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[Article by Col V. Dubrov, candidate of military science: "How Has Air Combat Changed?" Published under the heading: "Tactics and Modeling." Note: Parts 1 and 2 published in JPRS 71452, 12 Jul 78 (No 1362 of this series) pp 56-57; parts 3 and 4 published in JPRS 71866, 14 Sep 78 (No 1377 of this series) pp 1-13]

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[Text] The final phase--disengaging from the attack (combat)--has always demanded an attentive and creative approach. The combination of disengagement and the completion of a successful attack has been considered the best option. It was pointed out in the "Fighter Aircraft Tactics" training manual which was written during the Great Patriotic War: "In combat against bombers, it is necessary to disengage in the dead zone or it is at least necessary to try to negotiate the enemy's lethal envelope as quickly as possible. In combat with fighters, the best course of disengaging is an abrupt pull-up but, for this purpose, it is necessary to have a margin of speed which should not be lost. It is necessary to think about the maneuver ahead of time when the decision is made to attack. The enemy's destruction will always remain the best method of finishing a fight; it is necessary to strive for this in each attack by conducting it decisively and persistently."

Two options for disengaging were firmly established during the war: free and forced. The first was exercised when the assigned mission was considered accomplished, that is, when the enemy was destroyed or

had fled and the situation did not require pursuit or pursuit was not possible. The forced disengagement was dictated by the inability to continue due to a low fuel remainder, a wounded pilot or damage to vitally important aircraft parts. In formation combat and especially in a difficult situation, it was considered impermissible to disengage due to a lack of ammunition or an armament malfunction. The pilot who was unable to fire carried out mock attacks while rendering moral support to his comrades and drawing part of the enemy force off on himself.

The squadron disengaged in groups with the echelons descending in turn. The fighters at lower altitude broke off under cover of the group at higher altitude. When the enemy had the numerical advantage, he was routed by the reserve group which was called to the battle area. The battle was shifted closer to friendly territory and closer to friendly anti-aircraft artillery locations.

A flight (element) of fighters disengaged so that a quick maneuver immediately put them in an aspect angle which was unfavorable for the enemy (2/4 and greater). The closer the enemy was, the more energetic the maneuver. Separation to a distance from the enemy which ruled out further pursuit followed the maneuver to the dead zone. The flight broke up into elements which turned in different directions at the same time to dissipate the enemy's fire. The combat formation was reestablished later (the join-up of elements after combat was made a separate phase).

Thus, supersonic fighters were left a legacy of two basic tactics for disengaging: a maneuver to the blind (dead) area and separation from the enemy. Under contemporary conditions, the substance of these tactics has changed significantly along with modifications to the features of air combat for supersonic aircraft in the three basic parameters--speed, altitude and time.

As shown by an analysis conducted by foreign experts, the speed of fighters engaging in combat has invariably decreased. The attacker's arrival in the lethal envelope and the defender's evasive maneuver away from enemy fire are connected with the pilot's desire to achieve a maximum rate of turn. But, a tighter maneuver (both in the horizontal and vertical) is only possible with an increase in G; this is accompanied by an increase in drag and a loss in airspeed. The greater the number of uncoordinated (forced) maneuvers, the more noticeable the trend toward a

decrease in speed. As a rule, it was not possible to regain the energy loss by recovering in straight and level flight with follow-on acceleration when the enemy "was hanging" on your tail.

FLUG REVUE magazine wrote: "Since adversaries with approximately the same combat capabilities were engaging in air combat, disengagement by using the best features of the aircraft was precluded. After the maneuver was completed, the separation sometimes exceeded cannon range but it was not beyond missile range. Therefore, the pilot's experience and tactical training prevailed over equipment qualities." Hence the conclusion is drawn: A fighter which has aimlessly wasted energy is forced to disengage from a tactically experienced adversary due to the inability to continue combat as equals.

If a parallel is drawn with the past, then excluding the second element in the formula "altitude-speed-maneuver-fire" made it impossible to successfully accomplish the subsequent elements. Only an integrated relationship between speed, maneuver and fire ensured the enemy's destruction and a free disengagement from the attack (combat).

Just like airspeed, there has been a steady trend toward a decrease in altitude during air combat. While trying to regain the loss in speed after forced turns, the pilot has intentionally decreased altitude. Moreover, as the aircraft descended it transitioned to denser layers of the atmosphere and the ability to maneuver was accompanied by higher G-loads. However, in this situation, the thought of any tactical advantage or of seizing the initiative became less and less.

In the opinion of FLUG REVUE magazine, the most favorable altitude for conducting fluid combat is at an altitude where the maximum possible G in a turn does not reach the limit of the pilot's endurance. In combat studies and modeling, this altitude is presently considered to be 9,000 m.

Airspeed and altitude determined the energy level; this is presently considered to be the index which ensures real tactical superiority in air combat. When maneuvering, energy is expended; its margin decreases. A more efficient expenditure of energy brings the pilot closer to success and puts off a forced separation from the enemy. A careful attitude toward the accumulated energy is expressed in the fact that any braking maneuver for the sake of increasing

the rate of turn must have a logical ending--effective fire or evading the enemy's attack and subsequently seizing the initiative. Idle maneuvers with a cumulative loss in altitude and speed brought about a greater concern for disengaging than for aggressively continuing combat (even when there was enough fuel and ammunition).

There has also been a downward trend in the third parameter of air combat--time. In the opinion of foreign experts, this is explained by several reasons. First, the role of surprise has increased due to the appearance of long range weapons (this was covered in previous articles). More and more frequently, the battle ended after the first attack without a transition to maneuver. Evading the attack meant disengaging.

Second, altitude and speed decreased a lot quicker in fluid combat than was previously the case. For example, in the ascending scissors (scissors), 4-5 passes were enough for the Phantom to reach stall conditions. In general, a large wing loading is the enemy of prolonged maneuvering and it quickly puts an end to combat.

Third, fewer fighters than before participated in a single battle (this trend will be maintained). It became significantly more difficult to organize an increase in efforts. Combat began quickly and broke up into cells, that is, individual engagements between elements and crews. This stimulated maneuvering at the limits of aircraft capabilities, that is, a sharp decrease in the energy level or very swift success for the pilot who was better skilled in flying tactics and techniques.

Fourth, fuel expenditure increased sharply due to the constant use of engine afterburners. Fuel ran out quicker and this frequently forced them to break off combat ahead of time. Thus, demands not only increased on the fighter pilot's tactical skill but also on his technical skill (skillful use of equipment in flight). Overall, the value of time increased immeasurably since the duration of combat from the beginning (search) to the final phase noticeably decreased.

As far as the methods and tactics for disengaging go, we can limit ourselves here to a short account which only reveals the special features or changes which are characteristic of supersonic fighters.

The magazine TRUPPENPRAXIS affirms that the following principle has not changed: "The closer the enemy, the more

energetic the maneuver must be to come out in the dead zone." According to the rules accepted among American pilots, when the enemy is detected in the rear at a range of 750 m (or less, a "braking maneuver" is accomplished--a sharp, forced turn toward the attacker with the maximum possible rate of turn. The sudden braking was calculated to make the enemy overshoot or put him beyond the range of his lethal envelope. When the "braking maneuver" was successful, it was no longer difficult to complete separation from the enemy since the attacker lost visual contact with the defender after the overshoot. However, an unsuccessful "breaking maneuver"--one which the enemy reacted to in time--frequently led to destruction.

If the enemy was detected at a range greater than 750 m (cannon fire was ineffective), then a "hard turn" tactic was accomplished--a coordinated turn with maximum possible G without a loss in speed. It precluded firm missile lockon of the aircraft but left a sufficient margin of energy to maneuver. Keeping the enemy at a safe range and aspect angle made it possible to move to friendly territory without interrupting airspace observation.

The break-away maneuver was always accompanied by going outside the range of enemy radar and it was primarily carrid out by descending. Along with the loss of visual contact with the target, the pursuer was deprived of information from the ground. As before, the combat disengagement maneuver was not equated with the attack disengagement maneuver which anticipated continuing the battle and repeating passes using aimed fire.

More and more frequently, combat was broken off at the command of the GCI site which was monitoring the air situation on radar. The GCI site's area of observation was significantly greater than the area observed by the leader of the fighter formation. The radar operator on the ground ascertained a disruption in the numerical balance by the approach of an enemy reserve quicker than the pilot in the air. Based on an analysis of recent battles, observers have pointed out that up-to-date information on a sharp change in the situation has frequently determined the success of the final phase of combat. Both a hasty and a belated completion of the final phase have led to unwarranted losses. Mistaken decisions usually resulted from an incomplete or incorrect evaluation of the situation on the ground. For the same reason, the commands for a covering group--which ensured the systematic withdrawal of fighters to friendly territory--to move to the combat area were sometimes not appropriate for the events which were developing.

The experience of local wars has again proven that the "disengagement" phase should only be considered complete after the aircraft have landed. Complacent fighters frequently came under attack by enemy "lone wolves" even in their own airfield area when they were preparing to peel off on a flyby.

It follows from the foregoing that the two elements of the final phase--disengaging to the dead zone and separating from the enemy--were completely different although they were frequently accomplished as a unit. The evasive maneuver was a power turn with a braking maneuver and a decrease in the distance (but an increase in the interval) to the enemy. The separation was straight and level flight with an acceleration to supersonic speed and an increase in distance. It was difficult to combine these elements into a single, effective tactic without thorough training. Just like all the previous phases, the disengagement required a search for and selection of the best options and it required testing them in the air under conditions which approximated live situations. Organized coordination between formations with different tactical roles in the air, between pilots and the GCI wite, as well as air defense units which were covering the withdrawal, also played an important role. Maintaining vigilance was believed to be the most important thing when the fighter's ability to engage in combat was already limited.

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[Text] 6. Coordination

Air combat in formation is unthinkable without coordination between fighters. Its essence consists of mutual support, cover and assistance between single crews, elements, flights and formations with different tactical roles. Experience shows that the methods and content of organizing coordination have continually been improved but its goal--pooling efforts to achieve success in combat--has remained the same.

The principles of mutual support and coordinating the actions of fighters while they were accomplishing combat missions were developed in the Great Patriotic War. They included: thorough, timely development of a combat plan; organizing a combat formation which conformed to the situation; each pilot's correct understanding of his role in combat and a developed sense of collectivism.

First, let's examine the organization of coordination for an element. The experience of the Great Patriotic War testifies that the nature and goals of air combat in a formation demanded formation flying skills and combat cohesion from a fighter element. The element could not break up under any conditions. Visual contact and fire coordination were always maintained between the element leader and his wingman.

Special significance was attached to developing complete, mutual understanding between pilots, whereby they would be able to guess their team member's intentions by aircraft movements without giving each other any special signals or commands. The most sensible actions of a pair--which conform to the logic of combat--were achieved by the same high level of training for pilots and faultless mastery of equipment. The common understanding of combat tactics and developing flight plans together--where the leader was allocated the role of sword and the wingman was the shield--ensured success in formation combat overall.

In his book "In a Pair with '100'," Hero of the Soviet Union G. Golubev vividly described the unbreakable union between fighters. "The leader and the wingman are more than two friends. They are two forces, forged into a single threatening force which the enemy could not conquer. They are a fraternity where people share the danger of death equally during each sortie and where one helps the other. The leader is attacking; he spears the enemy with a round from his gun. But, what if a danger suddenly appears at that moment at his altitude? The leader must not stop his attack since he has the enemy in his sights! Who will come to his assistance, who will protect him, who will make it possible for him to destroy the fascist? Only his team member--the wingman, the leader's shield--will be able to do this. He must take the thrust himself, beat back the attack at any cost and reliably cover the leader."

In air combat, the element usually operated as part of a group; however, it was also assigned independent tactical missions. For example, lone wolf sorties and intercepting the enemy's air reconnaissance aircraft from ambush in the air. While accomplishing them, the pilots sometimes changed roles; provisions were made for this in the combat plan: if the wingman noticed the enemy first and was in a more advantageous position, then he attacked the target and the leader covered his attack.

During the war, air combat in a flight was based on close fire coordination between elements, their ability to carry

out coordinated attacks on aircraft in the air and to mutually protect each other from possible enemy fighter attacks. In the majority of cases, the elements included in a flight bore the titles of "attack" and "cover" elements. Coordination between them was organized on the same bases as between the pilots of an element. The elements attacked the enemy from the same direction or from different directions and also consecutively. If the attack element was able to destroy the enemy on its own, then it attacked and the cover element protected it from an attack from the upper hemisphere at the same time. When it was necessary to step up the attack, they switched roles: after disengaging from the attack, the first element covered the actions of the second element, which finished off the enemy.

In anticipation of air combat, the flight was extended along a front and stacked in depth so that visual contact and fire coordination was constantly maintained between elements. Before consecutive attacks, the elements increased the distance between themselves and their combat formation was a stretched-out bearing. The attack from different directions was carried out in turn from a "front" combat formation with increased intervals. Simultaneous attacks by the entire flight were only permitted when there was no threat from enemy "lone wolf" fighters.

How have these principles changed in air combat between supersonic fighters? To answer this, let's turn to foreign press material which elucidates the events in Vietnam and the Middle East.

It is pointed out that coordination is the most important element of the entire air battle; it manifests itself during all its phases and is considered to be a creative process of special importance. The American command sent pilots to Vietnam who had a lot of flying time and a high level of training in the individual interceptor program. But, in the opinion of foreign observers, they lacked a sense of collectivism, which led to many failures in air combat in formation.

The organization of coordination in an element, flight and squadron was always distinguished by its own special features. Precise coordination of actions was also required with the bombers being covered; they had defensive weapons and were able to increase the fire against an attacking enemy. Efforts were also strictly coordinated with ground air defense weapons; the fighters accomplished important combat missions on a joint basis with them (covering troops and objectives near the front).

In analyzing the experience of air combat in Vietnam and the Middle East, foreign experts emphasized the inseparability of the element. It remained the basic tactical fighter unit with mandatory fire coordination between the leader and the wingman (No 1 and No 2 as they were called in the battle descriptions). The responsibilities remained the same and, consequently, the organization of coordination also remained the same. In the USAF, which took part in the aggression against Vietnam, those guilty of disrupting the combat formation were punished and deprived of their reward for a combat sortie.

However, the combat formation of an element was frequently broken up and the pilots' poor formation flying skills were not always the reason for this. It had simply become a great deal more difficult to maintain your position in an element and carry out complex combat maneuvers in a coordinated manner. In air combat, the element never flew in the "wing-tip to wing-tip" flyby formation and the wingman did not constantly maintain "two widths and two lengths" distance. Due to the increased operational range of weapons, the wingman was required to repel an enemy attack at a greater distance; therefore, he was located at a distance from the leader which ensured freedom of maneuver. The intervals and distances between aircraft were increased; this conformed to the demands of combat tactics but it had a negative influence on maintaining constant visual contact between crews. The wingman's reaction to the leader's abrupt, forced maneuver in his direction could no longer be as fast as with a subsonic aircraft. And the grounds for carrying out forced turns with a high rate of turn and a braking maneuver were no less than in the battles during the Second World War.

For these reasons, when elements found themselves in critical situations, they intentionally broke up beyond the limits of fire coordination. For example, this was done when the attacker was detected late and had already reached his lethal envelope. In this case, the defensive maneuver not only had the goal of putting the enemy beyond the limits of the lethal envelope but also of evading destruction from air-to-air missiles which had already been launched. It was impossible for two aircraft to make a joint turn with maximum G load; therefore, the leader (No 1) and the wingman (No 2) either energetically separated in different directions or they accomplished a head-on maneuver with a disruption of visual contact.

The separation of the element under attack made it necessary for the enemy either to continue pursuit of one of the aircraft with an element or to break up his combat formation, too. In the latter case, the battle degenerated into one-on-one

engagements in which the advantage usually went to the more maneuverable aircraft (with less relative wing loading). According to expert testimony, this tactic was warranted for the Mirage, for example, but contra-indicated for the Phantom which was predisposed to stall at low speeds.

Why has the principle of not breaking up remained in force in spite of the fact that elements intentionally broke fire coordination? Evidently because the problem of accomplishing the mission assigned to the fighters or achieving their final combat goal--destroying the air enemy--was precluded after loss of coordination. Deprived of support, the lone fighter only thought about defense and not offense.

The West German magazine TRUPPENPRAXIS wrote: "Fighter unit tactics must ensure mutual assistance as well as superior offensive and defensive potential. The aircraft pair--the so-called 'element'--remains the basic tactical combat unit. The wingman must not lose his place; he must search for the enemy and report his detection. He must also support the leader during all his maneuvers in the attack and on defense. Separation of the element can only be permitted under exceptional circumstances dictated by defense."

The organization of coordination between elements in a flight has changed somewhat in air combat between supersonic aircraft. According to the assessment of specialists, the operational range of missiles (like the Sidewinder and Sparrow) was equal to the maximum range of observation for a maneuvering target (by day). Situations arose in close combat where the leader of the second element (No 3) saw the flight leader (No 1) but, due to the restrictions on launching missiles, he was only able to cut off the attack with defensive fire with a low probability of hitting the enemy. For tactical reasons, it was disadvantageous to be constantly located at a distance within cannon range from the lead element.

Several tactics for conducting combat in a flight provided for a temporary break in fire coordination with its subsequent reestablishment after the perfected tactic or combat maneuver was accomplished. However, the elements did not go beyond the limits of visual contact before the battle began. The flight combat formation which only relied on maintaining radar contact between crews was rarely employed--only when patrolling under conditions of limited visibility. A "radar chain" was used sometimes in night intercepts when the fighters consecutively approached the same attack start line.

A fluid battle which began after the flights closed on head-on courses usually degenerated into a battle between elements which attempted to come out on each other's stern. The supporting element was able to beat off the enemy's first attack but it was not able to carry out the covering function after close combat started. Mutual support was only possible after "getting clear" of one's enemy. There were many limitations on maneuvering in a flight for the purpose of using missiles; however, the temporary loss of fire coordination should not have distorted the common concept for the battle. It was precisely this requirement that determined the complexity of organizing joint efforts for a group of four fighters.

Thus, the rigid requirements for constantly maintaining visual contact and fire coordination between elements in a flight were no longer present. I ПЕРАVIA magazine wrote: "Air combat in formation is the basic type for fighter aviation. The principle for conducting it remains the same at present: after detecting the enemy, the formation takes up an optimal combat formation; then, there is the maneuver to conduct a missile attack and close combat which disintegrates into en gagements between elements and single aircraft. However, formation combat is always controlled and the actions of individual elements must not be chaotic."

It is especially necessary to dwell on squadron air combat since it is at this level that fighter coordination has undergone the most changes. It should be mentioned that air combat with a large number of supersonic aircraft was generally considered unlikely before the war in Vietnam (just like the flight of bombers in large formations). However, the delivery of conventional weapons to objectives covered by modern air defense weapons required an increase in the density of raids and the concentration of bombers in cumbersome and non-maneuvering combat formations. To protect them, the fighters were not singletons but entire squadrons which coordinated their actions with other support groups (pre-strike reconnaissance, air defense suppression, ECM platforms, etc.).

In the opinion of experts, local wars have reestablished air combat as the primary means of achieving air superiority. But, it was impossible to dictate terms to the enemy without going beyond the limits of friendly territory. Incursions into Vietnamese airspace by unorganized, small formations did not make any sense. The fighters began to be put together in formations whose size was determined by the ability to maintain fire and tactical coordination. It was again necessary to turn to the experience of the Second World War and extract from it everything which had not lost its validity for the new equipment.

Experience has shown that squadron combat is based on the coordinated actions of flights which are arranged in relation to each other depending on the developing air situation and the combat plan; they are arranged at higher or lower altitudes, stacked in depth or with adjoining flanks, while carrying out various actions at the same time. A squadron of 8-12 aircraft was the largest formation which was able to accomplish a single combat mission. An increase in the number of aircraft restricted the maneuver of flights and hindered their coordination in the dynamics of combat.

This principle has not changed in combat between supersonic fighters which usually operated (when accomplishing a single mission) in a formation of not more than three flights. It was pointed out in the "Attack" article that creating the conditions for the attack formation to conduct a surprise missile attack was just about the most important thing in the concept of formation combat. For security reasons, it was not advisable to keep this formation in the enemy's view (within range of his radar); therefore, the flights in the squadron combat formation opened up beyond the limits of visual contact. This was a new element in fighter tactics. Ground-based air traffic control facilities and crews of GCI sites took part in its development and employment.

The coordination of flights whose commanders could not see each other could only be based upon a precise plan, a mechanical sequence of actions and timely information on the enemy and changes in the situation. It was impossible to develop this foundation without modeling the battle first, that is, playing it out in phases with a "mock" enemy and selecting the optimal alternative. At the same time, when implementing it, the thoroughly prepared plan even led to a minimal exchange of information by radio. Foreign experts emphasize one very important detail in opening up the combat formation of a squadron: freed from constantly watching each other, the flight leaders devoted more attention to searching for the enemy and preparing the next tactical movement.

The forecast of foreign military experts--which is based on an assessment of new aircraft capabilities--again casts doubt on air combat in a squadron formation. Just as before the war in Vietnam, the misgivings are caused by the complexities of command, control and coordination; but, the insufficiently proven feasibility of putting fighters with long range weapons in large formations has also not been forgotten. INTERAVIA magazine mentions in this regard that one of the main missions of the new American F-15 fighter is gaining air superiority and escorting attack forces of friendly aircraft. Both of these missions are connected with invading the enemy's territory and experience graphically shows that single fighter raids were

only effective when operating as "lone wolves." It is impossible to repel organized attacks by enemy fighters against bombers or to exercise reliable control over the airspace in the tactical area without strict coordination of the efforts of fighter formations.

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[No 9, Sep 78 pp 46-47]

[Text] 7. Command and Control

Command and control equipment has been improved and modernized with the development of aircraft and their armament. In local wars, the operations of second generation supersonic fighters in the air have already been controlled by modern radars which were part of the control system. Their foundation was made up of ground-based, shipborne and airborne command posts with specially trained combat crews.

By analyzing the experience of these wars, foreign military experts have established that breakdowns in fighter command and control occurred a great deal more frequently than anticipated. They are recognized as not being accidental but the result of a number of objective and subjective reasons. Specialists in the area of tactics had a greater interest in the subjective reasons which were reflected in insufficient training for the people who were carrying out command and control. Incomplete or incorrect utilization of equipment capabilities is considered self evident. Specifically, the cases where American fighters possessed a numerical advantage and freedom in selecting tactics and suffered defeat are explained by poor battle management in the air war in Vietnam.

While analyzing all these cases, foreign experts came to the conclusion that, first, an impressive part of the overall number of fighter losses was due to a lack of skill among formation leaders in controlling crews in the air. It is well known that two methods for controlling fighters which were accomplishing a combat mission were established after the Second World War: In the air, the formation leader personally controlled them and, from the ground, a responsible

person located at the command post controlled them. However, in the 10-year interval between the wars in Korea and Vietnam, American pilots primarily perfected intercepts of single air targets. As a result, they forgot the principles of formation combat which are based upon coordinated fighter operations and flexible command and control. The pilots operated in isolation. Coordination was only exercised along the line interceptor-command post and, onesidely, at that. The pilot carried out the commands of the command post operator right up to establishing visual or instrument contact with the enemy. A report on execution of instructions replaced independent decision-making.

An evaluation of the situation in the air and making corrections to the flight plan when the situaion changed were not included in the responsibilities of the leaders. The intercept flight became more and more standard and this brought about automation of the fighter control process.

The actual combat situation--whose nature did not lend itself to forecasting--forced the consolidation of fighters into formations and it forced their leaders to carry out duties which they had not previously been assigned. The fighters had to present a powerful, well controlled organization. They had to urgently get the manuals on conducting air combat out of the archives and adopt their rules and recommendations for implementation.

Flexibility of command and control--changing it in relation to the conditions of the combat missions being accomplished, among which intercept occupied a rather modest position--acquired a practical meaning again. The formation leader now had to evaluate the situation on his own and make well founded decisions. The continuous nature of control made it mandatory for him to give instructions to subordinate crews even when they were out of sight.

Breaking up the combat formation into formations with different tactical roles and splitting them up into elements and single crews after active maneuvering began brought about the need for combining centralization and decentralization in combat command and control. Attempts were even made to free the leader from direct participation in combat for the purpose of strengthening centralization and freeing him from excessively vast responsibilities. After closing with the enemy, the leader climbed to a zone of constant observation by the ground (or airborne) intercept control site and he visually monitored the situation and coordinated the actions of the lead formations. However, overall, this method did not prove itself. Subsequently, the leader only peeled off when airfields were being sealed off and it was necessary to see the runway and the location of friendly fighters.

At the same time, in the opinion of experts, the rule which made it mandatory for the formation leader to lead his subordinates by personal example was now rarely maintained in air combat between supersonic fighters. As shown by experience, the main criterion here was the composition of the formation. In an element, the wingman repeated the leader's actions but, in a flight, these actions were either impossible or simply not advisable for the wingman of the element. The subordinates of a formation leader who headed two or three flights primarily expected a display of the traits of a skillful leader and only later, those of a daring warrior. Therefore, the leader was not always in the attack formation; he selected his spot in the combat formation where it would be easier to observe the situation. This was the only way it was possible to fulfill the requirements of continual command and control. In connection with this, the rule was introduced that when the enemy was detected at short range, the formation which would be able to begin combat from a favorable position closed with him. There frequently was not enough time to reorganize the combat formation; therefore, a quick change of roles was stipulated. For example, the attack formation switched over to support or cover.

Flexibility made it mandatory to change the command and control scheme in the air when different combat missions were accomplished: bomber escort, clearing the airspace (sealing off the strike area), sealing off airfields and covering facilities. The leaders had to look for optimal alternatives and display creativity at a time when their command and control skills were lacking. They had to be acquired now, in the course of combat, at the cost of mistakes and losses.

Combat planning on the ground played a positive role in organizing command and control. Experience showed that even a simple concept, which was developed by considering the enemy's probable actions, significantly simplified the leader's job. With a correct forecast of the situation, the goal of the battle was frequently achieved even under intensive ECM conditions. The battle was either planned in detail by playing through all its phases in advance or it was planned in a tentative fashion where key details were established: the procedure for committing formations to battle, delivering a missile strike and bringing the reserve into action. This made it possible to discover acceptable plans for coordination between formations with different tactical roles. The outlines of the combat formation, which was easiest to control, were planned this way. In the final analysis, the planning results were only of practical value after the schemes, which were developed, were tested in the air, that is, the leaders were only able to master the art of combat command and control by participating in it

The second conclusion concerned deficiencies in command and control from the ground. According to an assessment by the foreign press, combat crews of command posts were taught to coordinate the actions of lead formations which did not have visual contact, designate targets and assist crews in distress. However, this did not exhaust their capability to control fighters accomplishing their combat mission. The situation demanded that they assist the leader during fluid combat, especially in evaluating the current situation and analyzing the enemy's intentions. After all, the ground-based radar observed a significant part of the airspace and the operator observed conditions on his scope which the pilot was not able to see. But, this advantage was poorly used. First of all, there was a lack of skill in analyzing the radar situation and making out the enemy's concept of operations based on it. Feints (diversionary maneuvers) were poorly recognized and fighters were frequently committed to battle prematurely As a result, a situation developed where one side began aggressive actions and the other side dictated the terms of combat. The formation leader had to correct the mistakes made by the command post and he no longer had to think about achieving a tactical advantage but about reestablishing the lost balance.

The operator on the ground could also analyze the combat formations of the sides which were ready to engage in combat. It was necessary to determine the probable sector of the main thrust based on the nature of the formations' locations or based on their maneuver or regrouping. Moreover, it was necessary to consider the possibility that the attack group was located beyond the radar's range (usually at low altitude). When delivered to the leader in the form of qualified information, an evaluation of the situation which had developed would have made it significantly easier to make the correct decision. However, this information was either incomplete or it was lacking altogether.

With the data it had on the enemy, which the leader did not have, the GCI site was able to put its fighters in a tactically favorable position even before closure began. For this purpose, it was necessary to determine the vulnerable spot in the enemy's combat formation and to quickly select and plan the appropriate combat maneuver. But, this required a good level of training and an in-depth knowledge of fluid formation tactics. At that time, command and control from the ground had still not achieved this level.

ECCM represented a special mission in continual command and control. Usually, in spite of the intensive employment of active and passive jamming, radar scopes were rarely "jammed" completely. The lack of skills in using the protective systems led to a

breakdown in command and control in situations where it should not have been lost. Aircraft crews and GCI site operators had to master measures for evading jamming and they had to master radioelectronic combat tactics which fighter tactics began to put on a par with the tactics for evading missiles or defending against cannon fire in combat. The GCI site operator actively intervened in fighter operations and became a full-fledged participant in air combat. Therefore, his qualifications, just like the pilot's qualifications, had to be superior. Overall, as shown by foreign experts, the problems of controlling fighters from the ground were revealed in local wars and several ways of solving them were outlined. It was established that it was impossible to rely on the radio alone. Along with the need for improving existing communications equipment and channels for transmitting and receiving information, flying personnel, and primarily leaders, began to master the art of carrying out autonomous flights without any commands from the ground and they began to make independent decisions. As pointed out by the foreign press, at the present time, practice formation battles are being conducted more and more frequently under conditions of radio silence or restricted use of the airwaves. This acknowledges that the threat of a temporary loss of command and control as a result of intensive ECM has become real.

The third conclusion concerns combined command and control from the ground and in the air. Foreign experts established that joint control--while receiving different information about the situation and without adhering to strict procedures--means introducing chaos and confusion into fighter operations; controlling separately by establishing boundaries of responsibility means not using all the capability inherent in the equipment. The option of predominant control from the ground, which was established during the period of intercept tactics, immediately demonstrated its unsuitability during the first fluid formation battles. The situation required the establishment of phases of flight, during which the ground command post provides instructions, information or warns the fighters.

The results of the first encounters with the enemy showed that conflict situations were possible in command and control when the command post had a greater amount of information at its disposal and it cancelled the formation leader's decision. This usually happened when the formation leader intended to continue the battle and the approach of additional forces had been noticed on the ground. In other cases, the leader operated in defiance of instructions from the ground site (usually after the enemy was detected) since his decision was more in conformity with the situation which had developed. As a result, it was not possible to develop a method of joint control which was suitable for all cases. However, certain rules did take shape.

During the search phase, the command post bore the responsibility for detecting the enemy; it had to organize a reliable reporting system which included forward radar and visual observation sites. However, as pointed out by the foreign press, in spite of their large number, flights of low-altitude targets frequently slipped by or were noticed too late. This served as the grounds for organizing airborne early warning posts which (after the war in Vietnam) were equipped with look-down radar systems. But, the existence of a far-flung reporting system did not relieve the leader of responsibility for organizing a search for the enemy by all the formation's crews, both with their airborne radars and visually.

During the closure phase, the responsibility was divided equally since there were two options which were most widespread: a transition to active operations before establishing visual (or radar) contact with the enemy or after the formation leader had detected him. In the first case, the command post provided instructions; in the second, it was limited to issuing supplemental information.

During all the subsequent phases, the initiative belonged to the formation leader although assistance from the ground was desirable in coordinating the actions of lead formations, timely disengagement from combat and building forces during critical moments in the situation. It was mandatory for the operator to warn them about the approach of additional enemy forces, the danger of a surprise attack and low fuel remainders (monitoring time).

Experts point out that control from the ground intruded more and more in the area of fluid formation combat as experience was accumulated. This was noticeably demonstrated in the battles between supersonic fighters.

There were attempts to keep just one of the formations--the one which had the most critical need for information--under continual control. Depending on the nature of the mission being accomplished, this formation could be an attack formation, a feint formation, a covering formation or a formation for building up forces. The plan stipulated that the leader would receive his instructions from the ground throughout the entire flight and he would only take control himself (the right to make independent decisions) in exceptional cases. An option was also tested where the leader of the entire combat formation was controlled from the ground without any intervention in the operations of the formations subordinate to him. But, experience showed the danger in this situation, where the command post took the entire, absolute responsibility on itself and controlled the fighters until the situation on their scopes or plot boards became excessively complicated and then turned over its functions to the formation leader in the air. In the majority of the cases,

the leader was not ready for this and his subordinates began to act on their own.

Based on the lessons learned, acceptable plans for command and control in reference to standard combat missions (connected with waging air combat in formation) are now being developed abroad. It is believed that a realignment of the control and reporting system is needed first. Primary attention is being directed at automating the data transmission process (information and commands) which will make decision-making easier for the pilot (formation leader) and it is being directed at organizing early warning on the air enemy.

The problem of coordinating the operations of the new F-15 air superiority fighter--which is assigned the mission of controlling the airspace--and the light F-16 fighter--which is designed for close, fluid combat--is also being solved. It is anticipated that their forces will be increased by units of the Tornado multi-role tactical aircraft which are entering service with NATO national air forces (England, Italy, FRG). The AWACS early warning system must supply the fighters with information; airborne posts (E-3A aircraft) with surveillence radars make up the foundation of this system.

Will the organization of fighter command and control be more complex in the future? Foreign experts believe that noticeable simplification should not be expected in spite of the successes of automation. Fighters are not being relieved of the bomber escort mission with the possibility of going beyond the limits of ground radar control. However, command and control in the air is being supplemented by control from the airborne command post. The flow of diversified information on the situation which is provided for the pilot will not free him from making decisions during all the phases of flight.

Command and control is believed to be the process for the most effective realization of the current combat potential of men and equipment in a specific situation to achieve the assigned goals of combat. Therefore, only the process of command and control may change but not its essence. This is precisely what attention is being directed at when leaders, flying personnel, as well as personnel who are directly participating in air combat, are being trained.

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'KRASNAYA ZVEZDA' REITERATES GREAT OCTOBER SLOGANS

Moscow KRASNAYA ZVEZDA in Russian 15 Oct 78 p 1 LD

/Editorial: "The Party Calls for New Achievements"/

/Text/ The Soviet people, the working people of the fraternal socialist countries and all the progressive public of the world are preparing to celebrate the 61st anniversary of the Great October Socialist Revolution, the victory of which became the chief event of the 20th century and ushered in mankind's worldwide-historic shift from capitalism to socialism. Our country is greeting this great and radiant festival during the march of the Tenth Five Year Plan, at new and higher levels of the building of communism, and in an atmosphere of growing political and labor activity by the masses.

Urban and rural workers, and servicemen of the army and navy greeted with great interest and fervent approval the CPSU Central Committee slogans for the 61st anniversary of Great October which were published yesterday. Permeated by profound faith in the creative and constructive strength of the people the slogans mobilize Soviet people for the solution of top-priority tasks of socioeconomic and cultural building and for further strengthing the motherland's might. The party Central Committee makes this appeal:

"Working people of the Soviet Union! Struggle for the implementation of the historic decisions of the 25th CPSU Congress and strive to totally realize the potential of developed socialism!"

The decisions of the 25th Party Congress are a powerful accelerator for the on-going development of our society. Time has convincingly confirmed the scientific validity and high effectiveness of the political course drawn up by the congress. Developed and concretized in the documents of subsequent CPSU Central Committee plenums and in Comrade L. I. Brezhnev's speeches, it insured the continuous strengthening and development of the USSR's economic and defensive might, the improvement of socialist social relations and the further progression of the country toward communism. Confidently following this course, the Soviet people are striving for new successes in fulfilling the plans and targets of the Tenth Five Year Plan.

By enhancing the efficiency and quality of work, our mighty socialist industry is achieving new successes. Great deeds are also being achieved in agriculture, for which long-term development plans were comprehensively revealed by the CPSU Central Committee July (1978) Plenum. The party's directives for the acceleration of scientific and technical progress are being consistently implemented.

The achievements of the Soviet economy are a reliable material basis for the political and social development of our society which is being implemented under the beneficial and effective influence of the new USSR Constitution. The constitution has become a powerful instrument for broadening and deepening socialist democracy and building communism.

In the CPSU Central Committee slogans the contribution of the working class, kolkhoz peasantry and people's intelligentsia to the cause of the whole people--the building of communism--is rated highly. At the same time this important political document is also oriented toward the future. The party Central Committee calls upon industrial workers to struggle for the further development and strengthening of the motherland's industrial might, the speediest commissioning and efficient utilization of production capacities and for increasing the output of consumer goods and the improvement of their quality and range. The duty of the workers of the Soviet countryside is to enhance the efficiency of agricultural production, to make better use of land, equipment, fertilizers and all physical resources, and to strive for the maximal return from each ruble of capital investment. The party gives a reminder once again that the further development of agriculture is a task for all the people, and it calls upon all the working people of the country to struggle for the implementation of the decisions of the CPSU Central Committee July Plenum.

Great and crucial tasks, the slogans stress, face the workers in construction, transportation and communications. The CPSU Central Committee addresses inspired words to Soviet scientists, literary and artistic figures and workers in culture, public education and public health--to all detachments of the builders of communism. The party is calling upon the working people to mount socialist competition on an even broader scale for the fulfillment and overfulfillment of the 1978 Plan, to struggle more actively to enhance organization, and strengthen order and discipline, to economize on money, resources and materials, and to reverently safeguard and augment socialist property. These party directives reflect the needs of our society and they embody the will of the Soviet people.

Soviet people fervently approve the loyalty of Lenin's party to proletarian internationalism. On the eve of the anniversary of the Great October Revolution the CPSU Central Committee sends fraternal greetings to the communist and workers parties of all countries and calls upon them to strengthen the unity of their ranks on the basis of Marxism-Leninism and proletarian internationalism. Warm words of greeting are addressed to the peoples of the socialist countries, to the working class of the capitalist countries, to the young independent states and to the fighters for national liberation.

The CPSU Central Committee's October slogans are yet further evidence of the great humanism of the Soviet Union's peace-loving Leninist foreign policy. Confirming the immutability of this policy, the Central Committee of our party calls upon the peoples of all countries and continents to intensify the struggle to eliminate the threat of a new world war and to deepen the relaxation of international tension. The urgency of this task is determined by the fact that the forces of reaction and aggression, militarism and revanchism are not ending their antipopular intrigues and are continuing to build up the arms race.

Taking the world situation into account, the USSR is forced to take constant pains to strengthen its defense capability and its armed forces. The CPSU Central Committee calls upon Soviet servicemen to tirelessly improve their combat and political training and to be every ready to defend the motherland and the great gains of socialism. The servicemen of the army and navy take this appeal as a combat order and they assure the party and the Soviet people that they will honorably fulfill the responsible tasks they have been set.

The inspiring CPSU Central Committee slogans are causing a new surge of energy and creative enthusiasm among all Soviet people. The multinational family of peoples of our socialist fatherland is rallying together its ranks under the Leninist banner of its tried and tested combat vanguard--the Communist Party. Over the motherland of the October Revolution resound the words:

"Under the banner of Marxism-Leninism, under the leadership of the Communist Party--forward to new victories in building communism!"

CSO: 1801

'PRAVDA' VIEWS TASKS OF MILITARY-PATRIOTIC EDUCATION

Moscow PRAVDA in Russian 17 Oct 78 p 1 LD

/Editorial: "Teaching Patriotism"/

/Text/ One common feeling is inherent in Soviet people of different generations and of all classes and social groups. This feeling creates spiritual kinship with those who fought for Soviet power, to the soldiers of the great patriotic war and the present heroes of the storming of space, the participants in the first communist subbotniks and the leading workers of the Tenth Five Year Plan, workers in physical and mental labor. It is the profound and powerful feeling of love for their socialist motherland.

The Soviet person's individual destiny and happiness are indissolubly linked with the great destiny, gains and successes of the socialist motherland. The richer and more powerful our country, the better and more beautiful the lives of millions of workers. This is an important source of their selfless devotion to their great fatherland.

A society in which the working people, who are patriots and internationalists, display a high degree of organization, ideological fiber and awareness--that is how the USSR Constitution defines one of the distinguishing features of developed socialism. Socialist patriotism is engendered by our social system itself and our entire way of life. At the same time this fine moral-political quality is formed in Soviet workers by the constant, purposeful efforts of the party and state. Its formation begins in childhood years and is developed in the process of study and raised to a new, higher level in an atmosphere of harmonious creative work.

The party organizations have given and continue to give a great deal of effort to the cause of patriotic education. Establishing in the minds of working people and above all the younger generation the ideas of Soviet patriotism and socialist internationalism, pride in the land of the Soviets, in our motherland, and readiness to defend socialism's achievements, the 25th CPSU Congress noted, has been and remains one of the party's most important tasks. The Congress' instruction has been further developed and given specific form in the CPSU Central Committee resolutions adopted

in recent years, in the documents marking the 60th anniversary of Great October and the new USSR Constitution.

Every day of the Soviet people's gigantic creative activity provides very rich material for the development and consolidation among the masses of a high patriotic spirit. The labor achievements which augment the motherland's strength and glory and its successes in the struggle for peace and social progress in the international arena fill millions of hearts with legitimate pride. The propaganda of these achievements rightly occupies a central place in the ideological education work of party organizations in Moscow, Leningrad, Kiev, Minsk, Baku and many other cities. Their experience shows that such propaganda presupposes the skillful use of all forms and means of political influence including live speeches by lecturers, speakers and agitation and political information workers combined with comprehensible, colorful visual agitation. It is important to reveal more fully to the working people the picture of our achievements and the country's socioeconomic and spiritual progress and the vital force and advantages of socialism.

At the same time reference to the glorious historical path traveled by the Soviet fatherland is of great significance in educational practice. Respect for the pages of its heroic past are an inalienable feature of every true patriot. Many of these moving pages are vividly recorded in our rich literature of memoirs to which the reminiscences of Comrade L. I. Brezhnev, general secretary of the CPSU Central Committee and chairman of the USSR Supreme Soviet Presidium, "Malaya Zemlya" and "Rebirth," represent a valuable addition. The study of these books promotes a deeper understanding of the sources of the Soviet people's mass heroism in struggle and work.

The education of our younger generation in the best patriotic traditions requires special concern. One new form of this education lies in heroic and patriotic readings in the komsomol organizations following the decision of the 18th Komsomol Congress. The continuing all-union tour by komsomol members and young people of places of the Soviet people's revolutionary, combat and labor glory does much to propagandize heroic traditions and consolidate continuity between the generations. Millions of young men and women have taken part in it, establishing 65,000 monuments, obelisks and memorial plaques. The party and komsomol organizations are required to pay constant attention to military-patriotic work and to youth's preparation for army service.

In forming the Soviet person's spiritual countenance the party develops in him the qualities of an ardent patriot and staunch, convinced internationalist. Love for their native land, their own republic is combined in workers of all nationalisites with filial devotion to our common fatherland--the Soviet Union. Revealing the essence of socialist patriotism, Comrade L. I. Brezhnev has said: "There is perhaps no one who has not experienced an ineradicable feeling of love and attachment for the land of his

grandfathers and great-grandfathers, for his native culture, his language and his traditions and customs. But in the socialist society this feeling--the feeling of patriotism--grows beyond the limits designated by nationality and is filled with new content. In whatever republic we live we are Soviet patriots, children of a single socialist motherland."

A tremendous patriotic feeling, very rich in content--the Soviet person's national pride--is becoming increasingly strong with the further consolidation of the USSR peoples' unity and fraternal friendship. Developing this feeling by every method means raising still higher the spirit of internationalism inherent in the builders of a new society.

The basis of our people's patriotic self-awareness is their political maturity and communist conviction. The deeper this maturity and conviction, the more graphically Soviet people's devotion to the socialist fatherland and their readiness and ability to defend it selflessly are manifested. Selfless labor for the benefit and prosperity of their native land, for the triumph of communism are the most remarkable expression of the patriotism, awareness and creative enthusiasm of the people's masses led and inspired by Lenin's party.

The CPSU Central Committee October slogan resounds in all languages of the fraternal peoples building communism:

"Long live our great motherland--the USSR!"

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GENERAL PAVLOVSKIY INSPECTS FAR EAST MD TROOPS

Moscow KRASNAYA ZVEZDA in Russian 17 Oct 78 p 1 LD

/Our correspondet Lt Col G. Kashuba report: "From a Position of High Exactingness"/

/Text/ Red Banner Far East Military District--A conference of the district's leading personnel took place here, at which the results of a test held among the district's troops were examined. The conference passed in an atmosphere of high exactingness and the results achieved were analyzed, taking into account the need to improve in every way labor quality and efficiency and to strengthen discipline and organization. A report was delivered by Army General I. Pavlovskiy, USSR deputy defense minister and commander in chief of ground forces.

It was noted that the personnel of many units and subunits, in fulfilling the requirements of the USSR Defense Ministry, have reached new, higher targets in the struggle to further improve combat readiness and are successfully completing the training year. A high level of skill as shown, for instance, at the concluding exercises by servicemen of the motorized infantry battalion commanded by Capt V. Gorbachev and the tank battalion commanded by Maj B. Dervoyed.

At the same time the test revealed shortcomings in combat and political training, the discipline of personnel and the maintenance of hardware in individual subunits. Certain military subunits, while achieving positive results on the whole, have not completely fulfilled their socialist pledges.

The report put forward concrete recommendations for the introduction of leading experience, the elimination of shortcomings, and the launching of extensive preparation for the new training year.

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IMPORTANCE OF LONG VOYAGES FOR COMBAT TRAINING STRESSED

Moscow KRASNAYA ZVEZDA in Russian 24 Oct 78 p 1 LD

/Editorial: "To Sea--Combat Style"/

/Excerpt/ Today long voyages have become the chief form of naval combat training. The interests of enhancing ships' combat readiness demand that crews approach every ocean mile from positions of combat requirements.

Giving an account of a long voyage, the ship's commander reports on the results of fulfilling the voyage's tasks and on the growth of the crew's training because a cruise is the best school of combat skill for naval sailors. It is for good reason that many ships spend a large part of the training year at sea. Thus, the big antisubmarine ship "Kerch" has spent several months in the Atlantic and the Mediterranean this year. It is natural that this time was taken up with the crew's most intensive combat training, the improvement of its vocational, moral and combat qualities and the perfection of cohesion and coordination. This rule has established itself in the fleets--during a voyage, particularly its concluding stage, there is plan fulfillment of the most complex combat training tasks--practical missile, artillery and torpedo firings, test searches for mines, minesweeping and minelaying and participation in tactical exercises. Fulfillment of these tasks determines the crews' work efficiency on long voyages.

Every voyage is a serious test for naval sailors. The ocean itself makes so many demands on the crew that the improvement of practical skills of maintaining equipment which is in constant use and controlling the ship while fighting the elements proceeds at an accelerated pace. The crews' sea experience grows rapidly. A warship at sea is not simply a means of transport but also a combat unit. Hence the crew's chief task--not only to sail well and competently but to be constantly at a high level of combat readiness and to use every opportunity to tirelessly increase it.

Unfortunately, we still encounter instances where ships' commanders forget this unshakeable demand. Devoting a great deal of energy to resolving current tasks of the voyage, they believe that precisely this is the crux

of sailing and pay insufficient attention to combat training. And it in fact turns out that such crews poorly increase their combat skill, permit slumps in the pace of enhancing combat readiness and do not fulfill in full the socialist pledges adopted for the voyage. Such cases are encountered increasingly rarely, but nonetheless they deserve very close attention by formation, staff and political section commanders.

Whatever the nature and tasks of a voyage, the crew must actively prepare itself for combat, maintaining an efficient combat training rhythm. Every naval sailor must remember and really implement the demand in the ship's regulations that combat training on ships is conducted with a view to preparing them to fulfill combat tasks and maintaining ships in a state of constant combat readiness. Concern for enhancing combat training efficiency on a voyage must be at the center of the crew's party organization's attention and be the chief direction of party political work.

The nature of modern combat operations is such that readiness to resolve tasks which suddenly arise at any minute is demanded of the crew. On setting out to sea a detachment of ships was faced with searching for a submarine. This was what the detachment commander directed the crews to do first of all. Suddenly, the ships were set a quite different task. Literally minutes were set aside to make a decision and regroup forces. But this did not disconcert either the detachment commander or the ships' commanders. Accustomed to decisive action on unexpected information on long voyages, the detachment sailors, particularly the crew commanded by Capt 3d Rank B. Klyushnikov, revealed their best side under conditions close to real combat conditions, displaying a high ability successfully to resolve sudden tasks.

The suddenness of the tasks arising before ships is an objective natural law under combat conditions. Crews must be trained at sea with regard to this. Any unexpected information reaching the ship is very useful in this respect. A senior chief or higher staff officer is frequently on board at sea. For the commander this must always be a favorable opportunity for supplementing methods of organizing combat training on board. Senior comrades must teach the commander the art of making the maximum use of sailing conditions to effectively enhance the crew's training. At the same time the ship's commander must himself constantly vary the range of combat training tasks to be resolved by the ship and organize ship exercises inventively and not in a stereotyped manner, making maximum use of the potential and conditions of a specific stage of the voyage for this.

Ships making a joint voyage have favorable opportunities for making sailing conditions approximate to real combat conditions. In such cases detachment commanders, flag officers, bear responsibility for the fullest utilization of these opportunities in the interests of combat training and of enhancing the ships' combat readiness.

Now, when summing up the results of the training year, special attention must be paid to generalizing experience of combat training and of enhancing ships' combat readiness on long voyages. Everything that is best, new and progressive must be made the property of commanders and crews which are at sea or only preparing for long voyages--for those voyages each of which begins with the command "prepare the ship for combat and voyage" and must end with the scaling of new heights in enhancing the ship's combat readiness.

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MIKOYAN RECOUNTS THREE-POWER MOSCOW CONFERENCE IN 1941

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 9, Sep 78 signed to press 24 Aug 78 pp 62-69

[Article by A. Mikoyan: "Military Economic Issues at the Tripartite Moscow Conference in 1941"]

[Text] The Moscow Conference of representatives of the USSR, Great Britain and the US on the issue of military deliveries for the Soviet Union was held from 29 September through 1 October 1941.

It was preceded by important measures which were conducted by the countries that participated in the conference. Based on an understanding between the governments of the USSR and England, English military and economic missions arrived in Moscow at the end of June 1941. The Soviet military mission conducted talks in London and Washington in July-August.

Based on the initiative of the USSR, a Soviet-English agreement on joint operations in the war against Germany was signed in Moscow on 12 July 1941. The agreement on trade, credit and clearing,[1] which was concluded on 16 August 1941, also played an important role in developing cooperation between the USSR and England. It granted the Soviet Union credit in the amount of 10 million pounds sterling. However, a decision on the issue of deliveries of combat equipment and arms to the USSR, which it especially needed during the first months of the war, was making slow progress.

Harry Hopkins, the personal representative of the US president and one of his closest advisors, arrived in Moscow at the end of July. The goal of his visit was to study the issue of providing economic assistance to the USSR. His discussions with I. V. Stalin took place on 30 and 31 July.

During the talks, Hopkins received a complete report on the situation at the Soviet-German front and about the urgent needs of the Soviet Army. He told I. V. Stalin that neither the English nor the American government would send any heavy armament to the USSR until a meeting was held between representatives

of the three governments to study the strategic interests of each front of the world war and of each country. Stalin replied that he would welcome the convocation of such a meeting.[2]

The talks between I. V. Stalin and H. Hopkins had a positive effect on the future development of both Soviet-American and Soviet-English relations.

Two weeks later, on 15 August 1941, I. V. Stalin received the US and English ambassadors, L. Steinhardt and S. Cripps; they handed him a joint message from W. Churchill and F. Roosevelt; it was drawn up during their meeting at Argentia Bay (Newfoundland). It stated: "We made use of the opportunity, which presented itself while discussing Mr. Harry Hopkins' report upon his return from Moscow, to discuss together the issue of how our two countries can best help Your country in the magnificent resistance which You are putting up against the Nazi assault... So that we will all be able to make swift decisions on the issue of allocating our overall resources, we are proposing that a meeting be prepared in Moscow to which we will send high ranking representatives who will be able to discuss these issues directly with You...."[3]

After familiarizing himself with this document, I. V. Stalin requested that the ambassadors send his sincere appreciation to Churchill and Roosevelt for their readiness to render assistance to the USSR in its war of liberation against Hitler's Germany and he stated that he welcomed the proposal to convene a meeting between representatives of the three countries in Moscow to allocate raw materials and armament.[4]

Preparations began for the conference. Along with the other people's commissars, I--as the deputy chairman of the CPC [Council of People's Commissars] and People's Commissar for Foreign Trade--had to determine what deliveries, and within what deadlines, it would be desirable to obtain from the US and which from Great Britain. A memorandum was drawn up wherein deliveries from the US and England for 69 items were enumerated in detail up to the end of June 1942; it included aircraft, tanks, antiaircraft guns, antitank guns, aluminum, tin, lead, steel, machine tools, phosphorous and other military materials. The memorandum pointed out that it would be necessary to review the issue of deliveries for the Navy with N. G. Kuznetsov, People's Commissar for the Navy, who had his own order and the issue of field radios would have to be reviewed with I. T. Peresypkin, People's Commissar for Communications, since the latter had submitted proposals which were not specific enough. The order for road building machinery, ditchdiggers and snow plows was submitted by A. V. Khrulev, deputy People's Commissar for Defense and chief of the Soviet Army Rear Services. The

memorandum proposed including artillery prime movers (1,000-1,500 per month) on the delivery list since there was a need for them. Moreover, at that time, military experts believed that the artillery would change over from horse transport to mechanical traction and prime movers would be extremely vital for the army. But, combat experience soon showed that the requirements of war were best met with artillery towed by trucks, especially the Studebaker model. These vehicles had good cross-country performance and they could quickly transfer guns with their crews and ammunition; therefore, we had to decline the deliveries of prime movers later.

We also provided for deliveries of trucks and specialized vehicles for the army and firetrucks (for the LAD [Local Air Defense]) in the memorandum--3,000-4,000 per month. This large requirement for firetrucks was explained by the fact that it was anticipated in the beginning of the war that there would be a lot of fires from the air raids. However, fires were not really that frequent. The Hitlerites were not able to bomb our cities with impunity, especially Moscow, Leningrad and Kiev: the air defense was effective. In addition, the LAD fire fighting teams were on top of the situation; as a rule, they quickly localized the pockets of fire. This large number of firetrucks was not required and we began to order a lot less of them.[5]

On 28 September 1941, the English delegation headed by Lord W. Beaverbrook, the Minister of Supply, and the American delegation headed by A. Harriman arrived in Moscow. On the same day, I. V. Stalin received the delegation heads and held a discussion with them. Before the conference opened on 29 September, a second meeting took place between I. V. Stalin, W. Beaverbrook and A. Harriman. V. M. Molotov, the People's Commissar for Foreign Affairs, headed the Soviet delegation at the conference. It included: K. Ye. Voroshilov, V. A. Malyshev (deputy chairman of the USSR CPC and People's Commissar for the Tank Industry), N. G. Kuznetsov (People's Commissar for the Navy), A. I. Shakhurin (People's Commissar for the Aviation Industry), N. D. Yakovlev (chief of the Main Artillery Directorate of the PCD [People's Commissariat for Defense]), M. M. Litvinov (deputy People's Commissar for Foreign Affairs), F. I. Golikov (deputy chief of the Soviet Army General Staff) and the author of these lines.

At the opening of the conference, the delegation heads exchanged brief speeches in which they unanimously expressed their undaunted determination to fight against Hitler's Germany. The Soviet delegation informed the English and US delegations about the situation on the Soviet-German Front and about the relative strength in armed forces and combat equipment between the USSR and Germany and it submitted a program of orders for deliveries to the USSR during the period from October 1941 through June 1942.

Conference work procedures were then established and six commissions were formed: aviation, army, naval, transport, medical supplies and raw material and equipment. I headed the Raw Material and Equipment Commission for the USSR, (Betman) was the English head (chief assistant secretary in the Ministry of Supply) and Batt (the president's representative) was the US head. All the commissions immediately got down to work since the final conference meeting was already set for 1 October.

The Raw Material and Equipment Commission held a meeting on 29 September and two meetings on the following day. In addition to myself, D. G. Borisenko, I. A. Yeremin, B. M. Rybak, V. A. Sergeyev, V. V. Smolyanichenko and K. V. Shevelev took part in them from the Soviet side. (Betman), Gifford and Martin took part in them from the English side. Batt, Brown, Brian, Petty, Page, and Thomas took part in them from the American side. It must be said from the outset that the work of our commission did not proceed without difficulty. There were political figures in both the US and England who came out against granting any assistance to the USSR since they did not believe the Soviet Army was able to resist the fascist German forces. This had a certain effect on the work of the conference.

At the first meeting, D. Batt, the US representative to the commission, stated that the goal of their visit was to provide maximum assistance to the Russian people.[6] The US was not at war but American industry was switching over to wartime operating conditions. It was necessary to discover the USSR's requirements and outline ways to satisfy them.

The issue of deliveries of aluminum was especially critical at the meeting. We had an urgent requirement for aluminum due to the evacuation of the Dnepropetrovsk plant to the East; it had produced 4,500 tons of aluminum per month. The capacity of the other small aluminum plants was insignificant and the demand for aluminum was 4,000 tons per month and for dural it was 500 tons per month. All of this was announced at the commission meeting.

Batt pointed out that plans called for bringing aluminum production in the US up to 1.4 million pounds and the requirement for the country's military industry would be 1.2 million pounds by that time. Thus, the US would soon have an export surplus. However, this did not solve the problem of immediate assistance to the USSR in the coming months. Therefore, it would only be possible to respond to the issue of aluminum deliveries after he returned to Washington and thoroughly studied the US capabilities.

At that time, it was again mentioned that the main issue of the conference was to provide deliveries within the coming months, i.e., from October 1941 to June 1942.

(Betman), the English representative, requested a clarification on whether the 2,000 tons of aluminum which England would deliver to the USSR over the next few months were included in the figure of 4,000 tons which the Soviet side wanted to receive on a monthly basis. We replied in the affirmative. After that, Batt pointed out that the air force's demand for aluminum had significantly increased at that time and he thereby led us to believe that more could not be counted on.

In turn, (Betman) stated that the British government's decision to deliver 2,000 tons of aluminum to the USSR was a definite sacrifice since England had to cut back on meeting the requirements of the aircraft industry itself. Therefore, a further increase in deliveries of aluminum to the USSR from the United Kingdom would only be possible if aircraft deliveries were reduced. Further, he added that an increase in deliveries of aluminum to the USSR would require thorough consultation between the British and the American sides.

After this statement by (Betman), our delegation was interested in whether he meant the entire period under discussion when he talked about annual deliveries of aluminum to the USSR in the amount of 2,000 tons. He explained that he had not received precise instructions; however, as far as he knew, the British side intended to review the issue of continuing deliveries after 27,000 tons of aluminum were delivered to the USSR and he promised to provide more precise information later.

At the meeting, the sides exchanged opinions on the issue of deliveries to the Soviet Union of tin, lead, molybdenum concentrate, cobalt, magnesium alloys and other raw materials which were needed for the war industry. While discussing deliveries of nickel (our requirement for it was 800 tons per month), Batt stated that the US was meeting its nickel requirements by importing it from Canada and it hoped to obtain it from the Soviet Union.

We answered in the affirmative to (Betman's) question on whether the USSR was producing nickel. But we emphasized that the plant located on the Kola Peninsula was evacuated to the Urals due to military operations and it had not become completely operational yet.

"In view of the large demand for nickel," (Betman) concluded, "the issue of delivering 800 tons of it a month to the Soviet Union during a 10-month period must be discussed between the British and American delegations."

When the conversation turned to deliveries of copper and the commission was given the figures for our monthly requirements for it (3,000 tons), (Betman) immediately asked if the USSR would be able to deliver copper to England. We replied that the British side was evidently poorly informed about the Soviet Union's copper import (after all, we were purchasing a large amount of copper on an annual basis). Gifford entered the conversation and pointed out that, according to his calculations, the amount of copper we requested was 1/8 the USSR's overall requirement for it. Our delegation replied that this was approximately correct. The amount of copper we needed was a normal import for the USSR.

(Betman) promised to report on the possibility of copper deliveries to the USSR at the next meeting, after consulting with Lord Beaverbrook.

While discussing deliveries of ferrochrome, Batt requested a clarification on whether it was possible to talk about deliveries of chrome ore from the USSR to the US now. The Soviet delegation replied in the affirmative and pointed out that this was possible and that the steamships which would carry imports from the US to the USSR could return with a cargo of chrome ore. There was no debate on the export of petroleum products since Batt stated that there was an expert in their delegation and it would be desirable to arrange a meeting between him and the corresponding Soviet specialists. We agreed that this meeting would be held on 30 September at 1100. Rybak and Shevelev would be at it from our side and Petty and Berthold would be there from the US.

The last issue discussed was deliveries of metal cutting machines (our monthly requirement for them was 1,200 units). Batt informed us that the US had agreed to deliver machines tools in an overall amount of 40 million dollars but, as far as he knew, the Amtrade [American Trade Association][7] had not placed a single order yet.

D. G. Borisenko clarified Batt's information by reporting that Amtrade had already placed orders for 5 million dollars and it had issued jobs for all the proposals from American companies.

(Betman) spoke for the English delegation. As a result of negotiations in London, he stated, the old orders in an overall amount of 800,000 pounds sterling, which were interrupted in the beginning of World War II, were reestablished. The British side offered the USSR machine tools from the French orders which were placed in the US in the amount of 120,000 pounds sterling as well as from the orders which England had placed in the US. In addition, the Soviet Trade Delegation in London had received a list of machine tools which were already in use; they could select the ones they needed for the USSR from them.

In view of the late hour and the complexity of the issues touched upon, it was suggested that the meeting be broken off and further work be taken up on the following day; D. G. Borisenko was tasked to look into the technical side of machine tool deliveries.

The next meeting of the Raw Material and Equipment Commission began at 1300 on 30 September. Borisenko was given the floor. He briefly reported that the All-Union Association of the USSR Ministry of Foreign Trade had ordered approximately 2,000 machine tools in the US and negotiations had been held on ordering another 500 machine tools. In England, the Soviet Trade Delegation had reestablished the prewar order for 560 of the 612 machine tools which had previously been ordered and it had also agreed to purchase the 115 American machine tools which were located there. However, our representatives were given unfavorable deadlines for the deliveries--the overwhelming majority of them fell in the second half of 1942 and we needed the machine tools right away, in 1941.

(Betman) spoke next. He asked if the Soviet Trade Delegation in London was authorized to discuss the issue of priorities for the American-produced machine tools and he asked what purpose they were intended for.

"The Soviet Trade Delegation in London," I replied, "can discuss this issue. The machine tools are primarily needed to produce shells which, as is well known, the USSR is not importing." Furthermore, we emphasized that the main issue which had to be decided by the commission was the delivery of 1,200 machine tools per month to the Soviet Union. It seemed that everything was clear. However, Batt stated that it would be necessary to have the specifications for a final decision. Our delegation agreed with this and assured him that they would be provided. Then, (Betman) pointed out that the planning organizations in London and Washington would be able to resolve the issue of allocating machine tools among the three countries after more detailed data was received.

"Why can't the issue be resolved in Moscow at this conference which was specially convened for this purpose?" we asked.

Batt replied that the planning issues could only be clarified on the spot, i.e., in Washington or in London.

Finally, we agreed to return to the machine tool deliveries after the British and American sides familarized themselves with our specifications.

The discussion of all the items to be ordered did not proceed without any debate. The English and US representatives were not

striving for a swift resolution of them and they even tried to complicate the matter at the first opportunity. This is also the way it was when the issue of deliveries of electrical ovens for thermal processing of metallic articles was being examined. Batt, for example, immediately stated that specifications were required for the delivery of ovens and he proposed that they would be examined in the US by Amtrade and the industrialists producing the electric ovens.

"The delivery of 50 electric ovens per month," we pointed out, "is dependent upon the US government which exercises control over production."

In response, Batt stated that the US government's fundamental decision on assistance to the USSR was decisive and more significant than the issue of electric ovens. Our delegation emphasized that the delivery of 450 electric ovens during a nine-month period was one of the items for a practical implementation of the American government's decision and it must be seen through to the end.

After realizing the flimsiness of his arguements, Batt stated that he evidently had not quite succeeded in correctly stating his idea on the need for obtaining specifications for the electric ovens. We agreed with this and emphasized that it was really difficult to resolve the issue without specifications and we promised to submit them.

After discussing a number of other issues, a break was announced until 1900. At the evening meeting, the sides discussed several orders for deliveries of raw materials and equipment. At the end of the meeting, we proposed setting another meeting to examine each order separately for final clarification. (Betman) and Batt replied that they would have to get instructions from the chairmen of their delegations on this score and they would inform the Protocol Department of the PCFT [People's Commissariat for Foreign Trade] of a possible meeting time. Then, the specifications for the metal cutting machines, steel articles and electric ovens were handed to (Betman) and Batt.

The other commissions also completed their work on 30 September and the Three-Power Moscow Conference completed its work on the following day, 1 October.

In evaluating the results of the work at the final meeting, Harriman stated: "...it was decided at the Conference to place at the disposal of the Soviet State practically everything that the Soviet military and civillian agencies asked for. The Soviet State will supply Great Britain and the United States with a large amount of raw materials which these countries are in need of...."[8]

According to the protocol which was signed on 1 October 1941, the US and England promised to deliver 400 aircraft, 500 tanks, antiaircraft and antitank guns, aluminum, tin, lead and other types of armaments and war materials to the Soviet Union on a monthly basis from 1 October 1941 through 30 June 1942.[9]

Upon completion of the conference's work, a dinner was held in the Kremlin in honor of its participants. Batt described it very graphically in his 2 November 1941 appearance on American radio: "I would like to give a fairly complete description of the dinner which he (Stalin--Ed.) gave in the Kremlin in honor of our mission. The atmosphere itself was most remarkable. This was happening at a time when one of the greatest battles in the history of mankind was taking place not more than 100 miles from Moscow. And, in spite of this, we were sitting in this enormous hall along with Stalin, his officers and official representatives. Stalin himself impressed us as being a wise, amazingly well-informed person. Their firm confidence and complete faith in their strength made a large impression on us during the dinner and the party which followed. An atmosphere of confidence, composure, decisiveness and an unshakable spirit reigned all around."[10]

After the conference closed on 3 October. I received A. Harriman and held an hour long discussion. Batt and Brown were present at it from the American side and A. D. Krutikov, my deputy at the PCFT, and V. V. Smolyanichenko were present from the Soviet side. Harriman informed me that he had already told Stalin about his intention to return to the US to facilitate the practical implementation of the promises made in Moscow on the spot. Stalin concurred in this. Brown would remain in Moscow as the representative of the American side; he would serve as the connecting link between the American and Soviet governments.

As implied in Harriman's speech, no additional explanations or data were required for several of the items on the list of Soviet orders, specifically, the requirements for tanks and airplanes and also for aluminum due to the Soviet Union's loss of plants for producing it. As far as machine tools went, there could be some difficulties here connected with the fact that the expansion of American production was basically being held up by a shortage of machine tools. Several difficulties were also encountered in allocating shipping for transportation and also in the deliveries of aluminum when they were connected with the overall US aircraft production program. It was not clear whether it would be better to deliver the aluminum to the Soviet Union and thereby slow down production of finished aircraft in the US or whether it would be better to compensate for the aluminum deliveries with aircraft deliveries. The issue of the number of trucks to be delivered also remained open.

Harriman then requested that I give my opinion on the statement he had made.

I said that I was pleased to note that Harriman had set to work on the practical implementation of the conference decisions immediately after the protocol was signed. I then pointed out that I was ready to cooperate with Brown. However, Harriman's presence in Moscow was extremely desireable and the quicker he returned (Harriman stated that he intended to return to Moscow), the better it would be.

As far as the delivery of trucks went, Batt again repeated on his part that our initial order was for 5,000 vehicles per month. But, in his conversation with Harriman, Stalin had raised the issue of increasing deliveries of them to 8,000-10,000. It would be a great deal easier to achieve priority on deliveries to the USSR if the American side had a precise knowledge of Soviet requirements.

"Our order for 10,000 vehicles per month," we explained, "is less than the number of trucks required due to the war, specifically for transferring troops, especially when the fascist German Command's tactic of transferring its forces from one sector to another is taken into account."

A little later that same day, we received (Betman) and Gifford and answered their questions on which items the Soviet Union was ready to carry out its deliveries to England.

The Moscow Conference played a significant role in the development of Allied relations between the Three Great Powers. It completely upset the Hitlerites' plans to isolate the Soviet Union economically and it was highly significant in mobilizing the resources of the coalition states to defeat the aggressive fascist bloc.

The Moscow Conference sped up the American government's decision on the issue of extending the Lend-Lease Act to the Soviet Union. When it became obvious that Hitler's blitzkrieg to the East would fail, the decisions were made in Washington to increase economic assistance to the USSR. In his 30 October letter to I. V. Stalin, F. Roosevelt informed him of the US government's decision to grant the Soviet Union an interest-free loan in the amount of one billion dollars; a week later, on 7 November, the US president extended the effect of the act on granting loans or leases for weapons or materials (Lend-Lease) to the USSR.

While talking about economic assistance from the US and Great Britain, it must be emphasized that it was a small part--

approximately 4 percent--of the overall volume of USSR war production. In addition, this assistance was far from being a decisive contribution to the Soviet people in the war against fascist Germany. Thus, on the basis of the Lend-Lease Act, the US sent arms and war materials to the USSR in the amount of $545,000 in October-November 1941, while the overall cost of American deliveries to all countries was 741 million dollars. Thus, while carrying the main burden of the war, the Soviet Union received less than 0.1 percent of all American assistance. For example, it is significant that the US only delivered 204 aircraft to the Soviet Union in 1941, although the protocol stipulated 600 and it delivered 182 tanks instead of 750. Even according to A. Harriman's data, the US had only fulfilled one-fourth of its obligations by 24 December 1941. Military deliveries from England were also carried out with large delays and they were not completely fulfilled.11

It must be frankly stated--and the facts of history convincingly testify to this--that the victory over the fascist bloc was ensured by the superiority of the socialist system over the capitalist system. The Soviet people were the creator great victory and it was inspired and organized by Lenin's Communist Party. Our glorious Armed Forces carried out their victorious operations under its leadership; the universal struggle in the enemy's rear was conducted under its leadership; the workers in the rear provided the front lines with everything they needed to defeat fascism under its leadership; a Leninist foreign policy directed at creating an anti-Hitler coalition, mobilizing all the progressive forces of the world against the brown plague and directed at establishing a firm postwar peace in the world and a happy and bright future for all mankind was conducted under its leadership.

And now, under the leadership of the Communist Party, our country--having built developed socialism--along with the countries of the socialist commonwealth, is conducting a Leninist foreign policy directed at relaxing international tension and for disarmament and it is the reliable guarantor and shield of the peace and security of the people.

PHOTO CAPTION

1. p 65. A group of Soviet delegates and experts to the Three-Power Moscow Conference. In the picture (from left to right): Lt Gen F. I. Golikov, deputy chief of the USSR General Staff; V. A. Malyshev, People's Commisar for the Tank Industry; A. Ya. Vyshinskiy, first deputy People's Commissar of Foreign Affairs;

A. I. Mikoyan, deputy chairman of the Council of People's Commissars and People's Commissar of Foreign Trade; A. I. Shakhurin, People's Commissar for the Aviation Industry; Mar SU K. Ye. Voroshilov, member of the State Defense Committee and deputy chairman of the Council of People's Commissars.

FOOTNOTES

1. Clearing is a form of international payment by written orders, wherein countries pay off their indebtedness to each other with mutual, reciprocal payment obligations (checks, transfers, etc.).

2. "Istoriya vtoroy mirovoy voyny 1939-1945" (History of World War II, 1939-1945), vol 4, Voyenizdat, 1975, p 167.

3. "Perepiska Predsedatelya Soveta Ministrov SSSR c Prezidentami SSHA i Prem'yer-Ministrami Velikobritanii vo vremya Velikoy otechestvennoy voyny 1941-1945" (Correspondence Between the Chairman of the USSR Council of Ministers and US Presidents and Prime Ministers of Great Britain During the Great Patriotic War, 1941-1945), vol 1, Moscow, Politizdat, 1976, p 25.

4. "Vneshnyaya politika Sovetskogo Soyuza v period Otechestvennoy voyny" (The Soviet Union's Foreign Policy During the Patriotic War), vol 1, Moscow, Politizdat, 1946, p 48.

5. As is well known, the first time the fascists conducted an air raid on the capital was on the night of 21-22 July 1941, a month after the war started. There were also several raids. As a rule, the fascist pilots were trying to bomb the Kremlin but they were not able to do this.

   I only remember 5-6 cases altogether when bombs fell on the Kremlin territory where I worked and lived during the war. One bomb fell on the Kremlin Palace, penetrated all the floors but did not explode. Another bomb fell on the pavement in the Square of the Cathedral, exploded but there were no casualties or damages from it. The bomb which exploded on the corner across from the Armory also did not cause any damage.

   Once, during a meeting which was being conducted in my office (on the second floor of the government building), a bomb exploded not far from the Tsar's cannon. Everything also turned out without any damages this time; only the glass was knocked out by the airwave in the reception area.

One fall day, when a comrade and I were walking toward the Kremlin in the direction of the Gate of the Redeemer, a bomb exploded in Red Square near the Tower of the Redeemer. Two watchmen were killed. We had successfully dropped down and were not hurt.

Approximately 30 men died as a result of a bomb which exploded in the Kremlin Arsenal. A memorial plate with their names on it is now attached to the gates of the Arsenal.

A bomb also fell in Red Square not far from the Mausoleum but there was no damage. The sarcophagus with V. I. Lenin's body was not in it at that time. It had been taken out ahead of time and was preserved in a safe place in the Urals during the war.

6. The minutes of all the speeches at the meetings of the Raw Material and Equipment Commission were taken by V. V. Smolyanichenko-A. I. Mikoyan's assistant.--Ed.

7. Amtrade--a joint stock company with Soviet capital. Founded in New York in 1924 to conduct trade between the USSR and US.

8. "Vneshnyaya politika SSSR v period Otechestvennoy voyny," Moscow, Politizdat, 1946, vol 1, p 175.

9. "Istoriya vtoroy mirovoy voyny 1939-1941," vol 4, p 170.

10. PRAVDA, 5 November 1941.

11. "Istoriya vtoroy mirovoy voyny 1939-1945," vol 4, p 175.

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REVIEW OF VOLUME FIVE OF 'SOVIET MILITARY ENCYCLOPEDIA'

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 9, Sep 78 signed to press 24 Aug 78 pp 102-105

[Article by Adm (Res) S. Zakharov, candidate of historical science: "Volume Five of the Soviet Military Encyclopedia"]

[Text] The publication of volume five of the Soviet Military Encyclopedia* was greeted with a great deal of interest by readers. Approximately 1,300 of its articles are devoted to the most important issues of military theory, the history of military art and armed forces development, military historical events and the problems of developing armament and military equipment. The volume encompasses the terms from "Adaptive Radio Communications Link" to "Antitank Defense for a Facility."

The articles "Marx," "Marxism-Leninism," "The Marxist-Leninist Doctrine on War and the Army," "Marxist-Leninist Training," as well as the materials devoted to Lenin's works, occupy a central position in the volume. The article "Marx" tells about the life and activities of the founder of scientific communism, the brilliant thinker, ardent revolutionary, teacher and leader of the international proletariat. V. I. Lenin especially emphasized the methodological significance of K. Marx's philosophical materialism which provided mankind with a great weapon for perceiving and transforming the world.

For the first time, a materialistic interpretation of history provided the key to an explanation of the origin and essence of war and the army and the application of a Marxist revolutionary theory to the analysis of military phenomena made it possible to create a truly scientific doctrine about them. For the first time, Marx established the inherent relationship of war, the army and military affairs to physical production and to the development of productive forces and production relations. His conclusion on the decisive role of popular

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* "Sovetskaya Voyennaya Entsiklopediya, V 8-mi tomakh," vol 5, Voyenizdat, 1978, 687 pp.

masses in history, which also applies completely to warfare, has very great significance for military theory and practice. By considering war as a continuation of politics by other (violent) means, K. Marx and F. Engles provided the only correct definition of its essence and they laid the foundation for a scientific classification of wars. In the works of the briliant theoretician, the analysis of their essence, nature and main types is closely related to the interpretation of the social nature of the army as the main means for achieving political goals by way of force. Marx and Engles pointed out the decisive role of the party of the proletariat in creating its armed organization and in mobilizing the masses to a mastery of military affairs. The material on K. Marx's historical military heritage is developed well.

A definition of this doctrine is provided in the article "Marxism-Leninism" and the integral parts of it are reviewed: dialectical and historical materialism, political economics and scientific communism. The founders of Marxism placed the revolutionary theory they created at the service of the cause of the proletarian revolution and the socialist transformation of society. V. I. Lenin made the greatest contribution to the further development of Marxism under the conditions of a new historical epoch. He developed the theory of the socialist revolution and the doctrine on the dictatorship of the proletariat. The 1961 Program of the Communist Party of the Soviet Union, the decisions of the 23rd 24th and 25th CPSU congresses and the Central Committee plenums, the 1977 USSR Constitution, the reports and speeches of Comrade L. I. Brezhnev, general secretary of the Party Central Committee and chairman of the USSR Supreme Soviet Presidium, and the decisions of the congresses of the fraternal communist and workers parties are the basic documents of Marxist-Leninist theory under contemporary conditions. The doctrine on collective defense of revolutionary achievements--which is based on strengthening combat cooperation between the people and armies of the socialist states and which is being creatively developed by the CPSU and the fraternal parties--is taking on special significance now.

The article "The Marxist-Leninist Doctrine on War and the Army" shows the activity of K. Marx and F. Engles in creating it. V. I. Lenin raised this doctrine to a new, higher level. The theoretical propostions on the need for armed defense of revolutionary achievements during the epoch of the transition of countries from capitalism to socialism were an important contribution to its principles. Under the new historical conditions, the conclusion is reached in the CPSU program document that the issue of war and peace has become the burning issue of our time and this problem is a problem of life and death for hundreds of millions of people; the proposition on the source of wars and the danger of war under modern conditions and on the possibility of preventing a new world war is substantiated.

The volume under review includes material on V. I. Lenin's works on the issues of war, peace, revolution and defense of the socialist fatherland against imperialist aggressors: "Marxism and Revolt," "Peace or War," "On a Practical Foundation," "Yunius' Brochure," "A Caricature of Marxism and 'Imperialist Economism'," "The Slogan 'Disarmament'," "The Slogan the United States of Europe." They played an important role in creating and developing Soviet military science and art and in the development of the Armed Forces; they are also of current interest at the present time.

The articles "Combat Efficiency and Morale," "Moral and Political Training for Armed Forces Personnel," "Political Training Methods," "Scientific Military Research Methods" and others are of great theoretical and practical importance. The leading role of the CPSU in the area of military development and in strengthening the power and combat readiness of the army and navy is graphically shown in the volume. A great deal of attention is devoted to unmasking reactionary bourgeois theories of war, the aggressive policy and strategy of imperialist politicomilitary blocs which are ideologically "justified," the arms race and preparations for a new world war. Their antiscientific nature and flimsiness are convincingly demonstrated in the terms which are revealed: "Naturalistic Theories of War," "The 'Small Armies' Theory," "The Strategy of 'Massive Retaliation'," "Blitzkrieg War," "Neo-Malthusian Theories of War" and others.

The articles "Militarism," "Neo-Colonialism," "Neutrality," "Non-interference," "National Liberation Warfare," "Armed Coercion," and others are topical, profound in content, current and politically oriented articles.

The issues of Soviet military science and art are also examined in this volume. Among the material on these topics, "The Offensive," "Defense," "Supporting Combat Operations," "Night Combat Operations," "Maneuver," "Massing Men and Equipment," "Camouflage" and others merit attention. They show the origin and development of these issues depending upon the means of armed combat; modern views on conducting operations with nuclear and conventional weapons are presented.

"Modeling in Military Affairs," "Model of an Operation," "Mechanization of Troop (Force) Command and Control," "Queueing Theory," "The Mathematical Model," "Software," "Mathematical Programming" and "The Nomogram" are of immense importance for military theory and practice; they are devoted to the problems of studying the processes of armed combat and to developing and employing weapons and military equipment in combat.

The articles "Combat and Operational Training Methods," "Scientific Military Research Methods," "Political Training Methods," "Developing Methods," "Combined Arms Training" and others serve the purpose of training and indoctrinating personnel of the army and navy.

A brief history and description of the branch arms and special troops are provided in the volume's material "Marines," "Motorized Rifle Troops" and "Mechanized Troops." Information from the history of weapons and military equipment development, their performance characteristics and methods of employment are presented here in a broad manner. The issues connected with creating mines and mixed mine fields are examined very thoroughly. Essential information is provided on the weather service and navigation. The articles devoted to new technical and scientific achievements which can be used in military affairs are of significant interest. These are "Magnetic Hydrodynamics," "Magnetometric Reconnaissance" and "Meteor Radio Communications."

The volume contains brief information of a military geographic nature on the countries of the world and their armed forces, the air and naval bases of imperialist governments, islands, straits, bays, seas, major rivers and lakes and other geographic features of strategic importance. There is an interesting article on "Population." It points out that world population had reached one billion by approximately 1820; the second billion was reached by 1929, i.e., 109 years later and the third billion was reached just 31 years later. In 1976, world population was 4.018 billion and it will be approximately 6-6.5 billion by the year 2000 according to a UN forecast.

A lot of space is devoted to military historical articles which are devoted to a description of wars, operations, battles and engagements and to the history of individual units, ships, large units and formations which achieved fame in battles for the motherland.

People's liberation, national liberation and national revolutionary wars are presented in detail. These articles graphically show how imperialism is frantically clinging to its positions and going over to a counteroffensive in individual areas while trying to bar the transition of the people of liberated countries to the path of independent, progressive development by any means. But, the wheel of history has no reverse.

The articles on the military history of our motherland and foreign countries from ancient times up to the present are instructive. Descriptions are provided of 18 wars, 130 engagements, operations and battles and examples of combat operations of subunits and units are cited.

The following articles are devoted to pages from Russian military history: "The Lyublin-Kholm Operation of 1914," "The Liaoyang Engagement of 1904," "Lyakhovo," "Maloyaroslavets," "Mechka," "Mytilene," "Mozhaysk," "Molodi," "The Moscow Uprising of 1382," "The Moscow Uprising of 1547," "The Moscow Uprising of 1682," "The Navarre Battle of 1770," "The Navarre Naval Engagement of 1827," "The Narva Engagement," "The Neva Battle of 1240."

There are many articles in the volume from foreign military history. Among them, the following especially stand out: "The Napoleonic Wars of 1799-1815," "Napoleon I," "The Battle of the Marne of 1914," and "The Battle of the Marne of 1918," and others.

The events of the Civil War and the intervention in Russia are revealed by the articles "The L'vov Operation of 1920," "The Mayskaya Operation of 1920," "The Eastern Front's Offensive of 1918-19," "The Eastern Front's Offensive of 1919-20," "The Southern and Southeastern Fronts' Offensive of 1919-20" and others. The most advisable forms for organizing forces were discovered during these operations and Soviet operational art was developed.

A large amount of material tells about the heroic struggle of the Soviet people and their Armed Forces against fascist Germany and imperialist Japan in 1944-45. It shows the mobilizing and leading role of the Communist Party in defeating the fascist German invaders and the Japanese militarists, the mass heroism of Soviet servicemen and workers in the rear, the advanced nature of Soviet military art and the sources of our victories.

The article "Malaya zemlya," which describes one of the events of the past war, arouses special interest. The book "Malaya zemlya," which was written by Comrade L. I. Brezhnev, general secretary of the CPSU Central Committee and chairman of the USSR Supreme Soviet Presidium, has helped the Soviet people in penetrating its depth. Through the prism of the events on Malaya zemlya, he has convincingly shown the just nature of the Great Patriotic War against fascist Germany, the sources of the Soviet people's victory, the endless devotion of the people and the army to the socialist motherland and the high morale and superior combat efficiency of Soviet servicemen. Based on concrete examples, the book reveals the leading and directing role of the CPSU, the enormous importance of party political work, the Leninist style of leadership and the superior military expertise of the generals in command, the commanders and staffs.

The volume examines the strategic and front operations of Soviet forces during the Great Patriotic War: "The Manchurian Operation

of 1945," "The L'vov-Sandomir Operation of 1944," "The Novorossiysk Operation of 1942," "The Novorossiysk Operation of 1943," "The Novorossiysk-Taman Operation of 1943," "The Novgorod-Luzhskaya Operation of 1944."

The articles devoted to the history of armies, flotillas and fronts, as well as the guards units and large units which distinguished themselves the most during the war, are valuable material. This systematized information is being published for the first time in our literature.

The material devoted to battles for populated areas or other objectives which were important in an operational-tactical respect reflects the expertise and heroism of Soviet servicemen ("The Nikolayevsk Assault," "Malaya zemlya," "Nevskaya Dubrovka" and others).

The patriotism of the Russian and Soviet people during enemy invasions of our motherland is graphically shown in the articles "The People's Voluntary Militia in the Great Patriotic War," "The People's Voluntary Militia in the Patriotic War of 1812" and "The People's Voluntary Militia of Minin and Pozharskiy."

The articles on prominent party figures and Soviet statesmen (K. T. Mazurov, P. M. Masherov, V. I. Mezhlauk, V. R. Menzhinskiy, A. I. Mikoyan), on Soviet generals, military leaders and prominent political workers (R. Ya. Malinovskiy, K. A. Meretskov, K. S. Moskalenko, A. A. Novikov, M. I. Nedelin, K. A. Mekhonoshin), on the creators of weapons and military equipment (Ar. I. Mikoyan, A. I. Lyul'ka, M. L. Mil', A. A. Mikulin, A. L. Mints, A. A. Morozov, V. M. Myasishchev), on twice Heros of the Soviet Union, holders of all three classes of the Order of Glory and on active participants in the Civil War are highly significant. The information on the hero cities of Moscow, Minsk and Novorossiysk is intesting.

Many operations of Allied forces in different theaters of military operations of World War II have been presented ("The Maas-Rhein Campaign of 1945," "The Malaysian Campaign of 1941-42," "The Mindinao-Aleutian Campaign of 1942," "Neretva," "The Norwegian Campaign" and others). The concepts and plans of the fascist bloc states and the fascist German command during the Second World War are examined in the articles: "The Mannerheim Line," "Margaret-1," "Blitzkrieg Warfare," "The Nuernberg Trials" and others.

Overall, the material of volume five is written on a high scientific level and it will be an important means for expanding

the military horizon of the officer personnel of the Soviet Armed Forces. It will facilitate the inculcation of devotion to the motherland, patriotism and internationalism and loyalty to the ideas of Marxism-Leninism in Soviet people.

The artistic layout of the book merits approval. Approximately 120 black-and-white maps and diagrams and 28 colored maps are contained in it. The colored illustrations and pictures of medals, state seals and flags are pretty and expressive.

Volume five of the Soviet Military Encyclopedia has been greeted with a great deal of interest by Soviet society, and especially by officer personnel. The encyclopedia is becoming the favorite of commanders, political workers and military engineers, lecturers and propaganda workers, teachers of military disciplines and researchers.

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