AD NUMBER

ADB010712

NEW LIMITATION CHANGE

TO

Approved for public release, distribution unlimited

FROM

Distribution limited to U.S. Gov't. agencies and their Contractors; Specific authority; Apr 76. Other requests must be referred to Commandant, Air War College, Maxwell AFB, Ala. 36112.

AUTHORITY

USAF/AU ltr, 10 Jun 2002

Air War College

6

SOVIET TACTICAL AIR DOCTRINE

9

PROFESSIONAL STUDY

14 5894

10 By Leslie R. Drane, Jr.

11 Apr 76

12 69 p.

AIR WAR COLLEGE
AIR UNIVERSITY
UNITED STATES AIR FORCE
MAXWELL AIR FORCE BASE, ALABAMA

014550

REPORT DOCUMENTATION PAGE

1. REPORT NUMBER 5894	2. GOVT ACCESSION NO. / 3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Soviet Tactical Air Doctrine	5. TYPE OF REPORT & PERIOD COVERED Research Report 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Leslie R. Drane, Jr., Lt Col, USAF	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS AWC/EDRP Maxwell AFB AL 36112	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Commandant Air War College Maxwell AFB AL 36112	12. REPORT DATE Apr 76 13. NUMBER OF PAGES 67
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)	15. SECURITY CLASS. (of this report) Uncl 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

B. US GOVERNMENT AGENCIES ONLY
(Proprietary Information)

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

See Attached

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

AIR WAR COLLEGE
AIR UNIVERSITY

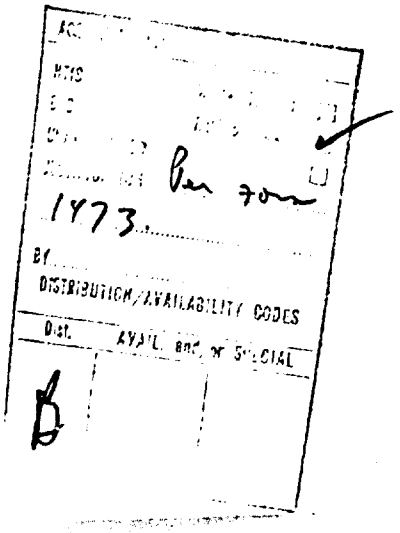
REPORT NO. 5894

SOVIET TACTICAL AIR DOCTRINE

by

Leslie R. Drane, Jr., [redacted]
Lieutenant Colonel, USAF

A RESEARCH REPORT SUBMITTED TO THE FACULTY



MAXWELL AIR FORCE BASE, ALABAMA

April 1976

ABSTAINER

This research report represents the views of the author and does not necessarily reflect the official opinion of the Air War College or the Department of the Air Force.

AIR WAR COLLEGE RESEARCH REPORT SUMMARY
No. 5894

TITLE: Soviet Tactical Air Doctrine

AUTHOR: Leslie R. Drane, Jr., Lt Colonel, USAF

A study of Soviet tactical aviation employment in World War II is presented as the basis for current Soviet tactical air doctrine. Evolutions in the post war Stalin era, the Khrushchev era, and the Brezhnev era show subtle changes in planned employment. Finally, available literature is reviewed to visualize current Soviet thinking on the employment of tactical air power.

ABOUT THE AUTHOR

Lt Colonel Leslie R. Drane, Jr., (MBA Auburn University) has served as a fighter pilot with units of the USAF tactical air forces in the CONUS, Europe and Southeast Asia. He was most recently assigned to the Tactics Analysis and Development Deputate of the USAF Tactical Fighter Weapons Center, Nellis AFB, Nevada. Lt Colonel Drane is a graduate of the Air War College, Class of 1976.

TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

The Soviet Union has been a strong proponent of air power from the time that aircraft first became available for military use. Even before the 1917 Revolution that brought the Communist Party to power, Russia was aggressively pursuing aviation technology and had produced a number of advanced military aircraft. Alexander P. de Seversky has claimed that before World War I, Imperial Russia, qualitatively and quantitatively, was the world's greatest air power next to France.[1] Seversky adds credence to his statement by noting that during World War I Russia was the only nation possessing four-engine, long-range, heavy strategic bombers. In fairness to the Royal Air Force, it should be noted that under the urging of Sir High Trenchard the British also developed a strategic bombing capability and employed it as an Independent Air Force under Trenchard. The British, in fact, had built the D. H. 9A four-engine bomber to bomb Berlin from England but the Armistice was negotiated before the aircraft was used.[2]

At any rate Seversky's point that Russia was an early pioneer in the aviation industry is well taken. Russian fighters used in the war were also well designed for their time. Seversky notes that these

fighters were equipped with air-to-air and air-to-ground rockets and that in 1917 he flew a single seat fighter armed with a 37 mm cannon.[3]

During the period between World War I and World War II the Soviet Union continued the development of its air power under the communist regime. Units of the Soviet Air Force were employed in the Spanish Civil War of 1936-38, in operations against the Japanese in 1937-39, and in the invasion of Finland in 1939-40.[4] Although the level of Soviet Air Force success was quite variable in these conflicts, the fact that aviation was used indicates the importance that Soviet leaders have attached to the use of the airplane.

In World War II the Soviet Union again widely employed aircraft in military operations. Although air operations certainly were not the most important factor in Soviet military successes, air units were extensively used and made major contributions.[5] Soviet Marshall Sokolovskiy has written that the Air Force was the second most important service in the war with the primary mission being support of the ground troops through battlefield operations.[6] The importance attached to aviation can be illustrated by noting that the Soviets produced approximately 170,000 aircraft during the war.[7]

Since World War II, the Soviets have continued to emphasize their aviation forces even as they have virtually matched the missile

development of the United States. The size and capability of Soviet Air Forces demand that American military planners be intimately aware of this Soviet force and how it might be employed in modern-day conflict.

Scope and Objective

The objective of this paper is to review the development of Soviet tactical air doctrine in order to come to an understanding of how Soviet tactical air forces might be employed in any future conflict. It is granted that a complete understanding of the potential of Soviet air power is possible only through a study of all facets of the Soviet Air Force. This paper, however, is limited to only one facet, that of tactical air. Additionally, the paper is limited to doctrine concerning tactical fighter and ground attack units even though in Soviet organizations reconnaissance, transport, and helicopter operations are included in tactical or frontal aviation. The purpose of thus limiting the study is two-fold. First, the limited scope provides an opportunity to delve more deeply into the subject. Second, the development of new Soviet tactical fighter aircraft with different capabilities indicate that Soviet tactical air doctrine for the use of such aircraft may be undergoing some measure of change.

Methodology

This study was performed through research of material filed in the Air University Library at Maxwell Air Force Base, Alabama. The basic approach to the research was to study the employment of Soviet tactical air in World War II, review pertinent Soviet and free world literature of the post war period, and review Soviet organization and aircraft used to discharge the tactical air role.

Although classified references were consulted, it was judged to be unnecessary to include classified information in this paper. Soviet doctrine for the employment of tactical air forces in World War II is amply documented in open literature. Additionally, it is a common practice for military services of all countries to print doctrinal publications in unclassified form. They do this to insure wide dissemination of guiding principles to their own people. To strengthen this argument, one can note that United States regulations, pamphlets, and directives concerning doctrine are normally unclassified. Only when employment tactics and specific capabilities are addressed do nations feel that distribution of doctrine papers must be restricted.

Limitations

Other than the ever present and obvious limitations of press of time and human failings, it is appropriate to mention two other

limitations of which the reader should beware. The first is my lack of ability to interpret Soviet articles and thus possibly gain additional information. This limitation was somewhat alleviated by the fact that some translations were available. Additionally, many English excerpts from Soviet writings were available.

A second limitation that should be mentioned was the lack of access to Soviet Air Force regulations and directives. Since employment doctrine is the basis of many United States Air Force regulations and directives, it is reasonable to assume the same is true of similar Soviet publications. Given the validity of this assumption, additional insight on Soviet tactical air doctrine might be obtained through perusal of appropriate Soviet regulations and directives.

CHAPTER II

THE FORMATIVE YEARS: WORLD WAR II

Soviet air doctrine during World War II appears to have been greatly influenced on the one hand by the practicalities of the environment and on the other by the dominant Soviet military doctrine of the time. Both of these influences tended to lead to the development of very strong tactical air forces, sometimes at the expense of other typical air force functions such as long-range bombing and air defense.

As Lord Kitchener once said, "One makes war as one must."[1] This statement certainly appears appropriate in analyzing the use of Soviet air power in the early stages of World War II. During the summer of 1941 the Soviet armed forces were faced with a highly efficient German blitzkrieg that rapidly moved deep into Russian territory. Under these circumstances Hanson Baldwin notes that the initial Soviet air strategy was simply one of survival.[2] In the same passage, Baldwin further states that the dire straits of Soviet ground forces during this time was a significant factor in subsequent Soviet emphasis on using air power to support ground forces. They simply tended to direct resources into strong ground support forces because this was the area of greatest need.

Soviet planners apparently believed that their ground forces needed all the firepower assistance that could be provided to insure that German forces would not overrun the Soviet Union. Even the relatively small Soviet long-range bomber units were used to provide support for ground units. USSR Ministry of Defense records indicate that 43 per cent of long-range aviation missions were flown in this role.[3] Soviet leaders were impressed by the effectiveness of ground support provided by aircraft during the dark hours of 1941 and, therefore, opted to put major emphasis on ground support forces throughout the remainder of the war.

Factors Affecting Employment

It can be argued that the Soviet Air Force was able to devote a large proportion of its effort to ground support because of the relative weakness and lack of decisiveness of the Luftwaffe on the Eastern Front.[4] Germany, involved in fighting a two-front war, had a major part of its better equipped units engaged in the intense air battles on the Western Front. Additionally, German air power on the Eastern Front was under Army domination and was used primarily in the ground support role.[5]

This employment of German air had a dual effect on the ability of Soviet forces to realize increased benefit from its ground support

effort. First, Soviet ground support aircraft were not severely harrassed by German air defense aircraft because the German air defense effort was relatively minimal. Second, the Soviets were able to divert more of their air effort from air defense to ground support because the Germans did not launch intensive, large-scale, long-range bombing attacks on Soviet military targets and industrial areas. Certainly there were German air efforts that could be classified as strategic bombing and the Soviets did lose a number of aircraft on the ground during the first days of the war. However, as the blitzkrieg gained momentum, more of the German air effort was devoted to direct support of ground troops rather than long-range bombing or airfield attack.

In addition to the influence of German efforts as previously described, allied air efforts also tended to influence Soviet leaders to emphasize ground support forces. The Soviet Union did not need to mount large-scale, long-range bombing efforts against Germany simply because British and American forces adequately filled this role.[6] The allied strategic bombing freed the Soviets to concentrate their air operations on direct support of the ground units.

There were other factors that led to the development of strong Soviet tactical air forces during World War II. Baldwin states that

three of the more important factors were geography, the concept of mass, and the dominating influence of land power.[7] In studying Mr. Baldwin's analysis it does indeed appear that these three factors could well have had a significant bearing on the shape of Soviet air operations. In actuality the three are embodied in one, that being the size of Russia and particularly the distance between populated areas. These factors have always greatly influenced Soviet military doctrine. In developing this paper it is useful to review Mr. Baldwin's ideas on these factors' influence on Soviet air power in World War II because it appears they did influence the development of Soviet tactical air.

First, the size of Russia and the large distances between centers of population in Soviet Siberia, western Russia, and the Black Sea-Caucasus area present immense communications and logistics problems in setting up a nationwide, centralized military organization. These problems were particularly severe at the beginning of World War II when roads and railroads were much less developed and aircraft were extremely limited in range as compared to today. Additionally, these widely separated areas on the periphery of the Soviet land mass have historically been vulnerable to land invasion. For this reason Soviet military organizational doctrine has traditionally

included semi-autonomous military districts with each district commander assigned strong, independent ground forces for the defense of his district. Following this doctrine, the Soviets assigned air units to each district as aircraft inventories increased in the mid-thirties. Since each district commander was only responsible for a designated geographical area, it was reasonable for him to give the newly gained air forces the primary job of supporting Army units rather than being concerned about long-range bombing.

The size of Russia also contributed to the concept of mass which Baldwin lists as a second major factor of importance in Soviet air employment. In the Soviet view the concept of mass embodies not only the concentration of firepower, but also a superiority of numbers over enemy forces.[8] Faced with the problem of defending an immense land mass, Russia has historically required large forces to meet her doctrinal requirement to be able to mass forces along a long frontier. To fully support the concept of mass, Soviet land forces used extensive artillery support to provide the desired concentration of firepower.

When the airplane emerged as a new means to provide firepower, the Soviets simply used airplanes to supplement artillery. The mobility of the airplane enhanced the ability to concentrate firepower

which is one aspect of the Soviet concept of mass. The requirement to provide this concentration of force for large land armies that were widely separated led to major resource allocation to tactical aircraft in order to produce the required numbers of airplanes.

As translated to the use of the airplane, the Soviet concept of mass resulted in aircraft formations used as massed aerial artillery.[9] Examples of the use of airplanes in mass to support ground troops are listed by the French General Augustin Guillaume in his book Soviet Arms and Soviet Power.[10] He notes the use of Ilyushin-2 Stormoviks in mass formation during the battle of Moscow. The Soviets committed some 1,200 planes to this battle and report that 406 German tanks were destroyed by air between November 1 and 11, 1941. This use of tactical bombing to provide concentrated firepower intensified as the Soviet aircraft industry replaced early losses. At Stalingrad in 1942 the Soviet Air Force flew some 34,000 sorties during September and October. At Koenigsberg 10,000 sorties were flown in 48 hours in April of 1945. It is claimed that the Soviets flew 70,000 sorties, 17,000 of these on the first day of this battle.[11]

As delineated by Baldwin a third major factor in the development of Soviet air doctrine was the dominating influence of land forces. Soviet military forces during World War II were basically employed

in accordance with doctrine developed in the mid-thirties. This doctrine was based on the premise that the ground campaign would be the decisive event in any conflict. Thus, despite the fact that Russia had developed long-range bombers under the guidance of de Seversky and Sikorsky, the Soviets eschewed an independent role for the air force. The primary role of the air force was to support ground troops through operations directly over the battlefield.[12]

The Combined Arms Concept

Even though geographical considerations and friendly and enemy military forces were important factors in shaping Soviet air employment, in actuality they only served to strengthen Soviet ideas as to how air power should fit into overall military doctrine. This doctrine embodied a close knit integration of infantry, armor, artillery, and tactical air power into a combined arms concept. Soviet Marshall of Aviation Vershinin stated in 1949 that World War II proved the validity of this concept. He proposed that war could only be won by all services working together rather than by independent actions of air force or tank units.[13]

Even though this combined arms concept is not radically different from United States ideas on joint force doctrine, there are degrees of differences that tended to divert a major share of Soviet resources

into the tactical air forces during World War II. In 1948 Colonel-General Sudets, Chief of Staff of the Soviet Army Air Force wrote that victory can be achieved only by the combined efforts of all forces. He went on to say that, " . . . the training of air force units is planned so that they can first of all provide direct assistance to the ground forces."[14] Sudets also noted that results achieved during World War II confirmed the soundness of this use of air power. These remarks by Sudets indicate the importance that the Soviets placed on the land battle. Concepts such as these led directly to major emphasis on strong tactical air forces to support ground troops.

Thus the prewar Soviet doctrines of combined arms and mass employment led to the development of large tactical air forces that were in the most part employed in mass to provide direct support for ground units. Russian geography and the interplay of enemy and friendly military actions tended to reinforce these prewar doctrines. The degree of emphasis on tactical air power may be illustrated by the fact that tactical air forces comprised some two-thirds of all Soviet air strength during the war.[15] The importance placed on mass is indicated by the fact that by 1945 the Soviets had deployed some 20,000 aircraft against the 2,800 opposing aircraft of the Luftwaffe.[16]

Organization of Tactical Aviation

At the beginning of World War II, Soviet Air Forces were organized into the following components:

1. Long-range Air Force of the High Command.

2. Air Force of each military district consisting of fighter divisions and short-range bomber divisions.

3. Air Force component of each land army consisting of composite divisions of fighter, bomber, and ground attack regiments.

4. Military service air force made up of communications (liaison) squadrons assigned to infantry and mechanized corps commanders.

5. Naval Air Service.[17]

The tactical air units were thus split between the air force of each military district and the air force component of each land army. Air units were subordinate to ground commanders at a fairly low level. Soviet writings indicate that this arrangement resulted in fragmented, uncoordinated employment of air power that proved to be less than satisfactory in providing the necessary concentration of firepower. For example, it was noted that although the air force on the Northwestern Front flew more than 8,000 sorties during the first 18 days of the war these efforts were scattered over a wide area and not concentrated in specific directions.[18]

To rectify these shortcomings tactical air armies were organized and assigned to Front commanders in the fall of 1941.[19] In the Soviet armed forces organization, a Front not only designates a zone of operation, but also is an operational organization that has control of operations within that zone. In The Offensive, Colonel Sidorenko of the Frunze Academy stated that the Front organizations were established to give better control of several armies operating in an area. The width of Fronts and forces assigned varied considerably depending on the nature of the campaign.[20] Generally Front widths tended to range between 300 to 500 km with some even larger. Similarly tactical air armies varied widely with one author quoting strengths of 1,000 to 1,400 aircraft per air army.[21] The air armies normally were made up of composite divisions of fighter, ground attack, and light bomber aircraft to maintain control of the air over the battlefield and provide ground support.

This reorganization of tactical air under an air commander who worked directly for the Front commander enabled the Front commander to more effectively allocate his air support. The arrangement was particularly beneficial in concentrating air power as required to counter enemy armor attacks and to provide additional firepower for

attacking units during a breakthrough. The reorganization also gave air force commanders more control over subordinate air force units.[22]

Under the new arrangements air force tasks were assigned and coordinated by the Front commander's joint air force/ground staff. The missions were then directed and controlled by subordinate air force commanders rather than ground commanders.[23] This doctrine of centralized control and planning by the Front commander's staff was to prevail generally throughout the remainder of the war. The procedure was sometimes changed to assign air force units to subordinate ground commanders to support specific operations. This was most often done to support a ground unit that had achieved a breakthrough. Additionally, the Soviet High Command sometimes reassigned air units from one Front commander to another to provide the desired concentration of air power.

As the war progressed additional organizational changes were made. Fighter units were assigned to the air defense forces, which operated independently of Front organizations; the communications squadrons of the Military Service Air Force were absorbed by other units; and an airborne force was organized. With these changes the Soviet air forces were divided into the six following component air forces by the war's end.

1. The Army Air Force of the Soviet Army (organized into Tactical Air Armies assigned to Fronts).

2. The Naval Air Force.

3. The long-range bomber force.

4. The interceptor fighter force of the air defense force.

5. The airborne troops.

6. The civil air fleet.[24]

Thus, throughout most of the war, Soviet organizational doctrine was to have tactical air forces organized into air armies that were assigned to Front commanders. These air armies received their orders from the Front commander, but individual units were normally under the direction of air force commanders. Occasionally subordinate units might be assigned directly to subordinate ground units for a specific period of time. This was most often done during a breakthrough to provide additional firepower for armored or motorized units.[25]

Summary

In summary, a large part of the Soviet air resources in World War II were used in support of the tactical air mission. It has been estimated that at times up to ninety per cent of Soviet Air Force operational strength was engaged in this mission.[26] Fighters, ground attack aircraft, short-range bombers, and even long-range bombers

were used to provide maximum support for the ground troops. The role of these tactical air forces was to provide air cover and massed firepower as needed by the ground commanders. The control of tactical air units was centralized under the Front commander so that he could more readily use aircraft as massed artillery to help break up enemy attacks or provide concentrated support during a Soviet breakthrough.

CHAPTER III

THE POST WORLD WAR II YEARS

The Soviet Union continued to increase the strength of her tactical air forces after World War II. There have been periodic shifts in emphasis, but the tactical air unit continues to be considered an integral member of the combined arms team that Soviet writings repeatedly state is essential in winning a modern-day conflict. Subtle changes in Soviet tactical air employment doctrine can be associated with overall Soviet doctrinal changes during the Stalin era, the Khrushchev era, and the Brezhnev-Kosygin era.

The Stalin Era: Adjusting to a New Power Structure

Soviet tactical air employment doctrine during the Post World War II Stalin era changed very little from that developed during World War II. In many respects the doctrine of this era was influenced more by the pressures of internal and external power struggles rather than by any exhaustive study of the best way to employ armed forces. Stalin's efforts to solidify control over the Soviet Union and the United States nuclear monopoly both greatly influenced all Soviet employment doctrine.

One means that Stalin used to solidify his control was to denigrate the efforts of other Soviet World War II leaders and to

emphasize that he was personally responsible for all successful ideas of the war. The climate of the times was such that once Stalin approved or blessed an idea, then no voice was raised to question or even to further develop the idea. Thus Stalin's signing of a defense order in 1946 which declared that "The further development of Soviet military science must be conducted on the basis of a skillful mastering of the experience of the recent war,"[1] had a pervasive influence on doctrine of that time. Dr. Raymond Garthoff suggests that the one dominant aspect of Post World War II military doctrine was a virtual canonization of Stalin's ideas as they existed in 1945.[2]

The second major influence on Soviet military doctrine of the time was that of United States nuclear monopoly. Without a nuclear capability a strong combined arms force of infantry, artillery, armor, and tactical air was the only force with which the Soviet Union could effectively oppose the United States. Although such a force could not inflict direct damage on the United States, it could certainly maintain physical control of Eastern Europe and intimidate all of Western Europe. Conversely, without a nuclear capability it would have done the Soviets little good to have developed a long-range bombing force to balance the threat of United States B-36s loaded

with nuclear weapons. Soviet long-range bombers carrying non-nuclear bombs would have had little deterrent value against a United States nuclear equipped force. The United States bomber force was, however, an important consideration in Soviet emphasis on developing fighter interceptor aircraft. This emphasis on developing fighters designed primarily for the air defense role resulted in a decreased capability to perform the air-to-ground mission.

The net result of these interactions was that the combined arms concept remained in vogue during the Post World War II Stalin era. This concept continued to include the doctrine of using large aircraft formations to maintain control of the air and to provide massed aerial artillery. Aircraft inventories were kept at a level that would facilitate their employment in this manner.[3] The extent of emphasis on tactical aviation can be illustrated by noting that approximately 12,000 of the Soviet air force's strength of some 21,000 aircraft were assigned to tactical air armies in 1953.[4]

The stagnation of doctrinal thinking under Stalin did not prevent the Soviets from pursuing an aggressive aircraft development program. With the emergence of the Mig-15, the Soviets had a jet fighter that in some performance parameters compared favorably with United States aircraft used in Korea. The IL-28 jet light bomber was

developed to provide firepower support for ground troops. Development of the Mig-17 was started so that armament and fire control deficiencies of the Mig-15 could be alleviated. Additional programs that would eventually provide the Mig-19 day fighter and the all weather Yak-25 interceptor were also initiated during the Stalin era.[5]

The Khrushchev Era: Effects of Nuclear Technology

The Khrushchev era was marked by changing Soviet capabilities and policies that had significant influences on the planned employment of tactical air power. The primary influences during the Khrushchev era were technological advancements in nuclear missile programs that were begun during the Stalin regime. The Soviets exploded their first nuclear weapon in 1949 and used remnants of the German missile industry to spur their missile program. Under Khrushchev, who came to power in 1953, the Soviets launched the famed Sputnik in 1957 and then developed a nuclear armed ICBM force to oppose the Western alliance.

Khrushchev put such importance on the role of strategic nuclear forces that dependence on other military capabilities were significantly reduced. In a speech in 1960 Khrushchev noted that with the

present development of rocket technology, military aviation and the Navy had lost much of their former importance.[6] He continued on to say that military aviation is being almost entirely replaced by rockets, that production of bombers had been reduced, and that further reduction and probably even a cessation in production of bombers and other obsolete equipment would occur.

These pronouncements by Khrushchev, coupled with advancing technology, gave Soviet military technicians an opportunity to develop new ideas for the employment of tactical air. The move away from the use of tactical air as massed artillery was not, however, as sharp as one might suppose from Khrushchev's speeches but rather was a change in emphasis that took place over time.

For example, in 1957 Marshall Zhukov, the Soviet Minister of Defense, wrote, "In the postwar construction of the armed forces we are proceeding from the fact that victory in future wars will be achieved only by the combined efforts of all arms of the armed forces and on the basis of their coordinated employment in war."[7]

To emphasize this point, Dr. Garthoff concluded in 1958 that "Soviet modernization of doctrine, weapons, and organization is distinguished not by a replacement of the capacities for limited war, but by the addition to them of capacities for either limited or

nuclear war."[8] Another author has noted that in actuality the Soviets have developed both strategic and tactical air side by side since World War II.[9] These statements suggest that while nuclear and rocket technology brought pressures for change, Soviet doctrine continued to state the importance of using tactical air to provide air cover and additional firepower for ground forces.

Perhaps the most prominent changes in tactical air doctrine in the late 50s was the inclusion of the use of nuclear weapons and jet aircraft with increased capabilities over previous equipment. The introduction of the tactical nuclear weapon provided single weapon firepower that lessened the need for large aircraft formations. The second generation of jet aircraft provided a delivery system that could deliver these new weapons using low altitude, high airspeed tactics. This led to a change in emphasis on large-scale attacks by massed aircraft to more emphasis on single ship or two ship attacks to penetrate enemy defenses. These attacks would not as a rule provide sufficient firepower using only conventional weapons and indicate the extent to which the nuclear war syndrome influenced Soviet thinking. This changing doctrine also began to shift some of the emphasis from direct support of ground troops to the missions of interdiction and operation against enemy air forces. Soviet writings

mentioned airfields, large troop concentrations, bridges, supply depots, and command and communications centers as targets for tactical air delivery of atomic weapons.[10] The highest priority was given to the destruction of enemy nuclear delivery vehicles.

During this same time period the air defense mission was taken away from Frontal aviation with the establishment of the National Air Defense Command in 1955. This was done to coordinate the activities of air and ground air defense units and to provide central control over air defense forces. The mission of maintaining air superiority over the battlefield continued to be assigned to Frontal aviation.

As the influence of Khrushchev's idea of nuclear war inevitability increased in the late 50s and early 60s, Soviet writings continued to indicate the relatively decreased importance placed on tactical air and particularly the doctrine of using tactical air as massed artillery. The doctrine of maintaining air superiority over the battle area was, however, maintained.[11] The Khrushchev emphasis on the importance of rockets led to the development of tactical rockets and intermediate range ballistic missiles to perform much of the tactical nuclear interdiction role. The role of the tactical aircraft was shifted more toward providing air cover for local air superiority and reconnaissance while the ground support role was deemphasized but not abandoned.[12]

Thus Khrushchev's primary impact on tactical air doctrine was to stimulate the development of means to employ tactical air forces in a nuclear environment. Tactical air interdiction doctrine was not extensively developed because this role was primarily assigned to surface-to-surface missile units. In the final analysis it appears the changes of the Khrushchev era are evolutionary so as to incorporate new technology rather than basic doctrinal changes. Perhaps the one main difference was the tendency to diverge from the doctrine of massed aerial artillery. The role of the tactical fighter forces continued to be to maintain control of the air, to attack enemy troops and equipment on the battlefield, to attack enemy reserves, and to combine in action with the ground forces during offensive action.

Post Khrushchev: Combining the Nuclear and Conventional Roles

With the departure of Khrushchev from the Kremlin leadership Soviet writings increasingly began to acknowledge the possibility of non-nuclear conflict or concurrent nuclear and non-nuclear conflict. As previously discussed, under Khrushchev major emphasis was put on fighting a nuclear conflict. In the 1963 edition of Military Strategy, Soviet Marshall Sokolovskiy stated that the basic means for armed conflict in land theaters in a future world war will be nuclear weapons used

primarily with tactical missiles.[13] The somewhat different emphasis under Brezhnev can be illustrated by the revised Military Strategy of 1968. In this edition, Sokolovskiy noted that in addition to preparing for a decisive battle in a world war, the Soviet armed forces must also prepare for small-scale local wars. He further noted that these wars are fought by different means than world wars and that Soviet forces must be able to participate in these wars to prevent their escalation into world war and to bring quick victory over the enemy.[14]

This renewal of interest in planning for a non-nuclear possibility led to some redefinition of the role and importance of tactical aviation. In a March 1963 speech, Major General A. Kravchenko suggested that tactical missiles might provide better battlefield support than tactical aviation.[15] By contrast,in 1964 the Soviet tank expert Marshall P. A. Rotmistrov spoke on the importance of air power in theater operations. In this speech he noted that:

> . . . despite the employment of missiles, aviation will also play an important role, especially in the operations of tank forces and other strike groups separated from the remaining forces. In a war of maneuver aviation will become not only an irreplaceable means of reconnaissance, but also a reliable and adequately effective means for suppression of mobile targets, through use of both nuclear and conventional bombs.[16]

Notwithstanding these quotes, judging from the continued build-up of nuclear forces, Soviet doctrine is still primarily oriented towards fighting a nuclear war. There does, however, appear to be a growing tendency to permit more discussion of using tactical aviation to support ground forces involved in a non-nuclear conflict. Current Soviet tactical doctrine as viewed by this author will be addressed in the next chapter.

CHAPTER IV

CURRENT DOCTRINE

The Soviet Union today has a large tactical air inventory. In its December 1976 annual assessment, The Institute for Strategic Studies listed approximately 4,500 aircraft in the inventory with some 2,550 additional fighters and interceptors assigned to the Air Defence Force.[1] The 4,500 aircraft assigned to Soviet tactical air forces represent 50% of the total Soviet military inventory. Most of the tactical force is deployed in the Eastern European countries and in the western Soviet Union. The remainder is deployed primarily along the Sino-Soviet border. This chapter is devoted to a study of the current Soviet doctrine for employment of these forces. The chapter will include a presentation of organization of Soviet tactical air forces, an overview of tactical aircraft, and a review of available published literature discussing Soviet doctrine.

Organization of Soviet Tactical Forces

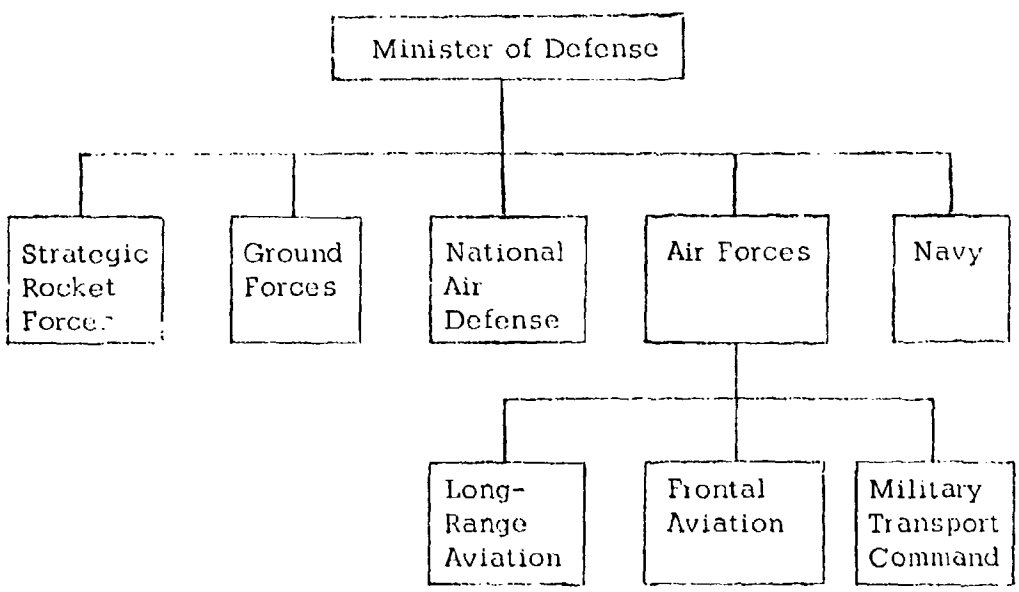
Just as in the United States military, aircraft in the Soviet Union are divided among several different commands. The method of organization, relationship between commands, and division of missions is, however, quite different in the two countries. Soviet air power is divided into five different components: Long-range aviation,

equipped with intercontinental and medium range bombers; Frontal Aviation for support of ground troops; Military Transport Aviation; Fighter Aviation of the Air Defense Service, and Naval Aviation.[2]

Only three of these components, Long-Range Aviation, Military Transport Aviation, and Frontal Aviation are under the jurisdiction of what is normally known as the Soviet Air Force. (See Figure 1 for a simplified diagram of Soviet military forces).[3] Naval Aviation is a

FIGURE 1

SOVIET MILITARY ORGANIZATION



component of the Navy and Fighter Aviation of the Air Defense is a component of the National Air Defense Service. The air units that this paper discusses are those assigned to Frontal Aviation. The chain of command as shown in Figure 1 is apparently only an administrative structure to provide the desired forces. It is generally believed that in a wartime situation a different chain of command as discussed below will exist.

Soviet ground forces currently divided among sixteen Military Districts within the Soviet Union and four Groups outside the Soviet Union, one each in East Germany, Poland, Hungary, and Czechoslovakia. Frontal Aviation units within each of these Military Districts and Groups of Forces are subordinate to the ground commander who in reality acts somewhat as a theater commander in United States military organizations.[4] In the Groups of Forces and the Military Districts, Frontal Aviation is organized into a Tactical Air Army with the air commander directly subordinate to the Group or District Commander.

Once a conflict starts, Soviet plans indicate that the operational fighting organization will be the Front. A Front will be established at each of the present Groups of Forces while probably two or more Military Districts will be combined to form Fronts throughout the Soviet Union.[5] Each Front will be assigned a Tactical Air Army. The Tactical Air Army will

thus take its orders from the Front commander and generally will operate primarily within the area assigned to the Front. With the expected highly centralized control that the Soviet High Command may be expected to exercise, it is reasonable to assume that Frontal Aviation units may be transferred from one Front to another with little problem. This was, in fact, the normal procedure during World War II.[6]

There is no standard size or composition for a Tactical Air Army. Each army is made up of a mixture of fighter, fighter-bomber, light attack bomber, reconnaissance, transport, and helicopter regiments according to the desired capability.[7] The staff of the Tactical Air Army is normally co-located with the staff of the Front commander. Operations are jointly planned, but air operations are controlled and directed by the air commander.

Command and Control. Open source literature indicates that ground support aircraft are controlled through a radar and communications network that is somewhat analogous to the system used by the United States Air Force.[8] For preplanned missions ground commanders submit requests to the Front staff which then assigns missions to specific air units. The low altitude attack profile is emphasized for these preplanned missions with radar following and

direction used to assist aircraft enroute to the target. In the December 1971 issue of Soviet Military Review, a Soviet pilot describes this kind of mission.[9] In the article it is noted that the strike pilot remains under the control of the command post radar until out of radar coverage. The pilot then relies on visual low level navigation over a preselected route to find the target. The target for this particular mission was a simulated missile guidance station protected by air defenses. The article stated that a fighter-bomber might use missiles or bombs against such a target.

To support more immediate requests for air support, the Soviets have stationed air force liaison officers with ground units.[10] These liaison officers control ground or airborne alert aircraft that are tasked in response to a request from a ground commander. Again radar is extensively used to control aircraft enroute to the target area and to divert flights if desired. Once in the target area a ground based air force forward observer is used as needed to provide final target description and strike control. In an article describing this immediate response to air support requests, Soviet Major-General A. Karikh notes that the main purpose of air support is to destroy the enemy's offensive fire weapons, reserves, command posts, manpower and equipment in joint action with the land forces.[11]

Aircraft Overview

The Soviet Union is in the midst of an extensive update of its tactical strike aircraft. Aging Mig-17 and Mig-19 fighters and the Il-28 bomber have or are being replaced by newer aircraft with greatly increased capability such as the Mig-21 Fishbed (several models), the Mig-23 Flogger, the Yak-28 Brewer, the SU-7 Fitter A, the SU-17 Fitter C, and the SU-19 Fencer A. A brief summary of the capabilities of these aircraft is included to attempt to determine any employment trends that might be suggested by aircraft design. The information listed was obtained from Jane's All the World's Aircraft.[12]

Mig-17 Fresco. The Mig-17 Fresco was first introduced in 1953 as a development of the Mig-15, Russ[illegible] operational jet fighter. The single-seat Mig-17 is equipped wi[illegible]er one 37 mm and two 23 mm cannon or with three 23 mm cannon. It can carry two packs of 8 x 55 mm rockets or a total of 1,100 pounds of bombs. Nominal combat radius is approximately 175 miles and ordnance delivery is limited to visual conditions.

Il-28 Beagle. The Il-28 Beagle has been in service since the early 50s. This subsonic, twin-jet tactical bomber carries a crew of four including a tail gunner. The aircraft is equipped with two 23 mm guns in the nose and two 23 mm's in the tail turret and can

carry up to 4,400 pounds of bombs. Radar equipment for navigation and blind bombing permits limited adverse weather operation. Combat radius with maximum bomb load is approximately 800 nm.

Yak-28 Brewer A and E. The Yak-28A two-seat tactical attack bomber is a supersonic twin-engine aircraft produced to replace the Il-28. The crew consists of a pilot and a navigator/bomb aimer. Weapons are carried in an internal bomb bay and the avionics system includes radar for navigation and bombing. Maximum combat radius for the Yak-28 is listed as 500 nm. The Brewer E is the first Soviet operational ECM escort aircraft. This aircraft was first deployed in 1970 and incorporates an active ECM pack built into the bomb bay.

SU-7B Fitter A. The SU-7B was first introduced in the late 1950s and became the standard tactical fighter-bomber of the Soviet Air Force. The aircraft was designed for clear air mass weapons delivery. Its weapons capability includes rockets and bombs (usually two 750 kg and two 500 kg) as well as two 30 mm cannons with 70 rounds of ammunition each. Nominal combat radius is 172-260 nm.

SU-17 Fitter C. The SU-17 Fitter C is a variable-geometry adaptation of the SU-7 ground attack fighter. The variable-geometry configuration has resulted in improved takeoff performance, range, and load-carrying capabilities.

Mig-21 Fishbed. The Mig-21 was first developed as an air-to-air superiority fighter with emphasis on high rate of climb, good handling characteristics, small size and light weight. The first versions were day fighters of limited range with comparatively light armament and limited avionics. Subsequent models have incorporated improvements to increase adverse weather interceptor capability and to provide a significant air-to-ground capability. The current multi-purpose Fishbed-J can accommodate either infra-red or radar homing missiles as well as a 23 mm gun for the air-to-air role or be loaded with a mixture of weapons for the ground attack role. Nominal combat radius is 300-350 nm.

Mig-23 Flogger. The Mig-23 variable-geometry Flogger was introduced into operational service in 1972 and provides Soviet tactical air forces with a much improved air-to-ground weapons load capability as well as increased range and adverse weather use. The aircraft incorporates electronic countermeasures equipment and also an avionics package that has been compared favorably with current USAF F-4 systems. Nominal combat radius is approximately 400 nm.

Mig-25 Foxbat. The Mach 3.2 Mig-25 Foxbat has been introduced in an interceptor and a reconnaissance version. This high altitude aircraft is reported to have a highly advanced avionics

system. There has been much discussion of the degree of its look-down, shoot-down capability, but there can be no doubt of its ability to penetrate enemy airspace on high altitude, high speed reconnaissance missions. This capability has been frequently illustrated over Israel and Iran. The Foxbat would probably not be assigned to tactical air forces under the Front commander, but would certainly support the Front through reconnaissance and perhaps in the interceptor role. Nominal combat radius is approximately 700 nm.

SU-19 Fencer A. The SU-19 Fencer A has been described as the first modern-day Soviet fighter-bomber developed specifically for the ground attack mission. The two-seated fighter is thought to be possibly in the same class as the USAF F-111. Armament includes a variety of guided and unguided air-to-surface weapons as well as a twin-barrel 23 mm gun.

This brief overview of Soviet tactical aircraft indicates that the Soviet Union is clearly undertaking a major effort to update and actually change the capabilities of its tactical air force. The characteristics of early Soviet jet fighters (Mig-15 and Mig-17) suggested that tactical air was to be used more for air cover for ground troops rather than for medium or long range interdiction. Even the traditional role of ground attack seems to have been slighted as

these aircraft had low load carrying ability even for short distances. Simplicity of design and ability to operate under austere base conditions could somewhat offset these deficiencies by providing increased sortie rates. Additionally, the Il-28 bomber could perhaps have helped achieved the desired tonnage of bombs on the front lines.

With the introduction of the Mig-19, Mig-21, and SU-7 the Soviets could adopt a doctrine of extended range counter air and increased conventional ground support. The aircraft were also better equipped to perform the nuclear strike role envisioned in the late 50s and early 60s. Lack of sophisticated navigation and adverse weather bombing equipment would, however, have restricted their utility in this role. Even with their increased ground attack capabilities, the Mig-19 and Mig-21 were developed as interceptor aircraft and the SU-7 was limited almost altogether to fair weather missions. There were still large gaps in the Soviet ability to provide long-range, all weather air support for ground troops.

The aircraft subsequently introduced into the Soviet inventory, that is the Yak-28, the SU-17, and SU-19, and the Mig-23 have capabilities that will greatly help to alleviate these deficiencies. All four aircraft provide not only increased payload and range, but

also should provide increased survivability through maneuverability, ECM equipment, and perhaps in the case of the SU-19, navigation equipment that will allow adverse weather, low altitude penetration.

One deficiency that the Soviets have apparently not attempted to address is the limited range obtainable from fighter aircraft without the use of air refueling. The necessity for air refueling was lessened in earlier model Soviet jet aircraft because they were designed to operate from austere forward airfields. Although later models are also designed with this in mind it may be postulated that the more complex aircraft will be more difficult to operate from austere fields. The inclusion of light bombers in Soviet Tactical Air Armies does, of course, give the Front commander a degree of long-range interdiction capability.

Aircraft now entering service with Soviet Tactical Air Armies will greatly enhance the ability to conduct the ground attack mission. With this new generation of aircraft the Soviet Union can once again fully implement its traditional use of combined arms to exploit its military forces. In a September 1975 article, Dr. John Erickson analyzed Soviet tactical strike aviation as follows:

> The attack capability of Soviet tactical air corresponds to the shift to an offensive posture with highly mobile strike forces; correspondingly, Soviet tactical airpower with its low-flying deep penetrating aircraft and with all-weather performance is committed to facilitating and supporting penetration tactics, all with very powerful land forces.[13]

Review of Published Literature

Since the ouster of Nikita Khrushchev in October of 1964 there have been subtle changes in Soviet writings and speeches that indicate some adjustments have been made as to how tactical air forces might be used. These adjustments have been in the relative emphasis given to non-nuclear versus nuclear capabilities rather than in organization, command and control, and basic mission assignments. In the remainder of this section selected Soviet and free world literature is reviewed to illustrate current thinking on Soviet tactical air employment.

As previously noted, during the Khrushchev era nuclear war was emphasized to the point that non-nuclear conflict was virtually ignored in what might be considered primary Soviet writings. In his 1960 speech to the Supreme Soviet Khrushchev stated that nuclear weapons and missiles were the main element in modern war and that traditional armed forces were rapidly becoming obsolete.[14] In Sokolovskiy's 1963 edition of Military Strategy, the section

"Methods of Conducting Warfare" did not even contain a discussion of conventional war.[15]

This nuclear emphasis by Soviet leaders appears to have had a direct impact on Soviet tactical air forces. Little emphasis was placed on developing fighter-bombers with large conventional weapons load carrying ability. Conversely major emphasis was directed toward maintaining a large interceptor force to blunt the possible nuclear strikes by adversary forces. The importance of the fighter-bomber was envisioned to be the ability to search out mobile targets and to deliver nuclear strikes against enemy nuclear weapons delivery platforms. Previous emphasis on the use of tactical air as massed aerial artillery was decreased. The typical strike was planned as a low level, high speed attack by a single aircraft or an element of two aircraft.[16]

Despite this emphasis on nuclear war, the Soviet Union continued to maintain relatively large conventional ground forces and the tactical air forces that they have traditionally used to support ground units. A RAND Corporation analyst postulated in 1963 that although the Soviets virtually had no conventional war doctrine, they intended to use their large conventional forces for final defeat and occupation of an enemy country after a nuclear exchange.[17]

As noted by Dr. Thomas Wolfe, Soviet writings in the mid-60s began again to admit the possibility of conventional war and the necessity for combined action by all arms of the military.[18] It might be theorized that several external influences tended to bring the Soviets more to the idea of non-nuclear employment of tactical forces. First, the reality of an operational Soviet nuclear capability perhaps influenced the Soviets to believe that the Americans would try all the harder to avoid any kind of a nuclear exchange. Second, the increased intensity of limited wars throughout the world suggested an increase in conventional capability. The use of tactical airpower by the Americans in Southeast Asia and the Israelis in the 1967 Middle East war no doubt prompted the Soviets to expand their conventional capabilities. Published literature indicates that this is in fact the route the Soviets have taken.

In a 1967 book published by the Lenin Military-Political Academy, a summary of military doctrine concluded that world war would probably be fleeting but planning for protracted war and the use of large-scale armies should not be excluded.[19] The summary continues on to state that it is first of all necessary to have modern nuclear weapons, but also that final victory can only be achieved by the combined effort of all services. The role of tactical air is seen as not only

carrying out nuclear strikes, but also performing the more traditional roles of air cover and ground attack in support of ground units.

Similarly in the 1968 edition of Military Strategy Sokolovskiy included a statement that the possibility of a relatively protracted war cannot be excluded.[20] He relates this possibility to a war in which the nuclear weapon will not be used. In a 1969 publication the Lenin Academy again discussed the possibility of conventional war as well as nuclear war and again stressed the importance of all service cooperation. This combined action was described as being particularly important in actions conducted in a non-nuclear environment.[21]

The previous discussion should not be taken to infer that the Soviets have abandoned the idea of the dominance of the nuclear weapon. Soviet doctrine still stresses nuclear conflict but has been expanded to include the conduct of non-nuclear conflicts. In his 1970 book The Offensive, Colonel Sidorenko reiterates the importance of preparing for a nuclear war and emphasizes the dominance of the nuclear weapon. Colonel Sidorenko, however, does not rule out the use of non-nuclear weapons in all cases. His book includes the sentence, "In spite of the fact that nuclear weapons will become the chief means of defeating the enemy, their role and capabilities

cannot be made absolute."[22] The Soviet balance between nuclear and non-nuclear employment is analyzed by Dr. John Erickson in a 1973 publication in which he suggests that the Soviets have not only embarked on a large-scale build up of nuclear forces, but are also developing other forces to give them more latitude in actions throughout the world.[23]

Warsaw Pact exercises that have been reported in open literature tend to confirm a gradual change to prepare for at least limited non-nuclear engagements. These exercises also consistently demonstrate that the Soviets will use tactical aircraft to provide air cover over the battlefield and to support the ground troops through air-to-ground attack.

Soviet and Warsaw Pact exercises of the early 60s generally followed a set scenario. Exercises began with a simulated NATO attack and a Warsaw Pact counterattack to include the simulation of a nuclear exchange.[24] Later exercises included an initial phase of conventional weapons and the Dnepr maneuvers in 1967 apparently were conducted in a completely non-nuclear scenario.[25] Exercises since 1967 have generally included both non-nuclear and nuclear engagements with tactical aircraft used in both scenarios.

More specific information on these training exercises can be gleaned from articles printed in the Russian publication Soviet Military Review. For example, a 1970 article gives some insight to air support provided during the Oder-Neisse '69 exercises.[26] The article notes that fighter-bombers were used to attack a beach prior to an assault, to provide firepower during a river crossing, and to support a tank group on a breakthrough. Escort fighters were used to protect the fighter-bombers. Another article describes a 1972 tactical air exercise in which fighter-bombers were used to attack enemy tanks.[27] This exercise included fighter aircraft on alert to provide air cover as needed against enemy aircraft. Although these references do not provide much detail as to specifics of tactics, they do indicate some of the tasks that are assigned to tactical air units. They also indicate that the Soviets would use their tactical air in both nuclear and non-nuclear scenarios.

It appears that this change to allow for the possibility of either nuclear or non-nuclear war has not altered the basic Soviet concept of tactical air employment. As Erickson notes, "What is common to both the air and the ground battle is the fundamental Soviet belief in

the advantages of centralization.[28] Therefore, the Soviets continue to stress the idea of combined action by all forces. As yet there appears to be no move to change the command structure that has the Tactical Air Army commander subordinate to the Front commander even though current aircraft have the capability to operate beyond the limits of the Front's responsibility. The degree of control exercised by higher authority will probably continue to allow the aircraft of the Tactical Air Army to be committed where they are needed regardless of Front assignment. In any large-scale confrontation with Soviet troops, this doctrine is likely to result in the extensive use of tactical aircraft to maintain air superiority over the battlefield and to give additional firepower to ground units.

CHAPTER V

CONCLUSION

The one constant in all Soviet use of tactical air power is that air power is only one component that must be used in concert with other military forces in order to be effective. Soviet writings repeatedly state that all services must be employed in the combined arms concept to achieve victory in modern conflict. Even though the dominance of the combined arms concept is paramount, Soviet writings and western analyses of Soviet employment do indicate certain changes since Soviet tactical air came of age during World War II.

Prior to World War II Soviet air forces were subordinate to ground units at a fairly low level. The Soviets soon came to realize that this arrangement did not provide the most effective use of air power. Even as they retreated in the face of the German blitzkrieg during the summer of 1941 the Soviets reorganized their command structure to alleviate this deficiency. Tactical air units were still kept subordinate to a ground commander but the assignment was made at a higher level of command. Joint ground and air force staffs then planned for the combined employment of ground and air units assigned to the area commander. Air missions were

conducted under the supervision of air force commanders. Soviet writings indicate that this arrangement resulted in more effective use of air power. The centralization of control allowed the air commander to concentrate his forces as required to blunt enemy armor attacks and to support friendly forces on the offensive.

As World War II developed more effort was spent on direct support of ground forces (including air cover and ground attack) than on any other mission. The tactical aircraft was seen as an extension of artillery and in fact was used as massed aerial artillery throughout most of the war.

Little change can be noted in ideas concerning tactical air doctrine during the post World War II Stalin era. Stalin dominated all areas of Soviet thought during this period and guided military thinking into building on the experiences of the war.

As the Soviets developed the nuclear weapon and the long-range ballistic missile, Khrushchev turned military thinking toward operating in a nuclear environment. Most writings of this period addressed only nuclear war and the importance of the tactical fighter-bomber was reduced. Air defense and air superiority was emphasized to protect against enemy nuclear strikes. The interdiction role was primarily assigned to intermediate range missiles while the most

important role of the fighter-bomber was seen to be that of searching out mobile targets with the emphasis on destroying enemy nuclear weapons delivery systems.

With the passing of Khrushchev, Soviet writings began to again acknowledge the possibility of non-nuclear conflicts. Soviet doctrine is still dominated by nuclear war concepts, but their writings and aircraft development programs indicate that there has been a change to allow for at least a certain level of conventional war. A prime example of this thinking may be found in the Soviet book, Scientific-Technical Progress and the Revolution in Military Affairs, which was edited by Colonel-General N. A. Lomov and published in 1973.[1] In this book it is stated that nuclear missiles are the chief means of waging war, but that the possibility of non-nuclear war is not excluded and that even in a nuclear war, all missions will not be performed by nuclear missiles.

For these reasons the Soviets have continued to maintain the large inventories of aircraft needed to support ground units in large-scale modern war. This inventory is now rapidly being upgraded with new aircraft that are much more capable of performing the ground attack role. The range, payload, and adverse weather capability of

aircraft now coming into the inventory all indicate that the Soviets are aggressively improving their capability to engage in non-nuclear war.

The Soviets continue to emphasize the combined arms concept. Even in the Khrushchev era of complete nuclear involvement Soviet military leaders wrote that all weapons must be used to achieve ultimate victory. Today the Tactical Air Armies continue to be assigned to an area commander who plans the joint employment of ground and air units. As yet the Soviets have shown no desire to change this arrangement to take advantage of increased aircraft ranges.

The fact that the Soviets are increasing their non-nuclear capabilities and expounding doctrine to use these capabilities should in no way lead one to believe that this is the only or even the most likely way in which Soviet forces will be used in a conflict. Rather it merely gives the Soviets another option to supplement the nuclear war concept which still dominates much of Soviet doctrine.

It is not the purpose of this paper to attempt to determine which means of conflict, nuclear or non-nuclear, the Soviets might choose to use. That is a question of national policy beyond the scope of tactical air doctrine. Research done for this paper indicates that tactical air doctrine has been developed to employ forces in both the

nuclear and non-nuclear scenario. It should be noted that Soviet writings emphasizing the dominance of nuclear weapons nearly always state that these weapons are used in response to an attack from adversaries. Thus Sidorenko writes, "If war is unleashed by the imperialists . . .";[2] in Sokolovskiy's Soviet Military Strategy we read, "The imperialists are preparing an offensive war against our country, therefore they must be countered with crushing nuclear blows by strategic weapons . . .";[3] and in the 1972 book Marxism-Leninism on War and Army we read, "Soviet military doctrine proceeds from the assumption that the imperialists are preparing a surprise nuclear attack against the USSR."[4] From a defensive posture then it is quite clear that the Soviet response will be nuclear. However, the non-nuclear doctrine described in this paper indicates that the Soviets do not have to rely solely on the nuclear option in all circumstances.

Regardless of the nature of the conflict, it appears reasonable to postulate that in any large-scale conflict Soviet tactical aircraft will be used in large numbers to support ground troops. Their employment will probably be closely controlled with missions directed by a fairly high level of command. Missions will include air cover over the battlefield; preplanned attacks against enemy reserves,

command centers, and particularly nuclear weapons delivery systems; ground attack against enemy forces on the battlefield; and escort for transports and helicopters. An air liaison officer and radar/communications network will be used to coordinate close air support for friendly troops. The deep interdiction mission will still primarily be done with tactical surface-to-surface missiles, but aircraft now being introduced into the inventory can also perform this role. In all engagements, the coordinated use of forces in the combined arms concept will be emphasized.

NOTES ON CHAPTER I

1. Asher Lee, The Soviet Air Force, New York, The John Day Company, 1962, p. 5.

2. Owen Thetford, Aircraft of the Royal Air Force 1918-57, London, Putman and Company, Ltd., 1957, p. 240.

3. Lee, The Soviet Air Force, p. 5.

4. Robert A. Kilmarx, A History of Soviet Air Power, New York, Frederick A. Praeger, 1962, p. 142.

5. Kenneth R. Whiting, The Development of the Soviet Armed Forces, Air University Documentary Research Study, Maxwell Air Force Base, AL, Air University Press, 1972, p. 58.

6. V. D. Sokolovskiy, Ed., Translated and with Introduction and Annotation by Harriet F. Scott, Soviet Military Strategy, Third Edition, New York, Crane, Russack and Company, Inc., 1975, p. 158.

7. Kilmarx, p. 201.

NOTES ON CHAPTER II

1. Raymond L. Garthoff, Soviet Military Doctrine, Glencoe, Illinois, The Free Press, 1953, p. VII.

2. Hanson Baldwin, "Soviet Air Strategy in the Second World War," in Asher Lee, Ed., The Soviet Air and Rocket Forces, New York, Frederick A. Praeger, 1959, p. 75.

3. Ray Wagner, Ed., Translated by Leland Fetzer, The Soviet Air Force in World War II, New York, Doubleday and Company, Inc., 1973, p. 384.

4. Kilmarx, p. 175.

5. Ibid., p. 172.

6. Ibid., p. 191.

7. Baldwin, p. 76.

8. A. A. Sidorenko, Translated under auspices of the USAF, The Offensive, Washington, US Government Printing Office, 1970, p. 22.

9. Baldwin, p. 85.

10. General Augustin Guillaume, Soviet Arms and Soviet Power, Washington, Infantry Journal Press, 1949, p. 168.

11. Garthoff, Soviet Military Doctrine, p. 124.

12. Sokolovskiy, p. 158.

13. Garthoff, Soviet Military Doctrine, p. 174.

14. Ibid., p. 325.

15. Lee, The Soviet Air Force, p. 158.

16. Kilmarx, p. 175.

17. Wagner, p. 15.

18. Ibid., p. 37.

19. Ibid., p. 45.

20. Sidorenko, p. 11.

21. Garthoff, Soviet Military Doctrine, p. 324.

22. Sokolovskiy, p. 166.

23. Wagner, p. 81.

24. Garthoff, Soviet Military Doctrine, p. 321.

25. Kilmarx, p. 180.

26. Lee, The Soviet Air Force, p. 158.

NOTES ON CHAPTER III

1. Raymond L. Garthoff, Soviet Strategy in the Nuclear Age, New York, Frederick A. Praeger, 1958, p. 62.

2. Ibid.

3. Kilmarx, p. 226.

4. William Green and John Fricker, The Air Forces of the World, London, Macdonald and Company, Ltd., 1958, p. 256.

5. Kilmarx, p. 262.

6. Whiting, p. 77.

7. Garthoff, Soviet Strategy in the Nuclear Age, p. 81.

8. Ibid., p. XII.

9. Lee, The Soviet Air Force, p. 197.

10. Garthoff, Soviet Strategy in the Nuclear Age, p. 163.

11. William T. Lee and Harriet F. Scott, Evolution of USSR Military Doctrine on the Issue of Non-Nuclear War, 1960-1970, Menlo Park, Stanford Research Institute, 1970, p. V-8.

12. Ibid.

13. Sokolovskiy, p. 202.

14. Ibid., p. 188.

15. Thomas W. Wolfe, Recent Soviet Literature on Tactical Air Doctrine and Practice, Santa Monica, RAND Corporation, 1970, p. 5.

16. Ibid., p. 9.

NOTES ON CHAPTER IV

1. "The Military Balance 1975-1976," Air Force Magazine, Vol. 58, No. 12, December 1975, p. 51.

2. John T. Erickson, Soviet Military Power, USSI Report 73-1, Washington, United States Strategic Institute, 1973, p. 62.

3. William F. Scott, "Soviet Aerospace Forces and Doctrine," Air Force Magazine, Vol. 58, No. 3, March 1975, p. 41.

4. Ibid., p. 40.

5. Tactics and Organization of Soviet Ground Forces Different Parts, Translated from Truppendienst Taschenbuch (West Germany) by US Army Foreign Science and Technology Center, Charlottesville, 1974, p. 3. Hereafter cited as Tactics and Organization.

6. Raymond L. Garthoff, "Soviet Air Power: Organization and Staff Work," in Asher Lee, Ed., The Soviet Air and Rocket Forces, New York, Frederick A. Praeger, 1959, p. 185.

7. John T. Erickson, Soviet Military Power, USSI Report 71-1, London, The Royal United Services Institute, 1971, p. 65.

8. Tactics and Organization, p. 22.

9. Major A. Fedotov, "Search and Attack of Pinpoint Targets," Soviet Military Review, Vol. 12, December 1971, p. 22.

10. Major-General A. Karikh, "Air Support," Soviet Military Review, Vol. 9, September 1972, p. 22.

11. Ibid., p. 19.

12. William R. Taylor, Ed., Jane's All the World's Aircraft 1975-1976, London, Jane's Yearbooks, 1975, pp. 497-511.

13. John T. Erickson, "Some Developments in Soviet Tactical Aviation," Journal of the Royal United States Institute for Defence Studies, Vol. 120, September 1975, p. 74.

14. Thomas W. Wolfe, Soviet Strategy at the Crossroads, Cambridge, Harvard University Press, 1964, p. 31.

15. Sokolovskiy, pp. 260-276.

16. Wolfe, Soviet Strategy at the Crossroads, p. 180.

17. Leon Goure, Soviet Limited War Doctrine, Santa Monica, RAND Corporation, 1963, p. 2.

18. Wolfe, Soviet Strategy at the Crossroads, p. 119.

19. Harriet F. Scott, Soviet Military Doctrine: Its Continuity 1960-1970, Menlo Park, Stanford Research Institute, 1971, p. 39. Hereafter cited as Soviet Military Doctrine.

20. Sokolovskiy, p. 279.

21. Harriet F. Scott, Soviet Military Doctrine, p. 50.

22. Sidorenko, p. 222.

23. Erickson, Soviet Military Power, USSI Report 73-1, p. 48.

24. Ibid., p. 106.

25. Thomas W. Wolfe, Soviet Power and Europe 1945-1970, Baltimore, The Johns Hopkins Press, 1970, p. 456.

26. Lt Colonel N. Vasilyev, "Brotherhood-in-Arms," Soviet Military Review, Vol. 2, February 1970, pp. 30-34.

27. Lt Colonel Y. Pryadko, "Group Cooperation in Flight," Soviet Military Review, Vol. 9, August 1972, p. 35.

28. John T. Erickson, "Soviet Military Capabilities in Europe," Military Review, Vol. 1, January 1976, p. 61.

NOTES ON CHAPTER V

1. Colonel-General N. A. Lomov, Ed., Translated under auspices of the USAF, Scientific-Technical Progress and the Revolution in Military Affairs, Washington, US Government Printing Office, 1973, p. 73.

2. Sidorenko, p. 222.

3. Sokolovskiy, p. 283.

4. Colonel B. Byely, et al., Translated under auspices of the USAF, Marxism-Leninism on War and Army, Washington, US Printing Office, 1972, p. 304.

BIBLIOGRAPHY

Books

Baldwin, Hanson, "Soviet Air Strategy in the Second World," in Asher Lee, Ed., The Soviet Air and Rocket Forces, New York, Frederick A. Praeger, 1959.

Byely, Colonel B., et al., Translated under auspices of the USAF, Marxism-Leninism on War and Army, Washington, US Printing Office, 1972.

Garthoff, Raymond L., "Soviet Air Power: Organization and Staff Work," in Asher Lee, Ed., The Soviet Air and Rocket Forces, New York, Frederick A. Praeger, 1959.

------, Soviet Military Doctrine, Glencoe, The Free Press, 1953.

------, Soviet Strategy in the Nuclear Age, New York, Federick A. Praeger, 1958.

Green, William and John Fricker, The Air Forces of the World, London, Macdonald and Company, Ltd., 1958.

Guillaume, General Augustin, Soviet Arms and Soviet Power, Washington, Infantry Journal Press, 1949.

Kilmarx, Robert A., A History of Soviet Air Power, New York, Frederick A. Praeger, 1962.

Lee, Asher, The Soviet Air Force, New York, The John Day Company, 1962.

Lomov, Colonel-General N. A., Ed., Translated under auspices of the USAF, Scientific-Technical Progress and the Revolution in Military Affairs, Washington, US Government Printing Office, 1973.

Sidorenko, A. A., Translated under auspices of the USAF, The Offensive, Washington, US Government Printing Office, 1970.

Sokolovskiy, V. D., Ed., Translated and with Introduction and Annotations by Harriet F. Scott, Soviet Military Strategy, Third Edition, New York, Crane, Russack and Company, Inc., 1975.

Taylor, William R., Ed., Jane's All the World's Aircraft 1975-1976, London, Jane's Yearbooks, 1975.

Thetford, Owen, Aircraft of the Royal Air Force 1918-57. London, Putnam and Company, Ltd., 1957.

Wagner, Ray, Ed., Translated by Leland Fetzer, The Soviet Air Force in World War II, New York, Doubleday and Company, Inc., 1973.

Wolfe, Thomas W., Soviet Power and Europe 1945-1970, Baltimore, The Johns Hopkins Press, 1970.

------, Soviet Strategy at the Crossroads, Cambridge, Harvard University Press, 1964.

Periodicals

Erickson, John T., "Some Developments in Soviet Tactical Aviation," Journal of the Royal United States Institute for Defence Studies, Vol. 120, September 1975, pp. 70-74.

------, "Soviet Military Capabilities in Europe," Military Review, Vol. 1, January 1976, pp. 58-65.

Fedotov, Major A., "Search and Attack of Pinpoint Targets," Soviet Military Review, Vol. 12, December 1971, pp. 22-23.

Karikh, Major-General A., "Air Support," Soviet Military Review, Vol. 9, September 1972, pp. 19-22.

"The Military Balance 1975-1976," Air Force Magazine, Vol. 58, No. 12, December 1975, pp. 43-104.

Pryadko, Lt Colonel Y., "Group Cooperation in Flight," Soviet Military Review, Vol. 1, January 1976, pp. 34-36.

Scott, William F., "Soviet Aerospace Forces and Doctrine," Air Force Magazine, Vol. 58, No. 3, March 1975, pp. 33-49.

Vasilyev, Lt Colonel N., "Brotherhood-in-Arms," Soviet Military Review, Vol. 2, February 1970, pp. 30-34.

Miscellaneous

Erickson, John T., Soviet Military Power, USSI Report 71-1, London, The Royal United Services Institute, 1971.

------, Soviet Military Power, USSI Report 73-1, Washington, United States Strategic Institute, 1973.

Goure, Leon, Soviet Limited War Doctrine, Santa Monica, RAND Corporation, 1963.

Lee, William T. and Harriet F. Scott, Evaluation of USSR Military Doctrine on the Issue of Non-Nuclear War, 1960-1970, Menlo Park, Stanford Research Institute, 1970.

Scott, Harriet F., Soviet Military Doctrine: Its Continuity 1960-1970, Menlo Park, Stanford Research Institute, 1971.

Tactics and Organization of Soviet Ground Forces Different Parts, Translated from Truppendienst Taschenbuch (West Germany) by US Army Science and Technology Center, Charlottesville, 1974.

Whiting, Kenneth R., The Development of the Soviet Armed Forces, Air University Documentary Research Study, Maxwell Air Force Base, Alabama, Air University Press, 1972.

Wolfe, Thomas W., Recent Soviet Literature on Tactical Air Doctrine and Practice, Santa Monica, RAND Corporation, 1970.

JUN 14 2002

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY (AETC)

JUN 10 2002

MEMORANDUM FOR DTIC/BCS

FROM: AWC/CC
325 Chennault Circle
Maxwell AFB AL 36112-6427

SUBJECT: Removal of "Limited" Caveat

I have reviewed the report "Soviet Tactical Air Doctrine" and recommend removing the "Limited" caveat assigned when the report was written in 1976. The report is unclassified and the information contained therein is very dated. As such, while the report still has significance from a historical perspective, the "limited" caveat is no longer warranted.

BENTLEY B. RAYBURN
Major General, USAF
Commandant, Air War College