-1-yr. Moratorium

TROPHY	CY 1958	CY 1959	CY 1960	CY 1961	FY 1962	FY 1963	FY 1964	FY 1965	FY 1967	% BY TROPHY
OUTSTANDING MISSILE BATTALION IN ANNUAL SERVICE PRACTICE	3/52	2/43 4/51	1/71 4/67							100
OUTSTANDING FIRING BATTALION IN SNAP					3/205 (WASH) 4/251 (CAL)	1/250 (CAL)	2/205 (WASH)	4/61		75/25
OUTSTANDING MISSILE BATTERY IN ANNUAL SERVICE PRACTICE		A/3/43	A/4/562							100
OUTSTANDING FIRING BATTERY IN SNAP					C/1/202 (ILL)	D/4/251 (CAL)	C/1/241 (MASS) B/2/126 (WIS)	A/1/60	C/4/251 (CAL)	83.3/17.7
GENERAL ROBERT WARD BERRY MEMORIAL TROPHY				B/1/562	A/1/71	D/1/62	D/3/65	A/1/60		100
OUTSTANDING HERCULES BATTERY IN ARADCOM									B/1/250 (CAL)	100
% BY YEAR	100	100	100	100	75/25	66⅔/33⅓	75/25	100	100	

Source: ARADCOM *Argus*, Jan 60, p. 1; Mar 60, p. 1; Feb 61, p. 1; Nov 61, p. 1; Aug 62, p. 1; Sep 62, p. 1; Aug 63, pp. 1-2; Aug 64, pp. 1,3; Aug 65, pp. 1,3; Jul 67, p. 3; Sep 67, p. 1, all on File in Office of the Information Officer, Hq ARADCOM.

"unfavorable comments from within and from outside ARADCOM" and "informal comments from the General Accounting Office" that "changes might be required in evaluating units in order to place emphasis on training and unit proficiency rather than on scores from one-time evaluations."[46]

General Duff's corrective action included not only the FY 1966 moratorium on award of trophies and initiation of the "E" award program previously described, but the sharp reduction in the number of trophies reflected by the current ARADCOM regulation. Of particular interest to this study is the fact that none of the criteria for award of presently authorized ARADCOM Commander's trophies makes any official distinction between ARNG and active Army components of the command,[47] thus furthering the "One-Army" concept in an important field of unit endeavor.

The splash of red ARNG notations in Chart 14 is indicative of growing Guard domination in this field of trophy collection, and the trend showed no signs of faltering in FY 1968. Recent examples of continued ARNG strength include Battery "B" of the 3rd Battalion, 128th Artillery (Missouri ARNG), which attained a perfect, 100-percent score in its SNAP on 15-22 October, 1967;[48] and Battery "B" of the 1st Battalion, 137th Artillery (Ohio ARNG), which on 29 September 1967 attained the only perfect score (zero-point

ARADCOM'S BEST HERCULES BATTERY, 1967: Lt. Gen. Robert Hackett presents the trophy to Capt. James R. Vanderveen, Commanding Officer of California's Battery "B", 1st Missile Battalion, 250th Artillery

loss), plus superior IFC and launcher crew performance, in the history of OREs.

An Overall Assessment

Based upon the foregoing application of all these yardsticks and indicators, it now becomes necessary to essay an answer to a question of importance not only to this study, but, knowingly or unknowingly, to 200 million Americans: In the performance of its on-site air defense mission, how good is the Army National Guard?

The answer to this key question must unavoidably be somewhat impressionistic, rather than purely statistical in nature. Many of the statistics scrutinized in this study are nonadditive: for example, CMMI results are reflected in REDCON ratings, and ORE, SNAP, CMMI, and TPI results directly affect the award of "E" guidons for excellence in combat proficiency. Merely to tote up an algebraic sum of statistical results would be not only simplistic, but rank evasion of responsibility for historical judgment, and the result of even a computerized reckoning of pluses and minuses would be statistically false.[49]

Nevertheless, these data provide substantial and indispensable support for this overall conclusion: the results

of operational-type tests and evaluations conducted by Hq ARADCOM clearly indicate that, in this area, the performance of ARNG Task Organization units is on balance superior to that of their active Army counterparts. In the areas of general maintenance and nuclear surety, on the other hand, the level of their performance has on average been below that of ARADCOM's active Army units.

There will in all likelihood be those, of both components, who will question these findings. To such questions, the only currently practicable answer is this study itself, including the methodology behind its findings. Unfortunately, there are no other known studies which might serve as a basis for comparison and possible challenge.

The Factor of Personnel Turbulence

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

To a greater degree than is the case with many other types of combat organizations, the overall effectiveness of

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

Restricted by limitations of scope and availability of data, there is no feasible way for this study to include a valid comparative analysis of personnel turbulence in the active Army and ARNG components of ARADCOM.[50] There is good reason, however, for believing that this disruptive phenomenon is far more prevalent within active Army units than it is within units of the ARNG Task Organization.

Personnel losses are only one factor in the complex equation of personnel turbulence, but a few authoritative estimates and spot-check statistics with respect to losses may be roughly indicative of relative turbulence among full-time ARNG air defense technicians and their active Army

counterparts. According to data provided by the States through the NGB,[51] technician losses during April 1965, a fairly typical month of a period prior to the active Army's massive buildup in Viet-Nam, totalled 64 personnel. During August 1967, such losses totalled 65 personnel. For the active Army, losses of enlisted men only totalled an estimated 1113 personnel during April 1965.[52] As a reflection of training-base requirements for the Viet-Nam buildup, ARADCOM's actual active Army losses in August 1967 totalled 1730, in enlisted men alone, 1026 of whom were levied from the command by other headquarters.[53]

Admittedly, these figures in no sense represent a scientific sample, nor do they provide a raw-data base for the comprehensive and detailed analysis which alone could constitute a valid comparison of personnel turbulence within ARADCOM's active Army and ARNG components. Such an analysis would necessarily include loss-gain figures, by MOS, over a period of some nine years--a task which records-retirement procedures, among the States as well as in the active Army, clearly render impracticable. However, the fragmentary loss figures given above are backed by responsible estimates that ARNG attrition rates during the Ajax era were about two percent per year, and now run no higher than 15 percent, while ARADCOM's active Army attrition rate during 1967 was

approximately 78 percent.[54] The effects which such mute statistics might have on the cohesiveness and performance of an active Army unit, as it undergoes measurement by the numerous yardsticks described herein, are perhaps best left to the imagination.

The Professionalism of Technicians

At least the silhouette, if not the portrait, of a full-time Guard technician can now be sketched.

From the viewpoint of performance as well as formal terms of employment, he is a professional. Trained in the same schools as his active Army counterpart and repeatedly tested under virtually identical criteria, with his individual skill and the smoothness of his contribution to collective effort enhanced by the greater stability of his unit and job assignment, he is sometimes more professional than his active Army counterpart. Certainly, he is a far cry from the stereotype of the "comic soldier" and "weekend warrior" perpetuated in some sectors of the popular press;[55] paradoxically, he is far more accurately described as an air defense professional who is only a part-time Guardsman.

In her penetrating analysis of the Guard's role in politics, Martha Derthick remarks that "the greatest burden

in the life of the Guard has been the (active Army's) contempt of the professional for the amateur."[56] In the air defense business, there is no basis for such divisive condescension. As pointed out by Lt. Gen. Robert Hackett in a corrective letter to a publication which unaccountably described the operation of "43% of the Nike-Hercules missile sites around key cities" as an Air National Guard function,[57] "Army National Guard units are an integral part of the U.S. Army Air Defense Command, and we are extremely proud of their readiness and capability in the defense of this nation against air attack."[58]

For the acid test of a true professional is performance. If ARADCOM's yarksticks of performance are valid, there can be no reasonable doubt that the ARNG Task Force has been, and continues to be, manned by proven professionals: in only a few instances, and primarily in the area of logistics, has Guard performance been bested by ARADCOM's active Army component. And in view of the statistically demonstrable excellence of Guard performance in the operational aspects of air defense, there is good reason for confidence in the potential ability of the ARNG Task Organization to excel in meeting all other requirements of its vitally important and demanding mission.

Notes

[1]Although ARADCOM has always promulgated its guidance and procedures for the ARNG on-site air defense programs in letters and regulations applying only to the ARNG, the regulations which govern the conduct of ARADCOM's evaluations and inspections apply indiscriminately to all ARADCOM units, regardless of component. Application of ARADCOM criteria in the Operational Readiness Evaluation (ORE) was, initially at least, an exception to this general rule. An Interv of 18 Oct 67 with Colonel Max E. Billingsley, Chief of ARADCOM's Office of Reserve Components, gives grounds for belief that there was a degree of leniency accorded ARNG units by ARADCOM ORE teams in the early days of the Guard's on-site Ajax program. Brig. Gen. Howard E. Michelet, now DCSOPS, Hq ARADCOM, stated in an Interv on 15 Dec 67 that when he commanded ARADCOM's 35th Brigade in 1961, intensive pre-ORE "cram courses" were conducted for the ARNG units in the brigade. However, an Interv of 30 Aug 67 with CW4 James D. Vaughn, a member of ARADCOM's ORE team throughout the period 1962-1967, yielded the categorical assurance that during this later period "there has been absolutely no difference in the application of ORE criteria to ARNG and active Army units by Hq ARADCOM." Notification and inspection procedures in the conduct of Command Maintenance Management Inspections (CMMI) can be more lenient for ARNG units than is normally the case with active Army units, but this is the result of technician manning structure and overtime restrictions rather than of a deliberate ARADCOM policy of leniency toward Guard units.

[2]For those readers who may be curious about the exact methodology employed, the writer's procedure for statistical interpretation of graphs showing average scores was as follows:

The standard deviation (σ) of each component mean shown was computed by subtracting the score of each unit evaluated from the appropriate mean for each year shown; squaring the difference; dividing the sum of the squares by the total number of appropriate unit scores minus one (n-1); and deriving σ from the square root of the resultant.

The standard deviations of differences between component means (σ_D) were then determined by applying the formula

$$\sigma_D = \sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}$$

where $\frac{\sigma_1}{\sqrt{n_1}} = \frac{\text{Standard deviation within ARNG mean}}{\sqrt{\text{Number of ARNG unit scores}}}$

and $\frac{\sigma_2}{\sqrt{n_2}}$ = similar relationship of active Army statistics.

It should be noted that this procedure takes cognizance of, and allows for, differences in size between the ARNG and active Army groups under comparison.

Finally, the quantity $2\sigma_D$ was applied to test, at the five-percent level, the statistical significance of differences between means for each year. Where the difference exceeds $2\sigma_D$, a statistically significant difference exists in that there is only one chance in 20 of random reasons for the difference: that is, the chances are 20 to one that the difference shown is a genuine difference in quality of performance. Conversely, where the difference between means is less than $2\sigma_D$, there is no statistically significant difference between means.

[3]Ltr, Chief of NGB to State AGs, 14 Jul 60.

[4]Record of Proceedings, Army Air Defense Conference Presented by National Guard Bureau, 7 Sep 60, p.14.

[5]Ibid. According to an Interv of 17 Oct 67 with Colonel Max E. Billingsley, who attended this conference as ARADCOM's representative, it was "a real chewing session."

[6]ARADCOM Reg 350-1-5, 2 Aug 67, sub: Operational Readiness Evaluations, para 12g.

[7]According to Mr. James M. Lowry, a civilian Records Analyst with the Service Practice Unit at McGregor Range, annual service practice for ARADCOM units at that range was initiated in FY 1954. Tel Interv, 13 Sep 67.

[8]For details of the current ARADCOM SNAP program, see ARADCOM Reg 350-3, 5 Jan 67, sub: Conduct of Short Notice Annual Practice.

[9]See para 2b, Appendix E to ARADCOM Reg 350-3. The cost differential of some 300 percent between the Ajax and the more expensive Hercules, multiplied by the annual SNAP firings of over 200 missiles, is a weighty factor in this policy.

[10]Para 5, ARADCOM Reg 350-1-5, 2 Aug 67. From 1956 to the beginning of FY 1967, Hq ARADCOM conducted an ORE (also known during the earlier part of this period as an ORI, or Operational Readiness Inspection) of each fire unit once each fiscal year. Since the latter date, Hq ARADCOM has conducted OREs "as necessary."

[11]See the sample ARADCOM Forms 121 and 122, reproduced and attached in Appendix H, for the specific items evaluated. Although the numerous editions of these forms have evidenced changes of format since their inception in 1957, the areas covered and numerical weights assigned have remained generally similar, allowing for inevitable changes in response to changing tactics and weapon systems.

[12]The chart depicts calendar rather than fiscal years because of filing procedures for early ORE records.

[13]The apparently large difference in 1967 is statistically negated by the fact that the averages are based on wide fluctuations within small groups of test scores.

[14]ARADCOM Reg 20-4, 27 Jan 67, sub: Annual General Inspections, ARNG Air Defense Units, para 4b.

[15]Interv with Lt. Col. Gerald A. Baker, Deputy IG of ARADCOM, 28 May 68.

[16]AR 220-1, 20 Feb 67, sub: Unit Readiness, para 5.

[17]Ibid., para 9a.

[18]From 20 June through 31 December 1967, ARADCOM's three active Army double batteries rendered reports as batteries rather than as fire units. Interv, Major James B. Stewart, Plans and Operations Division, DCSOPS, Hq ARADCOM, 10 May 68.

[19]ARADCOM Reg 350-1-6, 14 Feb 67, sub: Defense Combat Evaluation, para 5.

[20]In computing the overall DCE score for a given defense, each fire unit of the defense is given a weight of one, expressed in percentage of maximum score actually achieved. Defense command and control, including AADCP and BSSC (Battle Staff Support Center) performance and defense against CBR (chemical, bacteriological, and radiological warfare), also has a weight of one, similarly expressed in percentage of

maximum score. ADAD positions are also weighted and scored in the same manner. The overall defense score is arrived at by dividing the total score by the number of evenly weighted factors, two of which are always command-and-control performance and ADAD performance and the balance the performance of each fire unit in the defense. Prior to February 1967, a fire-unit score had a weight of two rather than one; the current edition of ARADCOM Reg 350-1-6, 14 Feb 67, places greater stress on the other factors evaluated by reducing this weight. In Chart 10, pre-February scores have been adjusted to a weight of one in order to produce valid high, low, and average component scores for all of FY 1967.

[21]Unless otherwise noted, the analysis in the following three paragraphs is based upon an Interv with Colonel Jack H. Post and Lt. Col. Fred R. Binka, both of the Directorate of Evaluations, DCSOPS, Hq ARADCOM, 24 Nov 67.

[22]Considerable command concern, as evidenced by the personal messages of Lt. Gen. Robert Hackett, CGARADCOM to each Region Commander, 12 Jul 67, sub: Fire Unit Deficiencies During DCEs, was undoubtedly a major factor behind this improvement.

[23]Interv with Colonel Max E. Billingsley, 31 May 68.

[24]As of March 1968, 41 active Army and 33 ARNG Hercules fire units had undergone DCEs. The percentage of Guard units rated "not combat ready" was 24.8, compared to 39.0 for the active Army; the average ARNG score was 71.0, compared to 64.1 for the active Army.

[25]ARADCOM Reg 750-8, 22 May 67, sub: Command Maintenance Management Inspections (CMMI), para 4. It should be noted that the CMMI specifically excludes "items or functions" covered by the Technical Proficiency Inspection, which is analyzed below.

[26]Ibid., para 8a.

[27]Ibid.

[28]Ibid., para 10. According to an Interv of 29 Sep 67 with CW3 Randolph B. Maddox, Materiel Readiness Division, DCSLOG, Hq ARADCOM, protective masks are also customarily excluded from CMMIs of ARNG fire units.

[29]Quotations and statistics are from a presentation by General Stevens published in the ARADCOM Commanders' Conference Brochure, 24-25 July 1963, Incl 8, p.3.

[30]Interv, 29 Sep 67, with CW3 Maddox, who has been with the Materiel Readiness Division of DCSLOG, Hq ARADCOM, since 1961.

[31]Ltr, ACSFOR, DA, to Hq ARADCOM, 17 Jan 64, sub: Technical Proficiency Inspections of Army Nuclear Organizations, AGAM-PCM.

[32]ARADCOM Reg 20-1, 25 Aug 66, sub: Technical Proficiency Inspections, para 2a.

[33]Ltr, CGARADCOM to Chief of Staff, DA, 25 Feb 64, sub: Technical Proficiency Inspections of Army Nuclear Organizations, ADSG.

[34]Interv with Major Kenneth E. Raab, Technical Inspections Division, Office of the Inspector General, Hq ARADCOM, 21 Sep 67.

[35]ARADCOM Commanders' Conference Brochure, 22-24 Sep 64, Inclosure 7, p.10.

[36]The present CG of ARADCOM, Lt. Gen. Robert Hackett, has attributed the TPI failure rate of both ARNG and active Army units primarily to "unreliable weapons" (meaning crew failure to adhere strictly to prescribed safety and technical procedures, rather than manufacturing flaws); but "special reanalysis" did not reveal "any specific or unique causes for the increased failure rate of ARNG units" during the period 1 July 1966-22 March 1967. See 1st Ind to Ltr, IG, Hq DA, to CGARADCOM, 18 Apr 67, sub: Inspection of United States Army Air Defense Command by The Inspector General.

[37]See ibid. for examples of command emphasis. As for results, only 5.8 percent of 52 inspections of ARNG batteries had resulted, as of 20 May 1968, in unsatisfactory ratings, whereas some 14.5 percent of 69 inspections of active Army Hercules batteries yielded, as of the same date, unsatisfactory ratings. Interv with Lt. Col. Lucky R. Iannamico, Chief, Technical Inspections Div, IG, Hq ARADCOM, 21 May 68.

[38]ARADCOM Reg 230-1, 21 Jul 67, sub: Commander's Trophies and "E" Awards, para 5d.

[39]The quotation is from ARADCOM's command newspaper, Argus, 1 Aug 66, p.1.

[40]ARADCOM Reg 230-1, para 5d.

[41]Ltr, Hq ARADCOM, to Region CGs, 14 Sep 61, sub: Announcement of the General Robert Ward Berry Memorial Trophy, AD.

[42]Ibid.

[43]For details of current ARADCOM policy on Commander's Trophies (as well as "E" Awards), see ARADCOM Reg 230-1, 21 Jul 67, passim.

[44]See the Argus for 1 Feb 59, p.1.

[45]See ibid., 1 Aug 61, p.8.

[46]See Tab A, Discussion of Trophies/"E" Awards, to DCSOPS Summary Sheet to CofS, Hq ARADCOM, 8 Apr 66, sub: Trophies/ "E" Awards, ADGCD. This seminal staff paper, authored by Major Robert L. Ackerman, contributed to a great reduction in the previous plethora of trophies, some of which distinguished between the active Army and ARNG components of the command. Noteworthy is the fact that two of the four Regions queried by Major Ackerman recommended that "no differentiation be made between the RA and ARNG in the award of trophies." Ibid.

[47]In addition to the "E" guidons, which are awarded without regard to component, there are four ARADCOM Commander's trophies currently authorized. These are: "Outstanding Nike Hercules Battery in ARADCOM"; "Outstanding HAWK Battery in ARADCOM"; "Outstanding Nike Hercules Firing Battery in SNAP"; and "Outstanding HAWK Firing Battery in SNAP." Practically but not officially, ARNG Task Organization units are out of the running for HAWK awards, as this weapon system is currently manned by active Army units only. See ARADCOM Reg 230-1, 21 Jul 67, para 2 and 3.

[48]Interestingly enough, of the two ARADCOM units which previously attained perfect scores in SNAP firings subsequent to the introduction of the short-notice feature of annual service practice, both were ARNG units. The complete roster of this select company, based upon the records noted in Chart 2, embraces only the following units: Battery "C", 1st Battalion, 202nd Artillery (Illinois ARNG), 24 Jun-1 Jul 62; Battery "D", 4th Battalion, 251st Artillery (California ARNG),

15-22 May 66; Battery "B", 3rd Battalion, 128th Artillery (Missouri ARNG), 15-22 Oct 67.

[49]Interv with Lt. Col. Lawrence G. Campbell, USAF, Tenure Associate Professor of Mathematics, U. S. Air Force Academy, 6 Dec 67.

[50]Such limitations include the fact that ARADCOM morning reports--the sole source for such analysis--do not include ARNG personnel. As for the ARNG side of such an analysis, separate queries of 16 States would be required. The author is deeply grateful to the NGB for its considerable effort in obtaining such Guard data as do appear on p. 182.

[51]Ltr, NGB to author, 18 Oct 67, sub: Request for Information, NG-AROTA.

[52]Ltr, CGARADCOM to Chief, Office of Reserve Components, Hq DA, 7 Feb 66, sub: Miami-Homestead-Key West Missile Complex, ADSN. The estimate of 1113 enlisted personnel losses is based upon a total of such losses, for all of CY 1965, of 13,352.

[53]Interv of 12 Sep 67 with Lt. Col. Charles R. Moulder, Chief, Enlisted Management Div, Directorate of Personnel, DCSP&A, Hq ARADCOM.

[54]Interv with Colonel Max E. Billingsley, 18 Oct 67. These figures were supported by Interv with Lt. Col. Charles R. Moulder of 12 Apr 68.

[55]The Luce press seems particularly persistent in this regard. The two quotations are from, in sequence, an article by William A. McWhirter, "Favorite Haven for the Comic Soldier," Life, Vol. 63, No. 17 (27 Oct 67), pp. 86-98; and an editorial, "Its Time to Change the Guard," Time, Vol. 90, No. 16 (20 Oct 67), pp. 24-25. See also Time issues for 29 Sep 67, pp. 24-25, and for 6 Aug 51, p. 12.

[56]The National Guard in Politics (Cambridge: Harvard University Press, 1965), p. 78.

[57]See the Time editorial for 20 Oct 67 cited in n. 55 above.

[58]Ltr to editor of Time, 20 Oct 67.

CHAPTER V

Problems, Approaches And Solutions

Even a mere listing of the problems encountered in achieving the full-time integration of Army National Guard units into the continental air defense system poses, itself, a problem. Many of these problems arose concurrently, as the phases of Guard participation unfolded from 1951 on; and many of them, like anagrams, were interlocked in origin as well as time. Yet, for purposes of orderly analysis, the main strands of this seamless web must somehow be unravelled and dealt with in meaningful sequence. For the historical artificiality of this approach, clarity is the only apologia.

Constitutional Duality

At the heart of many problems lay the unique dual status of the National Guard, a status rooted in the sacrosanct soil of the Constitution. There it is written that:

> The Congress shall have Power...
> To provide for calling forth the Militia to execute the Laws of the Union, suppress insurrections and repel invasions;
> To provide for organizing, arming, and disciplining the Militia, and for governing such Part of them as may be employed in the Service

> of the United States, reserving to the States, respectively, the Appointment of the Officers, and the Authority of training the Militia according to the discipline prescribed by Congress...[1]

And further, that:

> The President shall be Commander in Chief... of the Militia of the several States, when called into the actual Service of the United States...[2]

Command and Control

Within this governing context of fundamental law there arose, with the initial prospect and subsequent reality of ARNG participation in air defense, the patent problem of command and control. How, in an era of technological explosion which produced ever-increasing velocities and destructiveness of possible air attack, could the imperative necessity of prompt responsiveness by Guard units be assured? Confronting the threat of nuclear weapons and ever-faster delivery vehicles, it was the responsibility of the active Army to provide and command forces contributed to, and under the operational control of, CONAD/NORAD, the unified command charged with responsibility for the air defense of North America. How could this threat, and this responsibility, be safely reconciled with constitutional provisos for State command of the Guard and the requirement for Presidential

action prior to the exercise of full Federal control? As in many other areas of modern American experience, the complex demands of a technological age confronted, in apparent contradiction, the eighteenth-century principles of a hallowed constitution.

During the gun era, the basic approach to this problem was conditioned by the fact that the role of the Guard's SSF units, on-site as well as M-day, was fundamentally that of an augmentation force. In the mutual agreements concluded between Continental (ZI) Army commanders and the States, there was thus no provision for the exercise of operational control in peacetime by active Army commanders.[3] Even if the 15-man caretaker detachments--only a portion of whose personnel could be expected to be present at a battery site at any given time[4]--could actually have fired a few rounds in the event of enemy attack, the active Army defense commander would have had no authority, under these agreements, to order such action until the Guard's "on-site" units could be "called or ordered into the active military service by direction of the President."[5] In an effort to expedite this all-important process, DA had subdelegated authority to issue implementing orders to the commanders of Continental Armies,[6] but the requirement for prior Presidential proclamation remained in

effect throughout the gun era. Fortunately, this answer to the problem of command and control never underwent the acid test of actual air attack.

As ARNG units were converted from guns to missiles and assumed a full-time, integrated role in the continental air defense system, the question of command and control became not only more critical, but more contentious. Given the gravity of the responsibilities involved, it was not surprising that this question engendered overt and weighty resistance to the Guard's increasingly active participation in air defense.

In November 1957, while the pilot program of California's 720th Missile Battalion was yet in progress, Maj. Gen. Eugene F. Cardwell, Commanding General of ARADCOM's 5th Region,[7] formally registered his "strong opposition" to the Guard's Ajax program in a lengthy letter[8] to Lt. Gen. Charles E. Hart, then CG of ARADCOM. Among his many grounds for objection, a central point was the anomaly, which General Cardwell viewed as absolute, between the peacetime command of Guard units by the States, on the one hand, and the principle that "the cornerstone of an effective air defense system is speed." Quoting President Eisenhower's warning that "with missiles and faster bombers, warning times will grow shorter,"[9] General Cardwell held it to be "self-evident"

that "even the best National Guard unit cannot be as good as a Regular Army unit for instant action," primarily because active Army commanders "would need to exercise full command authority" over Guard units--an "extent of authority...not consistent with the term National Guard." Equating Guard participation to a "gamble" with stakes involving the very "survival of our Nation," General Cardwell could see no alternative but to "strongly recommend immediate cancellation of all plans to turn over responsibility for any part of our missile defenses to the National Guard."

Such views were subsequently echoed at the highest levels of the continental air defense system. In July 1959, when implementation of the Guard's on-site Ajax program was almost into its second year, General Earle E. Partridge, USAF, Commander in Chief of CONAD/NORAD, went on record as "vigorously opposed" to the program. In a personal letter to Secretary of Defense Neil H. McElroy,[10] General Partridge expressed his "very real 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 North American Air Defense System," and his objections to the fact that "the Army program for manning of NIKE AJAX units by the National Guard continues."

Again, a basic ground for objection was the need for air defense to be "capable of timely reaction to ever-diminishing warning times," and therefore subject to a control both "direct and positive." National Guard forces, "because of their subordination to State authorities, meet none of these requirements." General Partridge's "firm recommendation" was that the "manning and operation of all first-line air defense weapons" be a responsibility "clearly assigned" by DOD policy "to the Regular military establishment." A consequent corollary of this recommendation was that "any Army and Air Force National Guard units having an air defense capability must be clearly established and considered only as augmentation forces."

This letter capped General Partridge's previous efforts to convince the Chairman of the JCS,[11] and the efforts of his U.S. component commanders to similarly convince the chiefs of their respective services. In soliciting such support from Lt. Gen. Charles E. Hart, then CG of ARADCOM, General Partridge based his views exclusively upon the need for "timely response" in air defense;[12] and General Hart, in directing preparation of a letter to General Maxwell D. Taylor, then Army Chief of Staff, commented that "I must admit that I agree with General Partridge in this instance."[13] In a resultant "Dear Max" letter to

General Taylor, the ARADCOM CG accordingly stressed the active Army's "lack of authority for the immediate use of the National Guard units in case of emergency," and indicated that relegation of the Guard's Ajax units to a "less exacting mission as augmentation forces" was being studied by his headquarters.[14]

The united protests of Generals Partridge and Hart were met, at DA, by a nonconcurrence which in no way confronted, or even mentioned, the central issue which these field commanders had raised: the unbridgeable gap which, to their way of thinking, existed between the need for rapid responsiveness in air defense and the legal reality of peacetime State command of National Guard forces. Other factors, in the DA view, were of countervailing weight.

Approval of General Partridge's recommendations would not only "destroy the current Army National Guard program" which, as of that time (August 1959) called for employment of 19 Guard Ajax battalions, but would "require reconstitution" of active Army units to replace them.[15] Reflecting the understandable parsimony of Army planners in the New Look era of pronounced Army poverty, DA's position paper pointedly emphasized estimates that abandonment of the Guard's Ajax program would cost the active Army 8,836 personnel

spaces, and some $11,860,000 in claimed ARNG-active Army cost differential, by the end of FY 1961. Lastly, the fact that approximately 2,800 technicians from 14 States were then participating in continental air defense would "probably" give any DOD decision to drop the program "serious political implications." It was apparently on these grounds, rather than upon any systematic study of its responsiveness to operational readiness requirements, that the Guard's increasingly active role in air defense was preserved.

Mutual Agreements

This is by no means to say that the basically constitutional question raised by responsible Regular service critics of the Guard program found no legal answers.

The initial approach to resolution of the problem came in December of 1957, as the pilot program of California's 720th Missile Battalion was already under way. In its policy directive for the Guard's on-site Ajax program,[16] DA blandly decreed that prior to mobilization, "Army National Guard missile battalions on site...will be under the operational control of the USARADCOM commander of the respective air defense areas." As for the mechanics of

implementing this thorny principle, CGARADCOM was authorized direct communication with the Adjutants General of the States involved, and directed to "negotiate mutual agreements...for the alerting, assembling, manning, and ordering to fire" of ARNG on-site missile units pending orders into Federal service.

All this was easier said than done, as evidenced by the fact that as late as October of 1959, only two of the 14 States involved had signed the standard mutual agreement which ARADCOM had by then devised.[17] This sluggish progress toward solution of the patently primordial and interrelated problems of operational control and responsiveness can be attributed to three major and similarly interrelated factors: lack of appropriate command emphasis within ARADCOM; an unsuccessful DOD effort to secure a legislative solution; and resistance, which varied in degree from fierce to negligible, from the States.

The lack of adequate command emphasis within ARADCOM, at least initially, was apparent at both regional and command headquarters. Despite the DA directive of December 1967, ARADCOM did not even produce a DA-approved standard format for agreements, which were to be negotiated by ARADCOM's region commanders, until June of 1959.[18] Prior to that time, ARADCOM's region commanders had been on their own in reaching agreements with the States; and their approach to the

intensive negotiating process clearly necessary to produce legal agreements with 14 distinctive and at least quasi-sovereign States, was at best perfunctory. Some region commanders merely transmitted ARADCOM's standard format to Adjutants General with what the Chief of the NGB described, in the fall of 1959, as "an implied take it or leave it,"[19] and to his knowledge there was no instance, at least in the East, in which "an active Army general officer visited in the office of a state Adjutant General to resolve problems concerning the agreement."[20]

Such lethargy, if not deliberate, was not inconsistent with the less than enthusiastic views of ARADCOM's CG toward the whole concept of the ARNG on-site missile program. As late as August of 1959, General Hart was still advocating to DA that the Guard's on-site Ajax units be "relegated to the position of augmentation forces only"[21]--and substantiating his continued criticism of the Guard's operational responsiveness with the somewhat paradoxical observation that ARADCOM standard agreements had been concluded with only two States.

Some of ARADCOM's foot-dragging can be attributed to the fact that DOD, in November of 1958, had proposed a drastic legislative solution (86-10) to the problem of command and control. The key position proposed to bestow upon CINCONAD the power to "order to active duty involuntarily those National Guard units assigned an air defense

mission when, in his opinion, awaiting the declaration of a national emergency by the President would seriously limit air defense operations."[22]

So bold a solution would probably have satisfied even General Partridge, and would have made ARADCOM agreements with the States unnecessary. Such a solution would also have been of highly dubious constitutionality and, probably, politically unpalatable to the Eisenhower Administration[23]--not to speak of the States themselves. It was therefore not surprising that, on 30 April 1959, "top administration officials decided that it was possible to accomplish the purposes of the proposal by means other than legislation," and that "accordingly, this proposal was deleted from the legislative program."[24]

With the demise of DOD's legislative approach to the problem, DA understandably pressured ARADCOM to produce the mutual agreements required by the DA directive of December 1957. Replying to a DA letter from DCSOPS, General Hart in October of 1959 assured General Moore that "the problem of obtaining mutual agreements" was "a matter of personal concern" to him, and that he had directed ARADCOM's region commanders to "make this problem their immediate concern and to establish personal negotiation with the appropriate State Adjutants General at an early date."[25]

ARADCOM's "immediate concern," belated though it was,

proved to be highly beneficial. In October of 1959, when General Hart emphasized the importance of agreements to his region commanders during an ARADCOM commanders' conference, only Pennsylvania and Michigan, of the 14 states then involved in CONUS on-site air defense, had signed ARADCOM's standard agreement.[26] California, Washington, and New Jersey had signed modified versions of the standard agreement; "stop-gap" interim agreements had been signed by Massachusetts, Maryland, and Virginia; and six States--New York, Connecticut, Ohio, Wisconsin, Rhode Island and Illinois--had not signed any type of agreement. By 1 July 1960, and probably well before that date, agreements had been concluded with all 14 of the States, although some of these were interim or modified versions of ARADCOM's standard agreement.[27]

The grounds for objection by the States were as varied as the degrees of their resistance. In response to ARADCOM's initial approach in July of 1959, Maj. Gen. (later Lt. Gen.) Milton A. Reckord, the Adjutant General of Maryland and a high-powered official of the politically potent National Guard Association,[28] magisterially replied that "the proposed agreement is entirely unsatisfactory to me, and I must refuse to sign same."[29] In his view, ARADCOM's definition of operational control meant that peacetime "command of certain units of the National Guard of Maryland would virtually be

handed over" to ARADCOM. The language to which he objected read as follows:

> Operational control as exercised by the active Army air defense commander is defined as follows: Those functions involving the conduct of inspections, exercises, and tests; the tactical employment of units and assigned personnel; the designation of objectives and the authoritative direction necessary to accomplish the mission. It does not include such matters as administration, discipline, internal organization and unit training.[30]

And to ARADCOM's stipulation that "upon the declaration of an air defense emergency, as determined by CINCNORAD...Army National Guard missile personnel and units will prepare for and conduct fire upon orders of the active Army air defense commander,"[31] General Reckord replied that "before firing a missile they (ARNG personnel) should definitely be in active federal service."[32]

Although General Reckord's objections were sufficiently assuaged to permit the conclusion of an interim agreement with Maryland, other States expressed concern about another major obstacle to agreement: the claims for damages and other tort actions which could result from the full-time participation of civilian technicians in air defense operations and training.[33] Because these technicians were employees of the States rather than of the Federal government, the States might find themselves subject to damage claims whose possible magnitude, in view of the ever-increasing lethality of air

defense weaponry, might become particularly onerous in carrying out what was, after all, a basically Federal mission.

A legislative approach to this problem resulted not only in its solution, but removal of a major stumbling block on ARADCOM's road to conclusion of agreements with all of the States involved in CONUS air defense. Developed by DOD in 1958, a bill to amend the Tort Claims Act was passed by the Congress and signed into law (P.L. 86-740) by President Eisenhower on 13 September 1960. This measure in general placed Guardsmen and air defense technicians on the same basis, with respect to claims arising from their performance of duty, as personnel of the regular armed services.[34] In so doing, it contributed greatly to the conclusion of standard agreements which granted to active Army air defense commanders DA's approved solution to the problem of command: operational control.

Other factors, by July of 1960, were also smoothing the path toward mutual ARADCOM-State satisfaction with this solution. The conversion of on-site ARNG units from Ajax to Hercules, already well into the planning stage by the summer of 1960, clearly called for preliminary resolution of the command and control problem. Although General Hart had strongly opposed the Guard's Hercules program,[35] one of his last acts, prior to his retirement in July 1960, was to establish an Office of Army National Guard and Reserve Affairs[36] at ARADCOM

headquarters. As first chief of this independent special staff section, Colonel Max E. Billingsley was specifically charged with revision of ARADCOM's standard agreement and elimination of the kind of extraneous verbiage, particularly as related to administration and logistics, which General Reckord had found objectionable.[37]

ARADCOM's revised agreement was approved by DA and the NGB in 1961, and--thanks largely to the prior resolution of the torts problem--found comparatively clear sailing with the States. By the end of 1962, all of the 16 States involved in the Hercules program had acceded to the standard agreement, and since that time there have been no major problems in this field.[38]

Because there have been no substantive differences between the several editions of the agreement from 1962 to the present, a summary of the present version[39] suffices to describe the salient features of the arrangement in effect throughout this period.

The mission of ARNG on-site units is to "operate continuously and effectively in the air defense system, under operational control of appropriate active Army air defense commanders." Operational control is defined to include functions involving the conduct of inspections, exercises, and tests; tactical employment; designation of objectives;

and "the authoritative direction necessary to accomplish the mission." Such direction specifically includes authority to establish states of alert and require full-time technicians, in the event of sudden attack prior to declaration of an air defense emergency by CINCNORAD/CONAD, to "initiate and conduct fire." Following declaration of an air defense emergency and as directed by the CG of ARADCOM, M-day personnel as well as technicians can be required to assemble and conduct fire as directed by the active Army air defense commander. Although command of on-site ARNG units rests with the Governors of the respective States prior to declaration of war or national emergency, the Governors agree not to divert these units from their air defense mission to "any other active state duty."[40] Thus, haltingly and somewhat traumatically, but to the eventual satisfaction of all concerned--DA, ARADCOM, and 16 States--a practical solution was devised to bridge the gap between constitutional principle and the pressing need for immediate responsiveness in air defense. As in other spheres of Federal-State relationships, pragmatism and compromise eventually prevailed over doctrinaire limits to State participation in air defense.

Technician Status: The Legal Limbo

Although legislative resolution of the claims issue

in 1958 was a major step forward in clarifying the legal status of the ARNG's air defense technicians, the murkiness of their status in other important areas continues to be a problem. Since their first appearance in the gun era, these civilian technicians have operated in what can be described as a legal limbo; and because they constitute the Guard's immediate capability in continental air defense and their opaque status has, on occasion, adversely affected their morale and operational readiness, this problem of legal status is of more than merely academic interest.

Legally, air defense technicians are not even defined as such. The authority under which they have always been employed[41] at least technically lumps them together with the more traditional categories of civilian "caretakers and clerks" of the National Guard. Although the Secretary of the Army is empowered to fix the salaries of such "caretakers and clerks" and to "designate the person to employ them," this authority was delegated, in July 1958, to State Adjutants General,[42] who may also establish duties and work hours and supervise and discharge employees, subject to law and the instructions of the Chief, NGB.

The pay of air defense technicians, like other civilian employees of the Army and Air National Guard, comes from federally appropriated funds.[43] Pay rates, since 1951, have

been generally equated with the General Schedule (GS) rates of the Federal Civil Service in the case of supervisory and highly skilled personnel, or determined by the Army-Air Force Wage Board in the case of such "blue-collar" occupations as launcher crewman, radar operator, or mechanic.[44]

Yet the fact that air defense technicians are paid from Federal funds does not make them Federal employees. Ever since a 1941 ruling of the Comptroller General of the United States,[45] civilian employees of the Army and Air National Guard have been considered, by the Departments of the Army and of the Air Force, to be employees of the States. In addition to delineating a legal dilemma in which Federal courts have ruled that air defense technicians are State employees and State courts have ruled to the contrary, this finding withheld from Guard civilian employees such Federal fringe benefits as participation in the Civil Service retirement system and Federal insurance programs. Although the average technician salary has always been reasonably attractive,[46] this paucity of fringe benefits can be assumed, in a pension-minded age, to have had other than beneficial effects upon morale.

The unceasing operational requirements of on-site air defense, when coupled with the fact that overtime pay is not authorized for civilian technicians,[47] combined to produce another problem which has been of abiding significance ever since ARNG missile units first assumed full-time missions in

the late 1950s. Although authorized equal compensatory leave for overtime work beyond the theoretical 80-hour, two-week pay period, technicians cannot always be granted such leave within the 60-day time limit prescribed by regulations.[48] In the ARNG Air Defense Task Organization, as in ARADCOM as a whole, uncompensated overtime has been the rule rather than the exception.

A prerequisite of employment for air defense technicians has always been, since the early gun days of the Guard's on-site programs, membership as a Guardsman in the unit selected for an on-site mission.[49] Viewed in conjunction with their patently military mission, this basic requirement contributes, if only psychologically and morally, to the uncertainty of the technicians' legal status. As the Chief of the NGB put it in 1960, these factors make it "quite apparent that not every freedom and privilege of ordinary civilian employment can be enjoyed by the National Guard technicians whose status is so colored by the military nature of their calling."[50]

Another corollary of this basic proviso is that an individual's grade and position within the civilian technician structure of the unit should be compatible with what, in the event of mobilization, his active military status within the federalized unit would automatically become. Thus, a technician normally is not placed over another technician who is his

senior in military rank.[51] Yet another aspect of the technician's quasi-military status is the obvious desirability of putting the civilian hat of unit "supervisor" and the military hat of ARNG unit "commander" on only one head; but there have been at least three cases, since the beginning of the Guard's on-site missile program, in which this desideratum has not been met.[52]

"Labor" Relations

Quasi-military, quasi-civilian, neither Federal fish nor State fowl, the ambiguous status of air defense technicians has inevitably been reflected in isolated incidents which fortunately have not impeded progress toward constructive solution of the basic problem of identity.

The first and relatively mild of these incidents took place in the summer of 1960, when technicians of an ARNG unit of the Pittsburgh defense contacted an official of the Building Service Employees' International Union and requested a charter for the purposes of collective bargaining and settlement of "grievances concerning conditions of work."[53] When the Adjutant General of Pennsylvania met with this official--who apparently was well aware of the "unique nature" of technician employment to begin with--explanation of the fact that technician status was determined by Federal statute

sufficed to forestall issuance of a charter and nip this tentative organizing effort in the bud.

In September of 1961, however, the same union undertook a far more intensive and complex effort to organize technicians, this time in Seattle. A key figure in this effort was a former commander and supervisor of a Guard Ajax battalion in the Seattle defense, who in 1959 had been relieved as commander and discharged as supervisor, and who was now the local business agent for the Building Service Employees' International Union.[54] Beginning with the disgruntled adherence of a technician who had been displaced in the technician structure by an individual who was junior to him in technician grade but his senior in military rank,[55] a covert organizing effort succeeded in proselytizing some 60 percent of the battalion's technician personnel before its existence became known to the battalion supervisor. In the meantime, the operational readiness of the unit deteriorated to a point which, in the words of Brig. Gen. Horace L. Sanders, ARADCOM's 7th Region commander, was "inconsistent with the previous high level of performance of duty which has so impressed me during the earlier months of my association with these units."[56]

The next act in this unhappy drama unfolded when five of the disaffected individuals, an officer and four warrant officers, refused to reveal to the battalion supervisor either the identity or purpose of the organization they had joined. When four of these technicians were discharged from their employment with the battalion,[57] the union not only appealed for their reinstatement to the State Personnel Board, but directly to the Governor of Washington. Because the Governor (who received "letters of a threatening nature"[58] in addition to this appeal) refused to intercede, his name was subsequently inscribed on the "unfair list" of the AFL-CIO King County Labor Council.[59]

The administrative and judicial jungle into which this case entered yielded little in the way of clarifying the basic status of air defense technicians. Concerned about the possible effects of unionization upon combat readiness and "command functions," Hq ARADCOM queried the Army Judge Advocate General as to the legality of union membership for air defense technicians, and received an opinion which held that this was a matter to be determined by the State, since the individuals involved were "employees of the State of Washington."[60] For his part, the Adjutant General of Washington found no legal objection to unionization and issued "strict instructions" that technicians be assured

of their right to organize.[61] Although the State Personnel Board ordered reinstatement of the four technicians, this decision was overruled by the Thurston County Superior Court's finding that air defense technicians, contrary to the DA view, were "employees of the federal government and not subject to state civil service regulations."[62] When this finding was appealed by the State Personnel Board to the State Supreme Court, that body upheld the Adjutant General's authority to fire technicians, ruling that they were "not under the protection of State Civil Service law"; for the State of Washington, at any rate, this finding was final, and the efforts of the four technicians to obtain reinstatement came to naught.[63]

In April of 1962 the unpredictable but inexorable demands of constant readiness in air defense precipitated an incident in one battery of a dual ARNG site at Lido Beach, New York.[64] One of these batteries was on 15-minute alert status with the other in a back-up role, designated to assume "hot" status in the event of equipment outage in the alert battery. When such materiel failure repeatedly forced the recall of personnel in the back-up battery to assume advanced alert status, 14 technicians either refused to remain on or report to the site, and were immediately discharged by the ARNG battalion commander. Prompt action by New York National Guard authorities reconstituted the alert crews by TDY assignments of other ARNG personnel to the affected battery, and

permanent replacements were soon recruited. The efforts of the discharged employees to secure reinstatement through state courts were unsuccessful, again on the basic ground that they could not be considered to be employees of the State.[65] When they took their case to a Federal District Court, jurisdiction was again disclaimed on the ground that the technicians could not be considered to be Federal employees.

Overtime was the principal issue involved in the last of the four isolated incidents which have occurred since the beginning of the ARNG's participation in on-site air defense. The catalyst in this case was the disgruntlement of a technician employed at a site of the Washington-Baltimore Defense in Waldorf, Maryland, who, when denied leave to attend the funeral of President Kennedy in November of 1963, went "AWOL" for three days.[66] Upon his return, his battery supervisor placed him in leave status without pay. When the individual proceeded, while on site during duty hours, to solicit funds from other technicians for the purpose of retaining an attorney to look into their "federal rights" with respect to compensation for overtime, the battalion supervisor "forthwith discharged" him and immediately initiated the necessary paperwork for definitive termination of his employment.

Some 49 technicians of the ex-employee's unit then

petitioned a Federal Court of Claims for payment for overtime work which came to an average of some 896 hours each[67]--an amount obviously impossible to compensate with leave within the time limit of 60 days. Predictably, the Federal court threw the case out on the ground that these technicians could not be considered employees of the Federal government.[68]

The plight of air defense technicians, as well as other ARNG "caretakers and clerks," has not been ignored by Federal authorities. For example, the Department of Labor extended workmen's compensation to technicians by administrative interpretation of the Federal Employees' Compensation Act,[69] and the Federal government has been paying, since 1954, the employer's cost of Social Security on behalf of National Guard technicians. Since 1961, the Federal government has also contributed the employer's share of the cost of State retirement systems, in those cases--of which there were eight as of late 1966[70]--where air defense technicians are eligible, under State laws, for participation in such systems. But the basic "identity crisis" of air defense technicians remains unresolved, and any lasting solution to this problem will clearly require Federal legislation.

In early 1967, such legislation was put into the hopper by Representative F. Edward Hebert of Louisiana, who on 10 January of that year introduced a bill (H.R. 2) which

includes, in its Title II, a "National Guard Technicians Benefits Act." Drafted by the NGB,[71] this bill, if enacted, would definitely serve to "clarify the status of National Guard technicians."[72]

To summarize its highlights, the proposed legislation would make Guard technicians employees of the Department of the Army (or Air Force) and of the United States, while continuing the requirement for Guard membership in the military grade required by the position and excluding positions from the competitive provisions of Federal Civil Service. The overtime problem would be met, in the specific case of air defense technicians, by authorizing additional "premium pay" which could not exceed, on an annual basis, 25 percent of an individual's base pay. All fringe benefits of the Federal Civil Service, with retroactive credit for service prior to enactment of the bill, would be extended to technicians; and the Federal government would continue to contribute the employer's share of State retirement costs in the event an individual technician should prefer to remain under a State system rather than electing the Federal Civil Service retirement system. A psychic fringe benefit would also be afforded by change of the misleading legal sobriquets of "caretakers and clerks" to the more prestigious title of "technician."

As Civil Service employees of the Federal government, technicians would be clearly barred from striking,[73] thus legally removing any possibility of the most direct and drastic threat to combat readiness. However, it may well be wondered whether Adjutants General, who would retain their authority to hire technicians, would continue to have a relatively free hand in firing them.

Given the weighty issues raised by this proposed legislation, it was not surprising that enactment had not yet been achieved as 1967 came to an end. Although passed by the House of Representatives on 20 February of that year, the Senate's Armed Services Committee on 7 November voted unanimously to defer action on this portion of H.R. 2 until the next session, thus permitting "a further review" of the "deeply complicated" questions it raised.[74] Unanimously conceding that "action on the technician problem should be completed as soon as possible," the Committee indicated that the impact of the proposed legislation on Federal-State relations, as well as the considerable cost and actuarial implications of the proposed retirement provisions, required additional review.

Pending the results of this review, technicians can only continue what has been, in truth, a search for identity.

That this frustrating quest has resulted in relatively few and isolated threats to the combat readiness of the Guard's on-site air defense units speaks well for the dedication of the vast majority of those upon whom rests the immediate capability of those units: the air defense technicians.

Force Structure and Site Selection

In addition to the classic factors affecting the size and composition of any military establishment--of which budgetary limits, training base, technological capabilities, and strategic purposes spring mostreadily to mind--the structuring of the ARNG's on-site air defense force has required, since the inception of the program in 1951, numerous special considerations peculiar to the Guard identity of this force. Not all of these considerations posed major problems; but in their many-faceted entirety, they combined to produce a unique pattern which any future planning for Guard participation in air defense cannot afford to ignore.

Fundamental to on-site force structuring during the gun era was the fact that Guard participation was directed toward augmentation of active Army defenses, rather than full-time integration into these defenses. Even the "on-site" SSF gun

batteries, with their 15-man caretaker crews, were essentially augmentation forces. Apart from the relatively minor costs of these caretakers and of site maintenance,[75] the costs of the on-site aspect of ARNG participation differed but little from materiel and drill pay costs of Guard units assigned a more traditional, post-emergency role in air defense. The objective was to obtain as many trained units as possible for use only in an actual emergency. The major limiting factors were equipment availability (especially of fire direction materiel), training base, and State capabilities.

With the armistice in Korea and the subsequent advent of the Eisenhower Administration's "New Look" in defense policy, the active Army underwent a budgetary and manpower squeeze which later merged with plans for conversion of its Ajax units to Hercules to produce a new set of goals for Guard participation in air defense. By full-time manning of Ajax sites with technician crews of minimum strength, the Guard would not only ease the active Army's transition to a new weapon system, but effect significant savings in the budgetary and manpower spheres. As the Under Secretary of the Army pointed out to his chief in 1960, full-time manning of ARNG missile sites by civilian technicians had permitted DA to present the Congress with savings in personnel costs, when compared with the active Army, of a "cost differential for each battalion which favors the National Guard in the sum

of $403,000"; even more important, in his mind, were "the savings of 8,836 personnel spaces" for "very profitable use elsewhere" in the active Army.[76]

Despite these changes of objective, overall site availability presented no major problems. As the active Army's gun units converted to a lesser number of Ajax units, gun sites were turned over to the Guard's "on-site" units; and as active Army units converted from Ajax to a lesser number of Hercules units, their sites became available for subsequent occupancy by the Guard's Ajax units. And when Guard units were converted from Ajax to a lesser number of Hercules units, the sites of inactivated Guard units, as well as inactivated active Army Hercules units, became available. From the Guard's viewpoint, the primary requirement was that sites be in reasonable proximity to the population centers from which state air defense personnel, both technicians and their supporting M-day Guardsmen, must necessarily come.[77] However, the fact that some technicians currently commute to sites as distant as 50 miles from their homes indicates that the factor of proximity is not inflexible in application.[78]

Specific site selection, as distinct from overall site availability, posed serious problems, especially during the gun era of the Guard's participation.[79] Lags in Ajax site construction for active Army units often delayed and

sometimes cancelled scheduled Guard occupancy of former active Army gun sites, to the understandable resentment of States which had employed on-site caretaker personnel in anticipation of taking the sites over. Changes in objectives to be defended had similarly adverse effects. As an example, after Missouri organized two battalions for the defense of St. Louis and hired the necessary on-site caretaker personnel, St. Louis was dropped from the list of defended areas. Although St. Louis was later restored to grace and Missouri's two battalions eventually achieved on-site status in that defense,[80] the trauma of such stop-and-go changes might have been avoided by more thorough staff work in the selection of specific sites.

The unit inactivations and branch transfers which accompanied conversion to more advanced weapon systems and consequent changes in technical and tactical site criteria also could be painful. For example, the omission of Delaware's two on-site gun battalions from participation in the Guard's Ajax program brought, in 1958, a bitter protest from that State's Adjutant General.[81] Pointing out that the Delaware ARNG was "composed solely of Army Air Defense units" which, "since 1928 (had) come up from the old truck-mounted 75mm," General Scannell justifiably deplored "the loss of some 7,000 man-years of anti-aircraft

experience to the Army Air Defense Command." Noting that the officers and on-site caretakers of his two gun battalions had been school-trained in missiles at Fort Bliss, he requested assurances from ARADCOM that there would not be "a pressing requirement for troops with Air Defense training in this area two years hence, just after I have completed their conversion to mess-kit repair battalions or some other type unit." To this, ARADCOM could only refer General Scannell to the NGB for projections, which DOD alone could provide, of the overall composition of the reserve components, and remind him of the unpredictable impact of "events and budgetary appropriations" upon air defense programs.[82]

Technician Retention

Another and even more sensitive aspect of the problem of ARNG force structuring has been technician retention, a factor which became acutely important in planning the Guard's move from Ajax to Hercules. Highly trained and experienced technicians are invaluable but relatively immobile air defense assets. Often concentrated in small communities close to or even on air defense sites,[83] technicians can also constitute a significant interest group on the local community scene.

A case in point is that of Terrell, Texas, currently a Hercules site for Battery "B" of the 4th Battalion, 132nd Artillery, a unit of the Dallas-Fort Worth Defense.[84] Like most of ARADCOM's units, this battery occupies a site located in a small community at some distance from the heart of the defended area: a fairly typical example, Terrell is about 30 miles from Dallas. Terrell has a population of about 16,000, most of them farmers and ranchers. There is a small aluminum products plant, employing about 150 workers. Another plant manufactures athletic equipment, and has about 100 employees. A small college, with a student body of about 600, and a State mental hospital, with a staff of about 900, round out Terrell's list of major non-military activities.

In this small community is embedded "B" Battery, with its 90 technicians earning an annual payroll in excess of $600,000. Eighty of these technicians, with an average of three dependents per technician, reside in Terrell; most of this $600,000 payroll is therefore spent in Terrell. In addition, the battery spends about $25,000 annually on utilities, mostly electricity; and about $10,000 a year goes to Terrell merchants for paint, lumber, and other items required for site maintenance.

In Terrell, air defense is big business. And the relationship between the community and its air defense unit is not exclusively economic: several of "B" Battery's technicians, for example, are active church leaders. Although the battery is big business in Terrell, the nexus which links the two is not confined to cash.

In this light, it is no surprise that the protection of technicians against the twin threats of technological unemployment and drastic redeployments has been a matter of legitimate concern not only to the technicians themselves, but to State administrations. This was particularly evident in the case of conversion from Ajax to Hercules missiles, which threatened the jobs of some 644 technicians.[85]

The gravity with which some states viewed this problem was fully manifested at a conference, held in the Pentagon on 7 December 1961, in which the DA-approved plan for 48 ARNG Hercules batteries was presented to the AGs (or their representatives) of the 14 states then participating in the Guard's air defense program.[86] When the ARADCOM representative presented the plan, he was "nearly thrown out on his ear" by the shock-waves which emanated from some of the States represented.[87] Although objections took the form of "desires" for additional Hercules batteries, the fact that most of the objecting States were to suffer a net loss in technician jobs, and

that allocation of additional units could absorb this loss, undoubtedly loomed large. No fewer than six states--Maryland, Rhode Island, Massachusetts, Connecticut, Virginia, and Washington--flatly stated that they would withdraw from the program if their desire for additional units was not accomodated by a change of plan. Of these six states, four--Massachusetts, Connecticut, Virginia, and Washington--were programmed to lose approximately 100 technician spaces each, or about two-thirds of the entire anticipated loss.

Maj. Gen. Donald W. McGowan, then Chief of the NGB, at this point stepped into the breach. After a telephone conference on 15 December with Lt. Gen. Robert J. Wood, then CG of ARADCOM, and consultation with "certain key states,"[88] General McGowan on 21 December formally proposed to ARADCOM a solution designed to reduce "the heavy losses of trained personnel...under the present 48-battery plan" to "slightly under 200...currently employed technicians." This he proposed to do by granting an additional battery to each of the six states which had threatened to withdraw from the program, as well as moving a battery from the New York City Defense to Buffalo.

After obtaining General McGowan's agreement to deletion of the NGB proposal for an additional battery in Rhode Island, General Wood on 11 January 1962 obtained the

MAJ. GEN. DONALD W. McGOWAN,
Chief of the National Guard
Bureau, 1959-1963

concurrence of CINCONAD to these changes,[89] and further planning for the Guard's conversion to Hercules was accordingly amended by the deletion of previously planned ARNG participation in Missouri and Minnesota. Given the DA position that "troop ceilings for ARADCOM had been established on the basis that the National Guard would assume operation of 48 batteries" and that it was up to ARADCOM to "negotiate to establish a satisfactory 48-battery program,"[90] General Wood had few, if any, alternatives to this solution. The lesson appears to be that planning for the Guard's overall force structure should go hand in hand with detailed selection of sites for Guard participation, and that such sites should be selected with close attention paid to the potent factor of technician retention.

The Rotation Base Requirement and the "50-Percent Rule"

For its part, the active Army had some parameters of its own which directly affected answers to the questions "How many ARNG units?" and "Where?"

As the Guard prepared to share Hercules defenses with the active Army, the latter's need for a rotation base in the CONUS came into sharp focus. Obviously, active Army air defense personnel would require appropriate berths upon

return from overseas tours in air defense; conversely, overseas air defense units required a stable, CONUS-based source of trained and experienced air defense personnel. Reminiscent of the old British regimental rotation system, in which different battalions of the same regiment shuttled back and forth between England and India, a rotation base was necessary to fully utilize the highly specialized skills of career air defense personnel by alternating individual assignments within the same weapon system at home and abroad.

This requirement, when combined with the active Army troop basis established for ARADCOM by DA, clearly imposed a limit upon the size of the ARNG's Air Defense Task Organization, CONUS. In an ARADCOM study addressed, in 1962, to the problem of determining "how far the Army can go in turning Hercules batteries over to the ARNG,"[91] the rotation base requirement was a major factor in the study's conclusion that 48 ARNG batteries was the practicable limit. Although estimates of the exact number of units required to maintain an active Army rotation base have changed since 1962,[92] the need itself remains.

What might be called the "50-percent rule" has also imposed at least theoretical limits upon the extent of ARNG participation in on-site air defense, limits which have affected the location of ARNG units as well as their number.

As enunciated in a G-3 presentation to an ARADCOM commanders' conference in 1958, this desideratum specified that "not more than 50% of the missile units in any defense should be National Guard."[93]

The source of this "rule" appears to have been the opposition of Lt. Gen. Charles E. Hart, CG of ARADCOM from 1957 to 1960, to the entire concept of integrated ARNG participation in missile-armed air defense--opposition based upon his doubts as to the responsiveness of Guard units in an emergency.[94] Its rationale, at least as understood by the NGB, was a "NORAD conception that half of all the batteries in a particular area should have the capability of achieving and maintaining a fifteen-minute alert status 50% of the time"[95]--a capability which the technician structure of on-site ARNG Ajax units did not provide. Clearly, the impetus for this policy came from ARADCOM, rather than CONAD/NORAD or DA,[96] although the concurrences of these higher headquarters were obtained.[97]

It is equally clear that ARADCOM's desired restriction was not impervious to pressures generated by other factors in ARNG force structuring, particularly that of technician retention. As early as 1962, ARADCOM planning for the Guard's Hercules program was compelled to accept exceptions to the 50-percent rule in six of the Hercules defenses then

on the drawing boards.[98] As actually completed in April 1965, the program saw Guard units manning more than 50 percent of five defenses, a situation that has continued to the present day.[99]

Although the barrier of 50 percent has been breached and can no longer be described as a "rule," Army regulations have continued, since 1961, to require some degree of "mix" within a given defense. Since that date region commanders have been responsible, in the event an on-site Guard unit fails, "through lack of...technician personnel" to meet minimum readiness standards, for promptly correcting the deficiency--if necessary, by augmenting the Guard unit with active Army personnel from the affected defense commander's "own resources."[100] Although implementation of this proviso has never, to date, been required,[101] it patently presupposes the existence of active Army personnel resources within each defense. In effect, the 50-percent solution to this "mix" problem has been superseded by reliance upon the dexterity of ARADCOM's field commanders in manipulating active Army resources within defenses. Fortunately, the prompt and effective reaction of ARNG authorities to such rare and isolated incidents as occurred at Lido Beach has obviated any real test of this solution.

Training

Because the payoff of training is performance, the generally enviable record compiled by ARNG units in mastering the requirements of active Army tests, evaluations, and inspections justifies the conclusion that no insuperable training problems were encountered in the successive phases of the Guard's on-site participation in air defense. This is not to say, however, that problems peculiar to the training of Guard personnel did not arise, particularly in the areas of active Army supervision; personnel aptitude and attitude; and on-site training.

As early as 1952, the assignment by DA to AFF of the responsibility for the supervision of training of the Guard's SSF units appeared somewhat questionable to ARAACOM, whose brochure for the important conference on Guard participation held in September of that year claimed "moral responsibilities" of ARAACOM for training support "beyond those spelled out" by DA.[102] By 1955 this view had crystallized into repeated ARAACOM recommendations to DA that CONARC, successor to AFF, be relieved of responsibility for supervision of training for on-site Guard units, and that this responsibility be assigned to ARAACOM.[103] Although CONARC "consistently objected"[104] to this change,

the logic of ARAACOM, as the headquarters which would assume command of SSF units in the event of their call to active duty, ultimately prevailed. At the beginning of 1956, and only after a high-level conference of the ARAACOM and CONARC CGs with the Vice Chief of Staff of the Army, ARAACOM received responsibility for "the supervision of the training of all National Guard non-divisional anti-aircraft units which are assigned specific CONUS anti-aircraft defense missions and which have qualified for and have been designated as Special Security Force units."[105] Training being a command and therefore a State responsibility, the discharge of this function perforce remained with State Adjutants General and commanders in the Guard's chain of command; but supervision of air defense training, for those ARNG units assigned specific missions in CONUS air defense, has since 1956 been the responsibility of ARAACOM and its successor, ARADCOM.[106]

The conversion from guns to Ajax and the full-time integration of Guard units into the continental air defense system, at a time when active Army units were themselves in the process of converting from Ajax to Hercules, posed training problems which were not limited to the complexities of coordinating and scheduling training for Guard personnel

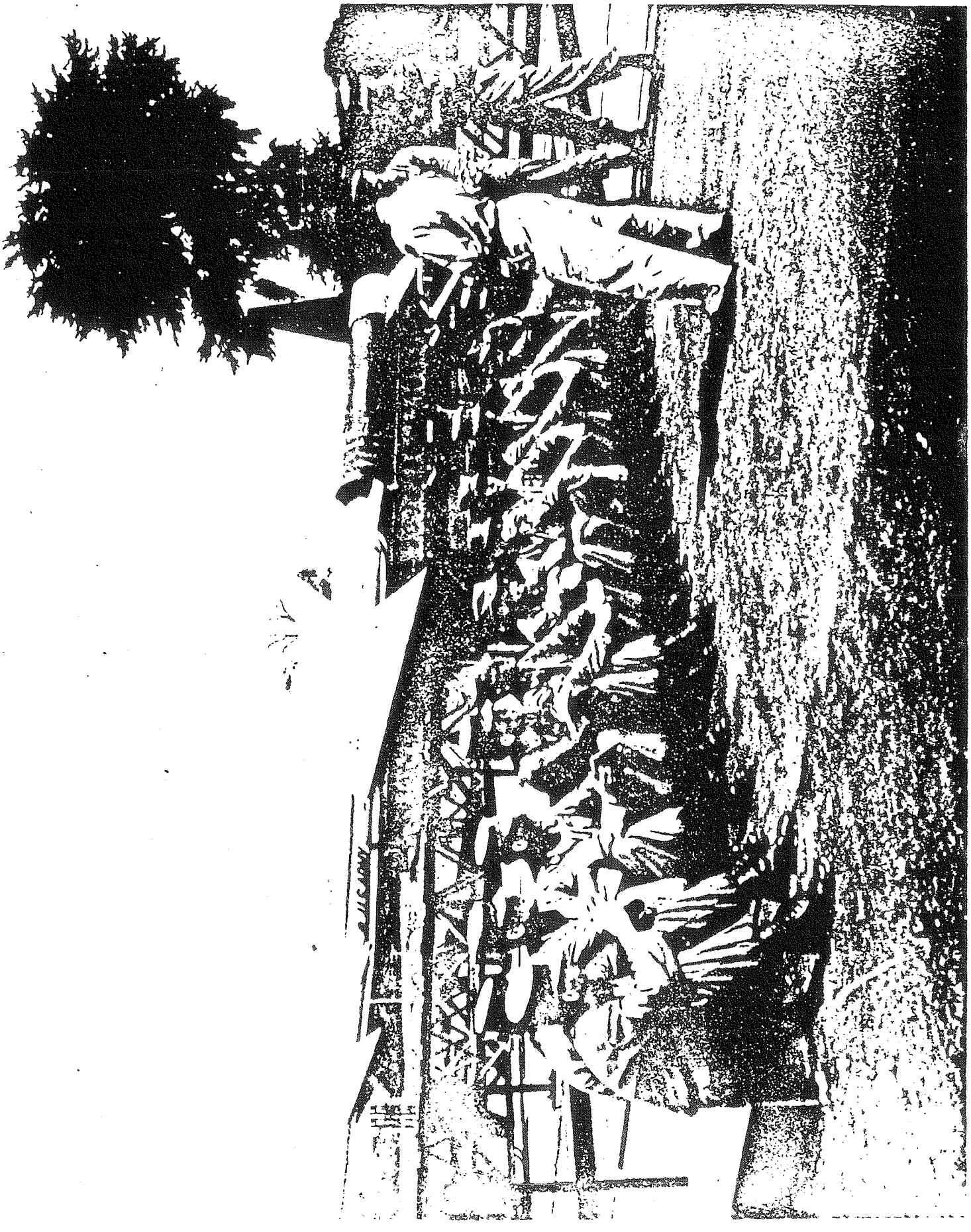
at Fort Bliss and other service schools. As often happens at the beginning of bold new departures, growing pains were experienced in the training of the Guard's first wave of missilemen--some of them of tangible, and others of intangible but no less discomfiting nature.

Although there is no practicable way of proving that the experience of California's trail-blazing 720th Missile Battalion was in fact typical of all the units that participated in the Guard's on-site Ajax program, the outstanding record of this unit after its assumption of a full-time, on-site role[107] suggests that the problems it encountered in training for this role were not unique. A major problem was the screening and selection of personnel for school training of specialists, operators, and crewmen, and subsequent unit package training at Fort Bliss.[108] In order to find personnel with the necessary potential for such training, a battery of aptitude tests was given to over 600 members of California's 234th AAA.Group; but of the 191 officers and EM required, it was found that many had no desire to become full-time technicians, and outside recruiting became necessary to fill school quotas for many technician spaces.

That the 720th was not the only unit to be confronted with this aptitude problem is shown by the experience of 94 newly hired technicians of the 2d Missile Battalion,

202d Arty (Illinois ARNG) when, in the summer of 1959, they reported to Fort Bliss for training in Target Tracking Systems (TTS).[109] Of these 94 technicians, 83 percent failed to pass the pre-course examination, with the result that some of them had to be relieved or reassigned to different jobs within the unit. A basic cause of this failure was that 73 of the 77 individuals who had failed the examination had not received the required 120 hours of unit training prior to applying for employment as technicians--a deficiency in turn rooted in the inability of the FY 1959 budget to support early employment of technicians for on-the-job training prior to school training.

Another and more intangible problem that was met and overcome by the pioneering 720th was the need to stimulate, among officers and men alike, the sense of urgency and enthusiastic dedication necessary to full accomplishment of the training mission in armory drills and training assemblies.[110] This need, reflected by initially discouraging rates of absenteeism,[111] was forcefully underlined by the active Army brigade commander locally associated with the pioneering effort of the 720th.[112] It was acknowledged and reacted to with equally forceful command emphasis by General Beyers, the California ARNG brigade commander concerned, a key element of whose successful approach to the problem was the



ON-SITE AJAX TRAINING, 1959:
Active Army instructor and Guardsmen of Michigan's Battery "C", 2nd Missile Battalion, 177th Artillery

threat of disciplinary action, to include relief from assignment, against repeated absentees.[113]

During the gun era, primary reliance for the on-site training of unit caretakers and M-day personnel alike was placed upon the efforts of active Army "host" units.[114] The results of this approach were generally successful,[115] but the approach itself was no longer fully applicable when Guard units assumed a full-time role in air defense. ARADCOM field commanders could, and did, continue to help ARNG units with on-the-job training courses which greatly facilitated the Guard's conversion to the Ajax system;[116] but the assumption of a full-time role by Guard units manned by school-trained technicians necessarily focused ARADCOM's supervisory responsibility for training upon the development of training directives and the conduct of inspections, evaluations, and exercises.[117]

In this area of evaluations, the Defense Combat Evaluation (DCE) posed a problem in that ARADCOM's initiation of the program in June 1966 was not accompanied by provision of adequate leadtime for ARNG planning. In order to meet ARADCOM's desire for participation of all ARNG personnel, M-day as well as technicians, in a tactical training evaluation designed to unfold over a period of up to 48 hours, ARNG unit commanders needed ample time to reserve for this purpose

appropriate chunks of the various kinds of training time available to them.[118]

This need was sharply emphasized by a DCE conducted in August 1966, only two months after initiation of the program in June. Because the ARNG battalion involved had already exhausted its statutory reservoir of time for annual active duty training (ANACDUTRA), the participation of M-day personnel in the DCE, far from being the desired maximum, was understandably nil.[119]

The solution to this problem required the provision of six months notice to ARNG units of scheduled DCEs, an informal policy promptly adopted, in September 1966, by Hq ARADCOM.[120] More importantly, it also required careful budgeting of available training time by ARNG commanders who, in addition to their other duties, must truly be "master-planners" in the field of personnel management.[121] This twofold solution produced, as shown by experience throughout FY 1967, a degree of Guard participation in DCEs which on average was commendable and, in many cases, outstanding.[122] And behind this participation was an intangible but ultimately governing factor: the dedication of M-day personnel who, in some cases at least, in all likelihood risked the ire of their civilian employers by their willingness to be weekday as well as weekend soldiers.

Coordination and Cooperation

In retrospect as well as in current actuality, the Guard's on-site air defense program produces an impression of considerable complexity. This impression is founded in fact; and the inevitability of this complexity is ultimately attributable to the Constitution--more specifically, to the deliberate and characteristic fragmentation of authority and responsibility found in the militia clauses governing the National Guard.

Given the duality of the Guard's constitutional status and the need to exploit its peacetime potential for a full-time role in continental air defense, the multiplicity of authorities involved in the program and the consequent necessity for an extraordinary degree of coordination and cooperation have been striking facets of this complexity. In the counterpoint between Federal and State authority there have been many players, but no possibility of a single conductor with undivided authority and sole responsibility for harmonious orchestration of the whole.

The roster of players has indeed been lengthy: the Congress, with its purse-strings and statutes; the quasi-sovereign States, with their diverse capabilities and interests in the program; the NGB, a crucial "channel of communication"[123] between the States and DA; within DA,

the Chief of Staff, DCSOPS, and virtually all other major elements of the Army staff; beneath DA, ARADCOM and CONARC, with its ZI armies and schools, especially Fort Bliss; above DA, the Department of Defense and the JCS; beyond DA, CONAD/NORAD. All these have played parts in a program over which none could be the sole master. And underlying and complicating the program was the incessant theme of technological progress, with three movements, in little more than a decade, from one air defense weapon system to another by first the active Army and then, close behind, by the ARNG.

Inevitably, there were growing pains. More avoidably, there were failures of coordination.

Behind the uneven progression and unattained force goals of the on-site SSF gun program were factors which even the closest coordination of planning could not have overcome.[124] Delays in the scheduled turnover of active Army gun sites to the Guard were often caused by delays in the construction of active Army Ajax sites, which in turn were caused by the uncontrollable factor of strikes by construction workers. Difficulties in obtaining real estate for active Army Ajax sites also caused relatively unpredictable slippages in site-turnover schedules. But the fact that responsibility for obtaining suitable Guard sites was not clearly fixed until a review of the entire

program resulted, in October 1954, in a belated DA policy paper on this vital point,[125] reflected an avoidable lack of coordination on the part of the Army Staff.

The Guard's Ajax program also suffered from avoidable as well as unavoidable failures in high-level coordination, failures which resulted in "fraying patience of the States due to long delays, fluctuating policies and lack of firm planning guidance."[126]

An avoidable weakness was the grievous lack of communication between the two principals in the program within DA: ODCSOPS and the NGB. In a meeting between representatives of the two in the fall of 1956, the former's envoy admitted "the failure of ODCSOPS to coordinate actions concerning changes to the National Guard On-Site Program with the National Guard Bureau and the failure of ODCSOPS to inform the National Guard Bureau promptly of these changes after they were approved by the Chief of Staff."[127] Moreover, ODCSOPS at this time could not even clearly identify its tentatively programmed on-site non-active Army units as ARNG units, preferring--because of "pressure from an unidentified source outside DCSOPS"--to use the vaguer label "Reserve Component" for such units. This enigmatic lack of precision made it impossible, at a time when the Reserve Forces Act of 1955 was enlarging the USAR

side of the "Reserve Components" house,[128] for the NGB to inform the States of "firm National Guard missions."

Other and even less controllable causes, from the DA viewpoint, lay behind DA's "tentative" and "fast-changing plans" for the Guard's on-site Ajax program, causes which reflected fundamental limitations upon DA's ability to provide the States with the "stabilized advance planning knowledge" and "firm, long-range Department of the Army requirements" so deeply desired by the NGB.[129] Early in 1957, these unavoidable variables were vividly described by General Williston B. Palmer, then Vice Chief of Staff of the Army, to the Chief of the NGB, Maj. Gen. Edgar C. Erickson:[130]

> ...What appears to have been transpiring is a process of self-delusion all around, since no member of the Army staff, including the National Guard Bureau, and no State Adjutant General, is so naive as to believe that any agency of the US government can make long-range "commitments" which depend upon annual appropriations. We can make all of the plans, programs, and schedules we may wish, but every one of us knows that each year we learn at a very late minute whether we will get approval for requesting the money in the budget, and then we must go to Congress for the money.
>
> ...I particularly regret the unhappy position in which the Chief of the National Guard Bureau finds himself when these chickens come home to roost, as a result of his responsibility to represent the Secretary of the Army in dealings with the 52 Adjutants General of the States and territories.

> Therefore I would be especially happy to work out with you a method by which we can make everything clear in the beginning and not find ourselves accused of "commitments" which never should have been considered firm commitments...

An overview of the Guard's on-site program since 1951 suggests that the conference method offered the efficacious kind of coordinating device sought by General Palmer. In a basically cooperative venture involving so many diverse participants, the conference was a demonstrably useful tool for the exposition and refinement of plans for subsequent collective action. Preliminary plans for the Guard's on-site gun program were presented in a high-level conference of all concerned in September 1952,[131] almost two years before the first ARNG gun unit actually achieved on-site SSF status. The plans of DA and ARADCOM for the Guard's 48-battery Hercules program were presented, with explosive but productive results, in a conference which included all the States concerned, a full year before the formal dedication of the Guard's first Hercules battery in December 1962.[132]

A conspicuous gap in this list was the absence of a comprehensive conference during the planning phase of the Guard's Ajax program--an omission made doubly puzzling by the presumably known precedents of the gun era and the even greater requirement for understanding and coordination in

the far more revolutionary prospect of full-time Guard participation that lay ahead.

This omission cannot be attributed to lack of attempts, by ARADCOM as well as the NGB, to bring about a conference. Throughout the summer of 1957, the Chief of the NGB and ARADCOM's CG exchanged similar views on this common need, only to conclude that the "high rate of change" in "tentative plans" for the future of the ARNG in air defense barred any prospect of "productive results."[133] And as late as 1959, well after the 720th Missile Battalion's hard-won success as a guinea pig had turned lights green for full-scale implementation of the Guard's Ajax program--and despite General Hart's coolness toward the program--both ARADCOM and the NGB were still casting about, jointly but vainly, for means of obtaining "top-level definition of concepts and basic policies" for the program.[134] The understandably sketchy directive promulgated by DA in December 1957[135] had left unanswered questions which both of these key agencies could only hope, in default of a conference, to resolve by the normal processes of "coordinated staff action."[136] The conclusion that implementation of the Guard's Ajax program suffered from neglect of the conference method of planning coordination is inescapable.

Among the numerous organs for continuous and coordinated

staff action by the many headquarters involved since 1951 in the successive phases of the Guard's on-site program, ARADCOM's Office of Reserve Components is of particular interest to this study. Without denigration of the key roles played by State AGs and the pivotal importance of the NGB, ODCSOPS, and other elements of the Army staff, it is clear that the contributions of this relatively recent arrival on the scene of the ARNG's air defense effort have been healthily out of proportion to its small size.[137]

Subsequent to its somewhat belated birth in 1960 as the special staff agency of a field command charged, as early as 1957, with deployment planning for the Guard's Ajax program,[138] this office was not only instrumental in ARADCOM's large portion of the many planning efforts which culminated in the virtually flawless realization of the Guard's Hercules conversion schedule, but served also as a highly peripatetic trouble-shooter throughout this conversion program. From July 1963 through September 1965, for example, this small section conducted some 192 staff visits to ARNG units as they converted to the Hercules system, visiting each of the Guard's 48 batteries four times: once during the firing phase of its package training; once during its dual occupancy period with an active Army battery; on the day of its formal dedication and then, once again, six months thereafter.[139]

Without any doubt, the sine qua non which ultimately determined the outcome of all the plans for the Guard's on-site program since 1951 was the incoercible cooperation of the States and their volunteer Guardsmen. Here was the make-or-break assumption upon which all planning was necessarily based. As ARAACOM's CG pointed out at the beginning of the gun era, the active Army could "provide the guidance, the assistance, and the equipment"; but "the real burden" lay upon "the National Guard organization, down to the man who pulls the lanyard," sustained by the "unqualified support and faith of the public."[140] A decade later, as the Guard's conversion to a full-time role in missile air defense achieved completion, the record was such that ARADCOM's CG was moved to pay tribute to "the harmonious and cooperative spirit displayed by the Army National Guard."[141] Projected into the new and ceaselessly demanding role of continental air defense, this intangible essential of spirit continued to reflect all that was best in the Guard's ancient heritage of service.

Notes

[1]Art. I, Sec. 8.

[2]Art. II, Sec. 2.

[3]Although active Army commanders were granted authority to supervise "operational training" of ARNG on-site SSF units, such authority fell far short of operational control. See p. 44 above.

[4]According to DOD Summary, 1954, no fewer than three members of the detachment were on site at all times.

[5]Ltr, NGB to State AGs, 20 Nov 52, sub: Integration of National Guard Antiaircraft Artillery Units into the Army Antiaircraft Defense of the Continental United States, NGB File No. NG-CO 325.4.

[6]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 63-M.

[7]At that time, 5th Region encompassed Michigan, Indiana, and parts of Wisconsin, Illinois, and Ohio, with headquarters at Fort Sheridan, Illinois.

[8]Dtd 18 Nov 57, sub: Use of National Guard to Man NIKE Sites, ADF- CG 325. Unless otherwise noted, all quotations in this paragraph are from this letter.

[9]Address in Oklahoma City, 14 Nov 57.

[10]All quotations in this and the following paragraph are from this letter, dated 2 Jul 59, an information copy of which also went to the JCS.

[11]See Memo, General Partridge to Lt. Gen. Charles E. Hart, 17 Apr 59, sub: Utilization of Reserve and National Guard Forces, which gives the date of this correspondence as 2 Dec 58. The fact that the NGB was well aware of these efforts is shown by NGB Conference Proceedings, 1960, p.10.

[12]Ibid.

[13]Comment on routing slip attached to ibid.

[14]Personal Ltr, 1 May 59.

[15]The information and quotations in this paragraph are drawn from a DA memorandum, 18 Aug 59, sub: Employment of National Guard Units, forwarded for the signature of Dewey Short, Asst Secretary of the Army (Manpower, Personnel and Reserve Forces) by the DCSOPS, DA, Lt. Gen. J.E. Moore.

[16]DA Deployment Policies, 1957. All quotations in this paragraph are from this source.

[17]ARADCOM Commanders' Conference Brochure, 12 Oct 59, p. IV-8. The two States were Pennsylvania and Michigan.

[18]ARADCOM's format was forwarded to region commanders in a letter dated 24 Jun 59, sub: Mutual Agreements Between USARADCOM Region Commanders and State Adjutants General, ADGCD. It is of interest to note that ARADCOM did not coordinate this format with NORAD/CONAD, the joint headquarters to whose operational control ARADCOM itself was subject. See personal Ltr of the NGB liaison officer to ARADCOM, Lt. Col. Lewis H. Kirk, Jr., to Maj. Gen. Donald W. McGowan, then Chief of the NGB, 16 Oct 59.

[19]Ltr, Maj. Gen. Donald W. McGowan to Lt. Col. Lewis H. Kirk, 2 Oct 59.

[20]Ibid.

[21]Ltr to Lt. Gen. James E. Moore, DCSOPS, DA, 20 Aug 59.

[22]Ltr, General Maxwell D. Taylor to Lt. Gen. Charles E. Hart, 5 Jun 59.

[23]Indirect support for this view is provided by the fact that the Eisenhower Administration dropped an effort to dissuade Congress from requiring maintenance of the ARNG at 400,000 men because, "according to one of Eisenhower's congressional liaison men," such effort was judged "not worth the carnage." See Martha Derthick, The National Guard in Politics op. cit., p. 136.

[24]Ltr, General Maxwell Taylor to Lt. Gen. Charles E. Hart, 5 Jun 59. According to an Interv of 12 May 68 with Brig. Gen. Howard E. Michelet, who in the spring of 1959 briefed President Eisenhower on this problem of command and control, several of the President's advisers convinced their chief that no legislation would be required, as the mutual-agreements approach, in their view, would be well within the emergency powers of the Presidency.

[25]Ltr, 14 Oct 59.

[26]ARADCOM Commanders' Conference Brochure, 12 Oct 59, p. IV-8.

[27]Interv with Colonel Max E. Billingsley, 29 Feb 68. Colonel Billingsley became the first chief of ARADCOM's Office of Army National Guard and Reserve Affairs (now the Office of Reserve Components) on 1 Jul 60.

[28]A member of the House Armed Service Committee staff in 1960 described General Reckord as "the most powerful man I have seen in fourteen years...he had tons of connections and no hesitation to use them." See Derthick, op.cit., p.96.

[29]Ltr to Maj. Gen. W.H. Hennig, CG of ARADCOM's 2d Region, 5 Aug 59.

[30]ARADCOM Standard Mutual Agreement, edition of 24 Jun 59, para 3e. The definition given in the current edition of the agreement, dated 3 Aug 65, is virtually identical.

[31]Ibid.

[32]Ltr to General Hennig, 5 Aug 59.

[33]Interv with Colonel Max E. Billingsley, 29 Feb 68. Unless otherwise noted, the information in this and the following paragraph is based upon this source and upon an undated draft of an NGB study on the historical background of the ARNG missile program.

[34]Although submitted by DOD as an amendment to the Federal Tort Claims Act, the measure was ultimately enacted as a separate National Guard Claims Act. Its major provisions authorized administrative settlement of claims in amounts up to $5,000, with a proviso for departmental referral to the Congress of claims in excess of that amount. See 74 STAT, 878, 32 U.S.C. 715.

[35]See General Hart's letters to General Maxwell D. Taylor and Lt. Gen. James E. Moore, dated 1 May 59 and 20 Aug 59, respectively.

[36]Established on 10 May 60, this office was renamed Office of Reserve Components, its present designation, on 2 Nov 60.

[37]See General Reckord's Ltr to General Hennig, 5 Aug 59. See also Ltr, Maj. Gen. Donald W. McGowan, Chief, NGB to Lt. Col. Lewis H. Kirk, NGB Liaison Officer to ARADCOM, 2 Oct 59, in which "many states" (in addition to Maryland) were reported to feel that the mutual agreement format contained "a great deal of unnecessary language concerning administration, supply, and other matters which should not be part of an agreement."

[38]Interv with Colonel Max E. Billingsley, 1 Mar 68.

[39]ARADCOM Reg 130-10, sub: Standard Mutual Agreement for Employment of On-Site Army National Guard Missile Units, 3 Aug 65, with two changes dated 8 Nov 65 and 18 Nov 65. Unless otherwise indicated, the information in the following paragraph comes from this source.

[40]Two precedents indicate that this proviso can be somewhat elastic when civil disturbances become acute. During the Watts riot in 1965 and the Detroit riot in 1967, State authorities requested ARADCOM to temporarily release on-site ARNG personnel of units not in air defense alert status. Although these units were not actually used in riot control duties, ARADCOM granted the request in each of these cases. Interv with Colonel Max E. Billingsley, 1 Mar 68.

[41]Sec. 709, Title 32, U.S. Code. Unless otherwise indicated, the information in this paragraph is drawn from this law.

[42]NGR 51, 8 Jul 58, sub: Army and Air National Guard Technicians, para.2.

[43]Although directly and technically paid by the States, technician pay originates in Federal funds (Budget Program 3700, formerly BP 7600) which are allocated to the States by the NGB.

[44]DA G.O. No. 96, 9 Nov 51.

[45]21 Comp. Gen. 305 (1941).

[46]In 1958, for example, the average salary of air defense technicians appears to have been $5,100 per year, according to Incl 1, Cost Data, to Summary Sheet, ODCSOPS to CofS, 19 Dec 58, OPS SW ADO 6. By 1966, their average yearly compensation, including Social Security employer contributions, was $7,176, according to an NGB Fact Sheet, 30 Nov 66, sub: ARNG Air Defense Operation, NG-AROTA. The attractiveness of such a salary can be assumed, however, to vary in accordance with the technician's location, among other variables. To a school-trained radar technician who finds himself on a site in the vicinity of a commercial electronics plant, for example, other fields may well appear greener. According to an Interv with Colonel Max E. Billingsley, 1 Mar 68, the fact that most technicians resist such temptations can be attributed to expectations of legislation providing for retirement benefits, as well as loyalty to unit.

[47]NGR 51, 8 Jul 58, para 27.

[48]Ibid.

[49]For the earliest official statement of this requirement, see the NGB's policy letter, 20 Nov 52, sub: Integration of National Guard Antiaircraft Artillery Units into the Army Antiaircraft Defense of the Continental United States, NG-CO 325.4. This requirement expanded the legal requirement (Sec. 709, Title 32, U.S.C.) for at least one "caretaker" in a unit to be a military member of the unit.

[50]Ltr, Maj. Gen. D.W. McGowan to Maj. Gen. Anthony J.D. Biddle, AG of Pennsylvania, 25 Aug 60.

[51]Ibid.

[52]As of 17 Oct 67, three of the ARNG's 17 on-site battalions were commanded by ARNG officers who were not the supervisors of these battalions in the technician structure. Interv, Colonel Max E. Billingsley, 17 Oct 67.

[53]Ltr, Maj. Gen. Anthony J.D. Biddle, AG of Pennsylvania, to Maj. Gen. Donald W. McGowan, Chief of NGB, 8 Jul 60, as quoted in Gen. McGowan's reply of 25 Aug 60. The information in this paragraph is based upon this source and upon Ltr, Gen. McGowan to CG, USARADCOM, 13 Oct 61.

[54]Unless otherwise noted, the information in this and the following two paragraphs is based upon a memo for record of the AG of Washington, 23 May 62, sub: Chronological Sequence of Events in the Campaign by Local 6, Building Service Employee's International Union to Organize National Guard Missile Site Technicians, hereafter cited as Washington AG Memo, May 62. See also telg, ADH 52, 300615Z, Sep 61, CG 7th Region ARADCOM to CG ARADCOM.

[55]When a DA-directed change in technician manning structure authorized both a commissioned and warrant officer in the launcher area, the warrant officer, who was too old to qualify for a commission, was downgraded from launcher area supervisor to assistant and replaced by a former enlisted technician who had graduated from Army OCS and been commissioned a 2d Lt.

[56]This view, quoted in Washington AG Memo, May 1962, was shared by the State AG. According to the Seattle Post Intelligence for 1 Jun 62, General Haskett "revealed" that

"half of the (4) National Guard Nike missile sites in Washington were unable to do their full job for a while recently," and that "the situation 'most certainly' affected the military security of the state."

[57]According to an article in the Seattle Post Intelligence, 1 Jun 62, the union claim that the union membership of these individuals was the reason for this action was countered by the State AG's assertion that the deteriorating maintenance situation in the unit showed that these technicians, who "were supposed to supervise maintenance," had "failed to carry out their supervisory duties fully." In view of this conflict, it is of interest to note that none of the other technicians who joined the union lost their jobs.

[58]Washington AG Memo, May 62.

[59]Ibid.

[60]Ltr, JAG to CG, USARADCOM, 4 Oct 61, sub: Union Organizing Activities at National Guard On-Site Batteries, State of Washington.

[61]Washington AG Memo, May 62. See also the telg cited in n.54 above.

[62]See the Seattle Times, 30 Aug 62.

[63]Ibid., 28 Mar 63. The finality of this decision was confirmed by Tel Interv with Colonel Gerald J. Maguire, State Air Defense Officer of Washington, 31 May 68.

[64]The information in this paragraph is based upon Telg, CG 1st Region ARADCOM to CGARADCOM ADAGC 4-1938-2, 071433Z Apr 62, as well as Ltr, CGARADCOM to CINCNORAD, 10 Apr 62, and briefing by Colonel Max E. Billingsley to ARADCOM Commanders' Conference, 22-25 Sep 64, sub: ARNG Personnel Management.

[65]The information in this paragraph was provided by Colonel Charles J. McClure, State Air Defense Officer of New York, in a Tel Interv on 8 Mar 68.

[66]Unless otherwise noted, the information in this and the following paragraph is based upon Ltr, Air Defense Officer of Maryland to CG 35th Arty Bde (AD), 22 Apr 64, sub: Newspaper Report of Technician Overtime.

[67]An inclosure to Ltr, Air Defense Officer of Maryland to Lt. Col. J.A. Lighthall of Hq 1st Region, ARADCOM, 14 Aug 64, shows that overtime for these technicians ranged from a high of 1440 hours to a low of 180 hours.

[68]Ltr, Maj. Gen. Winston P. Wilson, Chief, NGB, to Lt. Gen. Milton A. Reckord, AG of Maryland, 28 May 65.

[69]Unless otherwise noted, the information in this paragraph comes from the useful summary of technician fringe benefits contained in the letter cited in n.50 above.

[70]NGB Fact Sheet, 30 Nov 66, sub: ARNG Air Defense Operation, NG-AROTA.

[71]Interv, Colonel Max E. Billingsley, 18 Oct 67.

[72]Title II, H.R. 2, 90th Congress, 1st Session. The information in the following paragraph is from this source.

[73]Sec. 7311, Title 5, U.S.C.

[74]Press release, Senate Armed Services Committee, 7 Nov 67.

[75]At its financial height as FY 1957 ended, the Guard's on-site gun program cost $11,216,194 for 1,759 air defense technicians and $1,506,215 for site maintenance and improvement. In sharp contrast, the FY 1967 cost for air defense technicians alone was $36,338,420 for 5,043 personnel. See NGB Report for FY 1957 and FY 1967, pp.21, 38 and p.22, respectively.

[76]Memo, Hugh M. Milton, II to the Secretary of the Army, 6 Apr 60, sub: National Guard On-Site NIKE Battalions.

[77]DOD Summary, 1954, pp.3-4.

[78]See draft, 1 May 67, of Appendix IV to Annex E, National Guard Participation, SAM-D Weapons Effectiveness Study, p.E-IV-7.

[79]Summary of Proceedings, National Guard Anti-aircraft Artillery Conference Held at Pentagon, Washington, D.C., 30 Nov 54, pp.1-3. The information in this paragraph is based upon this source, hereafter cited as Conference Proceedings, Nov 54.

[80]As of September 1956, the 201st and 202d AAA Battalions (both 90-mm gun) were on site at St. Louis and St. Charles, respectively, but neither unit had achieved SSF status. See Annex D, Task Organization, to AA-OP-US (1956).

[81]Ltr, Maj. Gen. Joseph J. Scannell to Maj. Gen. W.H. Hennig, CG of ARADCOM's 2d Region, 21 Oct 58. This protest was tempered by General Scannell's full recognition of the fact that "exigent circumstances" required on-site units to be "tied to certain locations." See his Ltr to Maj. Gen. Parmer W. Edwards, 20 May 58.

[82]Reply of General Hennig to ibid., as suggested in an undated Ltr from Maj. Gen. Parmer W. Edwards, Deputy Commander of ARADCOM, to the latter.

[83]Residence of technicians on site in government-owned family housing was authorized by DA Ltr to Chief of NGB and CGs, 26 May 58, sub: Policies for Deployment of Army National Guard On-Site Battalions, AGAM-P(M) 370.5, DCSOPS.

[84]Information in this and the following two paragraphs was obtained by Tel Interv on 19 Apr 68 with Capt. Jack E. Davenport, the commander/supervisor of this unit.

[85]Staff Study, Office of Reserve Components, Hq ARADCOM, 6 Nov 61, sub: Retention of Army National Guard Technicians, ADSN, Tab B.

[86]DF, Office of Reserve Components, to CofS, Hq ARADCOM, 11 Dec 61, sub: Trip Report, ADSN. Unless otherwise indicated, the information in this paragraph is based on this source.

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

[88]Ltr, General McGowan to General Wood, 21 Dec 61. The information in this paragraph is based on this source.

[89]See General Wood's Ltr to CINCONAD, 29 Dec 61, sub: National Guard Conversion to Hercules, ADSN, and CINCONAD's reply, 11 Jan 62, same sub, CPPP-PL.

[90]DF, Office of Reserve Components to CofS, Hq ARADCOM, 13 Dec 61, sub: Trip Report, ADSN.

[91]Staff Study, Plans Div, G-3, Hq ARADCOM, 2 Oct 62, sub: Conversion of Hercules Batteries to ARNG, ADGCF.

[92]See, for example, the Nike Hera Study, 1967.

[93]ARADCOM Commanders' Conference Brochure, 13 Oct 58, p.IV-11.

[94]See pp.197-198 above.

[95]Draft NGB Study, apparently dated 24 Jan 61, sub: Missile Units, Background of the Program.

[96]ARADCOM Commanders' Conference Brochure, 13 Jan 58, p.VI-7.

[97]Staff Study, Plans Div, Hq ARADCOM, 2 Oct 62, sub: Conversion of Hercules Batteries to ARNG.

[98]Ibid.

[99]See Fact Sheet, DCSOPS, Hq ARADCOM, sub: 1967 Status of CONUS Defenses, ARNG Fire Units to Total Fire Units. The five defenses are: New England; Washington-Baltimore; Hampton Roads; Niagara-Buffalo; and Seattle.

[100]AR 135-10, 20 Sep 61, sub: Reserve Components, Minimum Standards for the Status of Readiness of Reserve Component Units. This edition of the regulation is still in effect.

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

[102]AAA Units in Defense, p.12.

[103]See Tab B, Chronology of Events Concerning Responsibility for National Guard AA Program, to DF, G-3 to CofS, ARAACOM 5 Dec 55, sub: ARAACOM Reply to CONARC 1 June 1955 Letter on National Guard, ADOAA-3, P&O.

[104]Ibid.

[105]See ibid. and Ltr, DA to Chief of NGB and CGs, ARAACOM and CONARC, 11 Jan 56, sub: Reassignment of Responsibilities for Supervision of Training of National Guard Non-Divisional Anti-aircraft Units, AGAM-P(M) 353, DCS OPS. The participants in the conference referred to were: General Williston B. Palmer, Vice Chief of Staff of the Army; General John E. Dahlquist, CG, CONARC; and Lt. Gen. Stanley R. Mickelsen, CG ARAACOM.

[106]When the gun era ended and the SSF evolved into a full-time partner of ARADCOM as the "ARNG Air Defense Task Organization, CONUS," the wording of this basic principle was necessarily altered, but the principle itself remained. See, for example, Ltr, DA to CG, ARADCOM, 5 Mar 62, sub: Policies for National Guard Participation in CONUS Air Defense, AGAM-P(M) 322, DCSOPS, and AR 130-10, 11 Mar 65, sub: Army National Guard Air Defense Program. In both of these basic policy documents, the important proviso was added that active Army supervision of training would be exercised through ARNG command channels.

[107]See, for example, the achievements of this unit--now the 4th Missile Bn, 251st Arty--as reflected in Chart 14 on p. 176 above. Not noted in the chart is the fact that this unit was the high-scoring battalion (of four or more fire units) in annual service practice for the period 1 January-30 June 1961, less than three years after the unit went on site.

[108]Briefing by Lt. Col. Julian A. Phillipson, CO of the 720th Missile Bn, to Maj. Gen. Edgar C. Erickson, Chief, NGB, and others, 30 Mar 58. The remaining information in this paragraph is drawn from this source; from a memo for record by Lt. Col. Joseph E. Doyle, advisor to the 234th AAA Gp, apparently written in October or November of 1957, sub: Plan for Test as National Guard NIKE Battalion; and from an Interv with Lt. Col. Neil E. Allgood, a member of the 720th at the time and now CO of the battalion, 18 Mar 68.

[109]Ltr, Maj. Gen. Donald W. McGowan, Chief of Army Division, NGB, to Lt. Gen. Charles E. Hart, CG of ARADCOM, 6 Jul 59. The information in this paragraph is from this source.

[110]See Ltr, Hq 6th Region, ARADCOM, to the AG of California, 23 Sep 57, sub: Nike Conversion Training, 720th AAA Missile Battalion, SARC-3NG 325, which emphasized the need to "stimulate enthusiasm on the part of the enlisted men" and "the appearance of enthusiasm by battery officers in training and all other activities."

[111]In contrast to a prescribed goal of not less than 90 percent, average drill attendance for 1957 was 83.3 percent, according to the briefing cited in n.108 above.

[112]See Ltr, Brig. Gen. W.A. Perry, CO of 47th AAA Bde,

to Brig. Gen. Clifford F. Beyers, 21 Sep 57, sub: National Guard Conversion Training, BRCG 353.

[113]Ltr, Brig. Gen. Clifford F. Beyers, CG of the 720th's parent 114th AAA Bde, to COs of 234th AAA Gp and 720th AAA Msl Bn, 4 Oct 57, sub: National Guard Conversion Training. By March of 1958, average drill attendance had risen to "better than 90 percent," according to the briefing cited in n. 108 above.

[114]See pp. 46-47 above.

[115]See p. 62 above, as well as Conference Proceedings, Nov 54, p. 3.

[116]See Ltr, Maj. Gen. Edgar C. Erickson, Chief, NGB, to Lt. Gen. Charles E. Hart, CG of ARADCOM, 8 Apr 58.

[117]As successive examples of these responsibilities, see Ltr, DA to Chief of NGB and CGs, 7 Sep 62, sub: Policies for National Guard Participation in CONUS Air Defense, AGAM-P(M) 322, DCSOPS, Sec. II, Training, to Annex A; and ARADCOM Reg 130-1, 18 Jul 66, sub: Army National Guard, Air Defense Program, CONUS, Sec. V, Training.

[118]In addition to the 15 days allotted for annual active duty training (ANACDUTRA), 48 drill periods are available.

[119]DF, DCSOPS to Office of Reserve Components, Hq ARADCOM, 19 Sep 66, sub: Comment on Hampton Roads Defense.

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

[121]Briefing, Office of Reserve Components to ARADCOM Commanders' Conference, 22-25 Sep 64, sub: ARNG Personnel Management.

[122]Interv with Maj. Robert F. Elliott, a member of ARADCOM's DCE team throughout FY 1967.

[123]PL 85-599, 85th Congress, as summarized in NGB Report FY 1959, p. 4.

[124]Unless otherwise noted, the information in this paragraph is based upon an NGB briefing to the Adjutants General Conference, 4 Nov 54, sub: Summary of National Guard AAA Program.

[125]Ltr, DA to Chief of NGB and CGs, 18 Oct 54, sub: National Guard Antiaircraft Onsite Program, AGAC-C(M) 601, G-3. Continental Army commanders were made responsible for "the preparation of programs for construction in each defense area based on requirements determined by Army Antiaircraft Command and the states, submission of these programs to Department of the Army for approval, and guidance of the...Corps of Engineers in execution of the construction and land acquisition." The adoption of the turnover solution, by which active Army gun sites were transferred to the ARNG, in practice obviated the need for land acquisition.

[126]Ltr, Maj. Gen. Donald W. McGowan, Chief, Army Division, NGB, to Lt. Gen. Stanley R. Mickelsen, 2 Jul 57.

[127]Unless otherwise noted, the information in this paragraph is from NGB Memo for Record by Colonel Charles A. Young, 5 Oct 56, sub: Changes to the National Guard AA Program. The OCDCSOPS representative was Colonel Samuel McC. Goodwin, of that office's Plans Directorate.

[128]For a detailed description of the political context of this and other developments affecting the National Guard in 1956, see Derthick, op.cit., pp.119-122, 136-139.

[129]Memo, Chief of NGB to Chief of Staff, DA, undated copy probably written in Jan 57, sub: Conference National Guard Affairs.

[130]Personal Ltr dated 1 Feb 57.

[131]See pp. 107, 225-226 above.

[132]DF, Office of Reserve Components to CofS, Hq ARADCOM, 11 Dec 61, sub: Trip Report, ADSN.

[133]See Ltrs, Lt. Gen. Stanley R. Mickelsen, CGARADCOM, to Maj. Gen. Edgar C. Erickson, Chief of NGB, 7 Jun 57; Maj. Gen. Donald W. McGowan, Chief of Army Division, NGB, to General Mickelsen, 2 Jul 57; and Mickelsen to Erickson, 15 Jul 57. The quotations are from Ltr, Erickson to Mickelsen, 30 Aug 57.

[134]See Ltr, Erickson to Hart, 8 Apr 59, and Hart's reply of 22 Apr 59. The quotations are from the latter.

[135]See pp. 93-94 above.

[136]Ltr, Maj. Gen. D.W. McGowan, Chief of NGB, to General Hart, undated copy probably written in July or August 1959.

[137]Since its establishment on 10 May 1960, this office has had the same chief, Colonel Max E. Billingsley, a Regular Army officer, and two other officers, one from the Guard and one from the USAR.

[138]DA Ltr, DA Deployment Policies, 1957.

[139]DF, Office of Res Comps to CofS, Hq ARADCOM, 10 Jan 64, sub: Accomplishments During CY 1963 and Planned Actions During CY 1964, ADSN, supplemented by Interv with Colonel Max E. Billingsley, 17 Oct 67.

[140]Remarks of Lt. Gen. John T. Lewis in unpaginated Brochure of the Army Antiaircraft Conference, 18 Sep 52.

[141]Ltr, Lt. Gen. Robert J. Wood to Maj. Gen. Donald W. McGowan, Chief of NGB, 10 Mar 61.

CHAPTER VI

Conclusions

A New Departure

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

In one of the few historical summaries of the ARNG on-site program still extant, the somewhat conjectural statement is made that "the origin of the concept for utilization of the ARNG in an active air defense role may date from British and German employments of military auxiliaries during World War II."[1] If the Guard's on-site role can be defined as the full-time participation, in time of at least technical peace, of "organized militia"[2] in air defense under the operational control of active Army authority, even a brief survey of German and British experience shows that any resemblance of this role to such experience is at best superficial. This is true even when the political factor of American federalism, with its reflection in the dual status of the National Guard and consequent complications of command and control, is excluded from comparative consideration.

Any comparison of American federalism and the spurious federal structure of the Third Reich is not only an exercise in fatuity, but unnecessary to demonstrate the absence of a parallel between German experience with antiaircraft auxiliaries and the ARNG program. Even if Guardsmen were wrongfully considered to be equivalent to the Heimatflak[3]--a motley horde of Hitler Youth, women, men too old for front-line service, Croatians, and Russian prisoners of war who supplemented the regular AAA forces of the Luftwaffe[4]--there would be no valid parallel. Use of these auxiliaries was not initiated until 1943, long after the outbreak of war; before the war, German air defense was the exclusive province of the regular forces, first the Army and then, after 1935, the Luftwaffe.[5] The contrast with the ARNG program, wherein full-time Guard personnel man air defense sites 24 hours a day before the outbreak of war, is obvious.

Analysis of British experience also fails to yield any real precedent for the ARNG's on-site program. It is true that Britain's Territorial Army, which is far closer to the National Guard of the U.S. in concept, organization, and spirit than the Third Reich's para-military forces ever were, was responsible for manning the United Kingdom's AAA defenses before as well as during World War II.[6] The manner in which the prewar phase of this responsibility was carried out,

however, presents a contrast rather than a parallel to the American program.

Largely obsolete materiel of World War I vintage was not tactically deployed on site but stored at locations usually at some distance from the drill-hall, or armory, of the unit.[7] Even after the outbreak of war and as late as the end of 1940, attempts to position equipment in tactically desirable locations met with the protests of irate golfers, polo players, and landowners--protests which, vented as they were through sympathetic Members of Parliament, were "in nearly all cases...entirely successful."

Although an emergency deployment during the Munich Crisis in September of 1938 brought out some 50,000 Territorials to man AAA defenses, only 126 guns were put into position, often with improper mixes of ammunition and fuze and without predictors; the Government admitted in Parliament that "half (of these guns) would not have been able to engage enemy aircraft if these had appeared." When the crisis was over, the unpaid Territorials returned to their civilian jobs, "badly out of pocket." Even after the outbreak of war, the volunteer members of Territorial gun and searchlight crews continued to live at home and commute to their sites; "the wealthier members of the unit either financed the poorer members, or gave them lifts in their

cars." The state of training in these Territorial units was indicated by the fact that it was not until "later on in the War, when the country became accustomed to the noise of guns (that) what was known as 'on site' practice was permitted..."

Neither German nor British experience, it is clear, can provide a valid precedent or parallel for the on-site air defense program of the Army National Guard of the United States. When General J. Lawton Collins in 1951 took the first step toward "preferential treatment" for selected AAA units of the National Guard, he was breaking new ground; and from the subsequent development of the program emerged a truly unique phenomenon.[8]

Major Achievements

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

The first of these has been the high quality of Guard performance. No objective scrutiny of ARNG performance data gleaned by the evaluations of Headquarters ARADCOM can yield any interpretation other than success. Indeed, on balance and with due allowance for the growing pains experienced at the outset of the Ajax phase of the Guard's on-site missile

program, ARNG performance has more than matched that of ARADCOM's active Army component, particularly in the vital areas of shooting ability and, as reflected by the limited samples provided by ARADCOM evaluations, operational readiness. Bearing in mind that this performance has been achieved by units which currently constitute 43 percent of the Nike Hercules defense of the CONUS, quantity has combined with quality to produce a major Guard contribution to national security.

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

former ARADCOM CG once noted, to reflect on the fact that the past challenges of rapid technological change have not found the Guard wanting.[9]

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

Precise calculations of all the dollars saved since the inception of the Guard's CONUS air defense program are probably impossible, owing to the absence of detailed cost data from the gun era of Guard participation and the uncertain bases of the cost comparisons computed during the Ajax phase of the program. Nevertheless, it is clear that substantial monetary savings have been realized; and the conservative cost accounting used in the most recent and comprehensive comparison of ARNG and active Army costs, which yields an annual saving of $212,000 for each of 48 ARNG Hercules batteries, could probably be legitimately expanded to show even greater savings.[10]

The personnel space savings realized by the active Army have been timely as well as significant. The exigencies of New Look economies and Viet-Nam emergencies alike have been eased for the active Army by the Guard's air defense program:

every Guard technician on site has meant, in the long run, that an additional combat soldier could be made available for overseas duty without lowering the air defense guard of the homeland or increasing the authorized strength ceilings of the active Army. In the contemporary era of "flexible response" to an international situation in which the classic capabilities of ground combat forces have proved to be at a premium, such personnel savings have been of perhaps even greater value than the monetary advantages derived from the Guard's participation in continental air defense.

Cooperative Federalism in National Security

In a brief but penetrating essay on American federalism, Daniel J. Elazar defines "cooperative federalism" as "the sharing of responsibilities for given functions by the federal and state governments," as distinct from a more commonly held concept of "dual federalism" that "implies a division of functions between governments as well as a division of governmental structures."[11] Tracing the pragmatic tradition of cooperative federalism back to the joint Federal-State canal-construction projects of the early nineteenth century and even further, to the Bank of North

America established by the Confederation Congress in 1784, Elazar finds that the architects of this tradition, "avoiding the premises of legalistic thought...did not view the two planes (of Federal and State government) as rivals, but as partners in government who were to share responsibility for a wide range of activities for the mutual benefit of the nation as a whole and for its constituent states."[12]

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

Nor does the fact that numerous States have found it to be in their enlightened self-interest to share in the accomplishment of the air defense mission alter the in-coercible, cooperative, and voluntary basis of their effort, or detract from its value. And the fact that

several States, during the Guard's conversion to the Hercules system, aggressively sought greater shares than those planned for them--and clearly prevailed in this sometimes querulous quest--shows that a State's voluntary participation in air defense, once obtained, can be more than counted on to continue. Such obdurate consistency of cooperation can pose problems of its own, as active Army deployment planners ruefully discovered in 1962; but over-cooperation is perhaps better, in the long run, than non-cooperation.

Lessons Learned

The most salient lessons that can be learned from the record of planning and implementation in the Guard's successive waves of CONUS air defense deployments can be summarized under three generalized headings: relative immobility, in a legal and socio-economic rather than tactical sense; permanence; and professionalism.

Unlike active Army units, which can be activated and deployed with virtually untramelled freedom to follow the dictates of purely military necessity, successful exploitation of the Guard's air defense potential requires careful assessment of many non-military factors. A particular State's potential supply of high-aptitude applicants for employment

as technicians; the proximity of desired sites to population centers; commuting distances; availability of low-cost or government housing; legal obstacles to the use of one State's troops in another State, and to command of the troops of one State by officers of another State--such factors impose limits upon the utilization of Guard forces not found, to a similar extent, in the active Army. These limits are not imposed by recruitment possibilities, as technicians can be recruited from every corner of a particular State, and even from out of State, for the manning of a particular site;[13] but welfare, morale, and family considerations combine with the other factors noted to limit the practicability of Guard deployments to locations which are within reasonable proximity of population centers.

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

before breaking ground in States new to the program.

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

In this highly specialized professionalism there may well be a lesson of pointed pertinence for the Guard itself. Martha Derthick, in her study of the Guard as a political phenomenon, observes that the validity of its "claim to primacy as a reserve force" is in the long run dependent upon its "capacity...to adapt to environmental circumstances,"

rather than upon its declining political influence.[14] If "environmental circumstances" can be interpreted to include the threat of aerospace attack against the United States, the Guard has shown, by its highly professional response to the unremitting requirement for continental air defense, its capacity to adapt to a vitally important "environmental circumstance." The pattern of the Guard's future must here remain unstudied. But the Guard's past contributions to the air defense of the United States can be known; and this record has been such that planning for national security, in this area of unprecedented and total danger, can ignore it only at the nation's peril.

Notes

[1]Fact Sheet, OCDCSOPS, DA to CofS, 4 Aug 59, sub: Background and Status, ARNG On-Site Program, 1950-1959, OCDCSOPS/OPS SW ADO-11.

[2]See AR 320-5, 23 Apr 65, sub: Dictionary of United States Army Terms.

[3]Home AAA Forces.

[4]According to a post-war intelligence report prepared in August 1945 at the direction of General Carl Spaatz, CG of U.S. Strategic Air Forces in Europe, such auxiliaries comprised some 44 percent of a total AAA strength, as of 1 April 1945, of 656,000. Of these 288,000 auxiliaries, about 75,000 were school-boy Luftwaffenhelfer (Air Force Assistants) drawn from the ranks of the Hitler Youth and averaging about 16 years of age. Approximately 15,000 women performed secretarial and other staff-type duties. The contingent of Croatian soldiers numbered about 12,000, and approximately

45,000 Russian PWs were recruited, on a voluntary basis, for AAA service. The balance of 141,000 auxiliaries consisted of Labor Service (Reichsarbeitsdienst) workers, whose average age was about 55, and who performed AAA duties on a three-shift basis. All these auxiliaries of the Heimatflak were under Luftwaffe command. It is of interest to note that this heterogeneous and part-time force contributed to German AAA efforts which this authoritative report acknowledges to have been significant: for example, "many more (U.S.) bombers were lost to flak than to fighters" and "from June to August 1944...12,687 of our bombers were damaged by flak and only 182 by fighters"; also, "analysis has shown that bomb accuracy on missions unopposed by flak was 10 times greater than when opposed." See "German Ground Defenses," The Contribution of Air Power to the Defeat of Germany (unpublished MS. prepared by ACofS, A-2, Hq U.S. Air Forces in Europe, 7 August 1945), Sections 2,4, and 6.

[5]See Horst-Adalbert Koch, Flak: Die Geschichte der Deutschen Flakartillerie, 1935-1939 (Bad Nauheim: Verlag Hans-Nenning Podzun, 1954) for a history of German AAA prior to World War II.

[6]During World War I, British AAA defenses were until 1917 manned by civilian volunteers enrolled in the Royal Navy Volunteer Reserve Corps; after 1917, troops of the Regular Army took over. At the outbreak of World War II, approximately 69,000 Territorial Army men were organized into an A.A. Command of seven AA divisions, all of which were under the command of Regular Army officers, with a small nucleus of Regular administrative and maintenance personnel, amounting in all to about 1,000 officers and men in each battery and regiment. The A.A. Command was under the operational control of a Royal Air Force command, the Air Defense of Great Britain. Recalling General Maxwell Taylor's suggestion for the use of WACs in 1951, it is of interest to note that some 170,000 women of the A.T.S. (Auxiliary Territorial Service) after 1941 served in "mixed batteries" of Britain's A.A. Command during World War II, performing every job except the actual firing of guns. One of these A.T.S. in the A.A. Command was Corporal Mary Churchill, the Prime Minister's daughter. See the authoritative account by General Sir Frederick Pile, Commander-in-Chief of Britain's Anti-Aircraft Command from 1939 to 1945, Ack-Ack, Britain's Defence Against Air Attack During the Second World War (London: George G. Harrap & Co., Ltd.,

1949), pp. 43-97, for a detailed description of British attempts to achieve an effective AA defense prior to World War II, and the problems and achievements of the command during that war.

[7]The information in this and the following paragraph is drawn from ibid., pp.71-75, 81-82, 85, 91, 97, and 104.

[8]Like the major Western powers, the Soviet Union fails to offer a precedent for the ARNG on-site air defense program. During World War II, AAA home defenses were manned by active Army troops under a regional or local air defense command which controlled all air defense weapons, aircraft as well as AAA. This principle has been continued under the current system, in which the P.V.O. (Protiv-Vozdushnaya Oborona) constitutes an independent arm composed of AAA divisions and divisions of fighter aircraft, headed up by a Deputy Minister of War. See Generalleutnant A.D. Walter Schwabedissen, The Russian Air Force in the Eyes of German Commanders (USAF HISTORICAL STUDIES NO. 175, 1960), pp.32-33, for a description of Soviet AAA organization during World War II. Information on current Soviet air defense organization was obtained from DCS J-2, Hq NORAD.

[9]See address of Lt. Gen. Robert J. Wood to the 1960 meeting of the National Guard Association.

[10]See pp. 115-117 and n. 116, Chapter III above for the detailed rationale behind this conclusion.

[11]"Federal-State Collaboration in the Nineteenth-Century United States," reprinted from the Political Science Quarterly, No. 79 (June 1964) in Aaron Wildavsky, ed., American Federalism in Perspective (Boston: Little, Brown and Company, 1967), p.221.

[12]Ibid., p.194.

[13]Btry "B" of Missouri's 3d Bn, 128th Arty, a unit of the Kansas City defense, provides a case in point. Technicians for this battery, which went on site 35 southeast of Kansas City in February 1964, came from all over Missouri, and some from States as distant as Louisiana, Michigan, and Illinois: only one came from Kansas City itself. Interv with Maj. Giles A. Bax, a former CO of this unit, 5 Jun 68.

[14]Op.cit., pp.178-179. In another work on the same subject, Derthick demonstrates that among the "intrinsic attributes" of the Guard's political power have been "predominant values in American society" which are manifested as "a bias in favor of dispersion of power and a bias against military professionalism." Nonetheless, "the decline of antimilitarism in American society since World War II has robbed the Guard of (this) major environmental advantage," and "the concept that the Guard should safeguard the liberties of American citizens by checking the military power of the professional army has been relegated to the closet of our quaint constitutional lore." There is a strong possibility, which Derthick outlines without reference to the ARNG's air defense program, that the Guard's "increasing professionalism," which is "in keeping with contemporary trends," may combat reductions in the Guard's "contemporary political appeal." See Martha Derthick, "Militia Lobby in the Missile Age," Samuel P. Huntington, ed., Changing Patterns of Military Politics, (Glencoe: The Free Press of Glencoe, Inc., 1962), pp.193, 196. If Derthick's prognosis proves to be sound, the professionalism of Guard performance in continental air defense may paradoxically prove to be of pathfinding significance for the political as well as military potency of the entire National Guard.

Appendix A

Chronology of Major Developments Related to the Role of the ARNG in Air Defense

1947

23 October	- Flight of 48 B-29-type aircraft (TU-4 "Bull" bombers) observed in USSR.
17 December	- Air Defense Command granted authority by Hq USAF to employ fighter and radar forces of Strategic Air Command, Tactical Air Command, and the Air National Guard in an emergency.

1948

24 February	- Climax of Communist coup in Czechoslovakia.
11 March	- Convocation of Key West conference on service roles and missions.
21 April	- DOD order assigning USAF primary responsibility for air defense; Army to provide air defense forces "as required."
1 December	- Establishment of Continental Air Command by USAF, with Air Defense Command and Tactical Air Command as subordinate operational commands.

1949

23 September	- Announcement by President Truman of detection of Soviet nuclear detonation, 26-29 August.

1950

25 June	- Communist invasion of South Korea.
1 July	- Activation of Army Antiaircraft Command (ARAACOM).
1 August	- Collins-Vandenberg Agreement on employment of antiaircraft artillery. Callup of National Guard units initiated.

1951

10 January - General J. Lawton Collins, Army Chief of Staff, directed G-3 study of "Preferential Treatment of Selected National Guard (AAA) Units."

10 April - ARAACOM assumed command of all antiaircraft units allocated to air defense of CONUS.

30 November - ARAACOM plan for exploitation of ARNG's antiaircraft potential submitted to DA.

1952

26 February - ARAACOM granted authority by DA to coordinate planning for utilization of ARNG antiaircraft units.

19 September - Pentagon conference on ARNG participation in air defense of CONUS.

1953

6 July - Publication of DA criteria for designation of ARNG antiaircraft units as Special Security Force.

9 November - DA published policy directive for AA defense of CONUS, to include ARNG participation.

1954

25 March - Implementation of ARNG on-site program commenced with deployment of Btry "A", 245th AAA Bn (120-mm gun) in New York City defense.

30 May - First active Army Ajax unit (Btry "B", 36th AAA Bn) became operational at Fort Meade, Md.

1 September - Continental Air Defense Command (CONAD) established as unified command by Joint Chiefs of Staff.

1955

10 February - Study of military personnel space savings initiated by Hq ARAACOM.

14 July	- ARAACOM reaction to DA's suggestion for use of Reserve troops in air defense submitted.

1956

21 September	- Twenty-three SSF ARNG gun battalions on site as of this date.

1957

27 March	- ARAACOM redesignated U.S. Army Air Defense Command (acronym USARADCOM changed to ARADCOM 1 May 1961).
26 April	- California accepted mission to test ARNG capability for full-time manning of a Nike Ajax battalion and designated 720th AAA Bn as test unit.
17 May	- DA published plan for test of ARNG Ajax battalion. Active Army's 865th Missile Bn designated by ARADCOM to train, test (and eventually turn over its sites to) 720th AAA Bn.
1 June	- Redesignation of 720th as missile battalion.
July	- Beginning of individual specialist school training for technicians of the 720th at Fort Bliss.
8 October	- ARNG gun mission terminated by DA.
26 December	- Publication of DA policy directive for full-time participation of ARNG Ajax units in continental air defense.

1958

April	- Beginning of specialist troop training for technicians of the 720th at Fort Bliss.
May	- Beginning of unit package training for 720th at Fort Bliss.
12 May	- U.S.- Canadian agreement on establishment of combined North American Air Defense Command (NORAD).

30 June	- First active Army Hercules unit (Btry "A", 2d Missile Bn, 57th Arty) became operational in Chicago defense.
23 July	- Technicians of 720th report to sites of active Army's 865th Missile Bn (redesignated 4th Missile Bn, 62d Arty) for on-site training.
14 September	- Turnover of 865th's Los Angeles defense sites to 720th Missile Bn.

1959

1 January	- Termination of executive agency control of CONAD by USAF and transfer of control to the Joint Chiefs of Staff.
30 April	- DOD's legislative approach to solution of command and control of ARNG air defense units abandoned and reliance placed upon conclusion of mutual agreements between ARADCOM and States.

1960

7 September	- ARNG air defense conference received NGB assurance of firm DA commitments for an on-site ARNG force of 76 Ajax fire units.
13 September	- Protection against claims and other tort actions extended by law (P.L. 86-740) to technicians and other Guardsmen in cases arising from performance of duty.

1961

1 March	- Completion of ARNG Ajax program with assumption of operational status by Btry "B", 1st Missile Bn, 126th Arty (Wisconsin) in Milwaukee defense.
November	- Completion of ARADCOM program for active Army Hercules units. ARADCOM receipt of DA message establishing requirement for ARNG Hercules program.
7 December	- Pentagon conference on ARNG 48-battery Hercules program.

1962

5 March	- Publication of DA directives for full-time participation of ARNG Hercules units in continental air defense.
2 May	- Publication of ARADCOM schedule for conversion of ARNG Ajax units to Hercules.
22 October	- CINCONAD increased air defense alert status in response to Cuban crisis.
11 December	- Implementation of ARNG Hercules program commenced with assumption of operational status by Btry "A," 1st Missile Bn, 70th Arty (Maryland) in the Washington-Baltimore defense.

1964

18 November	- Formal retirement of ARNG's last Ajax missile.

1965

14 April	- Completion of ARNG Hercules program with assumption of operational status by Btrys "A" and "B," 1st Missile Bn, 137th Arty (Ohio) in Cincinnati-Dayton defense.

1967

20 February	- A bill (Title II to H.R. 2) to "clarify the status" of National Guard technicians passed the House of Representatives, but Senate action was deferred on 7 November "until the next session."
18 September	- Secretary of Defense McNamara announced the decision to deploy the Sentinel anti-ballistic missile system against the Chinese Communist threat.

Appendix B

CONFIDENTIAL

CS 322 (10 Jan 51)

10 January 1951

MEMORANDUM FOR: ASSISTANT CHIEF OF STAFF, G-3

SUBJECT: Preferential Treatment of Selected National Guard Units

1. The Chief of Staff desires that Antiaircraft Units of the National Guard, that are to be employed for the defense of the major target areas in the United States, be brought up to 85% strength and be provided with full equipment.

2. It is requested that a study be submitted, without delay, for approval of the Chief of Staff indicating how this may be accomplished. The study should indicate any change in legislation which will be required and an estimated schedule of when units will meet the required personnel strength and equipment status.

3. In the event that a change in legislation is required to permit preferential treatment of the National Guard Antiaircraft Units, it is suggested that such change be so worded so that it can ultimately be applied also to any other selected National Guard Units which it may be desirable in the future to accord the same preferential treatment.

4. Assistant Chief of Staff G-3 is designated to monitor this study and the Judge Advocate General will prepare that portion of the study relating to a required change, if any, in legislation.

BY DIRECTION OF THE CHIEF OF STAFF:

H. F. HASS
Colonel, GSC
Secretary of the General Staff

Copy to: JAG

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CONFIDENTIAL

Appendix C

On-Site Gun Battalions of the ARNG Special Security Force
as of
21 September 1956

Source: Annex A, Task Organization, AA-OP-US(56)

State	Unit	Type	Location	Defense
California	271st AAA Bn	90-mm gun	San Francisco	San Francisco
	728th AAA Bn	90-mm gun	Alameda	
	730th AAA Bn	90-mm gun	San Diego	San Diego
Connecticut	211th AAA Bn	90-mm gun	Bridgeport	Hartford-Bridgeport
	283d AAA Bn	90-mm gun	Bridgeport	Westover AFB
Massachusetts	704th AAA Bn	90-mm gun	Boston	Boston-Providence
	772d AAA Bn	90-mm gun	Boston	
New Jersey	109th AAA Bn	90-mm gun	Newark	New York City
New York	245th AAA Bn	120-mm gun	Brooklyn	
Ohio	177th AAA Bn	90-mm gun	Youngstown	Youngstown
	179th AAA Bn	90-mm gun	Lakewood	Cleveland
	182d AAA Bn	90-mm gun	Canton	Youngstown
Pennsylvania	707th AAA Bn	90-mm gun	Philadelphia	Philadelphia
	708th AAA Bn	90-mm gun	Pittsburgh	Pittsburgh
	709th AAA Bn	90-mm gun	Philadelphia	Philadelphia
	724th AAA Bn	90-mm gun	Pittsburgh	Pittsburgh
Rhode Island	243d AAA Bn	90-mm gun	Providence	Boston-Providence
	705th AAA Bn	90-mm gun	Providence	
Virginia	125th AAA Bn	120-mm gun	Alexandria	Washington-Baltimor
	615th AAA Bn	90-mm gun	Norfolk	Norfolk
	710th AAA Bn	90-mm gun	Newport News	
Washington	240th AAA Bn	120-mm gun	Seattle	Seattle
	770th AAA Bn	120-mm gun	Seattle	

Appendix D

On-Site Nike Ajax Units
of the
ARNG Air Defense Task Organization, CONUS
as of
26 June 1961

Source: ARADCOM Organization Chart, 1st Quarter FY 1962, Compiled 26 Jun 61 by G-3 Section, Hq ARADCOM, and ARADCOM Test Forms 85, sub: ARNG On-Site Data

State	Unit(Btry/Bn/Rgt)	Opnl Date	Location	Defense
California	Hq/1/250		Fort Scott	San Francisco
	A/1/250	24 Jul 59	Berkeley	
	C/1/250	24 Jul 59	Newark	
	Hq/2/250		Fort Funston	
	B/2/250	24 Jul 59	Fort Scott	
	D/2/250	24 Jul 59	Daly City	
	Hq/4/251		Long Beach	Los Angeles
	A/4/251	14 Sep 58	Long Beach	
	B/4/251	14 Sep 58	Torrance	
	C/4/251	14 Sep 58	Playa del Rey	
	D/4/251	14 Sep 58	Playa del Rey	
Connecticut	Hq/1/242		Bridgeport	Hartford-Bridgeport
	A/1/242	5 Jan 61	Milford	
	B/1/242	5 Jan 61	Westport	
	Hq/1/192		West Hartford	
	A/1/192	5 Jan 61	Portland	
	B/1/192	5 Jan 61	Simsbury	
Illinois	Hq/1/202		Chicago	Chicago
	A/1/202	28 Sep 60	Mundelein	
	B/1/202	23 Sep 60	Palatine	
	C/1/202	28 Sep 60	Mundelein	
	D/1/202	23 Sep 60	Fort Sheridan	
	Hq/2/202		Chicago	
	A/2/202	17 Dec 59	Hegewisch Sta.	
	B/2/202	17 Dec 59	Naperville	
	C/2/202	17 Dec 59	Worth	
	D/2/202	17 Dec 59	Hegewisch Sta.	

State	Unit(Btry/Bn/Rgt)	Opnl Date	Location	Defense
Maryland	Hq/1/70		Towson	Washington-Baltimor
	A/1/70	1 Mar 60		
	D/1/70	23 Sep 59	Fork	
	Hq/2/70		Owings Mills	
	A/2/70	1 Mar 60	Granite	
	C/2/70	16 Jun 60	Gaithersburgh	
	D/2/70	23 Sep 59	Cronhardt	
	Hq/3/70		Suitland	
	A/3/70	14 Jun 60	Waldorf	
	B/3/70	21 Jun 60	Upper Marlboro	
Massachusetts	Hq/1/241		Boston	Boston-Providence
	A/1/241	18 Aug 59	Blue Hills	
	B/1/241	18 Aug 59	Needham	
	Hq/2/241		Cheldea	
	C/2/241	18 Aug 59	Beverly	
	D/2/241	18 Aug 59	Reading	
Michigan	Hq/1/177		Detroit	Detroit
	A/1/177	12 Oct 60	Wyandotte	
	B/1/177	6 Nov 59	River Range Park	
	C/1/177	6 Nov 59	Wyandotte	
	Hq/2/177		Dearborn	
	A/2/177	25 Oct 60	Birmingham	
	C/2/177	6 Nov 59	Auburn Heights	
	D/2/177	6 Nov 59	Marine City	
New Jersey	Hq/1/254		Summit	New York City
	B/1/254	25 Sep 59	Summit	
	C/1/254	27 Jun 60	Leonardo	
	D/1/254	25 Sep 59	Wayne	
	Hq/2/254		Bellmawr	Philadelphia
	A/2/254	1 Oct 60	Pitman	
	B/2/254	1 Oct 60	Marlton	
New York	Hq/1/212		White Plains	New York City
	A/1/212	1 Jun 60	Spring Valley	
	B/1/212	1 Jun 60	White Plains	
	Hq/1/245		Huntington, L.I.	
	A/1/245	1 Jun 60	Huntington, L.I.	
	B/1/245	1 Jun 60	Hicksville	

State	Unit(Btry/Bn/Rgt)	Opnl Date	Location	Defense
	Hq/1/244		Brooklyn	
	C/1/244	5 Dec 60	Lido Beach	
	D/1/244	5 Dec 60	Lido Beach	
	Hq/2/106		Buffalo	Niagara-Buffalo
	A/2/106	4 Aug 60	Orchard Park	
	B/2/106	4 Aug 60	Fort Niagara	
	C/2/106	4 Aug 60	Fort Niagara	
	D/2/106	4 Aug 60	Orchard Park	
Ohio	Hq/1/137		Cleveland	Cleveland
	B/1/137	24 Jan 61	Cleveland	
	C/1/137	24 Jan 61	Warrensville Sta.	
Pennsylvania	Hq/2/166		Worchester	Philadelphia
	A/2/166	30 Apr 60	Worchester	
	B/2/166	30 Apr 60	Bristol	
	Hq/3/166		Paoli	
	B/3/166	30 Apr 60	Paoli	
	C/3/166	30 Apr 60	Chester	
	Hq/1/176		Rural Ridge	Pittsburgh
	A/1/176	6 Aug 59	Bryant	
	D/1/176	6 Aug 59	Rural Ridge	
	Hq/2/176		Carnegie	
	B/2/176	6 Aug 59	Hickman	
	C/2/176	6 Aug 59	Elizabeth	
Rhode Island	Hq/2/243		Providence	Boston-Providen
	B/2/243	6 Dec 60	North Kingston	
	D/2/243	6 Dec 60	Foster Center	
Virginia	Hq/1/280		Vienna	Washington-Baltimc
	A/1/280	23 Sep 59	Lorton	
	D/1/280	23 Sep 59	Fairfax	
	Hq/4/111		South Norfolk	Norfolk
	B/4/111	30 Sep 59	Nansemond	
	C/4/111	23 Sep 59	Kempsville	
	Hq/5/111		Newport News	
	B/5/111	1 Mar 60	Foxhill, Hampton	
	C/5/111	1 Mar 60	Hampton	
Washington	Hq/2/205		Issaguah	Seattle
	A/2/205	24 Jun 59	Kenmore	
	B/2/205	24 Jun 59	Cougar Mountain	

State	Unit(Btry/Bn/Rgt)	Opnl Date	Location	Defense
	Hq/3/205		Kent	
	B/3/205	24 Jun 59	Midway	
	C/3/205	24 Jun 59	Clalla	
Wisconsin	Hq/1/126		Milwaukee	Milwaukee
	A/1/126	9 Feb 61	Muskego	
	B/1/126	1 Mar 61	Milwaukee	

Appendix E

On-Site Nike Hercules Units
of the
ARNG Air Defense Task Organization, CONUS
as of
1 February 1967

Source: ARADCOM Forms 85, sub: ARNG On-Site Data, and Office of Reserve Components, Hq ARADCOM, Fact Sheet, 1 Feb 67, sub: ARNG-Air Defense

State	Unit(Btry/Bn/Rgt)	Opnl Date	Location	Defense
California	Hq/1/250		Fort Scott	San Francisco
	A/1/250	28 Jun 63	Pacifica	
	B/1/250	28 Jun 63	Castro Valley	
	Hq/4/251		Fort MacArthur	Los Angeles
	A/4/251	28 Jun 63	Stanton	
	B/4/251	23 Apr 64	Point Vincente	
	C/4/251	23 Apr 64	Brea	
	D/4/251	28 Jun 63	Fort MacArthur	
Connecticut	Hq/1/192		Cromwell	New England
	B/1/192	14 Aug 64	Cromwell	
	D/1/192	14 Aug 64	Ansonia	
Illinois	Hq/1/202		Arlington Hts.	Chicago-Milwaukee
	A/1/202	23 Aug 63	Homewell	
	B/1/202	23 Aug 63	Addison	
	C/1/202	23 Apr 64	Lemont	
	D/1/202	23 Apr 64	Northfield	
Maryland	Hq/1/70		Granite	Washington-Baltimor
	A/1/70	11 Dec 62	Annapolis	
	B/1/70	11 Dec 62	Granite	
	C/1/70	11 Dec 62	Waldorf	
	D/1/70	11 Dec 62	Phoenix	
Massachusetts	Hq/1/241		Natick	New England
	A/1/241	14 Aug 64	Lincoln	
	B/1/241	14 Aug 64	Hall	

State	Unit(Btry/Bn/Rgt)	Opnl Date	Location	Defense
Michigan	Hq/1/177		Detroit	Detroit
	A/1/177	9 Feb 63	Utica	
	B/1/177	9 Feb 63	Inkster	
	C/1/177	9 Feb 63	Carleton	
Missouri	Hq/3/128		Pleasant Hill	Kansas City
	A/3/128	15 Feb 64	Lawson	
	B/3/128	15 Feb 64	Pleasant Hill	
New Jersey	Hq/7/112		Livingston	New York-Philadelphia
	A/7/112	18 Oct 63	Lumberton	
	B/7/112	24 Apr 63	Livingston	
	C/7/112	24 Apr 63	South Plainfield	
New York	Hq/2/209		Lancaster	Niagara-Buffalo
	A/2/209	24 Apr 63	Grand Island	
	B/2/209	24 Apr 63	Lancaster	
	Hq/1/244		Roslyn	New York-Philadelphia
	A/1/244	19 Jun 64	Amityville	
	B/1/244	19 Jun 64	Rocky Point	
	C/1/244	19 Jun 64	Orangeburg	
Ohio	Hq/1/137		Wilmington	Cincinnati-Dayton
	A/1/137	14 Apr 65	Felicity	
	B/1/137	14 Apr 65	Oxford	
	C/1/137	9 Feb 63	Fairview Park	Detroit-Cleveland
Pennsylvania	Hq/2/166		Warrington	New York-Philadelphia
	A/2/166	9 Oct 64	Warrington	
	B/2/166	9 Oct 64	Warrington	
	Hq/2/176		West View	Pittsburgh
	A/2/176	18 Oct 63	West View	
	B/2/176	18 Oct 63	Corapolis	
	C/2/176	18 Oct 63	Dorseyville	
Rhode Island	B/2/243	23 Aug 63	North Smithfield	New England
Texas	Hq/4/132		Duncanville	Dallas-Fort Worth
	A/4/132	16 Feb 64	Denton	
	B/4/132	16 Feb 64	Terrell	

State	Unit(Btry/Bn/Rgt)	Opnl Date	Location	Defense
Virginia	Hq/4/111		Deep Creek	Hampton Roads
	A/4/111	30 Aug 63	Lorton	
	B/4/111	4 Dec 64	Deep Creek	
	C/4/111	4 Dec 64	Denbigh	
Washington	Hq/2/205		Redmond	Seattle
	A/2/205	9 Oct 64	Redmond	
	B/2/205	9 Oct 64	Vashon	
Wisconsin	B/2/126	19 Jun 64	Waukesha	Chicago-Milwaukee

Appendix F

ARNG Air Defense Technician Structure --
Nike Ajax System

Notes

1. Military grades of O, WO, and E denote officer, warrant officer, and enlisted positions, respectively. Wage grade "NGC" denotes a classified National Guard position to which nation-wide pay scales, identical to those established by law for equivalent general-schedule (GS) positions of the Federal Civil Service, apply. "NGW" denotes a National Guard position for which pay is established by local Federal wage boards in conformity with conditions existing within local industry, which may vary within a particular state. "NGW-S" denotes a position for which pay is established in the same manner as for an NGW position, but according to a higher scale appropriate to the supervisory function. See NGR 51, Chap. 3, Sec. I.

2. "P" indicates requirement for participation in package training; "S" indicates requirement for individual school specialist training; "T", troop training; "AIT," advanced individual training; "OJT," on-the-job training.

3. Source: Ltr, DA to CGs and NGB, 15 Mar 60, sub: Policies for Army National Guard CONUS Air Defense Units, AGAM-P (M) 322 DCSOPS.

LEVEL OR UNIT	TITLE	NUMBER AUTHORIZED	MILITARY GRADE	WAGE GRADE	TRAINING REQUIREMENT
State	Air Defense Officer	1	O	NGC-12	
	Administrative Specialist	1	WO/E	NGC-6	
Defense	Defense Supervisor (Authorized in each defense having four or more on-site batteries from two or more battalions, providing the State had missile units on site in two defenses.)	1	O	NGW-S-9	

LEVEL OR UNIT	TITLE	NUMBER AUTHORIZED	MILITARY GRADE	WAGE GRADE	TRAINING REQUIREMENT
Battalion Hq & Hq Battery	Battalion Supervisor	1	O	NGW-S-8	S, P (or equiv)
	Operations Supervisor	1	O	NGW-S-7	S, P (or equiv)
	Bn Missile Supervisor	1	O	NGW-S-7	S, P
	Guided Missile Fire Control Assistant	1	WO	NGW-13	S, P
	Guided Missile Materiel Assistant	1	WO	NGW-13	S, P
	Chief Fire Control Mechanic	1	E	NGW-12	S, P
	Electronics Materiel Chief	1	E	NGW-12	S, P
	Operations Sergeant	1	E	NGW-10	OJT
	Administrative Specialist	1	E	NGC-6	OJT
	Guided Missile Installations Electrician	1	E	NGW-10	S
	Chief Radar Mechanic	1	E	NGW-12	S
	Radar Operator	1	E	NGW-8	OJT
				TOTAL	12

LEVEL OR UNIT	TITLE	NUMBER AUTHORIZED	MILITARY GRADE	WAGE GRADE	TRAINING REQUIREMENT
Firing Battery Hq Sec.	Battery Supervisor	1	O	NGW-S-7	S, P (or equiv)
	Ordnance Supply Specialist	1	E	NGW-8	OJT
	Administrative Specialist	1	E	NGC-6	OJT
	Wheeled Vehicle Mechanic	1	E	NGW-10	OJT
	Utility Repairman - Crewman	1	E	NGW-8	OJT
	Medical Aidman	1	E	NGW-6	AIT
	Utility Repairman	1	E	NGW-6	OJT
				TOTAL 7	
Firing Battery Fire Control Platoon	Fire Control Supervisor	1	O	NGW-S-6	S, P (or equiv)
	Guided Missile Fire Control Assistant	1	WO	NGW-13	S, P
	Chief Fire Control Mechanic	1	E	NGW-12	S,P
	Fire Control Mechanic	1	E	NGW-12	S, P
	Ordnance Supply Specialist	1	E	NGW-8	OJT, P, T
	Guided Missile Installations Electrician	1	E	NGW-10	S

LEVEL OR UNIT	TITLE	NUMBER AUTHORIZED	MILITARY GRADE	WAGE GRADE	TRAINING REQUIREMENT
	Senior Fire Control Operator	2	E	NGW-11	P, T
	Fire Control Operator	3	E	NGW-10	P, T
	Asst Fire Contol Operator	7	E	NGW-5 or 6	P, T
	Switchboard Operator - Crewman	1	E	NGW-6	P, T
				TOTAL 19	
Firing Battery Launcher Platoon	Launcher Area Supervisor	1	O	NGW-S-6	S, P
	Guided Missile Materiel Asst	1	WO	NGW-13	S, P
	Electronic Materiel Chief	1	E	NGW-12	S, P
	Materiel Chief	1	E	NGW-12	S, P
	Assembly Sergeant	1	E	NGW-12	S, P
	Guided Missile Installations Electrician	1	E	NGW-10	S
	Ordnance Supply Specialist	1	E	NGW-8	OJT, P, T
	Firing Panel Operator	1	E	NGW-8	P, T
	Launcher Section Chief	3	E	NGW-11	P, T

LEVEL OR UNIT	TITLE	NUMBER AUTHORIZED	MILITARY GRADE	WAGE GRADE	TRAINING REQUIREMENT
	Firing Panel Operator	3	E	NGW-8	P, T
	Launcher Helper	7	E	NGW-5 or 6	P, T
	Generator Operator - Crewman	1	E	NGW-6	P, T
				TOTAL	22

Appendix G

ARNG Air Defense Technician Structure -- Nike Hercules System

Notes

1. See n. 1, Appendix F, for explanation of military and wage grade abbreviations.

2. Asterisk denotes requirement for individual school training in the Nike system. MOS qualification for other positions to be met by on-the-job training, service school training, or comparable military or civilian experience, was determined by the State Adjutant General or his authorized representative in accordance with pertinent directives.

3. "Alert requirement" denotes percentage of fire units required to be on 15-minute alert status within the battery's prospective parent defense.

4. "Improved Kit with ABAR (or HIPAR)" denotes the possession by a fire unit of additional radar equipment designed to improve the unit's capability to acquire targets and determine ranges in an environment in which enemy electronic countermeasures (ECM) are employed.

5. Source: Ltr, DA to CGs and NGB, 5 Mar 62, sub: Policies for National Guard Participation in CONUS Air Defense, AGAM-P (M) 322 DCSOPS.

STATE LEVEL

TITLE	NUMBER AUTHORIZED	MILITARY GRADE	WAGE GRADE
Air Defense Officer*	1	O	NGC-12
Administrative Specialist	1	WO/E	NGC-6

(For a state having only one battery in the on-site program. augmentation for a Supervision, Training, and Operational Readiness Evaluation Team was authorized. This team consisted of three school-trained personnel: a Missile Supervisor, O, NGW-S-10; a Guided Missile Fire Control Assistant, WO, NGW-S-7; and a Guided Missile Materiel Assistant, WO, NGW-S-7.)

BATTALION HQ & HQ BATTERY

TITLE	MILITARY GRADE	WAGE GRADE	NUMBER AUTHORIZED BN OF 2 BTRYS	NUMBER AUTHORIZED BN OF 3 OR 4 BTRYS
Battalion Supervisor*	O	NGW-S-11	1	1
Operations Supervisor*	O	NGW-S-10	1	1
Battalion Missile Supervisor*	O	NGW-S-10	1	1
Administrative Supply Supervisor*	O	NGW-S-8	1	1
Fire Control Assistant*	WO	NGW-S-7	1	1
Materiel Assistant*	WO	NGW-S-7	1	1
Chief Fire Control Mechanic*	E	NGW-12	1	1
Electronics Materiel Chief*	E	NGW-12		1
Operations Sergeant	E	NGW-10		1
Supply Sergeant	E	NGW-10	1	1
Administrative Specialist	WO/E	NGC-6	1	1
		TOTALS	9	11

(For any battalion equipped with a radar set AN/MPQ-36, two additional technicians were authorized: a Chief Radar Mechanic*, E, NGW-12; and a Radar Operator, E, NGW-8.)

FIRING BATTERY HQ SECTION

TITLE	MILITARY GRADE	WAGE GRADE	NUMBER AUTHORIZED
Battery Supervisor*	O	NGW-S-10	1
Wheeled Vehicle Mechanic Crewman	E	NGW-10	1
Supply Specialist	WO/E	NGW-8	1
Administrative Specialist	WO/E	NGC-6	1
Medical Aidman	E	NGW-6	1
		TOTAL	5

(For a State having only one battery in the on-site program, two additional technicians were authorized if the battery was equipped with a radar set AN/MPQ-36: a Chief Radar Mechanic*, E, NGW-8; and a Radar Operator, E, NGW-8.)

FIRING BATTERY FIRE CONTROL PLATOON

TITLE	MILITARY GRADE	WAGE GRADE	NUMBER AUTHORIZED BY ALERT REQUIREMENT 60%	66 2/3%	75%
Fire Contol Supervisor*	O	NGW-S-8	1	1	1
Fire Control Assistant*	O	NGW-S-7	2	2	2
Chief Fire Control Mechanic*	E	NGW-12	1	1	1
Fire Control Mechanic*	E	NGW-12	2	2	2
Senior Fire Control Operator	E	NGW-11	3	3	4
Fire Control Operator	E	NGW-10	6	7	8

TITLE	MILITARY GRADE	WAGE GRADE	NUMBER AUTHORIZED BY ALERT REQUIREMENT 60%	66 2/3%	75%
Engineer Missile Equipment Specialist*	E	NGW-10	1	1	1
Ordnance Supply Specialist*	E	NGW-8	1	1	1
Assistant Fire Control Operator	E	NGW-5 or 6	11	12	14
		TOTALS	28	30	34

FIRING BATTERY LAUNCHER PLATOON
(24-hour manning for one section only)

TITLE	MILITARY GRADE	WAGE GRADE	NUMBER AUTHORIZED BY ALERT REQUIREMENT 60%	66 2/3%	75%
Launcher Area Supervisor*	O	NGW-S-8	1	1	1
Materiel Assistant*	WO	NGW-S-7	2	2	2
Platoon Sergeant*	E	NGW-12	1	1	1
Electronics Materiel Chief	E	NGW-12	1	1	1
Section Chief	E	NGW-11	4	4	4
Engineer Missile Equipment Specialist*	E	NGW-10	1	1	1
Ordnance Supply Specialist	E	NGW-8	1	1	1
Firing Panel Operator	E	NGW-8	6	6	6
Senior Launcher Crewman	E	NGW-6	4	4	4
Launcher Crewman	E	NGW-6	8	8	8

TITLE	MILITARY GRADE	WAGE GRADE	NUMBER AUTHORIZED BY ALERT REQUIREMENT 60%	66 2/3%	75%
Generator Operator	E	NGW-6	2	2	3
Launcher & Assembly Helper	E	NGW-5	4	4	6
		TOTALS	35	35	38

FIRING BATTERY AUGMENTATION

	TYPE	TITLE	MILITARY GRADE	WAGE GRADE	NUMBER AUTHORIZED BY ALERT REQUIREMENT 60%	66 2/3%	75%
A.	Improved Kit with HIPAR	Chief Fire Control Mechanic*	E	NGW-12	1	1	1
		Fire Control Mechanic*	E	NGW-12	2	3	3
		Fire Control Operator*	E	NGW-10	4	4	4
				TOTALS	7	8	8
B.	Improved Kit with ABAR	Chief Fire Control Mechanic*	E	NGW-12	1	1	1
		Fire Control Mechanic*	E	NGW-12	1	1	2
		Fire Control Operator*	E	NGW-10	3	3	3
		Senior Radar Operator*	E	NGW-10	1	1	1

TYPE	TITLE	MILITARY GRADE	WAGE GRADE	NUMBER AUTHORIZED BY ALERT REQUIREMENT 60%	66 2/3%	75%
	Radar Operator*	E	NGW-10	2	2	2
			TOTALS	8	8	9

					PER BATTERY
C. Security Squad	Asst Squad Leader	E	NGC-5		1
	Senior Security Guard	E	NGC-5		1
	Security Guard	E	NGC-5		2
				TOTAL	4
D. Additional Launcher Section	Asst Section Chief	E	NGW-6		1
	Senior Launcher Crewman	E	NGW-6		1
	Launcher Helper	E	NGW-6		7
				TOTAL	9

ORE SCORE SHEET NIKE FIRE CONTROL AREA *(ARADCOM Reg 350-1-5)*	ORGANIZATION _____BTRY, _____ BN, _____ARTY	DATE

I - STATE OF ALERT TEST

1. TARGET ACQUISITION

TOLERANCE LOPAR	240	230	220	210	200	190	180	170
SCORE	0	10	20	30	50	70	90	NONOP
TOLERANCE HIPAR/ABAR	340	330	320	310	300	290	280	270
SCORE	0	10	20	30	50	70	90	NONOP

2. SYSTEM ACQUIRE AND TRANSFER TIME

TOLERANCE	15
SCORE	0

3. TARGET TRACKED

TOLERANCE	190	180	170	160	150	140	130
SCORE	0	10	20	30	50	90	NONOP

4. MISSILE ACQUIRED

TOLERANCE	ACQUIRE	NON - ACQ
SCORE	0	NONOP

5. STATE OF ALERT

TIME - 20 MINUTE	SAT	UNSAT
TIME - 5 MINUTE	SAT	UNSAT
SCORE	0	NONOP

II – SYSTEM CHECKS

6. COMPUTER DYNAMICS COURSE 2

TOLERANCE	NORMAL	ABNORMAL PLOT	UNSATISFACTORY
SCORE	0	20	NONOP

7. SIMULTANEOUS TRACKING TEST

TOLERANCE TTR	.5	.6	.7	.8	.9	1
X SCORE SP	0	10	30	50	70	NONOP
Y SCORE SP	0	10	30	50	70	NONOP
H SCORE SP	0	10	30	50	70	NONOP
X SCORE LP	0	10	30	50	70	NONOP
Y SCORE LP	0	10	30	50	70	NONOP
H SCORE LP	0	10	30	50	70	NONOP
TOLERANCE TRR	.5	.6	.7	.8	.9	1
X SCORE	0	5	10	15	20	25
Y SCORE	0	5	10	15	20	25
H SCORE	0	5	10	15	20	25

TRR SCORE

	A-LONG	A-SHORT	B-LONG	B-SHORT
X SCORE				
Y SCORE				
H SCORE				
TOTAL				

TRR SYNCHRONIZATION

	A-LONG	A-SHORT	B-LONG	B-SHORT
SCORE				

ARADCOM—ADC Field Printing Plant
Ent AFB, Colorado

8. LEVEL, COLLIMATION, ORIENTATION CHECK AND RANGE ZERO							
A. LEVEL							
TOLERANCE	10	12	14	16	18		20
A DIVISIONS SCORE	0	10	20	50	80		NONOP
B DIVISIONS SCORE	0	10	20	50	80		NONOP
B. COLLIMATION							
TOLERANCE	.2	.3	.4	.5			.6
AZ SCORE	0	5	20	60			NONOP
EL SCORE	0	5	20	60			NONOP
C. ORIENTATION CHECK							
TOLERANCE	0	5	10	15	20		25
X SCORE	0	10	20	50	80		NONOP
Y SCORE	0	10	20	50	80		NONOP
H SCORE	0	10	20	50	80		NONOP
D. RANGE ZERO							
TOLERANCE	6	7	8	9	10	12	15	20
TTR SHORT	0	5	10	15	25	50	75	NONOP
TTR LONG	0	5	10	15	25	50	75	NONOP
TRR A-SHORT	0	5	7	10	12	15	20	25
TRR A-LONG	0	5	7	10	12	15	20	25
TRR B-SHORT	0	5	7	10	12	15	20	25
TRR B-LONG	0	5	7	10	12	15	20	25

III – EQUIPMENT CHECKS

9. ANGLE SENSITIVITY				
TOLERANCE	1	2	3	4
MTR AZ SCORE	0	20	80	NONOP
MTR EL SCORE	0	30	90	NONOP
TTR AZ SCORE SP	0	20	60	NONOP
TTR EL SCORE SP	0	20	60	NONOP
TTR AZ SCORE LP	0	20	60	NONOP
TTR EL SCORE LP	0	20	60	NONOP

10. TRACKING RADARS RECEIVER SENSITIVITY				
TOLERANCE	17	16	15	14
MTR SUM SCORE	0	20	60	NONOP
TTR SUM SCORE	0	20	60	NONOP
TOLERANCE	11	10	9	8
MTR AZ SCORE	0	20	60	NONOP
MTR EL SCORE	0	20	60	NONOP
TTR AZ SCORE	0	20	60	NONOP
TTR EL SCORE	0	20	60	NONOP

11. ELECTRONIC CROSS ORIENTATION		
TOLERANCE	CENTERED	OFF-TARGET
SCORE LOPAR	0	5
SCORE HIPAR/ABAR	0	5

12. TARGET AFC			
RATING	SAT	BREAK-LOCK	UNSAT
SCORE LP	0	20	NONOP
SCORE SP	0	20	NONOP

13. RF INTERRUPT SWITCH		
RATING	SATISFACTORY	UNSATISFACTORY
SCORE	0	10

14. RADAR RF TEST SET		
RATING	OPERATIONAL	NONOPERATIONAL
SCORE	0	NONOP

15. TRR AFC			
RATING	SAT	BREAK-LOCK	UNSAT
MAGNETRON "A" SP	0		25
MAGNETRON "B" SP	0		25
MAGNETRON "A" LP	0		25
MAGNETRON "B" LP	0		25

16. TRR RECEIVER SENSITIVITY					
TOLERANCE	55	58	60	62	64
A-SHORT SCORE	0	5	10	15	25
A-LONG SCORE	0	5	10	15	25
B-SHORT SCORE	0	5	10	15	25
B-LONG SCORE	0	5	10	15	25
PANORAMIC	60	62	64	66	70
SCORE	0	5	10	15	20

17. REMOTE TRANSMITTER CONTROL		
RATING	SATISFACTORY	UNSATISFACTORY
SCORE	0	10

18. PRESENTATION SYSTEMS		
RATING	SATISFACTORY	UNSATISFACTORY
SCORE	0	

19. LOPAR RECEIVER SENSITIVITY						
TOLERANCE	48	49	50	51	53	55
MAIN SCORE	0	20	30	50	75	NONOP
AUX SCORE	0	5	10	15	20	25
TOLERANCE	10	9	8		7	6
JS SCORE	0	5	10		20	25

20. LOPAR AFC TRACKING CHECK			
RATING	SAT	BREAK-LOCK	UNSAT
SCORE	0		NONOP

21. MOVING TARGET INDICATOR				
	MTI		SECTOR DIMENSION	
RATING LOPAR	SAT	UNSAT	SAT	UNSAT
SCORE	0	NONOP	0	10
	COHO/MTI-1		NON-COHO/MTI-2	
RATING HIPAR/ABAR	SAT	UNSAT	SAT	UNSAT
SCORE	0	NONOP	0	NONOP

22. AJD - IS - PROCESSOR										
	AJD		IS				PROCESS			
	DISPLAY		AJD OFF		AJD ON		AJD OFF		AJD ON	
RATING	SAT	UNSAT	SAT	UNSAT	SAT	UNSAT	SAT	UNSAT	SAT	UNSAT
SCORE	0	NONOP	0	5	0	5	0	5	0	5

23. MINIMUM DISCERNIBLE SIGNAL MEASUREMENT				
A. ABAR WITH ECCM MODIFICATION				
TOLERANCE (LIN)	-104	-103	-102	-101
SIMPLEX SCORE	0	6	12	20
DIPLEX 1 SCORE	0	3	6	10
DIPLEX 2 SCORE	0	3	6	10
TOLERANCE (MTI)	-104	-103	-102	-101
SIMPLEX SCORE	0	6	12	NONOP
DIPLEX 1 SCORE	0	3	6	NONOP
DIPLEX 2 SCORE	0	3	6	NONOP
TOLERANCE (DF)	-104	-103	-102	-101
SIMPLEX SCORE	0	6	12	NONOP
DIPLEX 1 SCORE	0	3	6	NONOP
DIPLEX 2 SCORE	0	3	6	NONOP
TOLERANCE (IAGC)	-104	-103	-102	-101
SIMPLEX SCORE	0	6	12	NONOP
DIPLEX 1 SCORE	0	3	6	NONOP
DIPLEX 2 SCORE	0	3	6	NONOP
TOLERANCE (LOG)	-104	-103	-102	-101
SIMPLEX SCORE	0	6	12	NONOP
DIPLEX 1 SCORE	0	3	6	NONOP
DIPLEX 2 SCORE	0	3	6	NONOP
B. ABAR WITHOUT ECCM MODIFICATION				
TOLERANCE	-104	-103	-102	-101
SIMPLEX SCORE	0	20	50	NONOP
DIPLEX 1 SCORE	0	15	30	NONOP
DIPLEX 2 SCORE	0	15	30	NONOP
C. ABAR WITH PARAMETRIC AMPLIFIERS				
TOLERANCE (LIN)	-108	-107	-106	-105
SIMPLEX SCORE	0	6	12	20
DIPLEX 1 SCORE	0	3	6	10
DIPLEX 2 SCORE	0	3	6	10
TOLERANCE (LOG)	-108	-107	-106	-105
SIMPLEX SCORE	0	6	12	NONOP
DIPLEX 1 SCORE	0	3	6	NONOP
DIPLEX 2 SCORE	0	3	6	NONOP
TOLERANCE (IAGC)	-108	-107	-106	-105
SIMPLEX SCORE	0	6	12	NONOP
DIPLEX 1 SCORE	0	3	6	NONOP
DIPLEX 2 SCORE	0	3	6	NONOP
TOLERANCE (DF)	-108	-107	-106	-105
SIMPLEX SCORE	0	6	12	NONOP
DIPLEX 1 SCORE	0	3	6	NONOP
DIPLEX 2 SCORE	0	3	6	NONOP
TOLERANCE (MTI)	-108	-107	-106	-105
SIMPLEX SCORE	0	6	12	NONOP
DIPLEX 1 SCORE	0	3	6	NONOP
DIPLEX 2 SCORE	0	3	6	NONOP

24. HIPAR REMOTE CONTROL CHECKS/ABAR VIDEO PRESENTATION CHECK		
RATING	SATISFACTORY	UNSATISFACTORY
SCORE	0	

25. ECCM CONSOLE		
RATING	SATISFACTORY	UNSATISFACTORY
SCORE	0	

26. HIPAR SENSITIVITY CHECK				
TOLERANCE	DATM	-1	-2	-3
SCORE: S, DF & FAGC OFF	0	5	15	25
SCORE: DF & FAGC ON	0	5	15	25
SCORE: DF, FAGC & MTI ON	0	5	15	25
SCORE: S, DF, FAGC & MTI ON	0	5	15	25

27. FUIF RANGE CALIBRATION CHECK		
RATING	SATISFACTORY	UNSATISFACTORY
SCORE	0	10

28. PLOTTING BOARDS		
RATING	SATISFACTORY	UNSATISFACTORY
SCORE	0	

29. AG TRANSMISSION AND COMMUNICATIONS			
RATING	SATISFACTORY	UNSATISFACTORY	
SCORE	0	10	NONOP

30. MISSILES ACQUIRED				
NON ACQUIRE	0	1	2	3
SCORE	0	15	40	NONOP
MANUAL ACQUIRE	0	1	2	3
SCORE	0	5	10	15

31. IFF/SIF		
RATING	SATISFACTORY	UNSATISFACTORY
SCORE	0	NONOP

32. CREW PERFORMANCE				
RATING	SUPR	EXC	SAT	UNSAT
SCORE	0	25	50	100

33. FIRE CONTROL AREA SCORE AND STATUS		
SCORE	STATUS	
	OPERATIONAL	NON-OPERATIONAL

REMARKS

ORE SCORE SHEET NIKE LAUNCHING CONTROL AREA *(ARADCOM Regulation 350-1-5)*	ORGANIZATION _____ BTRY, _____ BN, _____ ARTY	DATE

ITEM	SCORE	A		B		C		TOTAL
		ITEM NON-OP	SCORE	ITEM NON-OP	SCORE	ITEM NON-OP	SCORE	
1. TIME TO LAUNCH _____ MINUTES								
2. FLIGHT SIMULATOR								
3. FIRING SIMULATOR								
4. MISSILE ACQUIRE AND COMMAND								
5. MISSILE AND BOOSTER								
6. LAUNCHER								
7. SCI, ELEVATOR AND CONVERTER								
8. CREW PERFORMANCE								
							TOTAL	

LAUNCHING CONTROL STATUS			OPERATIONAL	NON-OPERATIONAL
CREW PERFORMANCE	SUPERIOR	EXCELLENT	SATISFACTORY	UNSATISFACTORY

REMARKS

ARADCOM FORM 1 JUN 64 122 EDITION OF 1 MAY 63, IS OBSOLETE.

Appendix I

Criteria For REDCON C1

AREA	1965 Criteria	1967 Criteria
A. Training	1. Operational Satisfactory ratings in Army Training Test, ORE, SNAP, and training inspections and evaluations.	1. 90 percent of refresher training in individual mandatory subjects completed.
	2. Satisfactory in most recent TPI within 13 months.	2. 10 points for quarterly OREs, maximum of 3 points per ORE for last 3 OREs.
	3. Satisfactory in major exercise participation within 13 months.	3. 120 hours of participation in air defense combat readiness training exercise within last 13 months.
		4. Satisfactory in most recent TPI within 13 months.
		5. Satisfactory in most recent annual service practice.
B. Logistics	1. 90 percent on hand of 90 percent of reportable items of full TOE equipment.	1. 90 percent on hand of 90 percent of reportable items of full TOE equipment.
	2. Total missile system in operational status not less than 85 percent of the time.	2. Total missile system in operational status not less than 85 percent of the time.
	3. For Class I, III, V unit loads, 90 percent fill of 95 percent of authorized load.	3. For Class I, III, V unit loads, 90 percent fill of of 95 percent of authorized load.

4. For Class II and IV prescribed load list (PLL) of repair parts, 0-10 percent of reportable items at zero balance.	4. For prescribed load list (PLL) of repair parts, 0-10 percent of reportable items at zero balance.
OR	OR
15 days of supply of authorized stockage list (ASL) of repair parts on hand.	14 days of supply of authorized stockage list (ASL) of repair parts on hand.
5. Satisfactory in most recent CMMI in 13 months.	5. Satisfactory in most recent CMMI in 13 months.

Source: AR 220-1, Unit Readiness, editions of 28 July 1965 and 20 February 1967

Appendix J

Chiefs of the National Guard Bureau (NGB)
and
Commanding Generals (CGs) ARAACOM/ARADCOM*
1950-1967

Chiefs, NGB	CGs, ARAACOM/ARADCOM
Maj. Gen. Raymond H. Fleming Acting Chief, 1950-1951 Chief, 1951-1953	Maj. Gen. Willard W. Irvine 1 July 1950-27 April 1952
Maj. Gen. Earl T. Ricks Acting Chief, 1953	Lt. Gen. John T. Lewis 1 May 1952-30 September 1954
Maj. Gen. Edgar C. Erickson 1953-1959	Lt. Gen. Stanley R. Mickelsen 1 October 1954-31 October 1957
Maj. Gen. Winston P. Wilson Acting Chief, 1959	Lt. Gen. Charles E. Hart 1 November 1957-31 July 1960
Maj. Gen. Donald W. McGowan 1959-1963	Lt. Gen. Robert J. Wood 1 August 1960-13 April 1962
	Maj. Gen. Philip H. Draper, Jr. Acting CG, 14 April 1962- 20 May 1962
Maj. Gen. Winston P. Wilson 1963-	Lt. Gen. William W. Dick, Jr. Acting CG, 21 May 1962- 19 August 1962 CG, 20 August 1962- 29 August 1963
	Lt. Gen. Charles B. Duff 30 August 1963-31 July 1966
	Lt. Gen. Robert Hackett 1 August 1966-

*ARAACOM established 1 July 1950 by DA GO No. 20, 29 June 1950; redesignated USARADCOM 27 March 1957 by GO No. 16, 22 March 1957; acronym changed to ARADCOM 1 May 1961 by Change 1 to AR 320-50, 21 February 1961.

Bibliographical Note

Like most ventures into unexplored fields of relatively recent military history, this study is based upon a miscellany of letters, telegrams, summary sheets, disposition forms, memorandums, reports, studies, plans, and briefing and conference notes which have somehow survived the gauntlet of records-destruction regulations.

Though not comprehensive, the most varied and seminal files of such documents discovered by the writer were those proffered by the Office of Reserve Components, Hq ARADCOM. Except for the gun era of Guard participation in CONUS air defense and the early phases of the Guard's Ajax program, key policy and planning papers were either present in these files, or memos for record provided invaluable leads to missing parts of the puzzle.

Through the generous efforts of the National Guard Bureau, such clues led to location in the National Archives of the Department of the Army staff studies and memoranda which document, during the tenure of General J. Lawton Collins as Army Chief of Staff, the inception of the Guard's unique role in air defense. Resultant Department of the Army and ARAACOM/ARADCOM operations plans were provided by the National Personnel Records Center of the General Services Administration, St. Louis. Remaining gaps

in documentation of Department of the Army policy for the Guard's gun program were filled by the State Air Defense Officer of Ohio, Colonel Thomas A. Herzog, whose search of pertinent files in the office of Ohio's Adjutant General proved to be discerning as well as productive.

The private papers of Brig. Gen. Clifford F. Beyers, Commanding General of California's 114th AAA Brigade at the time of the 720th Missile Battalion's experimental entry into a full-time role in on-site air defense in 1958, provided an uniquely authoritative source of detailed information on this pivotal development. These 37 pages of legal-size graph paper, upon which General Beyers' pen and pencil painstakingly recorded the 720th's progress along its pioneering path, constitute a lode which any student of this subject must fully mine. These invaluable papers were unearthed through the efforts of Lt. Col. Neil E. Allgood, Commanding Officer of California's 4th Missile Battalion, 251st Artillery, who contributed many other documents, of DA as well as ARADCOM and unit origin, too numerous to list here in detail.

The historical source files of the Office of the Historian, Hq ARADCOM, yielded most of the correspondence between Commanding Generals of ARAACOM/ARADCOM and higher authorities, as well as the command reports and commanders'

conference notes and brochures noted throughout this study. The files of other staff elements of Hq ARADCOM provided the score-sheets which served as sources for the largely graphical approach of this attempt to evaluate the Army National Guard's performance in air defense. Specifically, these sources were found in the files of the Directorate of Evaluations, DCSOPS; of the Inspector General; and of the Directorate of Materiel Readiness, DCSLOG.

Where files failed, interviews perforce were made to serve. The numerous witnesses who obligingly resolved enigmas, either in person or by telephone or letter, are identified in notes. Here there is space to acknowledge the contributions of only three of these mentors: Colonel Max E. Billingsley, who compressed almost a decade of experience as Chief of ARADCOM's Office of Reserve Components into four reels of recording tape; Lt. Col. Neil E. Allgood; and William I. King, now a retired Colonel, whose cooperative correspondence provided otherwise unobtainable information on the background of the Guard's Ajax program.

Secondary works on this subject are at best sparse. A 1967 bibliography of publications germane to the National Guard as a whole, Civilian in Peace, Soldier in War (DA Pamphlet 130-2), lists only five brief magazine articles on the Guard's role in air defense. No books, apparently, have been written on this subject.

Of tangential interest are three published works which add, albeit obliquely, to a true appreciation of the distinctiveness of the Army National Guard's contribution to continental air defense. Two of these are by Martha Derthick. Although her studies at no point reflect awareness of the Guard's record in air defense, they manifest considerable acuity in her chosen field: the Guard's role in politics. These two studies are The National Guard in Politics (Cambridge: Harvard University Press, 1965), and "Militia Lobby in the Missile Age: The Politics of the National Guard," in Samuel P. Huntington, ed., Changing Patterns of Military Politics (Glencoe: The Free Press of Glencoe, 1962). For anyone interested in any aspect of the Guard, these studies provide penetrating analyses of the political factors which rightfully and inevitably impact upon the Guard's military functions. The third of these works is General Sir Frederick Pile's amiable reminisence, Ack-Ack: Britain's Defence Against Air Attack During the Second World War (London: George G. Harrap & Co. Ltd, 1949). This book is more than a sprightly and highly informative account of Britain's uneven antiaircraft effort in an era of great need. If only indirectly, it suggests that Americans are not as blind as others have been to the virtually apocolyptic dangers which continue to threaten free societies.

Glossary

AA	Antiaircraft
AAA	Antiaircraft Artillery
AADCP	Army Air Defense Command Post
AAOC	Antiaircraft Operations Center
ACofS	Assistant Chief of Staff
AC&W	Aircraft Control and Warning
AD	Air Defense
ADAD	Air Defense Artillery Director
ADC	Air Defense Command (USAF)
AFB	Air Force Base
AFF	Army Field Forces
AG	Adjutant General
AGI	Annual General Inspection
ANACDUTRA	Annual Active Duty for Training
ANG	Air National Guard
AR	Army Regulation
ARAACOM	Army Antiaircraft Command
ARADCOM	Army Air Defense Command
ARNG	Army National Guard
Arty	Artillery
ASP	Annual Service Practice
A.T.S.	Auxiliary Territorial Service
ATT	Army Training Test
AW	Automatic Weapons
Bde	Brigade
Bn	Battalion
BRL	Bomb Release Line
BSSC	Battle Staff Support Center
CBR	Chemical, Biological, Radiological
CG	Commanding General
CINC	Commander in Chief
CMMI	Command Maintenance Management Inspection
CO	Commanding Officer
CofS	Chief of Staff
CONAD	Continental Air Defense Command
CONARC	Continental Army Command
CONUS	Continental United States
CY	Calendar year

DA	Department of the Army
DASA	Defense Atomic Support Agency
DCE	Defense Combat Evaluation
DCS	Deputy Chief of Staff
DCSOPS	Deputy Chief of Staff for Military Operations
DCSLOG	Deputy Chief of Staff for Logistics
D-day	The day on which an operation commences or is due to commence. This may be the commencement of hostilities or any other operation.
DF	Disposition Form
DOD	Department of Defense
ECM	Electronic countermeasures
EM	Enlisted man (men)
FY	Fiscal year
G-1	Personnel section (or chief) of a divisional or higher staff
G-3	Operations and training section (or chief) of a divisional or higher staff
G-4	Supply section (or chief) of a divisional or higher staff
GO	General Order
HAWK	Surface-to-air guided missile for defense against low-altitude air and missile attack
How	Howitzer
Hq	Headquarters
IFC	Integrated Fire Control
IG	Inspector General
Ind	Indorsement
Interv	Interview
JAG	Judge Advocate General
JCS	Joint Chiefs of Staff
Ltr	Letter
MDAP	Military Defense Assistance Program
M-day	The day on which mobilization is to begin
mm	Millimeter
MOS	Military Occupational Specialty

NCO ----------Noncommissioned officer
NGB ----------National Guard Bureau
NGR ----------National Guard Regulation
Nike Ajax----------Surface-to-air guided missile designed to intercept and destroy manned bombers and air-breathing missiles
Nike Hercules ----------Surface-to-air guided missile, with nuclear warhead capability, designed to intercept and destroy manned bombers and air-breathing missiles at greater ranges and altitudes than the Ajax
Nike Zeus ----------Surface-to-air guided missile, with nuclear warhead capability, for attacking intercontinental ballistic missiles
NORAD ----------North American Air Defense Command

OCS ----------Officer Candidate School; Office of the Chief of Staff
ODCSOPS ----------Office of the Deputy Chief of Staff for Military Operations (DA)
ORE ----------Operational Readiness Evaluation
ORI ----------Operational Readiness Inspection

P.V.O. ----------Protiv-Vozdushnaya Oborona, (U.S.S.R.), Soviet air defense forces
PW ----------Prisoner of war

RA ----------Regular Army
REDCON ----------Readiness condition
Reg ----------Regulation

S-3 ----------Operations and training section (or chief) of a staff below divisional level
SAM ----------Surface-to-air missile
SNAP ----------Short Notice Annual Practice
SS ----------Summary sheet
SSF ----------Special Security Force
sub ----------subject

Tel ----------Telephone
Telg ----------Telegram
TOE ----------Table of Organization and Equipment
TPI ----------Technical Proficiency Inspection
TSI ----------Technical Standardization Inspection

USAR ----------U. S. Army Reserve

WAC ----------Womens' Army Corps (member)
WO ----------Warrant Officer

ZI ----------Zone of interior

Index

(Omitted)