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MILITARY AFFAIRS

AVIATION AND COSMONAUTICS

No. 5, May 1984

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Except where indicated otherwise in the table of contents the following is a complete translation of the Russian-language monthly journal AVIATSIYA I KOSMONAVTIKA published in Moscow.

CONTENTS

FIGHTER-BOMBERS HIT TANK COLUMN IN EXERCISE NIGHT STRIKE

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 4-5

[Article, published under the heading "Be Alert, In a Continuous State of Combat Readiness," by Military Pilot-Expert Marksman Col P. Lichagin and Lt Col A. Lapshin: "At Night Against Tanks"]

[Text] Tactical air exercises, combined-arms field exercises and maneuvers are the highest form of aviation personnel combat training activity in the final phase of combat training. While improvement in the professional skill of combat pilots proceeds in a planned and scheduled manner in daily intensive training, from one training activity to the next, at field exercises they perform complex and at times unexpected missions and work in coordination with ground subunits The main principle of combat and political training -- learn that which is necessary in war -- is most vividly manifested precisely in such conditions.

As we know, one of the important fighter-bomber missions is fire support of ground subunits in offense and defense. Favorable conditions are created at joint field exercises with ground subunits for training aircrews and tactical control officers. Aircrews take part in destroying or neutralizing targets close to the forward edge of the battle area and at tactical depth in the "aggressor's" defense, and also get an idea on how ground troops and their weapons operate. The quality of overall training and preparation is of decisive significance in the readiness of involved personnel for such exercises. The knowledge essential for combat is tested and reinforced in the course of classes on theory, headquarters drills, and at brief tactical exercises. In other words, the attention of flight personnel is directed not only toward thorough study of aerodynamics, the combat capabilities of their aircraft, and tactics, but also study of data on the "aggressor," his strong and weak points, the capabilities of air defense weapons and the nature of the targets which they will be striking.

As experience shows, the greatest effectiveness in improving combat proficiency is achieved only when compromises with realism and unnecessary situation simplifications have been reduced to a minimum, and when a complex dynamic environment is continuously created in the course of a tactical air exercise, requiring precise decisions, prompt and clear-cut actions from

aircrews. A close interlinkage and mutual understanding among the services supporting the generation of sorties, as well as a sense of personal responsibility on the part of each pilot and ground crewman for his job proficiency are manifested precisely at this point.

In the period of general preparations for a recent tactical air exercise involving support of ground subunits in offensive combat, the men of the squadron under the command of Military Pilot 1st Class Lt Col I. Verchenko accomplished a great deal of work. The regimental headquarters staff also did a good job. It drew up a calendar schedule of preparations for the tactical air exercise, analyzed the quality and level of proficiency of the squadron's pilots, planned, scheduled and held classes on theory and practice drills with the tactical control officer team. Specific instructions were given to the subunit command authorities and flight personnel.

Officer Verchenko had definitely learned from the experience of previous exercises that success in a tactical air exercise directly depends on how the preparatory period is utilized. Therefore he devoted principal attention to organization of training activities and precise execution of specified measures, ensuring that not one single minute of training time was wasted. Each and every officer, warrant officer, noncommissioned officer and enlisted man knew his assigned task and performed it in a prompt and timely manner.

Thoroughly thought-out and well-organized party political work fostered an excellent, aggressive attitude on the part of personnel, the desire to accomplish everything as quickly and as well as possible, as well as development of personnel initiative. Maj N. Lomotko, the squadron deputy commander for political affairs, thoroughly studied the tasks of the tactical flight exercise, worked together with the party buro secretary in placing party and Komsomol activists, and at all times kept current on the subunit's state of affairs. Situation changes did not take him unawares. With the assistance of activists, utilizing wall newspapers, he communicated the necessary information to personnel. Aviation personnel were kept constantly current on the doings of their comrades: who was leading and in what indices, who was lagging and why. The fact that the men were informed had a beneficent influence on the aggressiveness and effectiveness of competition and mobilized the men to achieve substantial results in the course of preparing for the tactical air exercise. Regimental propagandist Maj V. Kozlovskiy was very helpful in organization and conduct of party-political work in the squadron. He skillfully and efficiently utilized means of technical and graphic propaganda, held short but interesting talks, and offered requisite recommendations.

After receiving the tactical air exercise problem, Lt Col I. Verchenko issued specific instructions to the flight commanders and flight technical maintenance unit chiefs pertaining to prompt and thorough preparation of flight personnel and equipment. On his orders a special area was designated on the airfield to rehearse and test readiness for flight operations; the tactical environment and approximate routes were marked in this area. The commanding officer conducted the rehearsal in a dynamic fashion, having the men work on actions by aircraft pairs and flights by place and time, with

simulation of radio traffic and execution of various scenario instructions. The squadron was fully ready for the tactical air exercise on schedule.

The exercise commenced on signal. Intelligence reported that the "aggressor" was moving a tank column from the south, in a direction parallel to the line of contact. Where, in what sector was he planning to deploy it to break through the defense? Verchenko received orders to fly a strike on the tanks. Following a briefing, the pilots took to their aircraft. The fighter-bombers lifted off into the night sky precisely on schedule.

Each aircraft pair crossed the "line of contact" in conformity with the plan devised in advance. Soon Capt A. Prishchepnyy, followed by Capt A. Gordeyev, spotted the column. Parachute flares were dropped, casting a blinding light. The tanks threw up barrage fire, but the fighter-bombers streaked past overhead. The first aircraft had barely disengaged when Capts A. Lobov and S. Frolov hit from the opposite direction. Attack runs continued uninterrupted. The squadron commander made the final run. The fighters requested by the "aggressor" were unable to save the day. The umpires ruled that the tanks had been destroyed. In the course of the exercise the squadron's pilots, responding to requests for air, hit company strongpoints, air defense targets, provided air cover for the delivery of a tactical assault and supported in the attack, and performed other missions. The aviators' skilled actions were highly praised by the exercise director.

Unquestionably the success of an aviation outfit is determined by excellent combat proficiency on the part of aircrews. But this is only part, although the main part, of all preparatory work. An important or, more precisely, the decisive role was played by an aircrew command and control scheme devised in advance, which ensured their precise actions in the dynamics of flight operations along comparatively short routes. The tactical control team officers functioned smoothly and reliably. Lt Col G. Gorodnov and Capt V. Klimenko displayed an example of professional expertise, tenacity, and determination at the exercise.

In addition, exchange of information, get-togethers between commanders of air and ground subunits during common training, and joint training drills helped ensure that in the course of the exercise mutual recognition, identification, and distribution of efforts among attack objectives caused no difficulties.

The aircraft readied by the men of the aviation engineer service headed by Engr-Maj A. Parkhomenko performed flawlessly during the tactical air exercise. Junior aviation specialists, technicians, and engineers did everything to ensure that the aircraft were continuously in a state of combat readiness. For this reason so-called trivial items, which negatively affected people's moods and diminished the quality of aircraft servicing and maintenance, were particularly disturbing. For example, the people from the rear services subunits failed to provide flashlight batteries to technical personnel, and this is no trivial matter if one considers they were working at night in field conditions. Unfortunately at times some people forget that such errors of omission lead to unexpected and very serious consequences.

Forming moral-psychological staunchness in personnel and development of smooth coordination are important elements of daily combat training, and particularly of tactical air exercises. Good results are achieved wherever the time allocated for a tactical air exercise is utilized comprehensively. For example, one of the subunits is working on problems of coordination with ground subunits, while others are holding drills on protection against mass destruction weapons. Experience also confirms the advisability of organizing training for rear services subunits and electronic support.

When a nuclear burst was simulated at the airfield during a squadron tactical air exercise, Lieutenant Colonel Verchenko's group had to land in conditions of "radioactive hazard." At the same time the men of another squadron and a subunit under the command of Capt A. Movchanyuk took part in neutralizing the effects of the "nuclear attack" and radiological decontamination of the aircraft which had landed. All men worked with a high degree of responsibility and completed their job on a timetable dictated by the situation.

In addition, the subunits of the independent airfield technical support battalion handled the combat sorties in conditions of "employment of weapons of mass destruction." As a result personnel received good practice in working in individual protective gear and acquired skills in performing chemical and radiological decontamination of airfield equipment. Personnel of the electronic support subunit also received good conditioning at this same tactical air exercise. Thus coordinated teamwork by all services and subunits was worked on in the course of the tactical air exercise.

Of course successes and failures, victories and defeats can occur at exercises, just as in an actual combat situation. It is very important to synthesize advanced know-how, to study and analyze the reasons for mistakes, and to draw the correct conclusions.

At a tactical air exercise the squadron under the command of Military Pilot 1st Class Lt Col V. Kuznetsov was assigned the mission of knocking out "aggressor" antiaircraft weapons. The commander and his executive officer, utilizing air reconnaissance data, calculated the personnel and assets required and formed air teams. The commander decided to lead one of them personally, and placed the others under Maj A. Ryakhov and Capt A. Smirnov. After the strength and composition of these groups was approved by the regimental commander, they immediately proceeded with direct preparations, during which they rehearsed on a dynamic basis the actions by each aircrew en route and in the target area. The squadron commander devoted particular attention to ensuring precise, continuous command and control of airborne crews in a rapidly changing environment. During this time the engineers and ground crew technicians fully readied the aircraft for departure.

Following preflight briefing instructions, the aircraft pairs lifted off at the scheduled time. On approaching the "aggressor's" effective radar coverage zone, the pilots proceeded to maneuver according to a model which had been worked out in advance. The aircrews of Capt A. Smirnov's flight accomplished successful penetration, but Maj A. Ryakhov was unlucky. Radar obtained a fix

on his group, a fact which was immediately reported to the umpire. The aircraft led by Lt Col V. Kuznetsov also made it through undetected.

Aircraft attacked the targets from various directions. The squadron commander and his wingman delivered a missile strike from a complex maneuver. The aircraft pair led by Capt A. Prishchepnyy from Capt A. Smirnov's flight also did an outstanding job. The pilots delivered an accurate hit on their target from level flight.

Maj G. Viskov, leader of one of the pairs, knocked out a target with a direct hit. He pulled his aircraft out of the dive at excessively low altitude, however, and was in danger of taking hits from fragments from his own munitions. This incident was thoroughly analyzed with all flight personnel.

On the whole the mission assigned the air subunit was accomplished, although they did take "losses." Could they have been avoided? The experience of the Great Patriotic War convincingly demonstrates that well-trained aircrews and subunits, operating in a tactically knowledgeable manner and inventively, sustained considerably fewer losses. And the exercise was nothing other than a model of actual combat. Its main purpose was to teach the combat pilots in a practical manner to operate boldly, with determination and skill against a powerful, well-equipped, clever and crafty adversary.

There are several reasons why Maj A. Ryakhov's group was unable to penetrate the "aggressor's" air defense zone. The flight commander himself and his men time and again did an excellent job on missions before and after the exercise, confidently demonstrating their flying skills. But on this occasion his group was following the aircraft led by Capt A. Smirnov, flying practically the same route, and therefore its detection was assured in advance, in the ground planning and preparation stage. Lack of originality and underrating of the "aggressor's" air defense capabilities were displayed during preparation of the mission model and selection of route, flight configuration, and appropriate maneuver tactics.

Another lesson learned from the tactical air exercise applies directly to observance of safety procedures during combat activities. What military pilot has not experienced enthusiastic excitement in combat? This feeling is at times one's undoing, however, if it overshadows professional vigilance and sober calculation, circumspection and composure. But this is one aspect of things. Another aspect is discipline. Every pilot knows that it is absolutely prohibited to check to determine the results of ordnance delivery when firing at ground targets or when releasing bombs, rockets or missiles, especially from a dive. But the desire is so strong! A one-second delay in pullout leads to loss of altitude, and consequently to violation of safety procedures.

One of the main focal areas in moral-psychological training is persistently to develop discipline in the combat pilot, as well as the ability to act with precision in a complex, dynamic environment. Conditions which simulate the actions of the probable aggressor, taking into acocunt his employment of new weapons, are created on gunnery and tactical ranges toward this end, for example. An important role in this is played by flight recorder data, which

enable one to evaluate the actions of each aircrew and subunit impartially, promptly, and accurately.

In view of the present complex international situation, aviation personnel make maximum use of training time. "Every bomb, rocket, missile, cannon round into the target" -- this is the principal and constant task which aviation personnel perform in their daily combat training. The recent tactical air exercises indicated that many aviation subunits are successfully accomplishing this task. In the course of socialist competition under the slogan "Be alert, constantly ready to defend the achievements of socialism!", combat pilots are working persistently to improve their professional skills and are boosting their level of combat readiness day by day.

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IMPORTANCE OF MILITARY UNIT IDEOLOGICAL WORKERS EMPHASIZED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 6-7

[Article, published under the heading "Warriors of the Ideological Front," by Lt Col Yu. Lunichev, political section officer, air forces, Group of Soviet Forces in Germany: "Be Where You Are Needed"]

> [Text] It was emphasized at the June (1983) CPSU Central Committee Plenum that cadres are a key element of ideological work. The warriors of the ideological front devote a great deal of energy and Bolshevik fervor to propaganda. The party has faith in them and highly appreciates their noble, selfless labor. It supports the innovative quest of ideological workers and is constantly concerned with increasing their ideological-theoretical knowledge and professional expertise, and in keeping them information-current.
>
> Regular full-time and volunteer propagandists of the air-force units and subunits of the Group of Soviet Forces in Germany, aware of their duty, endeavor vividly and persuasively to reveal to aviation personnel the grandeur of our ideals, the inseparable link between party policy and the vital interests of the people, raise the activeness of military personnel on the job and in combat training, and instill in them total dedication to the homeland and class hatred toward its enemies.

Practical experience indicates that the closer the warrior of the ideological front is to practical realities, the more successfully he accomplishes his task. It is important for him to be at all times wherever the combat skills of aviation personnel are being forged out -- at the airfield, on the range, and in the field. In connection with this I recall a special tactical exercise in the communications subunit under the command of Lt Col M. Chernobrovkin. It took place in an environment maximally approximating actual combat. The men had to accomplish a great many complex mock combat missions in a comparatively short period of time.

...At the edge of a forest, where the signal troops were deploying their combat equipment, I encountered party member Maj F. Golovko. I ascertained

that this officer had been in the field together with the unit's aviation personnel from the very beginning of the exercise. And he was not simply present -- he was actively working, helping the commanding officer and political worker by word and deed to maintain a high level of morale in the outfit. He held political briefing sessions in the short breaks in the combat activity, told aviation personnel about the military-political situation in Western Europe, and organized radio and photo newspapers. He had a heart-to-heart talk, as they say, with many of the men, giving praise and encouragement. This party member helped the crews in organization and conduct of the march to the concentration area and in setting up the station.

Major Golovko later told me, "I gain a great deal from contact with the men in such a situation. I see the men at work. Their character, strong and weak points are fully manifested, and it becomes obvious whose convictions are being transformed into deeds, and who is an expert only in words. This enables me quickly to adjust my activities."

He is right. Precisely in such situations, in close contact with the men, sharing their difficulties, and carrying out a common task, the propagandist becomes closer to them and his word is accepted by the men as the word of an older, experienced comrade. For this reason they believe him and follow his lead. And he also sees more clearly the fruits of his labor.

There are many such warriors of the ideological front as Maj F. Golovko in Air Forces units in the Group of Soviet Forces in Germany. Officers N. Koretskiy and V. Zuyenko, for example, are characterized by a lively, innovative work style and search for new possibilities for effectively influencing the men's minds and hearts. These propagandists' lectures, reports, and talks are distinguished by deep penetration into the practical affairs of military outfits and by a close link between theoretical material and the tasks performed by aviation personnel. They endeavor to conduct ideological, mass-political work in a differentiated manner, taking into account the interests of different categories of military personnel.

I happened to hear comments on a talk given by Gds Maj V. Zuyenko to the aviators of alert-duty crews. He discussed the need to maintain a high degree of vigilance. The officer prepared conscientiously for this talk, filling it with interesting, persuasive facts. He cited the performance figures on some new weapons and military equipment which are becoming operational in the armies of the NATO bloc, he related how military personnel of the United States, Great Britain, the FRG, Italy and the other capitalist countries are brainwashed with anti-Soviet ideology, and he exposed the aggressive aspirations of U.S. imperialism and U.S. NATO bloc partners. Zuyenko utilized the proceedings of the June (1983) CPSU Central Committee Plenum, replies by CPSU Central Committee General Secretary Comrade Konstantin Ustinovich Chernenko to questions by the newspaper PRAVDA, as well as other guideline documents. He reminded the aviators of the demands of the USSR Minister of Defense and commander in chief of the Air Forces.

Well familiar with the state of affairs in the outfit, Gds Maj V. Zuyenko also talked about shortcomings, explained their causes, and called upon each and every aviator to be stricter in evaluating his actions. His presentation on

this familiar topic left none of his audience indifferent, but compelled them to give thought to a great many things and to reanalyze what would seem to be customary phenomena.

We vigorously combat lack of originality in the work of the warriors of the ideological front and seek to ensure that they remain at all times in the thick of things, at the very center of what is going on.

At the same time we must acknowledge that in many cases the level of conducted ideological work fails to meet imposed demands. At times certain propagandists are inclined toward excessive attention to form with detriment to content, quotation-mongering, and attachment to obsolete work forms. Some of them lack initiative and the ability correctly to evaluate a developing situation and quickly to reorient themselves. I recall the following incident. One of the squadrons was alerted to assemble. They were to fly to an alternate field and perform a number of mock combat missions from that location. Some of the junior maintenance specialists performed in an inadequately organized manner in the course of redeployment and at the destination field.

Officer V. Smirnov, whose duties included the conduct of propaganda and mass-agitation work, was in the squadron during all this time. One had the impression, however, that he did not know what he was supposed to do, and yet he saw that things were not going well for the maintenance specialists. He should have actively intervened, helped create a good working atmosphere, and helped make the aviation personnel more aggressive. Unfortunately this officer remained an impassive observer of events.

How can one explain the propagandist's passivity? It was chiefly due to the fact that he lacked competence in specific military areas. Officer Smirnov had halted in his military growth and therefore had an inadequately clear picture of the duties of assigned personnel in conditions of basing redeployment and the nature of employment of airpower in modern combat. He simply was unable to find his place in the situation which had developed.

We must state to the credit of the personnel of this squadron that they successfully accomplished the assigned mission. A strong body of party and Komsomol activists formed in the subunit, reliably supporting the commanding officer. The activists helped create a fighting mood on the part of aviation personnel and at the necessary moment supported their fellow personnel by word and deed. And this produced positive results.

It is important for the propagandist to keep current on the activities of military units and the development of military affairs. He needs thorough knowledge of Marxist-Leninist science, military education science and psychology. He should have a thorough understanding of the tasks being performed by personnel, possess a high degree of methods skills, have the ability to convince others, to influence their attitude toward their job, and should constantly examine the state of affairs in the subunits and unit.

Due to my job I frequently visit aviation units, meet with propagandists, and study their work style. Sometimes one is distressed to note that a certain

officer spends a great deal of time on drawing up numerous plans and preparing various reports and summaries. Many of these remain in his desk, useless. He has neither time nor energy to get together with people directly at the airfield, during tactical air exercises and flight operations. Of course the preparation of plans and other documents is also an important area of propagandist activity. But documents should not obscure live activities from him and keep him behind his desk. It was stressed at the June (1983) CPSU Central Committee Plenum that one must reject such an office work style, and as promptly as possible.

Propaganda and agitation are a sector of the ideological front, a most important means of ideological-political conditioning of armed defenders of the homeland, a means of mobilizing them to further increase their vigilance and combat readiness. Today, when the international situation has become sharply aggravated through the fault of aggressive imperialist forces, the U.S. imperialists in particular, when "psychological warfare" is being waged against socialist countries, it is essential to raise the level of ideological indoctrination and mass political work, bringing it into conformity with the demands of the time. Ideological workers should play a leading role in this.

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AIR-FORCE REPAIR AND OVERHAUL EFFICIENCY INNOVATION CONTEST ANNOUNCED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 6-7

[Article, published under the heading "Contest Announced," by Engr-Lt Col P. Yemel'yanov, deputy chief, Air Forces Office of Invention and Efficiency Innovation: "Lofty Calling of Efficiency Innovator"]

[Text] Scientific and technical innovation is broadening year by year in Air Forces units. Individuals representing the most diversified military occupational specialties and job categories are taking active part in inventing and efficiency innovation efforts. There is good reason for this, because today's aircraft is a crew-served weapon, and its knowledgeable operation and full utilization of the combat capabilities engineered into it is the concern of each and every military aviator.

A broad range of activities is opening up for Air Forces efficiency innovators and inventors. There are plenty of areas where they can display their innovativeness and fully develop their propensities and capabilities in the interests of further increasing the combat readiness of units and subunits, improving flight operations safety, reliability and sophistication of aircraft. The attention of Air Forces innovators has also been drawn toward extending the life of aircraft engines and improving the quality of routine inspection and maintenance, economizing in material and financial outlays, and increasing the effectiveness of scientific and technical measures carried out in Air Forces units and higher educational institutions.

In the past years of the five-year plan efficiency innovators and inventors at Air Forces aircraft repair and overhaul enterprises have devised and incorporated more than 30,000 inventions and efficiency innovation proposals. The majority of these were directed toward improving efficiency and quality of aircraft repair and overhaul and economizing in materials, electricity, fuels and lubricants. In order to enlist military personnel, engineers, technicians, workers and employees of Air Forces aviation enterprises in devising efficient technical solutions in repair and overhaul of aircraft equipment, the commander in chief of the Air Forces, the Presidium of the Central Council of the All-Union Society of Inventors and Efficiency Innovators, and the Presidium of the Central Committee of the Trade Union of Aircraft Industry Workers are holding a contest for inventions and efficiency

innovation proposals aimed at reducing manual labor at enterprises. Contest regulations and conditions have been drawn up. The contest is to run from 1 January 1984 to 31 December 1985.

Its basic tasks and aims can be concisely formulated as follows: reduction of manual labor in performing technologically labor-intensive processes -- disassembly of aircraft, assembly-by-assembly takedown of engines and accessories, washing of large parts and assemblies prior to inspection to detect defects, machining and other operations on assemblies during repair and overhaul (grinding, facing, cutting, riveting, welding); buffing and polishing operations; checking parameters of aircraft equipment and armament, etc. In addition, the contest specifies improving repair of airplane (helicopter) load-bearing elements, propellers, assembly of landing gear components, testing of rigid and bladder-type fuel tanks, placing and positioning aircraft equipment in the process of repair in positions convenient to the repairing personnel with the aid of various manipulators, as well as putting powerplants into and removing from reserve storage. Air Forces innovators are to consider how best to utilize available small-scale means of mechanizing labor and to look for possibilities of more efficient utilization of means facilitating manual labor. Development of industrial processes and adoption of more efficient repair and overhaul technology will open up a large area for innovator activity.

Submitted contest projects should comprise independently accomplished technical solutions, as a result of which new means of mechanization promoting growth in labor productivity have been designed, built, and tested. We should emphasize that they may be entered in the contest even prior to extensive adoption into production, but with the proviso that an experimental model has been built. Its production testing should take place between January 1983 and December 1985. The following prizes have been established for the winning submissions: two first prizes -- 500 rubles each; three second prizes -- 300 rubles each; 6 third prizes -- 150 rubles each; 8 honorable mentions -- 100 rubles each.

The cash prize does not deprive the contest winner of the right to receive compensation for practical utilization of his submitted proposal according to the established procedures.

All requisite documentation shall be sent to the Air Forces Office of Invention and Efficiency Innovation, with the note: "For the contest to reduce manual labor." An attached letter should state the last name, first name, patronymic, job and place of employment of the author of the submitted entry.

Contest progress will periodically be reported on the pages of the journal AVIATSIYA I KOSMONAVTIKA.

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MILITARY EDUCATORS MUST STRESS IDEOLOGICAL INDOCTRINATION IN TEACHING

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 8-9

[Article, published under the heading "A Higher Level of Party Influence at Air Forces Higher Educational Institutions," by Doctor of Philosophical Sciences and Professor Maj Gen Avn V. Khalipov, head of the Department of Marxist-Leninist Philosophy and Scientific Communism at the Air Force Engineering Academy imeni N. Ye. Zhukovskiy: "The Military Educator Is a Party Ideological Warrior"]

> [Text] Implementation of the steadily rising demands of the party, Soviet Government, USSR minister of defense and commander in chief of the Air Forces in the area of training cadres presupposes not only forming and shaping graduates of military higher schools as highly-qualified specialists in military affairs and bearers of profound knowledge and skills, but also and primarily development of politically mature, conscientious citizens of a socialist society, active participants in the ideological and mass political work being carried out in aviation units and subunits.
>
> Increasingly fuller and more consistent implementation of the Leninist principle of party-mindedness of teaching and scientific research in every educational institution is an essential condition for success in accomplishing these tasks.
>
> Certain success in this regard has been amassed at the Orders of Lenin and the October Revolution Red-Banner Air Force Engineering Academy imeni Professor N. Ye. Zhukovskiy.

In conditions of escalating danger of war through the fault of aggressive imperialist circles and the all-out "psychological" warfare unleashed by our ideological adversaries for the purpose of undermining the moral-political foundations of socialism, it is more necessary today than ever before to step up efforts at Communist indoctrination of officer cadres and to enhance the role of the higher school as a forge at which ardent Soviet patriots are hammered out. This thought was addressed in an acute and practical manner in

an article by military council member and chief of the Air Forces Political Directorate Col Gen Avn L. Batekhin (AVIATSIYA I KOSMONAVTIKA, No 3, 1984).

In further developing this idea I should like to note that, in carrying out the demands of the CPSU Central Committee on transforming higher educational institutions into centers of Marxist-Leninist education and Communist indoctrination, the academy administration, political section, party organizations, and teaching faculty are doing everything possible to accomplish a total and consistent implementation of the Leninist principle of party-mindedness and a class approach in teaching the social sciences and military subjects, in the entire training and indoctrination process.

Today it is particularly important to emphasize that party-mindedness signifies clarity of political, class positions and affiliation with a specific party to the struggle. Communist party-mindedness on the part of each and every member of the Air Forces presupposes his active service to the cause of defending communism in his specific assigned area, giving fully of his abilities, energy, talent, and will.

"The most important thing in any school," wrote V. I. Lenin, "is the ideological-political directional thrust of the lectures. What determines this directional thrust? The makeup of the lecturers, totally and exclusively." The instructor unquestionably plays the main role in implementing the principle of party-mindedness. His ideological-political and moral qualities are extremely valuable factors which influence those whom he teaches. The question of the instructor's personal responsibility for the party-mindedness of his teaching is regularly addressed by the school administration and occupies the center of attention of the political section and party organizations of the faculties and departments. The department of social sciences methods seminar directed by Lt Gen Avn A. Volkov, head of the political section, constantly addresses this issue. One such gathering was specially devoted to unity of scientific character and Communist party-mindedness in the instructor's activities. It was particularly stressed that party-mindedness is also at the same time the highest degree of scientific character in teaching the social sciences and military subjects.

It is an important task of each and every instructor to raise the level of scientific character of his classes. One should not, however, substitute pseudoscientific for scientific character, which is sometimes the case with young instructors. It is not complexity of terminology or abstract theorizing but rather simple, understandable presentation of the pertinent truths of Marxism-Leninism in a close interlinkage with practical matters which signifies scientific character. The party teaches us this approach.

A high degree of scientific character and party-mindedness in an organic synthesis are clearly and strongly embodied in the writings of the founders of Marxism-Leninism and in the documents of the CPSU and Soviet Government as well as the international Communist and worker movement. It is the central task of the social sciences instructor to achieve thorough, innovative study of these writings and documents, to teach students to apply their theoretical and methodological points for analysis of contemporary problems of building socialism and military affairs.

The academy's faculty members use an entire aggregate of forms and methods of curricular and extracurricular activity: special lectures and talks on the major works of K. Marx, F. Engels, and V. I. Lenin, classes in the form of Lenin readings and lessons, drafting of methods recommendations on studying specific writings, as well as publication of such study guides as "Current Problems of Scientific Communism in the Writings of the Founders of Marxism-Leninism," "The Founders of Marxism-Leninism on Military Technology and Military Engineering," etc. This develops in young specialists interest in independent, productive study of primary sources. Precisely such interest was displayed by the students in one of the academy's divisions, who decided that each student would write a paper on one of the writings of the founders of Marxism-Leninism, a task which was successfully accomplished.

A specially formed interdepartmental methods commiittee of social scientists, headed by Docent Col G. Mishurovskiy, deals with matters of coordination of study of primary sources and CPSU documents at the academy. It also analyzes and synthesizes experience amassed in the departments and the faculty subject-methods groups. Recently, for example, high marks were given to the methods know-how of the department headed by Doctor of Historical Sciences and Professor Maj Gen Avn V. Bruz, on organization of study by enrolled personnel of the demands of the CPSU Central Committee, USSR Minister of Defense, and commander in chief of the Air Forces on strenngthening military discipline and ensuring flight operations safety and mishap-free flight activities.

The processes of revolutionary renewal of the world, aggravation of the ideological struggle, and the rapid advance of science and technology are increasing demands on ideological staunchness, intellectual breadth, ideological clarity and methodological discipline of the specialist's thinking, which was particularly emphasized in the proceedings of the June, December (1983) and special February (1984) CPSU Central Committee plenums.

Of course study of the social sciences alone arms a student with a revolutionary ideological outlook and dialectical-materialist methodology of cognition and practical realities. But the effectiveness of this process depends to a considerable degree on taking into account the academy's area of specialization and the interlinkage between the social-sciences subjects being studied and those sciences which comprise the foundation of an air-force engineer's professional training. The methods experience of department teaching faculty indicates that the ideological and methodological competence of students is formed most productively if they use specific examples in analyzing the positive role of dialectical-materialist ideas in development of science and technology, if they are aware of the dialectical nature of innovative engineer thinking, and see the significance of a Marxist-Leninist ideological outlook for understanding the content of technical aviation subjects. Also highly instructive are examples of the negative influence of bourgeois ideology, idealism and metaphysics on the results of the activities of scientists and engineers in the capitalist countries.

Improvement of the scientific ideological outlook of enrolled personnel presupposes formation and shaping in these students of a class, party-minded approach to performing the job duties of the military engineer and elucidation

of the great social significance of this profession. The ultimate objective here is awareness of one's military duty and development of a feeling of responsibility for defense of the socialist homeland, desire and willingness to devote all one's resources and energies to strengthening this country's defense capability and the combat might of its Armed Forces.

There are many ways of developing these qualities in future air-force engineers. Candidates of philosophical sciences Cols V. Maryukhin and P. Zolotarskiy, for example, actively utilize such means as publicizing the requirements imposed on military engineer cadres by our party, the Soviet Government, the USSR minister of defense, and the commander in chief of the Air Forces, explanation of the increased importance of aviation engineer support for accomplishing military-political tasks in conditions of the scientific and technological revolution, and contrasting the progressive sociopolitical role of military engineers of the socialist armies to the reactionary, antipopular thrust of the activities of military engineers of imperialist armies. Specific examples are cited, and they are closely linked with appropriate training topics.

Also occupying the center of attention of social sciences instructors are matters pertaining to forming Communist ethics and morality as well as excellent moral-fighting qualities in future Air Forces engineer personnel. In this area as well we can name a large number of forms which are in greatest conformity with the specific features of training enrolled personnel. They include demonstration of the influence of the moral qualities of the scientist and engineer on the results of his activities, using examples from history of the development of Soviet science and aviation technology, utilization of statements by eminent Soviet scientists and engineers on understanding one's duty to society, patriotic publicity of their achievements in development of science and technology, demonstration of the importance of a sense of duty, courage, bravery, and staunchness by Air Forces engineers and technicians in carrying out their military duty, and analysis of the nature of moral conflicts between outstanding scientists and inventors and bourgeois antihumanism and militarism.

Particular importance in the moral indoctrination of enrolled personnel is attached to the experience of the Great Patriotic War, other wars, postwar exercises, and examples of exemplary performance of internationalist duty by Soviet servicemen. All instructors make use of this experience and know-how. It is particularly skillfully disseminated by Candidate of Philosophical Sciences Col G. Ivanov. He demonstrates in a clear and well-reasoned manner, grounded on the laws governing societal development, that the main source of selflessness and heroism on the part of military aviation engineers during the Great Patriotic War and in performing tasks assigned by command authorities today lies in their Communist moral fiber.

Observance of the principle of party-mindedness of instruction presupposes consistent criticism of bourgeois and revisionist notions in the course of teaching the social sciences. The June (1983) CPSU Central Committee Plenum directed attention to this problem. In this connection the most important tasks of each and every social scientist is well-reasoned and convincing exposure of views and trends hostile to Marxism, pertaining to all issues

covered by curricular subjects, determined action against echoes of alien theories and concepts, and study of theory and practice of the ideological struggle and counterpropaganda by enrolled personnel. These issues are at the attention focus of the faculty subject-methods groups. Special study guides have been prepared and published for the students: "Critique of Contemporary Bourgeois and Revisionist Notions in the Course on Scientific Communism" and "Crique of Contemporary Bourgeois Technocratic Theories."

Social sciences instructors take active part in drawing up and reviewing methods instructions on party-mindedness of teaching in specialized departments. We must state that such instructions are drawn up for each subject at the academy. On the instructions of the political section or in coordination with the administrations of the faculties, social scientists attend lectures by instructors in the various departments for the purpose of studying and synthesizing advanced know-how in implementing the principle of party-mindedness of teaching. Considerable work in this area is being done by officers V. Pinchuk, A. Pozdnyakov, I. Proskurin, Yu. Sil'chenko, A. Fedurin, A. Chugunov, and others.

The isntructors of our department, for example, together with experienced instructors in specialized subjects, analyzed the directional thrust of ideological outlook in planning term papers and senior theses. They studied more than 50 senior theses by graduates of all faculties. This made it possible to determine the most effective ways to implement the principle of party-mindedness in supervising senior thesis planning and to hold instruction-methods classes with faculty members. Candidate of philosophical sciences Engr-Col B. Mal'kov presented for the graduates of several faculties a lecture on the topic "Intelligent Ideological and Methodological Management of Senior Thesis Planning" and prepared a methods guide on this subject for department instructors.

Summarizing the above, I should like to stress that the academy's social sciences instructors are endeavoring to ensure that party-mindedness is present not only in word but in deed as well. Each and every instructor is making a substantial personal contribution toward improving party-mindedness of teaching both one's own subjects and of the entire teaching and indoctrination process.

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UNIT AGITATION AND PROPAGANDA GROUP ACTIVITIES CRITIQUED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 10-11

[Article, published under the heading "Ideological Work to the Level of the Demands of the June (1983) CPSU Central Committee Plenum," by Capt Yu. Zhukovskiy: "In a Close Linkage With Practical Realities: From the Work Experience of an Agitation and Propaganda Group"]

[Text] A day of intense combat training has come to an end. In the evening aviation personnel will visit the club and Lenin rooms. Here they will learn the latest news and listen to interesting, substantial lectures and reports. The impassioned word of the propagandist and agitator, telling his fellow servicemen about new labor victories by the Soviet people and performance by military personnel of their duty as defenders of the homeland, is particularly appropriate at such a time.

Our unit's agitation and propagnda group does a great deal of diversified work in publicizing the proceedings and decisions of the 26th CPSU Congress, the June and December (1983) and special February (1984) CPSU Central Committee plenums, on mobilizing personnel for successful accomplishment of adopted socialist pledges, on indoctrinating aviation personnel in a spirit of Soviet patriotism and proletarian internationalism as well as an uncompromising attitude toward the enemies of socialism. In performing these tasks, the ideological warriors make a considerable effort to improve the quality of propagandist presentations.

The party committee constantly scrutinizes and checks the work being done by activists and seeks to increase its aggressiveness. The question of the state of oral agitation in the outfit and its further improvement was discussed at a meeting of the party committee, at which the agenda covered tasks of aviation personnel proceeding from the demands of our party's Central Committee.

It was emphasized at the June (1983) CPSU Central Committee Plenum that the results of activities of propagandists are measured in the final analysis by people's ideological maturity, activeness in job-related activities, and organization. This statement of the task has nothing in common with empty bustle and attempts to replace daily effective indoctrination with summaries on presented lectures and reports on number of measures carried out. Unit

party committee members analyzed the performance of agitation and propaganda groups from this standpoint. They noted positive points: effectiveness of indoctrination work and its close link with practical affairs. At the same time, at the meeting they discussed the quality of presented lectures, since quality is a principal condition of clarity and effectiveness of oral propaganda. It was decided to keep closer tabs on preparation and presentation of lecture material. Toward this end they decided to require that every lecture be approved at a meeting of the agitation and propaganda group and that experienced propagandists should be consulted on lecture preparation.

A lecture prepared by Maj N. Makarenko on economical consumption of electricity, fuels and lubricants was discussed in precisely this manner. The members of the agitation and propaganda group had no doubt that this officer had worked a great deal on his topic and had thoroughly studied the recommended literature. But they did note deficiencies. The lecturer devoted a large part of his presentation to theoretical matters, failing to link the presented material with the tasks of the subunit in which he was to present the lecture, and he cited few persuasive examples from the unit's practical affairs. In view of these factors, the comrades recommended that Major Makarenko do some work in the subunit and ascertain how they are implementing the demands of the 26th CPSU Congress and subsequent plenums, as well as party Central Committee decrees on observing thrift and economy.

This discussion greatly helped the propagandist improve the content of his lecture and make it more purposeful. In particular, he added a discussion of how party members V. Dergunov and Z. Pavlovskiy are achieving savings in fuels and lubricants and are properly caring for combat equipment. The experience and know-how of vanguard performers became available to all subunit aviation personnel. Now Makarenko prepares his lectures taking these recommendations into account, and there is every assurance that his presentations will have full effect and produce positive results.

But it is not always possible to discuss a given lecture at a meeting. In this situation experienced propagandists come to the aid of volunteer lecturers. They offer consultation on presentation content, advise how to structure it better from the standpoint of method, and they check lecture notes. We must state that such individual help produces good results. It is especially needed by officers who as yet do not possess adequate skills in this important, complex and critical area of activity.

Party member Lt Col Ye. Podolyanko, for example, is ready and willing at all times to assist a novice lecturer. Every aviator in our unit -- be he an officer, warrant officer, NCO or enlisted man -- greatly appreciates the interesting and content-filled talks and lectures given by Yevgeniy Grigor'yevich. This is a result of painstaking labor by the propagandist and conscientious performance of his party duty.

...Flight operations were in progress. Ground crews were readying the combat aircraft for strikes on ground targets. Ground crews had a few free minutes. Technicians and mechanics gathered around the flight line. Officer Podolyanko told them about the previous day's party committee meeting, at which they had

discussed the matter of further strengthening military personnel discipline, and he drew the aviation personnel's attention to those important problems which were raised at the meeting, what personnel were to accomplish, and particularly party members, in order to strengthen military discipline and increase combat readiness.

It was not mere happenstance that this activist selected the group of ground maintenance specialists led by Engr-Lt S. Koval'. This young officer is well trained in technical matters, but he as yet lacks sufficient skills in indoctrinating personnel. One of the men in this group, for example, WO V. Bugayenko, had repeatedly committed violations of military discipline.

Lieutenant Colonel Podolyanko endeavored to influence the men's consciousness, and advised party and Komsomol activists to do more work with the men on an individual basis and to assist the commanding officer in training and indoctrination of subordiantes.

The talk was beneficial. The personnel of this group worked conscientiously on their flight operations shift, surpassing performance standards in turning aircraft around for additional sorties, and were rightly named socialist competition winner. Of course Yevgeniy Grigor'yevich also deserves part of the credit. This is just one example of tireless, purposeful activity by a volunteer propagandist.

An uncompromising attitude toward deficiencies and the ability to finish a job once started are determining character traits of party member Podolyanko. Once Yevgeniy Grigor'yevich attended a seminar class in one of the groups. He immediately noted that the group leader, Capt S. Fedorov, failed to consider the level of individual preparedness of the group members. This was soon reflected on the quality of the class: only a few individuals were taking part in discussion, while the others remained silent.... The experienced propagandist suggested to Fedorov during the class break how he could correct his error. The second half of the seminar was livelier.

Considerable attention in the activities of the agitation and propaganda group is devoted to planning and scheduling. As a rule a schedule is drawn up for a training period. This enables propagandists to structure their work more flexibly in relation to the combat training tasks facing unit personnel. The plan is unfailingly analyzed at a meeting of the party committee. Such an approach to things eliminates the possibility of excessive attention to form with consequent detriment to content and increases the responsibility of Communists for carrying out a party assignment.

The question of the makeup of the agitation and propaganda group was also incisively addressed at the party committee meeting discussed above. The group had previously contained several dozen propagandists, which made it difficult to oversee preparation and presentations. It was decided to reduce the number of propagandists. In our opinion this improved the quality of presentations.

Carrying out the demands of the June and December (1983) and special February 1984) CPSU Central Committee Plenums and the CPSU Central Committee Decree

entitled "On Further Improving Ideological and Political Indoctrination Work," the unit's agitation and propaganda group significantly stepped up its activities, which have now become more specific and effective. This in turn has a positive effect on progress in personnel combat and political training: aviation personnel invariably carry out their assigned tasks with excellent quality.

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KOMSOMOL ACTIVISTS HELP NEW PILOTS MAKE TRANSITION TO LINE UNIT

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 11-12

[Article, published under the heading "Anticipating the 5th Armed Forces Conference of Komsomol Organization Secretaries," by Capt V. Voronin, assistant political section chief for Komsomol affairs, air forces of the Red-Banner Transcaucasus Military District: "To See Everybody and Each Individual"]

[Text] Every year young officers are joyfully greeted in our aviation units and subunits. The new lieutenants await a difficult period of familiarization in their new military assignment, as well as honorable service and the thrill of new discoveries. They will be training and indoctrinating subordinates, and they will themselves be learning and making a contribution toward increasing the combat readiness of their squadron and regiment.

Komsomol organizations are very helpful in the process of breaking in young officers and developing in them excellent political and moral-fighting qualities. It was emphasized at the June (1983) CPSU Central Committee Plenum that our ideological adversary is endeavoring to exploit for his own ends the psychological features of young people, for they have not experienced the harsh trials of class struggle and war, when the genuine face of imperialism is clearly revealed, its hatred toward the peoples of our country and the socialist system. And we must tirelessly concern ourselves with the ideological-moral and labor conditioning of youth.

Notable in this regard is the work experience of the Komsomol committee of the aviation regiment in which Sr Lt Yu. Frog serves as secretary.

The Komsomol committee, offering active support to the command authorities and party committee, acquaints young officers with the fighting history and heroic deeds of the regiment's aviators. The unit, formed in June 1941, performed the mission of guarding the skies over Moscow and traveled the glorious journey from our homeland's capital to Berlin. It took part in many large battles.

There are many well-proven forms in the dissemination of fighting traditions. Young aviators begin their acquaintance with the unit by visiting the

regimental combat glory room. Get-togethers with veterans have become traditional. The officers will long remember the special evening event entitled "Serve as the heroes of your regiment served." Capt (Res) G. Pipiya, a veteran of the regiment and of the Great Patriotic War, shared his reminiscences with them. The words ringing from the lectern struck the aviators' hearts. Each and every man visualized a mental picture of aerial engagements and the countenance of heroes. The next speaker was the regiment's best interceptor pilot, holder of the Order of the Red Star, Maj V. Gorbunov. He discussed the specific features of conduct of today's air combat. Military pilot Lt P. Galitsyn assured the veteran and senior comrades on behalf of the younger men that the Komsomol members of the 1980's would honorably carry out their assigned tasks.

The regiment's young pilots are engaged in competition for the privilege of flying a sortie in honor of Hero of the Soviet Union Lt S. Achkasov. Every month the Komsomol committee, jointly with the regimental command authorities, determines on the basis of combat training results the best combat pilot, who is given the privilege to fly a sortie in place of this war hero. Competing to greet in a worthy fashion the Armed Forces Conference of Komsomol Organization Secretaries and the 60th anniversary of conferment of the name of V. I. Lenin to Komsomol, Lt Ye. Svetlakov has earned this honored privilege on several occasions. For successful accomplishment of flight assignments and active participation in volunteer work, he was awarded a union republic Komsomol Central Committee Certificate of Merit and a unit Komsomol committee challenge pennant. Participation in competition is favorably affecting the quality of mastery of combat equipment. All the regiment's young pilots are successfully carrying out the training program for advancing their proficiency rating without near-mishap air situations.

A positive emotional influence on the young aviators is also exerted by the book "My First Impressions of Flying," in which pilots write their impressions of their first solo in a combat aircraft. Lt S. Kobko wrote the following entry: "I shall never forget this day -- I made my first solo flight on a modern aircraft. What were my impressions and feelings? It is impossible to convey them all. I shall say merely that the joy of flying solo is reinforced by awareness of the fact that I have mastered a supersonic fighter.... I shall apply all efforts, knowledge, and ability in order further to improve my flying skills."

As practical experience indicates, however, young personnel encounter certain difficulties at the beginning of their flying career. The main difficulties are a lack of experience in solving various problems in the air, especially when difficult situations arise, and a tendency to rest on the laurels of one's initial successes. The Komsomol committee and the squadron Komsomol organizations help the aviators surmount these and other difficulties. One of the principal focal areas of their activities is to reach each and every young aviator in indoctrination work, to get to know each individual's character and personality, attitude, aspirations and capabilities. This process commences with study by Komsomol activists of the school-completion fitness reports, professional and moral-political qualities of the newcomers.

The fitness reports on Lts Ye. Svetlakov, P. Golitsyn, B. Bogamedov and others state that they like to fly, endure G-loads well, and that pauses in flight activities have little effect on the quality of their flying technique. These meager lines from the first efficiency report tell a great deal: about dedication to the chosen profession, and about good professional and physical training.

It is no easy matter to get to know a person. Time, persistence, and patience are required. The Komsomol activists who are experienced pilots help the newcomers prepare for training flights, help in studying the documents governing flight operations safety, and share their knowledge and experience in responding to a difficult situation.

All this makes it possible to become better acquainted with the men, to get to know the strong and weak points of their character and personality and, based on this, effectively to influence them.

Lt A. Zuyev, for example, seemed a bit phlegmatic and sluggish. He did not perform all training drills without adverse comment. Some hastened to form an unflattering opinion of him. But on one of his training flights this officer found himself in a difficult situation. His finest qualities were displayed: self-control, composure, and the ability to act quickly and with precision. Now commanders and Komsomol committee and buro members rely on these qualities in their indoctrination work with this pilot.

It is precisely thanks to studying individuals and knowing their individual peculiarities that Komsomol activists find the correct modes of influence and help the command authorities in training and indoctrination of the young aviators. In one instance they merely talk to an individual, in another case they summon a Komsomol member to a committee meeting, while with still another individual they employ an aggregate of various measures.

At one time, for example, unfavorable criticism was being leveled at Sr Lt Tech Serv V. Tarasov. How should they handle him? The Komsomol committee had this officer present a report on personal exemplariness in aircraft servicing and maintenance. His comrades pointed out his shortcomings and explained to him the potential consequences of departures from the demands of guideline documents. In addition, they instructed more experienced comrades to take him under their wing. This specific, practical assistance produced good results. Today there are no more complaints about Tarasov.

The Komsomol committee headed by Sr Lt Yu. Frog, analyzing the young pilots' progress in the process of breaking in and familiarization, reached the conclusion that shortcomings in mastering combat equipment are connected in large measure with inadequate technical knowledgeability on the part of young officers and a lack of solid skills in operating aircraft systems. At the initiative of the Komsomol activists, an advanced know-how technical lecture unit was formed in the regiment, and dissemination of military-technical knowledge was stepped up. Radio newspapers and visual propaganda materials began to be put out on a more regular basis They cover both advanced know-how and deficiencies in routine servicing of aircraft. The combat training of

the young aviators became more diversified and content-filled, and its quality was appreciably improved.

Well thought-out indoctrination work with individuals by members of the Komsomol committee has a positive effect on all aspects of daily life and activities in the outfit and on forming and shaping the character and personality of the Soviet pilot -- a patriot and expert at his job. The people in the regiment recall the following incident. Military Pilot 1st Class officer V. Petrukhin encountered an emergency situation after taking off one night in bad weather. Instantly assessing the situation, he acted with quickness and precision and safely landed his aircraft. Young party member V. Petrukhin, a product of Komsomol, received a commendation for courage, tenacity and skill displayed in a difficult situation.

The examples cited above show that indoctrination work conducted by commanders, political workers, party and Komsomol activists as a rule achieves its objective.

They have become firmly convinced in the Komsomol organizations of the district air forces units and subunits that Komsomol work is work with people, with everybody together and definitely with each individual. It is a most important means of increasing the combat training and sociopolitical activeness of young people. Success in such an important business is brought only by daily, persistent efforts by activists and effective influence on each and every Komsomol member. Implementation of the recommendations of the Armed Forces Conference of Komsomol Organization Secretaries will unquestionably generate a new and fruitful impetus to these activities.

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THOROUGH GROUND PREPARATION FOR TRAINING SORTIES ESSENTIAL

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) p 13

[Article, published under the heading "Be Alert, in a Continuous State of Combat Readiness," by Capt A. Zhilin: "Success Is Born in the Classroom"]

[Text] Sr Lt Ye. Glushak was headed for the range. During all phases of the flight the pilot had performed correctly, but as he broke off from the attack he exceeded maximum allowable bank and pitch angles. As a result engine rpm dropped off sharply, and the automatic control system spontaneously cut off.

Here is another example. After his second turn in the pattern, Sr Lt V. Morozov noted that the "PKP [expansion unknown] Malfunction" light was illuminated on the instrument panel. After the aircraft landed at the airfield it was ascertained that prior to the flight the pilot had failed to switch on one of the instrument groups.

Both incidents attest to the fact that failure to complete a flight assignment can be caused by incorrect aircraft operating procedures. But why did this become possible? Their commanding officers, analyzing these facts, established that Glushak and Morozov had inefficiently utilized available training time during preflighting procedures and had not studied the training flight assignments thoroughly enough.

Senior officers of a certain unit, observing preflight preparations, drew attention to the fact that some pilots limit themselves to putting their notebooks in order and preparing documents. Rarely does anybody during preliminary preparations utilize the display stands and diagrams, which describe in detail the modes of performance of various flight elements, and rarely does anybody practice on the simulators. The flight commanders, whose job it is to check their men's work, fail to note this fact, inadequately work with their men, and incorrectly distribute preparation time. As a result they limit themselves to superficial verification of their men's readiness for a training sortie. Practical experience convinces us that such an approach to things worsens the quality of professional training and threatens flight safety, for as a rule the flights also contain young pilots who lack sufficient experience. And one must devote close attention and give a good example precisely to the young pilot.

Things are done differently in the subunit in which Military Pilot 1st Class Lt Col V. Izvalov serves. Every pre-mission preparation period in this subunit comprises a unique test. Having gone through the theoretical material and studied the assignments for the flight operations shift, a pilot relates in detail to his flight commander how he will carry out his assignments. Then the instructor works on the most difficult elements on the simulator with him and checks his readiness in the cockpit of his aircraft. Thus aviation personnel develop certain automatism of actions, which enables them to feel relaxed in the air. This is very important, for the situation in the air sometimes permits the pilot only a few seconds to make a decision. But the proficient combat pilot, when time is of the essence, is prepared to execute a given maneuver knowledgeably and intelligently.

As a pilot's professional expertise and proficiency grow, he develops a certain aggregate of skills in controlling his helicopter. Nevertheless many commanders are of the opinion that each of these skills must be periodically refreshed, that is, "run through" in one's mind and practiced on the simulator.

It sometimes happens that for a certain period of time a pilot receives marks of good and excellent on all training drills, without a hitch, as they say. And then suddenly a failed performance occurs. As observations indicate, this happens not "all of a sudden," but following a clear pattern. And as a rule, due to the fact that, having come to believe in his excellent level of proficiency, a pilot begins neglecting ground training activities.

In the subunit in which officer V. Izvalov serves, in the process of practicing on specialized equipment and in the helicopter cockpits, pilots seek to work on those elements of flying which demand particular concentration of attention and inner composure. Typically they endeavor not to reduce the end aim of such a practice session merely to the conventional oral enumeration of their sequence of procedures. Izvalov believes that this is the correct way to go, since unnecessary situation simplifications of any kind impoverish the practical and psychological content of the work performance of combat pilots and slow their proficiency growth.

Concerned with improving the quality of preparation for training flights, in some subunits they concentrate principal attention on the pilots, while they sometimes forget about the engineers and technicians. They say that the main thing for ground crewmen is to get the helicopters ready on time. It is not enough for the flight technician to service his helicopter quickly and in a high-quality manner; he must prepare for flight operations himself, not only practical matters but theory as well, thoroughly studying the aircraft under the supervision of his superiors. Helicopter on-board training drills are very helpful in the training process. They help technicians and mechanics acquire thorough knowlege of theory and solid skills. And this is very important, since the result of an air attack depends in large measure on the job done by the ground specialists.

Intelligently organized training drills on the ground and efficient utilization of pre-sortie preparation time to work on various elements of the

forthcoming flight help combat pilots totally master their complex aircraft and enable them to be fully armed with knowledge and professional skills.

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HISTORIAN CLAIMS TO EXPOSE WESTERN LIES ABOUT WORLD WAR II VICTORY

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 14-15

[Article, published under the heading "At the Fronts of the Ideological Struggle," by Doctor of Historical Sciences and Professor Col (Res) V. Sekistov, honored scientist RSFSR: "Truth Against Falsehood"]

[Text] During the years of the Great Patriotic War the Soviet Army, fighting a savage struggle with the enemy, not only expelled him from our country but also carried out a great liberation mission, winning the acknowledgement of all progressive mankind. The armies of the countries of the anti-Hitler coalition also took part in the war against fascist Germany and its allies. They played a less significant role, however, in defeating the aggressor and consequently in liberating the enslaved peoples as well. Today bourgeois historians continue in their attempts to distort this truth. They denigrate the liberation role of the Soviet Army and resort to all kinds of fabrications.

It is being widely claimed today in the West that the decisive role in the victory over fascism and liberation of the peoples of Europe was played by U.S. forces. American historian D. Middleton, for example, in a book entitled "Perelomnyye etapy vedeniya sovremennoy voyny" [Turning-Point Stages in the Conduct of War Today] (published in 1983) claims that this liberation was connected with the "beginning of a turning point" in World War I, caused by the U.S. victory at Midway in June 1942. Other bourgeois authors claim that liberation began in June 1944, when Anglo-American forces landed in Normandy. All this is contrary to the facts. Today some people in the West, B. Liddell Hart, for example, in his book "History of the Second World War," claim that credit for the liberation of peoples is shared equally by the United States and Russia. This claim also has nothing in common with the truth.

Events evolved in such a manner that it was precisely our army which, from the first to the last day of the Great Patriotic War, ground up in battles the bulk of the Hitlerite forces. As is well known, the Soviet Union took the main blows delivered by fascist Germany. In savage battles our troops stopped the hitherto victorious advance of the aggressor, changed the course of World War II, and crushed the bulk of the Wehrmacht's forces.

From 190 to 270 of the most battleworthy divisions of the fascist bloc were operating at any one time on the Soviet-German front. On this front the enemy sustained 80 percent of all his casualties and 75 percent of his losses of equipment and weapons. The Soviet Army defeated in detail and took prisoner more than 600 enemy divisions.

The Anglo-American forces in North Africa were faced by from 9 to 20 divisions in 1941-1945, from 7 to 26 in Italy in 1943-1945, and as many as 75 in Western Europe after June 1944. They defeated and captured a total of 176 enemy divisions.

The phony claim that defeat of the Wehrmacht was achieved to a substantial degree thanks to U.S. air power is a component part of the bourgeois myth about the "decisive role" played by the United States in World War II. Is this claim true? Let us examine the facts.

It is true that the United States had more aircraft than almost all the other belligerents. In spite of their numbers, however, participation by U.S. air forces in combat operations was insignificant from a percentage standpoint, as was the case with that country's entire armed forces. As we know, up to mid-1944 a large part of U.S. combat aircraft were on U.S. soil. In 1945 fewer than half of the total number of combat aircraft were sent to the European theater. Facts confirm that it was namely the Soviet Air Forces which delivered the decisive strikes on fascist Germany's air and ground forces right up to the end of the war. The aircraft fleet of our fighting forces totaled almost 15,000 in January 1945. This is much more than the total number of U.S. aircraft in Western Europe, totaling 11,500 at that time.

From June 1941 through May 1945 the principal Hitlerite air forces provided close air support to Wehrmacht ground troops on the Soviet-German front. We should note that the Anglo-American landings in Normandy were opposed by only one air force, totaling 419 aircraft, while there were almost 3,000 on the Soviet-German front at the beginning of 1944. As of June 1944 the enemy had approximately 1,350 aircraft just with Army Group Center in Belorussia. He subsequently redeployed more than 2,000 combat aircraft to that area, in spite of the fact that Anglo-American troops were landing in Normandy precisely at that time. These are the facts.

Anti-Soviets make every effort to belittle the contribution made by the USSR toward the liberation of the peoples of Europe and Asia, ignoring historical documents, events, and facts. They have "forgotten," for example, that the powerful Resistance Movement in the fascist-occupied countries grew, broadened and achieved success under the influence of victories by the Soviet Armed Forces. Many Soviet citizens played an appreciable role in this movement: more than 40,000 of our people, together with their fighting friends from Poland, Czechoslovakia, Yugoslavia, Italy, France, and other countries, took active part in partisan warfare against the Hitlerite forces.

Bourgeois Sovietologists also ignore the fact that the Soviet Union gave material assistance to the peoples which were being liberated. National units and combined units of Poland, Czechoslovakia, Romania, Yugoslavia, and France were formed on Soviet soil, for example. During the war the Soviet Union

armed and trained 19 infantry, 5 artillery and 5 aviation divisions, more than 30 independent brigades and a large number of independent units. By war's end the total combined strength of these units amounted to 555,000 men. The Soviet Union handed over to them 16,500 guns and mortars, approximately 1,000 tanks and self-propelled guns, and more than 1,600 aircraft.

Hatred and fear are aroused in the ideologues of the bourgeoisie by those immense revolutionary socioeconomic transformations which were carried out after the war by the liberated peoples of Eastern Europe and East Asia. These stooges of imperialism concoct all kinds of fables about the purpose behind the entry by Soviet troops onto the territory of other countries. In actual fact we did not seek to impose our will on the Slavic and other fascist-enslaved peoples of Europe, who were waiting for help from the Soviet Army. Our aim, as the Communist Party explained, was to assist them in their liberation struggle against Hitlerite tyranny and then to allow them complete freedom to handle their affairs on their own soil in whatever manner they chose.

Here is how spokesmen for the liberated peoples appraised the liberation missions of the Soviet Army during the war. To quote K. Gottwald, the Soviet Army did the "brunt of the work of defeating the occupation forces." In January 1945 the Polish Government sent the Soviet Supreme High Command a telegram, which read as follows: "The Polish people will never forget that they received freedom and the opportunity to reestablish their independent nationhood thanks to the brilliant victories of Soviet arms and thanks to the abundantly shed blood of heroic Soviet fighting men."

In falsifying history, bourgeois slanderers seek to cast aspersions on the bright countenance of the Soviet soldier-liberator. But facts expose the lie. Waging offensive operations on foreign soil, our forces sought to protect from destruction to the greatest possible extent factories and plants, cities, towns and villages, administrative and industrial areas and historical monuments. For example, the following important industrial regions were saved from destruction: Silesia in Poland and Ostrava in Czechoslovakia. And it is highly unlikely that mankind will forget the deed performed by our officers and enlisted men who rescued the valuable paintings of the Dresden Art Gallery. And there are a great many examples of the humanitarian character of Soviet fighting men.

Upon crossing over the border into Germany, they retained the honor and dignity of the Soviet citizen. They gave the victimized civilian population every assistance possible at that time. GDR Minister of National Defense Army Gen H. Hoffmann stated with full justification: "People will never forget the innumerable noble deeds performed by Soviet citizens who, while still holding a rifle in one hand, shared their bread with the other, helping our people get through the terrible consequences of the war unleashed by the Hitlerite clique."

Recently a new phony claim by Western Sovietologists has been circulating, a lie aimed at deceiving peoples regarding the genuine class aims of U.S. imperialism in the war. For example, a book recently published in the United States and England by S. Kaplan, entitled "Diplomacy of Force: The Soviet

Armed Forces as an Instrument of Policy" (published in 1982), claims that the purpose of the "crusade" by U.S. forces in Europe was to pull the liberated peoples "onto the path of democracy and progress."

U.S. imperialism did not bring democracy to Western Europe. It brought entirely different "values." Marching into France, Italy, Belgium, the Netherlands, Luxembourg, and later Germany in the concluding phase of the war, the Anglo-American troops sought to thwart the liberation, revolutionary process in Europe. In particular, they impeded the stepping up of combat activities by the forces of the Resistance Movement, hunted down and persecuted Communists, and made every effort to impede demilitarization. As well-known progressive American scholar (V. Perlo) correctly noted, "they marched into Greece, France, Belgium, Holland, Norway, and Italy... and set up in power, alongside representatives of the people, returned emigre politicians and capitalists."

The United States is continuing today to implement this same antipopular imperialist policy. For example, the United States committed aggression against the country of Grenada, to the accompaniment of a massive campaign of slander, claiming that Grenada was allegedly intended to become a "bridge for Soviet-Cuban expansion in the Caribbean Basin" and constituted a threat to the United States. We might also recall the crimes committed by the U.S. military in the occupied regions of Vietnam, which sent a shudder throughout the entire civilized world: millions of death victims and vast areas poisoned by chemical and bacteriological weapons. Today more than half a million U.S. soldiers are stationed on foreign soil. In the Near East U.S. soldiers, side by side with the Israeli aggressors, are waging war against the Arabs.

The U.S. Administration in office is encroaching on the independence of sovereign states. The imperialists seek to overthrow popular rule and return hated dictators, U.S. stooges, to power by force of arms. And those who claim that allegedly "nothing is happening" in the world apparently wish to erase from people's memories the U.S. aggression against Grenada and other sovereign nations.

Bourgeois propaganda distorts not only the historic mission of the Soviet Army but also factors pertaining to contemporary world development and the peace-seeking foreign policy of the USSR. It is claimed in Washington, for example, that the United States had allegedly sought peace with the USSR 40 years ago, although it already possessed the atomic bomb. But the truth of history tells a different story. American scholars P. Pringle and W. Arkin recently published a book entitled "ECOP -- Secret Plan for U.S. Nuclear War" (published in 1983). The numerous documents cited in the volume confirm the fact that in the very first postwar years Washington politicians were already drawing up monstrous plans for a nuclear attack on the USSR -- their recent ally in World War II. These plans called for dropping atomic bombs on 24 Soviet cities. Later the number of targets increased to 70, and subsequently to 104. Now refined figures are appearing on the pages of bourgeois newspapers and magazines, attesting to the fact that the Pentagon had nuclear-targeted thousands of cities, industrial areas, administrative centers and other vitally important locations in the USSR.

How can one claim peaceful intentions toward our country on the part of U.S. imperialism? No, it is not the questionable desire for peace on the part of the United States but rather the military might of the Soviet State which is holding our planet back from a thermonuclear catastrophe. This was once again stressed by CPSU Central Committee General Secretary Comrade K. U. Chernenko at the special February (1984) CPSU Central Committee Plenum.

The Soviet Union, as a great socialist power, is fully aware of its responsibility to peoples for preserving and strengthening peace. We have demonstrated and continue to demonstrate this in practical deeds. The truth of history and objective reality totally refute the fabrications of the bourgeois falsifiers.

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PREFLIGHT MEDICAL CHECK DEEMED ESSENTIAL

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) p 17

[Article, published under the heading "Constant Attention to Flight Safety," by Lt Col Med Serv V. Pekshev: "The Preflight Medical Examination Is No Mere Formality"]

[Text] Wherever adequate attention is paid to medical support of flight operations, as a rule there occur considerably fewer near-mishap air situations due to aviation personnel illness or other medical problem, and also fewer persons are grounded for medical reasons.

The preflight medical examination occupies a special place in the flight operations medical support system. The main purpose of this examination is to generate a short-term prognosis of the state of health of pilots and aircrew members and their readiness to perform job assignments during an entire flight operations shift. Only after a detailed check is a pilot or crew member legally authorized to take to the air or is grounded if state of health is below par. Thus the medical examination is a legal act which nobody is authorized to violate or ignore.

It sometimes happens in actual flight operations, however, that aviation personnel succeed for certain reasons in avoiding a medical examination or check and take to the air not entirely healthy. This happens most frequently wherever the preflight medical check is organized and carried out in a perfunctory and superficial manner. And this represents a significant potential threat to flight operations safety. As practical experience indicates, those persons who are ill or on the evening before have violated preflight work and rest regimen are the ones who most frequently deliberately avoid a medical check. Examples show the consequence of this.

For quite some time navigator V. Fedyakin succeeded in concealing a worsening in his state of health, occurring as a result of a previus head injury, while flight technician V. Isaychenko had succeeded in concealing an organic affection of the central nervous system. As a consequence, both were guilty of causing an accident-threatening air situation. They were grounded for reasons of health, one at the age of 27 and the other at the age of 41. If Fedyakin and Isaychenko had forthwith gone to the doctor for prompt

examination and treatment, this could have been avoided. Because they concealed their medical condition during a preflight medical check, aircraft commander R. Karimov, copilots Sr Lt V. Furashin, Lt Yu. Kuznetsov and others created near-mishap air situations.

We must stress that self-treatment also leads to serious consequences. Instructive in this regard is an incident involving navigator N. Mukhin. He began to have periodic rises in blood pressure. Neither the unit medical officer nor Mukhin himself attached any significance to this, and they did not attempt to monitor change in blood pressure or determine the causes of the incipient hypertension. Mukhin continued flying, and frequently he exceeded normal stress loads. In addition, although coming down with an acute respiratory ailment, he continued flying and went virtually without treatment. The medical officer, instead of giving him a preflight medical check as regulations required, merely asked him how he felt. Blindly believing Mukhin's cheerful assurances that he was feeling fine, he passed the medically-unsound navigator for flight.

During one training sortie Mukhin began to feel sick. He was hit by an unusual headache. After some time the headache abated, and he began feeling a little better. He was concerned by a certain malaise, however. But in spite of this fact, the navigator continued flying that day.

After he was through for the day, the officer felt quite ill, but nevertheless did not consult the medical officer. He went home, took some pills his wife gave him, as well as a hot bath (which in his case definitely should not have been done!). Within 48 hours Mukhin was hospitalized with a severe impairment of cerebral blood circulation.

Thus a still young man was forced to give up his beloved profession permanently and to leave the military. A careless attitude toward his health, concealment of its worsening state during flight operations, self-treatment, and totally unwarranted work zeal to the detriment of his health on the one hand, and negligence on the part of the unit medical officer on the other led to premature loss of a highly qualified, well-trained aviation specialist.

Coordinated efforts on the part of all support components and services are essential in the campaign for safety of flight operations with modern aircraft. And aviation medicine plays an important role in this effort. The voice of medical personnel should ring out particularly emphatically and in a well-reasoned manner in determining matters of flight operations safety, since it is they who guard the health of flight personnel and work to ensure that they enjoy a long flying career. Aviation medical officers are obligated to keep a close watch on the health of flight personnel and to permit only healthy individuals to take to the air. It is required of flight personnel that they provide truthful, prompt information on how they feel and on changes which have occurred in their state of health.

Competent medical oversight at all stages of medical support, and especially in the preflight period, and objective recording of principal psycophysiological indices on the ground and in the air with the aid of

appropriate devices -- the efforts of medical personnel should be focused on this in the campaign for mishap-free flying.

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PILOT EMERGENCY EJECTION PROCEDURES REVIEWED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 18-19

[Article, published under the heading "Constant Attention to Flight Safety," by Cols A. Mil'yanenko and V. Fesenko, USSR masters of sport: "When the Pilot Is in Danger"]

[Text] The modern aircraft, a magnificent creation of man's mind and hands, is highly reliable. Complicated situations, which sometimes threaten the crew's lives as well, arise in flight, however, although quite rarely. In such a situation regulations prescribe that the crew shall abandon the aircraft, utilizing the emergency ejection system (SAPS).

The modern aircraft ejection system is a complex technical system providing capability safely to abandon an aircraft virtually at all operating altitudes and airspeeds. The entire ejection process is automated. Only one or two movements, involving a minimal expenditure of time and effort, are required of the pilot.

It would seem that the reliability of the aircraft and of the emergency ejection system would make every flight safe. Practical experience indicates, however, that this is not always the case.

The majority of investigators are of the opinion that man is the most complex and vulnerable element in the "aircraft-man-environment" system.

Let us examine a very important issue. The matter in question is the incorrect understanding by some aviators of the physical essence of the process of bailing out (ejection). Having once been told that the ejection system can save a pilot's life from ground level (H=0), they assume that this is possible in all flight conditions, and since they are confident that one can safety eject at the last minute, they spend almost their entire available time reserve on correcting a pilot error. As a result they may become victims of their own misconception.

One should bear in mind that an aircraft ejection system, just as any technical system, has a quite specific actuating time (see table). It is

evident from the table that it takes from 7 to 9 seconds from the moment the decision is made and the ejection procedure is begun to the dynamic impact of ejection parachute opening. When ejecting at ground level in horizontal flight, the combined firing mechanism (KSM) boosts the ejection seat above the ground, while the presence of forward velocity ensures that the parachute system opens above the ground, which in the final analysis is what provides the necessary time reserve for all elements of the ejection system to actuate (Figure 1).

Approximate Time (In Seconds) for Stages of Ejection at Low Altitudes

1. Assuming ejection position (by a proficient pilot)	1.0-2.0
2. Jettison canopy	0.5-0.7
3. Ejection	0.5-0.7
Total:	2.0-3.5
4. Automatic ejection seat deceleration (holding pilot in seat)	1.5-3.0
5. Pilot separation from seat	0.5
6. Deployment of main chute	3.0
Total:	7.0-10.0
7. Steady rate of descent reached ("Pilot-parachute" system reaches vertical position)	2.0
Total:	9.0-12.0

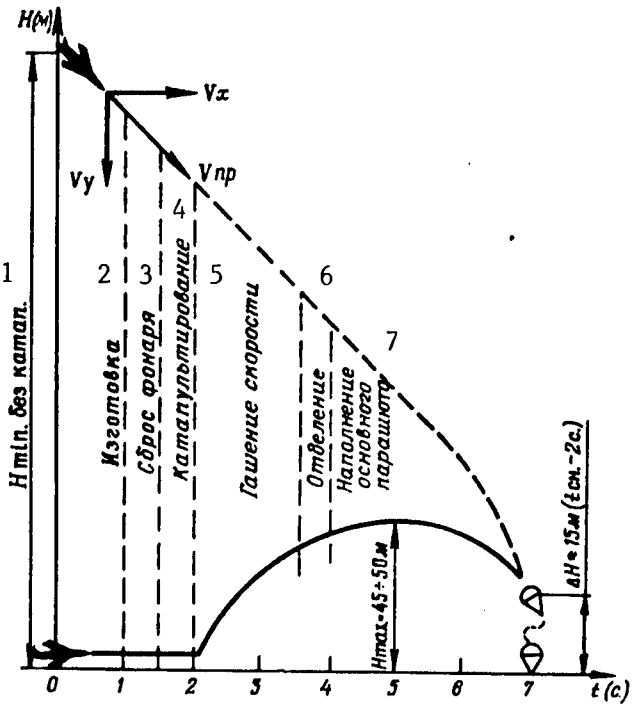

Figure 1. Effect of Vertical Velocity Component V_y on Minimum Safe Ejection

Height

Key to Figure 1 on preceding page: 1 -- without ejection; 2 -- assume ejection position; 3 -- jettison canopy; 4 -- ejection; 5 -- deceleration; 6 -- separation; 7 -- main chute deployment

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The situation is different when ejecting during descent, that is, with negative vertical velocities V_y. In these cases, in conformity with the law of conservation of inertia, in the process of preparing to eject, ejection, and after ejection from the cockpit, the ejection system, together with the pilot, will be traveling in the direction of the ground during these 7 seconds. The minimum safe ejection height $H_{min.s.e}$ will be determined by the product of the total time of all ejection phases T_e times vertical velocity V_y: $H_{min.s.e}=T_k \times V^y$. If we replace T^e in the formula with its value, $H^{min.s.e}=7\ V^y$.

But in connection with the fact that the ejection process takes place with slowing of descent velocity (since a sequential parachute system is operating), in an empirical formula for a minimum safe ejection altitude for single-seater aircraft, the factor with V^y is smaller than minimum ejection time, and $H^{min.s.e}=4V^y$. For crew-manned aircraft, 1 or 2 per crew member is added to coefficient 4.

One should bear in mind, however, that the formula reflects that actual (geometric) height above the ground at which the ejected seat with pilot should leave the cockpit. For example, in a steep spin $V^y=120$ m/s, according to the formula the geometric height of seat ejection from the cockpit should be about 500 meters. But if the pilot, making reference to an aneroid altimeter, does not commence actual ejection until this height, it will not be enough. The fact is that even a thoroughly proficient pilot takes from 2 to 3 seconds (altitude loss 360 m) to move his hands from the aircraft's controls to the ejection handles and to initiate ejection. To this we must add altitude loss due to altimeter reading delay, which is approximately equal to the vertical velocity value (that is, an additional 120 m). Thus if during a spin the decision is made to eject at a height of 500 meters, the seat will actually eject as the aircraft is about to impact. In this instance the height is simply insufficient for all emergency ejection systems to actuate.

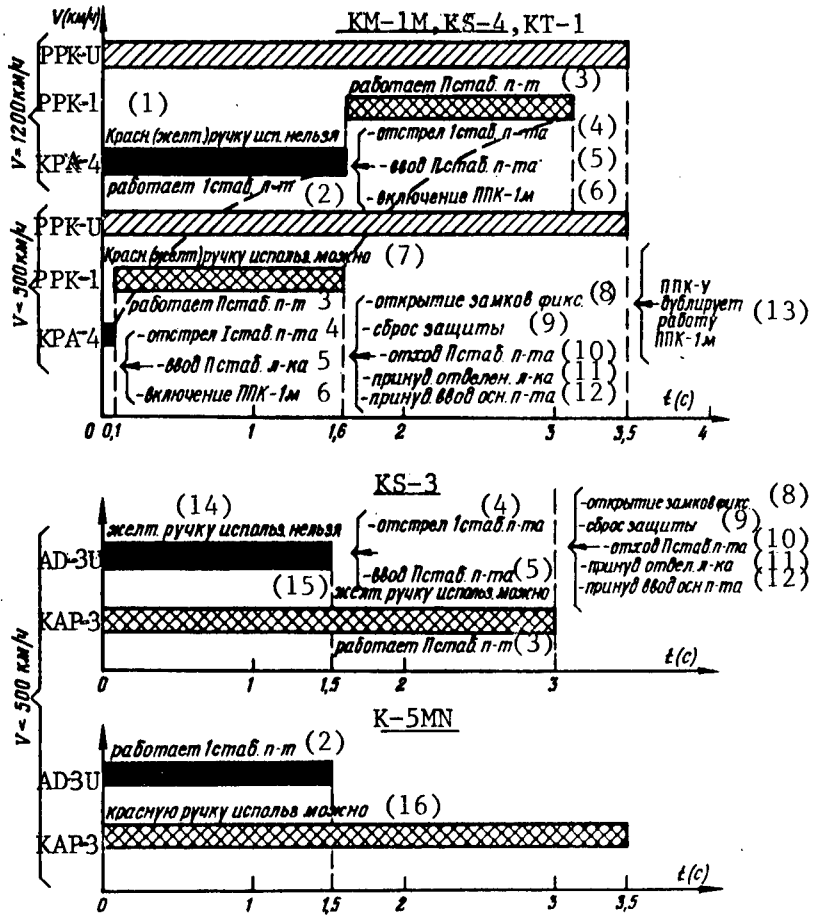
As already stated, this requires a geometric height reserve of 500 m. Consequently, in order safely to eject in conditions of a steep spin or with a vertical rate of descent close to $V^y=100$ m/s, one must begin to act at the very minimum at a height determined with the formula $H^{min.s.e}=8V^y$, that is, at a height of 1,000 m. Ejection is unsafe at heights above ground level less than 1,000 m. If the aircraft stalls prior to entering a spin, safe ejection is possible at virtually any height, but the decision must be made quickly, and one must act immediately.

Radio communication is important in swiftly-occurring mishap situations at extremely low altitude. Aircrew procedures specify a number of actions, including communication with the flight operations officer prior to ejection. But regulations also specify that all these actions are correct only if

adequate altitude and time are available. If they are not, it is essential to eject immediately, without radio communication, since those 3-5 seconds which the pilot usually expends on radio communication may be decisive.

A special role is played by the manual separation handle when ejecting at extremely low altitudes. Instructions recommend that the ejection seat automatic sequencing system be backed up by pulling the red or yellow handle 3 seconds after ejecting at low altitude. These 3 seconds represent the maximum time for deceleration by the sequential parachute system when ejecting at heights of less than 3,000 meters and maximum speed of 1,100-1,200 km/h. This time consists of the total operating time of the first and second stabilizing parachutes, that is, of the aggregate automatic instrument delay (Figure 2). But when ejecting during takeoff or landing, when V is less than 500 km/h, the KPA-4 [Automated Parachute Ejection] instrument gives virtually no delay, since at these speeds the first stabilizing parachute is ineffective. Thus in these conditions pilot delay time in the ejection seat will be determined by the PPK-1p instrument sequencing time (1.5 seconds), that is, the operating time of the second stabilizing parachute. Consequently, when ejecting during takeoff or landing the automatic system can be backed up considerably sooner.

Figure 2. Graphs Showing Automatic Seat Ejection Operation at Low Altitude (height below 3,000 meters).



Key to Figure 2 on preceding page: 1 -- red (yellow) handle should not be pulled; 2 -- first stabilizing parachute operates; 3 -- second stabilizing parachute operates; 4 -- first stabilizing parachute fires; 5 -- second stabilizing parachute sequences; 6 -- PPK-1m swiches on; 7 -- red (yellow) handle may be pulled; 8 -- securing latches release; 9 -- protection jettisoned; 10 -- second stabilizing parachute goes; 11 -- forced separation of pilot; 12 -- forced sequencing of main parachute; 13 -- PPK-U backs up operation of PPK-1m; 14 -- yellow handle should not be pulled; 15 -- yellow handle may be pulled; 16 -- red handle may be pulled

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At this point, however, we should like to discuss not so much backing up the automatic sequencing (system failure is improbable) as anticipating it. Of course from a practical standpoint it is very difficult to act in advance of the automatic ejection system, but nevertheless it is essential to endeavor to do this, since this can reduce pilot delay time in the ejection seat. This applies especially to the KS-3 and K-5MN ejection seats and those instances where ejection at extremely low altitude occurs during bank, pitch-up or pitch-down, or with a vertical rate of descent. On the K-5MN seat the manual separation handle may be pulled even before the first stabilizing parachute sequences, which cannot be done with the other seats (Figure 2). In the final analysis, however, when ejecting during takeoff or landing, the manual separation handle must be pulled immediately after the seat is ejected from the cockpit. This produces a time savings and ensures a safe outcome to ejection with adverse factors.

We shall now consider the effect of a bank or roll on minimum safe ejection altitude. When ejecting from an aircraft in straight and level flight a bank angle up to 30 degrees is not hazardous, since the decrease in height of seat boost in trajectory $H^{gamma=H^{max}}$ cosine gamma is compensated by the existence of a certain height reserve in the system, DeltaH approximately 20 meters (Figure 1). If the bank exceeds 30 degrees, the decrease in height of ejection seat boost in trajectory exceeds the available reserve. In these instances one must either eliminate the bank angle just prior to ejection or reduce delay time in the seat following ejection, by sequencing ahead of the automatic system with the manual separation handle. If the aircraft is out of control and rolling, ejection must commence on the ascending part of the spiral. At a bank angle of 90 degrees without descent, safe ejection height is 50-70 m, while in inverted level flight, with a bank angle of 180 degrees, a height margin of at least 200 meters is essential.

In conclusion we should note that effectiveness of utilization of an ejection system in an emergency situation depends on thorough knowledge of the capabilities of the ejection system in various flight conditions, the proficiency of each member of the aircrew and their psychological preparedness to use the ejection system.

Prior to taking off it is essential to inspect the ejection system and adjust the parachute suspension system to the pilot's height. After taking his seat in the cockpit, the pilot should check to ensure that all suspension system latches are securely closed, that all straps are pulled tight, and he should

go through a mental drill: he should mentally review the capabilities of the ejection system in various flight conditions and go through the ejection control sequence (primary and backup ejection) and the procedure for abandoning the aircraft without ejection when there is a fire on the ground.

A high level of emergency parachute proficiency, which is a component part of a pilot's professional training, helps develop psychoemotional resistance to stress situations in the air and successful accomplishment of an aircraft mission.

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MILITARY WIFE'S PRIMARY DUTY IS TO SUPPORT AVIATOR HUSBAND

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 26-27

[Article, published under the heading "The Family and Work in Aviation," by Military Pilot 2nd Class Capt V. Bykov and S. Bykova, USSR Master of Sport in sport parachuting: "We Have Common Concerns"]

[Text] In our opinion the topic "The Family and Work in Aviation" is always important and of current relevance. To date, however, it has not been discussed very much in the military press.

When the subject of problems of the family is broached, many different questions arise. For example, after creating a marital bond, how does one strengthen it, make it solid, indissoluble, stable against all the vicissitudes of life? How can two individuals, who have taken upon themselves the responsibility for family well-being, preserve pure, kind, sincere relations throughout their entire life together? How can they bring up children to be honest and hard-working and instill them with a sense of duty to their family and society?

We frequently hear debates, especially among young people, about the role of each of the spouses in a family. Opinions vary. Some emphatically deny anybody's primacy, claiming absolute equality. But can this happen? Both of us are of the opinion that the man should definitely be the head of the family. The strength of the family structure depends on him. He embodies dependability, stability, and strength. And we consider the woman to be the soul of the family. A genuine, faithful friend, who from the very outset of their life together perceives her role in the family and understands her husband and the importance of his job -- the cause to which he has dedicated his life. In our opinion precisely this is the foundation on which a solid and beautiful edifice of family relations is constructed. Love, friendship, mutual respect and sensitivity function here as loyal and dependable assistants. No matter how hard one of the spouses may try, however, nothing good will be produced without the support of the other.

We believe that many will agree with us. But perhaps some will say that these are rather obvious truths. And yet even if one understands them, it is a

complicated and delicate matter to build good mutual relations in a family. For this reason we decided to express our thoughts on this subject.

(Viktor Bykov): Svetlana and I have much in common. We are both parachutists and masters of sport. On the one hand this is a good thing. Paradoxical as it may seem, however, common interests can also be a disuniting factor. I believe that we have succeeded in making our hobby truly a comomn interest, and therefore we do not get into arguments over who should do the household chores and who should train for competitions. I know that Svetlana spends more time on the household, but she understands the importance of my job, which involves flying, and does not express displeasure. But we endeavor to localize conflicts immediately and nip them in the bud. Self-restraint is unquestionably necessary here. How important it is for one of the partners to hold himself in check and let the other say his piece, to listen patiently even to hurtful words. Incidentally, when one is angry one is hardly likely to say complimentary things. And should we men not display self-control and patience?

It is no secret that relations within the family directly affect the quality of performance of job-related duties. The results of an officer's labor depend in large measure on the mood in which he arrived at the field, at the technical maintenance unit. Of course most aviators have the ability to tune out everything which hinders them from performing critical operations. But in a depressed state and when upset, it is more difficult for a person to concentrate on the main thing. Thoughts about one's household, nursed resentment, as well as all the other things which tend to divert one's attention, and the result can be omitted procedures, imprecise movements and, as a consequence, mistakes. If not discovered on the ground, they can lead to very serious complications in the air. And a specific individual will be to blame. But will it be possible to determine the actual cause? It is always possible that the cause lies in spousal relations. I feel that it is very important that aviators' wives understand this fact.

One is fortunate indeed to have a good wife. And each of us is proud of such a wife from the bottom of his heart. Evidently our spouses feel the same about us. Nor is there anything surprising in this. When the regiment's best aviators are honored at evening functions at the garrison officers' club, what sincere joy and pride glisten in the eyes of their wives, whose contribution to our common cause is undisputed. At such moments one particularly would like to say the kindest and warmest words to them. They truly deserve such words.

Each of us strives for tender, trusting relations. I believe that they are grounded on tactfulness and mutual understanding. Sincerity engenders friendship, while insincerity engenders lies and malevolent behavior. It is appropriate at this point to recall a wise folk saying: You reap what you sow." Obviously every individual has the need to speak frankly and candidly. It is very important that a wife have the ability not only to listen attentively but also to reassure, bolster one's confidence in one's rightness or, on the other hand, to persuade one to change one's mind. Such talks can only help things.

But is it very bad when a wife begins kindling hostility toward a person who has deliberately or accidentally caused offense. This as a rule leads to a deepening of conflict in the outfit in which the husband serves. As we see, the family also affects mutual relations within the collective -- positively or negatively. I believe, however, that there is nothing worse than when women, either at home, on public transportation, on the street, or under the neighbors' windows, pick other families or officers to pieces. This must be combated with the entire force of community pressure.

I do not believe feelings which are readily displayed. Some pilots' wives are ready to "pour out their heart" to practically anybody, relating how they cannot sleep during night flight operations and how much suffering it causes them. Quite frankly, this does not always come off very convincing. And then when night flight operations end earlier than normal, many pilots' wives in fact awaken due to the unexpected silence....

I should like to say a few words about aviation personnel work and off-duty schedule. Our daily schedule has been worked up in precise detail, and no questions arise regarding its content and requirements. Rest prior to going up in the air is absolutely mandatory. Unfortunately not all wives understand how important it is, and sometimes they force their husbands to do household chores during this time. The above applies in equal measure to the wives of technical personnel. Preparation of aircraft for a training sortie is a no less critical task.

At home we rest both physically and emotionally, readying ourselves for such an important and critical business as flight operations. Therefore a warm atmosphere in the home is important. In my opinion it consists not only in cleanliness and tastefully arranged furniture, but also in the wife's appearance. Of course it is not easy to have a neat and attractive appearance at all times. But for that reason it is even more valuable. And we men should help our wives, help them save time and work.

Every officer is a professional military man. we have voluntarily dedicated our entire life to military service, so that our people can work under peaceful skies, so that our children can grow up healthy and happy. The family is our home front. Our mood on the job and our job success depend in large measure on the family's dependability and strength. I have heard from my friends, and I know from my own experience: when all is well at home, you head off for work like on a holiday. Another thing has also been noted: those officers who are having no problems at home master their job much faster.

(Svetlana Bykova): The first thing in my opinion a girl who is marrying an officer, and particularly a military pilot, should become aware of is her total involvement in his job. Figuratively speaking, each of us, upon leaving ZAGS [Civil Registry Office], proceeds to march shoulder to shoulder with our husband and voluntarily assumes not only concerns about our loved one but also shares his duty. Of course one must be prepared to share with him the joys, adversities, and inconveniences connected with moving to new duty assignments, arranging housing, and many other things. One should not fear this. Life is precious and interesting not only in its festive occasions.

Perhaps our family is not entirely indicative: both of us are military personnel. At work relations between us are purely official; both of us are accustomed to discipline and composure. Obviously the habit of strict orderliness and scrupulousness, which is so essential in our work, also places an imprint on our domstic life. In any case the ability to plan any and all activities stands us in good stead.

Working together enables me to know better the specific features of my husband's job, to gain a deeper understanding of his concerns, and to help him in all things. I take upon myself a certain part of the work, which I can handle. And there is no better reward than my husband's approval and warm words of gratitude.

However, in order to share the joys and sorrows of one's loved one and to know his interests and concerns, to be able to give timely support, encouragement, or to hold him back from drawing hasty conclusions, it is by no means mandatory to work together with him in the same system or also to join the military. Every family is composed in its own unique manner. It is highly unlikely that one could name any solutions which are uniform and mandatory for all. One thing is out of the question -- to ignore his job. I shall say it again: the interests of the service should be primary at all times, in all places, and in all things. Like it or not, in the family of a serviceman there can be no mutual understanding without observance of this basic condition. And without mutual understanding there can be no strong family; relations inevitably deteriorate to the level of coexistence and lip-service observance of mutual responsibilities. This indeed should be avoided, but one should not fear difficulties and domestic inconveniences.

I can see that I am talking more about my husband's job, his doings and concerns. "But what about love?" you might ask. Nobody denies that love is an important component. It is to be found within ourselves. But one should not attempt to place this beautiful feeling in opposition to the job one loves. I feel that I am right in stating that in loving a person, it is simply impossible not to love that activity to which he has dedicated himself. One can preserve genuine, strong feelings only if you do not allow conflict to enter between yourself and your husband's work.

Particularly acute issues arise when you have to move to your husband's new duty assignment, essentially to begin everything from the beginning. This is a test of love, conscience, and sense of duty. I hate to admit it, but unfortuantely one still encounters at Air Force garrisons military wives who would not think of exchanging their cozy "little nest" for new inconveniences and would not support their husband in his difficult work and career. And yet in making life complicated for their partner, they inevitably ruin their own life. Is not the cost of thoughtlessness too great?

I love our garrison. It is a nice place not only by virtue of its neat and clean appearance, its abundance of greenery in summer, its fine athletic facilities and many other features. The nicest thing of all is the people among whom Viktor and I are living. The overwhelming majority are responsive, sensitive and sincere comrades. Every family is ready and willing to come to the aid of another family, in both large things and small.

Regularly-held special evening activities at the garrison officers' club helps in a large way in developing this friendship. They are organized by our women's council. Tamara Nikolayevna Polkovnikova, Nadezhda Mikhaylovna Shevtsova, Mariya Aleksandrovna Garnak, and Galina Borisovna Shelkovskaya show a great deal of inventiveness, imagination, and cleverness in organizing them. Everybody attends these events. They are interesting. We discuss new books, have amateur talent performances, and dance. Frequently the command authorities and women's council hold celebrations in honor of the birth of new babies, wedding anniversaries, and other events. People are drawn toward one another and become more open. But the most important thing is that such events raise spirits and have a positive effect on attitude toward one's job.

It is difficult for a person to live outside the family. True happiness of contact and communication between persons who are close, and the joy of raising children are possible only in the family. But happiness and joy cannot exist apart and separate. They must be built and cherished. Yes, one must build them. And both partners must be involved, putting all their heart and patience into this building process, so that these efforts in turn become a source of joy, happiness, and inspiration.

(From the editors). The Communist Party and Soviet Government display tireless concern for the family. Well-built, well-equipped housing is being erected, as well as nursery schools, kindergartens, and schools. The daily life and prosperity of our people are improving. The family is the core element of society. Many social relations are reflected in the family in miniature: economic, social, moral, and others. We must agree with the Bykovs that a flying job and the family are not only closely interlinked but also mutually influence one another. How to strengthen this bond and increase the positive influence of the family on one's attitude toward the aviator's job is not a simple question. With this article by Viktor and Svetlana Bykov the journal kicks off the topic "The Family and Work in Aviation" and invites readers to continue the discussion.

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AIRCRAFT GROUND MAINTENANCE OFFICER OPTS FOR CAREER IN MILITARY

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 28-29

[Article, published under the heading "Into Competition," by Engr-Sr Lt (Res) B. Pinskiy: "'I Am Remaining in the Service....'"]

> [Text] Bristling ominously with missiles, the aircraft taxied to the active. It hesitated for several seconds, and then, as if perched on the bright column of afterburner flame, tore free of the ground and disappeared in the dusk-darkening sky. Engr-Sr Lt Sergey Kimstachev intently watched the fighter take off....

Worthy of Trust

He is considered one of the best technicians in the vanguard aviation regiment. Officer Kimstachev is only in his fourth year in the service, but he is already serving as acting flight technical maintenance unit chief. He is a frequent socialist competition winner. His commanding officer and comrades are unanimous in their opinion of him: knowledgeable, dependable, efficient. Worthy of trust.

There was an additional reason why I took a particular interest in this officer. Several years ago I served as an aircraft technician in this squadron. At that time I happened to take delivery on a brand-new fighter which had just been ferried in from the factory. Subsequently Sergey Kimstachev proceeded to ready it for flight operations.

Many of the men have been transferred to other units in the intervening years. The regiment has also won additional honors: in particular, a second USSR Minister of Defense pennant for courage and military valor was awarded to the unit for successes achieved in military labor. In the hands of our pilots, aircraft have become a truly potent combat weapon, capable of destroying any adversary, both in the air and on the ground. Considerable credit for this must also go to those who, like Engineer-Senior Lieutenant Kimstachev, ready the aircraft to perform difficult missions and by their conscientious attitude toward their job maintain the unit's high degree of combat readiness.

I asked Sergey whether he had dreamed as a child of becoming a soldier. The question surprised him at first. Pondering the question a bit, Kimstachev replied: "When I was a little boy, I saw for myself no other career than in aviation; I dreamed of becoming a pilot. But I was unable to pass the physical. After failing the medical examination, I applied to the Kharkov Aviation Institute. Upon graduation I went to work at Oleg Konstantinovich Antonov's design office. Subsequently I was conscripted into the military. In my second year in the service I made the firm decision to remain in the military. Now I am becoming more and more convinced that I was right in my choice."

"First of all the aircraft...."

The above is a line from a song about pilots. But it also directly applies to aviation engineer service specialists, because the feeling of power over a winged machine and the romance of the boundless air ocean begin on the ground. In the process of servicing an aircraft and performing routine maintenance, one must check a great many lines, electrical cables, and control rods not only by means of sensitive instruments but also, so to say, with one's intelligence and with one's own hands.

I saw how Engineer-Senior Lieutenant Kimstachev worked on a fighter on an aircraft maintenance day. He would diligently perform complicated tests on the various systems and components, endeavoring to study and master the aircraft and its on-board systems to an even greater extent. Kimstachev would proceed according to his accustomed inspection sequence, carefully examining each line and each connection, strictly observing the proper inspection sequence. This enabled him to perform all scheduled procedures in a minimum amount of time and not to omit anything. He would check certain structural components quickly, focusing only on the most important items (after all, it was his own aircraft, with which he was intimately familiar, and he could determine a great deal with a single glance), while he would linger over other components, examining in detail practically every single centimeter of surface area.

The components of this officer's successful work performance include conscientiousness, exceptional attentiveness, precise observance of maintenance procedures, and scrupulous maintenance of documentation. This is confirmed by an incident about which I was told by the people in the regiment.

While testing an engine, there was a pressure drop in one of the systems. For a long time the maintenance people were unable to determine the cause. Kimstachev, however, found the problem quickly. Was it intuition? Possibly, but in order to find the location of the pressure leak in the system, he had to inspect and test every connection and every line. This young officer's character, persistence and stick-to-itiveness were clearly revealed here.

The squadron deputy commander for political affairs, Maj A. Vorotnikov, describing Engr-Sr Lt S. Kimstachev, noted his modesty, work efficiency, and highly-developed sense of duty. These qualities help this maintenance specialist continuously improve.

I happened to be present when, having completed work on his own aircraft, he was carefully examining the aircraft of Engr-Sr Lt A. Chernogor. I also heard his businesslike, laconic comments. The acting flight technical maintenance unit chief did not have any serious complaints about the aircraft maintenance technician; he acknowledged that the fighter was in good condition.

"This new job is not an easy one," Kimstachev later admitted in frankness. "You are responsible not only for yourself and your mechanic. I am lucky, however: the people in my flight are intelligent and efficient. Many aircraft technicians possess a higher education and are knowledgeable and disciplined. The most complex job can be entrusted to them. And this is very important."

Indeed, no job will be complicated and any and all difficulties can be surmounted if you have confidence in those working alongside, persons who have not lost interest in their profession, who value it. Then people are in a good mood, and the work moves rapidly.

When the aircraft maintenance day came to an end and the command "To the vehicles!" rang out, everybody climbed aboard the tractors, joking and laughing. Things were just like they had been 10 years ago....

A Flight Begins on the Ground

A thick haze hung over the airfield during that flight operations shift. Aircraft maintenance specialists were towing aircraft to the runup position. I was looking off into the distance, following an old habit. I wanted to see if a tall building was visible on the horizon. The maintenance technicians figure that if the building on the distant hill is visible, things are fine; if it cannot be seen, expect cancelled flight operations. The building was obscured.

"Don't bother to look. We no longer apply that criterion," smiled Capt Tech Serv V. Slidenko, noting my gaze. He and I had served together at this field 10 years ago. "We fly in all weather."

That is the way he said it: we fly. And he was right. When an aircraft takes off, the maintenance technician remains on the ground, but in his thoughts he is up there in the sky with the pilot. He releases his aircraft, and he nervously awaits its return.

That day 2 aircraft of Engineer-Senior Lieutenant Kimstachev's flight were involved in flight activities, while the others were on the flight's ramp position. And the officer had quite a few volunteer activities going: today he had to put out a news bulletin and newssheet. CPSU probationary member Sergey Kimstachev had been elected to a second term as squadron Komsomol organization secretary.

He was headed toward a special display stand, carrying a sheet of drawing paper rolled up into a tube. He spread it out and affixed it to the display stand. "Newssheet": "Congratulations! Based on socialist competition

results, the 1st Squadron has become one of the finest in the district air forces...." His squadron, the regiment's leader.

"This is a performance success on the part of all personnel -- pilots, maintenance technicians, and mechanics," Sergey stated with pride. "We are also now devoting more attention to organization of meaningful off-duty activities. We regularly hold special evening events and get-togethers with secondary technical school and education school students. The Komsomol buro correctly understands its tasks and is endeavoring to work as well and as actively as possible with each and every Komsomol member...."

Our conversation was suddenly interrupted by a command which came over the public-address system: "Engineer-Senior Lieutenant Kimstachev, proceed immediately to your aircraft."

Sergey stopped in mid-sentence and made haste toward the flight line, from where I could hear the sound of a jet engine starting up. Within a few minutes the fighter taxied out to the active. A few seconds later it was climbing into a cloudy sky.

By this time the flight's ground crews were readying aircraft full bore. A pilot was seated in the cockpit of a second aircraft, ready to take off upon receiving clearance from the tower. Ground power was hooked up to fire up a third aircraft, and aviation engineer service specialists were removing protective covers from the armament of the fourth.... Officer Kimstachev was supervising the actions of his men. And once again he was performing all procedures quickly, without excessive fuss or bustle, and not ignoring a single item.

Soon a fighter, flown by Military Pilot 1st Class Capt A. Lyutashin, landed.

"Any problems, sir?" Lt Tech Serv S. Sinitsyn asked the pilot.

"No problems."

The air target had been intercepted at the designated point. The flight's technical personnel also received the highest marks.

Family

No matter how much an officer loves his job, no matter how much he is concerned for the successes of his outfit, he also remembers his home, where his family awaits him. Incidentally, officers' wives have long since become accustomed to their husbands' rotating work schedule.

This time flight operations ended according to the timetable, and Kimstachev did not conceal his pleasure: "I shall get to the kindergarten to pick up my son before my wife gets there."

Sergey got married several years ago. But he had known Lyuba a long time, having met her at a secondary school physics and mathematics olympiad He is a Siberian, and she is from Uzbekistan. They have a son named Sergey.

"A real aviator," jokes Kimstachev Senior. "His father was 24 years old when he saw his first fighter, while he was clambering into cockpits at the age of two."

His little boy, pleased to be with his father, tried to match the latter's stride along the dusk-darkening street. Shy in the presence of a stranger, he was slow in replying to my questions.

"Serezha, what do you wnt to be when you grow up? A pilot, I'll bet."

"I don't know, I haven't decided yet. It will be 2 years before I even start going to regular school."

We entered the Kimstachevs' comfortable, inviting apartment. The lady of the house had just returned from work. She was cooking supper. Sergey placed his son in my care and also proceeded with household chores. I had time to look around the place. The apartment was nothing out of the ordinary, with no sign of luxury. A wardrobe, sofa, child's bed, a toy chest under it, which instantly was pulled out into the middle of the room: the little fellow proudly showed me his belongings. There were bookshelves with textbooks, perhaps from college days, and several books in English. In his free time Sergey studies a foreign language and dreams of continuing his education.

Over tea we talked about his decision to remain in the military.

"Incidentally, Lyuba wanted me to reenlist no less than I did...."

I looked at them and thought: before going into the military, when he worked at the design office, Sergey Kimstachev dealt with wing strength computations. I saw a great deal of symbolism in this. Sergey Kimstachev is a strong individual. He knows where he is going in life. And he has wings -- those which day after day he strengthens at the airfield, doing a job he likes.

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CARE URGED IN RECOMMENDING PROMOTIONS

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[Article, published under the heading "Implementing the Decisions of the 26th CPSU Congress," by Honored Military Pilot USSR Lt Gen Avn Leonid Mikhaylovich Klochikhin, chief, Air Forces Personnel Directorate: "Right to Advancement"]

[Text] A candid discussion with a certain guards major was clearly not getting anywhere. He was listening to me attentively, but I sensed his disagreement with my arguments: I don't care what you say, I know how people get promoted to higher positions and who gets promoted; if I had a patron "in high places," I would have long since moved up from my present squadron command to a larger outfit....

As a pilot, I could understand the squadron commander and his agitation. For several years in a row he had commanded a vanguard subunit, had no black marks, and had been active in regimental volunteer activities. Certain questions came to mind: perhaps the unit command authorities, as sometimes still unfortunately occurs, had not shown concern about this officer's professional advancement, or perhaps they did not currently happen to have a worthy successor for him, and therefore did not want to part with an experienced commander and instructor. Moreover, at regimental headquarters they must know that he was at the extreme "age factor" limit, and for an aviator this is of considerable importance....

Before interviewing the officer, I thoroughly studied his file and spoke by phone with his superiors and personnel agency officials in his district. The case took an unexpected twist. I ascertained that this officer was not a candidate for promotion for quite valid reasons.

First of all, he had once turned down the offer to enroll at a service academy, giving rather insubstantial reasons. Some time later he was again given the opportunity to advance his career, but this required that he leave a settled town for a remote garrison. Once again he turned down the opportunity, and once again without valid reason. Therefore one could hardly accuse his superiors of prejudicial treatment of and a callous attitude toward this officer. At that time the following entries were also made in his efficiency report: "...He fails to display professional zeal and does not seek

to be useful where he is currently most needed.... He is not enthusiastic in support of the common cause...." Perhaps these conclusions, reached by his former commanding officer, are a bit harsh, but unquestionably they are sincere and reflect the state of affairs.

There were other nuances as well. His regimental superiors also held against the squadron commander that he at times mixed commander demandingness with rudeness in dealing with subordinates and did not always intelligently utilize the power to reward and punishment given to him by regulations. Aware of this fact, squadron personnel avoided frank conversations with the major. Nor did this have the best effect on squadron morale or on the commanding officers's reputation. The political worker and party organization secretary pointed out his shortcomings to him, but this officer was unable to draw the proper conclusions. And the main credit for the fact that the squadron was leading in socialist competition went to the pilots and aviation engineer service sepcialists, the party and Komsomol activists, who constantly strove toward new performance levels in combat training. The guards major interpreted these successes in his own way.

I had to tell him this during our meeting. I want very much to believe that this officer will comprehend the error of his ways and be able to become the master of his own fate. Unfortunately I was working under such a tight schedule that I was unable to tell him how an officer his same age, under much more difficult conditions, had succeeded in advancing far in his career. I am talking about Vyacheslav Yakovlevich Orlov. He is presently a guards colonel and holds an important command position.

Orlov's aviation biography is similar to that of the majority of pilots. He was born and grew up in a strong worker family, and prior to military service he had received worker conditioning at a factory He was enrolled at the famed Yeysk Higher Military Aviation School for Pilots imeni Twice Hero of the Soviet Union USSR Pilot-Cosmonaut V. M. Komarov, graduating with high marks. Assigned to a fighter-bomber regiment, the newly-commissioned lieutenant proceeded to work on mastering the complex combat hardware with great seriousness and devoting all his energies. Soon the men in his regiment acknowledged Orlov as an equal and a reliable combat pilot, who could be entrusted with the most important tasks.

Of course this pilot's personal qualities helped him achieve success: a hard-working nature and persistence in working toward a goal, composure and kindliness, steadfastness and modesty, integrity and an implacable attitude toward shortcomings. But I believe the fact that his older comrades kept a careful watch on the development of this officer as a future commander, helped him master the fundamentals of a Leninist style of leadership -- the ability to penetrate deep into phenomena and to reach correct conclusions, taught him to organize his men's training and job duties with precision, and developed in him the endeavor to increase efforts in combat training and competition day by day were also of considerable importance.

Party member Vyacheslav Orlov very quickly advanced up the command ladder and was recommended by his superiors for enrollment at the Order of Kutuzov Red-Banner Air Force Academy imeni Yu. A. Gagarin. Comments in his efficiency

reports made during that period attest to the fact that this young pilot received marks of not lower than good and excellent and devoted a good deal of time to volunteer work and athletics. He had commendations from the USSR minister of defense. And during his period of practical training in a line regiment, Vyacheslav Yakovlevich served as acting senior navigator in place of an officer who had been reassigned elsewhere. He not only fully met the targets pertaining to hours logged and mock combat sorties, but also successfully directed the training of the regiment's pilots and navigators during the period of maximum-distance cross-country flying and performance of mock combat sorties over the range.

It is not surprising that soon he, a recent academy graduate, was placed in command of an aviation regiment. This officer made it one of the top regiments in the combined unit. Recently Orlov was promoted, with an assignment to an outfit which had not been receiving high marks in training. It has now been awarded a USSR Minister of Defense Pennant for Courage and Military Valor, and Gds Col V. Orlov unquestionably deserves some of the credit for this.

Goal-oriented individuals, who know precisely where they are going and devote their entire abilities and energies to attain an ambitious goal, always achieve success. Officer V. Orlov is such an individual, and so are many of his fellow soldiers.

There are many selfless and dedicated specialists among pilots, engineers and technicians, who work persistently to boost their level of professional expertise and who are constantly concerned with the combat readiness of their crew, flight, and squadron. But even with such qualities, not everybody can receive a promotion. What criteria guide command personnel in promoting subordinates to higher positions? Who is given first preference?

We shall state quite frankly that it is no easy matter to give an unequivocal answer to these questions. They are the subject of discussion at meetings, conferences, and methods council sessions. They are addressed at party meetings to one degree or another. I believe that this is quite logical. In order to be able to gain a correct impression of one's subordinate and to determine his career future, unit leader personnel should be party-mindedly firm, patient, and competent in indoctrination matters. It is therefore difficult to give a recipe or recommendations applicable to all instances.

The decisions of the 26th CPSU Congress point to the importance and critical nature of correct selection in developing leader cadres. The following statement made at the congress applies in full measure to military units: "Authority -- and considerable authority -- is given to ranking officials and should be utilized in full measure. But each person in a leadership position should also constantly bear in mind his high degree of responsibility -- responsibility to the people whom he is entrusted to lead, to the party and people." The proceedings of the June, December (1983), and special February (1984) CPSU Central Committee Plenums as well as orders issued by the USSR minister of defense and commander in chief of the Air Forces also devote considerable attention to cadre policy. They stress that superiors, empowered to assess the labor of subordinates and their innovative capabilities, are

obliged to approach this with great responsibility, study people thoroughly, not abate indoctrination work with those who have been given promotions, and to be concerned with their period of breaking in in the new position and their subsequent growth.

Guided by these instructions, command personnel examine the qualities of subordinates first and foremost through the prism of their ideological conviction and party responsibility for accomplishment of the tasks assigned to military collectives. They reflect in a point of focus an officer's moral fiber, his military expertise, his demandingness on himself and his subordinates. In this connection I should like to emphasize that it is hardly likely that young officer V. Orlov and his counterparts would have gained recognition in the outfit if, after arriving in the regiment, they had not concentrated their efforts on mastering the program of breaking in new men and on combat training. And I believe that herein lies the error of the guards major mentioned above, who forgot the demands of regulations in his desire to advance his career at all costs, who neglected the recommendations of military education science and psychology.

Precisely ideological conviction and awareness of lofty duty formed the foundation of the combat successes of the veteran combat pilots, who gained fame for our homeland by their valor and heroism. Today's aviators are honorably carrying on their tradition. Air forces personnel are well acquainted with the exploits of Heroes of the Soviet Union pilots V. Gaynutdinov, V. Shcherbakov, Ye. Zel'nyakov, Lt Col V. Kopchikov, bearer of the Order of Lenin and Order of the Red Banner, plus many others, whose deeds serve as a worthy example of carrying out the demands of the military oath and regulations, in mastering combat equipment and developing excellent moral-political and psychological qualities. "Deserves promotion...." This phrase in the efficiency reports of vanguard aviation personnel attest to the fact that these officers possess the essential qualities which give them the moral authority to lead others, to teach and indoctrinate them and to bear responsibility for their career.

In my many years of service in aviation units, I have also encountered cases of a different kind. In particular, the following has occurred: an aviator who previously had received positive efficiency reports and recommendations from his superiors that he be promoted to higher positions, after a certain time suddenly would begin slackening off in performance of his job duties and would no longer take critical comments in good grace. Rather than steadily advancing, he would commence marking time, and subsequently he would fall behind his subordinates. Why would this happen?

If one thoroughly analyzes a situation of this type, one readily concludes that there was no "suddenly" about it. The fact is that one still encounters military personnel who, in their endeavor to advance at all costs, sometimes resort to various contrivances. Instead of working conscientiously, they proceed to engage in "bypass maneuvers." From time to time they may show stronger interest and involvement in training activities and voluntarily (but not selflessly) take on additional volunteer-assignment work loads, endeavoring with and without pretext to be prominently in the view of their superiors. Sometimes they succeed in pulling it off. Failing to see

superficiality and undesirable elements in his subordinate, a superior reaches an erroneous conclusion about his career promise.

Unfortunately the following also sometimes occurs: a superior, seeking to rid himself of a specialist who is weak in a professional respect, recommends him for a promotion. Instead of helping his subordinate develop professionally useful qualities and channeling them into the proper direction, which naturally requires expenditure of time and energy, he takes the path of least resistance. Such a lack of principles and connivance cost the state dearly. They do moral detriment both to the military collective and to the aviator himself, who has been promoted merely by chance. Once having suffered a setback and failing to understand the reasons for this failure, he loses faith in his ability, and ultimately loses his initiative and independence.

In my opinion the party members in a certain unit were quite correct in leveling sharp criticism at a meeting at one of the senior officers for errors of omission in indoctrination of aviation personnel and placement of cadres in the area entrusted to him: several officers whom he had recommended for promotion failed to pan out.

These and certain other miscalculations occur because we do not always thoroughly and comprehensively study people, do not analyze their behavior on the job, off the post, and the situation in their households. Wishing not to harm relations with fellow personnel, we often fail to react to such "trivial matters" as violation of dress regulations, improper relations with and treatment of juniors in rank, and refusal to accept a civic-work assignment. Is such lenience justified? Of course not. I believe I am correct in saying that major violations begin precisely with so-called "trivial matters." Prompt analysis of deficiencies will enable the experienced commander to respond promptly to them, to set the errant straight, to gain a fuller picture of an individual, and to determine whether his actions are being guided by personal motives.

But what if an error has been made after all, if a specialist has failed to live up to expectations and clearly is not right for the position he holds? Does this mean that a mistake cannot be rectified? Of course not. One can always use the appropriate authorities and provisions of documents in order to find an officer an acceptable position, where he could produce maximum benefit.

One does not need to go far for an example. Former regimental commander officer I. Sokolov received a report that one of the engineers appointed supervisor of a subunit aviation engineer service had begun making mistakes in servicing equipment and was not always able to concentrate on accomplishing the principal tasks. At the same time, however, he was doing a good job on the inventions commission and had submitted many interesting proposals which were helping improve training facilities. Consulting with the members of the unit's methods council, the commander concluded that he should request that higher headquarters reassign the engineer to a teaching job in a training subunit. This officer is now doing a good job and working fruitfully in his new assignment. As before, the innovations he proposes are highly rated by

the inventions commission, and some of them have been displayed at the Exhibit of Achievements of the National Economy of the USSR.

But things could have turned out differently if a less alert and wise superior had been encountered on this engineer's career path. I know of cases where supervisors, disinclined to acknowledge their mistakes, have ignored deficiencies, resorted to glossing over the facts, while pushing off onto the shoulders of other persons in authority the task of correcting deficiencies. This is contrary to what is demanded by the party and of an officer.

...Promotion. This is a great and joyous event in an officer's career. At the same time it imposes on him new and more difficult duties and responsibilities. He has increased responsibilitity for training subordinates, instilling patriotism in them, and developing their finest soldier qualities. This is why those who recommend specialists for an important, responsible job assignment must approach recommending him for a new position with a greater degree of seriousness.

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3024
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OUTSTANDING FIGHTER FLIGHT COMMANDER LAUDED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) p 33

[Article, published udner the heading "Marching in the Vanguard," by Maj A. Malinin: "Visual Contact With Target. Attacking!"]

[Text] Flying in precise combat formation, the flight of supersonic fighters was maintaining course toward the designated intercept point. The forthcoming air engagement promised to be a difficult one. Their mission was promptly to spot the "aggressor" and prevent him from reaching his target, toward which he was attempting to penetrate by flying at extremely low level, below radar coverage. The pilots' actions had been honed to automatism. Their entire attention was focused on visual search.

The flight leader, Maj V. Neykovskiy, peered intently ahead. Off to one side, concealed against the ground, he spotted the silhouette of an "aggressor" aircraft. His voice crackled over the radio: "Target in sight. Attacking!"

A complicated maneuver, followed by swift closing. Attack! Although experienced combat pilots were playing the role of "aggressor," they were unable to evade the attack.

On every simulated combat mission Major Neykovskiy's men perform innovatively and resourcefully. The flight commander knows that today's air combat demands of pilots a high degree of flying skill, precision coordination between aircraft, and keen tactical ability. Constant deepening of knowledge of one's own tactics and those of the potential adversary as well as aircraft combat capabilities and performance characteristics helps achieve such a performance level. The greater a pilot's knowledge and the firmer and more precise his skills in performing cockpit procedures, the more relaxed a pilot feels in combat. An inner fighting spirit and self-control are also indispensable in an air combat situation.

Major Neykovskiy carefully studies the experience of the famed air aces of the Great Patriotic War and today's expert combat pilots. This enables him successfully to accomplish the most complex missions. This vanguard officer has repeatedly taken part in various exercises and performance evaluations and has carried out missions in conditions maximally approaching actual combat.

He analyzes his every action in performing missions and works persistently to correct errors. For this reason he receives nothing but marks of excellent at all exercises. Certificates, prizes, and commendations from the command authorities eloquently attest to this pilot's successes.

This vanguard commander is demanding both on himself and his men. In training them, he uses an individual approach to each, taking into account the man's experience, character and personality, abilities and inclinations. He teaches his pilots to think innovatively, to be independent and aggressive. At post-mission critiques he gives them the opportunity to evaluate their own performance and to determine the reasons for deficiencies.

There is a strong party organization in the flight, which helps the commander achieve excellent results in combat training and socialist competition. Working together with party and Komsomol activists, Major Neykovskiy carefully analyzes the results of each day of flight operations. They synthesize the know-how of the best pilots and draft specific recommendations for improving combat skills. This painstaking, purposeful work produces good results. The flight has earned and is firmly retaining the rank of excellent. All pilots and the majority of aviation engineer service specialists possess 1st and 2nd class proficiency ratings. In this subunit there are no gross violations of military discipline, in-air near-mishap situations, or equipment failures through the fault of personnel.

Diligence and modesty, integrity and purposefulness, as well as persistence in completing a job once begun have earned Vladimir Nikolayevich Neykovskiy great respect in the unit. The squadron Communists elected him party buro member. Officer Neykovskiy embodies the most typical traits of today's Soviet military pilots -- reliable defenders of our nation's skies.

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REGIMENTAL FLIGHT SAFETY SERVICE CHIEF PROFILED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 36-37

[Article, published under the heading "Marching in the Vanguard," by Col Ye. Besschetnov: "Reliable Bond"]

[Text] A full-faced colonel of above-medium stature, with alert eyes and a friendly smile, walked into the regimental commander's office, where officer-leaders had gathered. Everybody turned toward him, impatiently waiting for him to speak. Party member Col V. Pavlyukov headed the flight safety service. His responsibilities included checking the flight operations schedule and checking the clearance of crews to fly scheduled training sorties. Always courteous and well-mannered, he would become harsh and implacable in case of violations of flight service regulations.

After listening to a report on preparations for flight activities, Pavlyukov proceeded to study the schedule in detail. His face suddenly took on a stern expression.

"Well, is something wrong?" the commanding officer anxiously asked.

"Unfortunately, yes. Major Chelnokov has not flown for quite some time...."

"Yes, it has been a while. He was off studying."

"And yet he is immediately scheduled for a high-altitude flying technique check ride."

The commanding officer shrugged his shoulders: "Chelnokov is a highly capable pilot. He has a 1st class rating. As you know, he has always done a good job on his training sorties...."

"But at the moment this will be difficult for him. He should be given the opportunity to reestablish his skills under simpler conditions. After that a difficult training flight can be scheduled."

The office fell silent. Everybody knew that the flight safety service chief's opinion was the final word. Whatever he said was the way things had to be.

He would not unnecessarily carp on things, nor would he play excessively safe. There was nothing they could do but alter the schedule.

Concerned with ensuring flight safety, Colonel Pavlyukov proceeds primarily from the national interest. Vladimir Vasil'yevich has great integrity and is distinguished by a strong sense of responsibility for the assigned task. At times his demandingness is not to the liking of some. But the conflicts which arise are always resolved peacefully, as they say. And an important role in this is played by Colonel Pavlyukov's extensive knowledge of flying. He has a great many years of experience.

Vladimir Vasil'yevich has been in military aviation for more than 30 years. After graduating from military pilot school, he served as an aircraft second in command, and subsequently as an aircraft commander. For a long time he headed a detachment, served as squadron deputy commander, pilot-inspector, and regimental chief of staff. He served in a line unit and at the same time was enrolled in academy correspondence study. He received his college-level diploma and assignment to this garrison, in his present position, at the same time. Several years ago he became the outfit's first pilot to become a military pilot-expert marksman. He has logged about 7,000 hours in the air.

Today Vladimir Vasil'yevich cannot imagine his life without aviation. Here he has found his true calling. And yet one might say that he became an aviator by chance. In Orel the Pavlyukovs lived fairly close to a DOSAAF flying club. After talking the matter over with his parents, Vladimir enrolled. Upon terminating his flying club activities (at that time he received his secondary-school diploma), he had definitely decided to devote himself to aviation.

He has permanently retained warm feelings toward his first instructors in the flying club -- Nikolay Ivanovich Pokhal'chuk and Leonid Nikolayevich Shelagin. Sincere and responsive individuals, totally dedicated to the progress of their students, they awakened in him a love of the flying profession and helped him choose a career path. His instructor at military pilot school had been Leonid Pavlovich Rybko, a thoughtful and serious individual, totally and enthusiastically dedicated to training and indoctrinating his students. It was from him that Vladimir received that fitness and toughness which helped him stand up to his first serious test.

He had taken off in a Yak-18 with pilot cadet Moskal'chuk. They had just climbed out and leveled off when the engine proceeded to shake, a condition which proceeded to worsen. What should they do? They shut down the engine and, selecting a suitable site, made an emergency landing in a field. Squadron commander Hero of the Soviet Union Maj M. Fedoseyev investigated in detail the particulars of the incident. Highly praising the actions taken by the pilot cadets, he commended them and stated with conviction: "Since you passed this test with flying colors, you will have a long and safe flying career!"

His words proved to be truly prophetic. Vladimir Vasil'yevich has been flying without such incidents ever since. Perhaps there is not a single pilot in the

outfit who is his equal in level of expertise. It is for good reason that V. Pavlyukov is usually given the most difficult assignments.

...The mission called for conducting reconnaissance in an area located thousands of kilometers from the base. V. Pavlyukov's crew was preparing thoroughly for the mission. Experiencing a particularly strong feeling of responsibility, Vladimir Vasil'yevich focused great attention on covering all elements. He was especially concerned by the coordination procedures with his second in command during midair refueling. They rehearsed and coordinated every step. In the meantime highly proficiency-rated specialists navigator V. Trubnikov and second navigator Sr Lt D. Druzhinin thoroughly and carefully performed the navigation computations, figuring in different variations. The aircraft commander chose a time to check the preparedness of radio operator WO S. Yurkin, WO A. Kucherov, commander of the aircraft's guns, and the other crew members. In the meantime flight technician Capt Tech Serv V. Yerokhin, whom he had briefed, was supervising the ground maintenance team in inspecting the condition of the long-range bomber prior to departure on a maximum-range mission.

They took off before nightfall. Several hours into the flight the aircraft, which was flying in clouds, was wreathed in the darkness of night which had been advancing from the east. They were cruising at a high-altitude flight level. By morning the fuel tanks were reading low. But accomplishment of the principal mission still lay ahead. The crew refueled in midair en route....

After taking tens of tons of fuel into the aircraft's tanks, they continued the flight. Conducting reconnaissance in the distant area, the aircrew performed with precision, composure, and flawlessly. They brilliantly performed the difficult, important mission. The crew received praise.

Incidentally, Vladimir Vasil'yevich mastered midair refueling more than 15 years ago. He generously shares his experience and know-how with others. Flying as an instructor, he has taught many officers to perform this operation. And, quite frankly, it is no simple operation.

Maj V. Sirotkin was to master midair refueling. His level of training performance was fairly high. He was a military pilot 1st class and himself instructed young military pilots. It would seem that working with him would not be particularly difficult. In actual fact, however, things worked out differently. When V. Pavlyukov tested his knowledge, he ascertained that he had a good grasp of theory but had not mastered practical procedures, relying on his past piloting experience, although in-air refueling contains significant peculiarities. Vladimir Vasil'yevich explained to the pilot the potential consequences of inexactitude in refueling procedures. He helped him learn and master the proper procedures in detail, including the peculiarities of midair refueling. They practiced a great deal, endeavoring to avoid the slightest errors. The painstaking work produced results: Maj V. Sirotkin successfully mastered the skills of midair refueling.

Pavlyukov also worked patiently and thoughtfully with Lt Col Yu. Chernyak. The latter now performs refueling procedures with confidence and teaches them to his men.

For many years now Vladimir Vasil'yevich has been a member of the political section party commission, in charge of matters pertaining to ideological indoctrination of young aviators. His portrait can be seen at the garrison officers' club, on a display stand entitled "Our Finest Officers." Flattering comments and praise do not go to his head. He remains modest and unaffected. We proceeded to discuss the effectiveness of the work done by the officers of the service he heads. Vladimir Vasil'yevich reported that results were gratifying -- for a long time there have been no air mishaps or gross errors leading to near-mishap situations. He gives the credit for ensuring flight operations safety primarily to the commanders and his assistant, Engr-Lt Col V. Yershov. He stressed their high degree of professionalism, innovative activeness in accomplishing assigned tasks, thorough knowledge of their job, and party-minded firmness....

"With such assistants one can successfully accomplish any and all tasks," Vladimir Vasil'yevich added.

"Haven't you also made a contribution?"

"Let others talk about that...."

His colleagues and superiors unanimously spoke of the remarkable human and party qualities of Col V. Pavlyukov and his painstaking work to improve the men's proficiency. Maj Gen Avn A. Osipenko, in particular, stated: "An excellent pilot. He flawlessly executes sorties involving the most complex categories of combat training, and he teaches others these techniques. Without exaggeration, all our command personnel and many aircraft commanders have 'passed through' his hands. One can scarcely exaggerate the credit Vladimir Vasil'yevich deserves for accomplishment of combat training tasks."

Party member V. Pavlyukov faithfully serves the homeland. His son Boris also received his commission, is assigned to an air defense missile school, teaches and indoctrinates vigilant sentries of the Soviet skies. Sr Lt B. Pavlyukov is highly respected in his unit.

There is a term used in long-range bomber aviation, "stsepka" [coupling]. It signifies the main condition, without which it is impossible to hold solid contact between aircraft during a refueling maneuver. But for Vladimir Vasil'yevich Pavlyukov it also has another meaning: solid unity between a person and his military unit and its missions. He himself firmly maintains this bond in his daily life and work. His thoughts and actions are subordinated to a single goal -- to make the greatest possible contribution to the common success of his military aviation comrades.

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1958 FLOOD HITS SATELLITE TRACKING STATION

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 40-41

[Article, published under the heading "Into Competition," by B. Pobedinskiy: "In Spite of the Elements"]

[Text] The veterans at the command and control center still remember the winter of 1958. It brought a great many problems for the people at the taiga facility situated on the bank of the mighty Yenisey.

The snow kept coming down. People were having trouble clearing the paths between buildings. And on that day in February it was necessary in addition to prepare a landing strip on the surface of the frozen river. We were in luck. By noon the weather improved and the snow stopped falling. Soon a strip was clear, and we heard the distant rumble of an aircraft motor. Several minutes later an An-2, touching down with a couple of bounces, rolled almost the entire length of the strip and came to a stop.

The aircraft was carrying the chief of the command and control complex, the Center, as we called it. A few days back he had received an alarming report from the local weather service: they were expecting the facility to be flooded when the river rose in the spring. The flood peak (and this was particularly alarming to everybody at the Center) was predicted for the latter half of May. But launching of the third man-made Earth satellite was scheduled precisely for that time. With the aid of this satellite we were planning to obtain data on the composition and density of the upper atmosphere, on the ionosphere, the magnetic field and shape of our planet, meteoroidal particles and intensity of solar corpuscular radiation. In short, we would be elucidating those parameters of near-earth space without knowledge and consideration of which it was impossible to determine in a scientifically substantiated manner the directions, methods, and means of subsequent investigation of the universe. The workforces at scientific research institutes and design offices, the launch center and the command and control complex had been working hard in preparation for the forthcoming launch. Sergey Pavlovich Korolev was personally supervising preparations for this new stride into the unknown.

A. Vitruk flew in to help ready the facility for the flooding and to coordinate actions between officials at the facility, local authorities and

organizations. A flood-fighting commission was designated, which drew up a specific plan to combat the problem. Its final provision read: "In spite of the flooding, all personnel and equipment must be ready to work with object D (this was the designation by which the third satellite was referred to in documents at that time -- B. P.) and to conduct the mission strictly on schedule."

This was the first and perhaps the worst winter the recently-arrived facility personnel had experienced. The extremely cold weather held everything in a frozen embrace. It was even necessary to preheat the special arctic diesel fuel before pouring it into engine fuel tanks: the cold congealed it to a jelly-like consistency. There was pitch darkness 18-19 hours a day, with blizzards and piercing winds -- a real East Siberian winter. Strange as it seems, however, talk about difficulties ceased when they began efforts to combat the flooding. It was as if the people had stopped noticing the difficulties. Everybody worked, moved by a common goal -- the forthcoming launch.

By the end of April the plan drawn up by the flood-fighting commission or, more precisely, the preventive part of the plan, was completed: they had erected a tall log trestlework structure, on which they securely mounted the steerable antenna arrays, guyed masts on the antenna fields with additional bracing wires, laid down backup internal communications and power supply lines, securely bound together with wire and "sewed" to the ground fuel drums and crates containing various supplies, organized a rescue team made up of the best swimmers and oarsmen, and readied rowboats and a power launch. It would be impossible to enumerate everything that was accomplished in anticipation of the potential calamity by the facility's harmoniously-functioning workforce in slightly more than 2 months of selfless labor.

Women and children were flown by helicopter to a safe location -- a community on the other bank, about 20 kilometers from the facility. Continuous radio communication was established with that settlement.

At a general meeting they made final determination of those persons responsible for each area of the flood combating effort and refined details of the forthcoming handling of the satellite in conditions of a natural disaster. The discussion was businesslike and in detail.

"The men and equipment are ready," stated chief engineer V. Sazontov. "I propose the following: during the flooding nobody abandon their work stations and consoles. Let's get the work accomplished precisely according to schedule."

"This will not be a brief, bold assault," stated party organizer P. Losyakov, a combat veteran from the war, "but a battle lasting many days. The Communists and Komsomol members will not let you down!"

Launch day for the world's first space laboratory arrived. On 15 May the taiga facility received transmissions from the satellite. They were working precisely as scheduled.

"The third Soviet artificial Earth satellite is conical in shape," the TASS report was broadcast over the radio, "with a diameter at the base of 1.73 meters and a height of 3.75 meters, not including the projecting antennas. The satellite weighs 1,327 kilograms...." This was 15 times as heavy as the first satellite!

"...Satellite surveillance and receiving of scientific information and trajectory telemetry data are being handled by specially designed and built scientific stations equipped with a large quantity of electronic and optical devices...."

"They did not forget about us," the people at the taiga tracking station proudly exclaimed.

And on the banks of the Siberian river that for which they had worked so hard preparing commenced. On 21 May the tracking station site was hit by floods of water. The water level was rising rapidly due to an ice dam which had formed about 50 kilometers downstream: the ice had broken up completely along the upper and middle reaches, while the river was still icebound to the north, along the lower reaches. Chunks of ice, flowing from the south, were impacting against the edge of the ice jam and plunging under it. A dam as high as a 15-story building had built up.

Every day they were working with the satellite, and each new day brought new concerns and alarms. Within 72 hours the water was lapping at the bases of the radar arrays mounted on the trestlework. But they were operating flawlessly and on schedule. The equipment was giving no problems whatsoever. Nor did the water take unawares the specialists working in the flooded technical building. They switched over the units, carried them up to the loft level one at a time, and continued standing their unusual watch, without a communications interruption.

The team leader was V. Lavrovskiy, a combat veteran who had taken part in liberating from the fascists the city of Gzhatsk -- the home town of the world's first cosmonaut. Vladimir Vladimirovich, a modest, composed individual of few words, very sensitive and alert, was an example of cool composure and courage for the younger people.

The people at the Center nervously and impatiently waited for each report coming in from Lavrovskiy. The telegraph tape kept bringing the same words: "...Water level continuing to rise...." Fearing for the lives and health of the people and the safety of the unique equipment, the Center sent the following instructions to the "sinking station": "If people are in danger, you are authorized to switch off all equipment except for communications with Center and to terminate work with object D."

The facility chief showed the tape to the party organizer.

"Let's confer with the men," the latter suggested.

The order from Center, without commentary added by the local authorities, was broadcast over the public-address system at all stations and at all work areas

at the facility. There was silence for several seconds, followed by tired but firm voices: "We'll keep working!"

"We resolved not to abandon our work stations...."

"...Regardless of floods," someone mirthfully added.

They reported to Center: "We shall continue working stop." The telegraph tape bearing this message was passed from hand to hand. The people at the Center were proud of their comrades at the distant taiga station.

The following morning the local weather service informed Lavrovskiy that the water level had started to drop. The elements were in retreat!

The taiga tracking station did not interrupt a single communication session with the satellite. Jumping ahead, I shall note that the accuracy of the telemetry measurements performed by the intrepid specialists under such incredibly difficult conditions was acknowledged by the ballistics experts at the Center to be among the best in the entire system.

"Good men," they rejoiced at the Center, reading the brief telegraph message: "Water dropping. No casualties. Continuing to work according to program. Lavrovskiy."

His name is spoken with respect at the command and control center even today, more than a quarter of a century after those events. Incidentally, this is not surprisng. The slogan "Nobody and nothing has been forgotten" has become a law governing our lives. This statement has become a catchword, first uttered by Ol'ga Berggol'ts in Leningrad under siege, and directed toward the heroes of a brave military exploit. But I believe these words can also rightly apply to heroic deeds, labor and scientific, accomplished in peacetime as well.

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CABLE-COUPLED ORBITAL VEHICLE SYSTEMS ANALYZED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 43-44

[Article, published under the heading "Problems of Astronautics," by Doctor of Technical Sciences V. Ivanov: "Cable Systems in Space"]

[Text] Judging by reports in the press, the attention of specialists is becoming increasingly drawn by the problem of utilization in earth orbits of cable-connected systems of orbital objects. In their opinion employment of such orbital cable-joined systems will make it possible more efficiently to solve certain specific problems and conduct orbital operations connected with controlling the motion of objects in space. The fact is that the most unexpected spacecraft motion conditions can be secured with a suitable selection of initial motion conditions, linking characteristics, as well as change in length of cable during flight. For example, a small radial impulse applied to the lower satellite in a bundle will lead not to its transfer into a new orbit but to cable unwinding under the effect of connection reaction. A "dumbbell" is formed, with satellites at its ends.

We shall discuss bound or coupled motions in greater detail. Let us examine the simplest case, where cable length remains unchanged, while the bundle center of mass travels in a circular or close to circular orbit. Three states of motion can be distinguished here.

The first corresponds to bundle stable steady-state motion with constant bundle orientation to the local vertical. Both objects describe circular trajectories. The angular velocity of the center of mass is equal to orbital velocity. The second corresponds to bundle oscillations relative to the local vertical. The third is characterized by rotational motion of the orbital cable-bound system around its center of mass, with periodically changing angular velocity.

Stable motion of the bundle with a constant radial positioning of its objects (or with slight oscillations of these objects relative to the local vertical) will make it possible to accomplish several tasks. Usually stated as the most important of these is investigation of the upper layers of atmosphere utilizing equipment lowered by cable to altitudes of 100-150 km. As we know, at these altitudes a satellite's life runs several hours, while a sensing

probe lasts even less. Employment of a bundle, however, in the opinion of experts, will increase by two orders of magnitude the duration of probing of the upper layers of the atmosphere. If one compensates for aerodynamic drag, however, the sensing run will increase to an even greater extent. It is advisable to apply thrust to the upper vehicle in the bundle, since this will result in decreased energy expenditures.

Very close to the above is the task of testing models of various airborne/spaceborne craft suspended on a cable. Employment of such a natural "wind tunnel" possesses a number of advantages over terrestrial testing.

Orbital cable systems may prove to be highly promising for producing artificial gravitation. The well-known method of creating artificial gravity by rotating a toroidal vehicle requires very high angular velocity. For example, in order to obtain an acceleration of several tens of cm/s^2 with a vehicle diameter of 50-60 m, it must be rotated at an angular velocity of not less than $0.15^1/s$. It exceeds orbital angular velocity 100-fold in magnitude.

Employment of a cable-bound system, however, will make it possible to solve the problem much more simply. The magnitude of artificial gravity in this instance will depend on the length of the linking cable and the angular velocity of rotation of the system on its center of mass. For example, in order to obtain an acceleration equal to tenths of terrestrial gravitational acceleration with a cable length of 100 km, a very small angular velocity of system rotation will be required. It increases substantially as cable length shortens, and for l=20 km will be 5 times as much as the initial value, and at l=1 km it will be 25 times as much. Thus in order to obtain an acceleration equal to tenths of terrestrial gravitational acceleration with a cable length of 10-20 km, the system must rotate on its center of mass at a velocity exceeding circular orbital velocity by a factor 5-15.

Such devices can also serve as sources of electric power for orbital stations. We shall recall that an electromotive force is generated when a conductor moves in a magnetic field. A similar phenomenon is observed in a cable made of a conducting material moving at high velocity in the Earth's magnetic field.

Calculations indicate that in low orbits such a system can generate a voltage of up to 200 volts per kilometer of cable length. Such a generating unit will have an output power of 8-33 kw. There are some problems here, however.

When a conducting cable is in motion in the Earth's magnetic field, an electrodynamic braking force will be operating on it. Its magnitude will be 3-10 H for low orbits with the above cable length. As a result the altitude of the orbital station will decrease by from 1.5 to 5 km every 24 hours. This braking can be compensated for with a propulsion motor burn.

Also of interest is the idea of using cable-bound bundles to establish space radio communications systems. In this instance the cable will be an antenna. A special electronic device will be attached to it, which is switched on and off at the required frequency. The generated low-frequency radio emissions

propagate along ionospheric channels, extending practically over every part of the Earth. Such a system will make possible global radio communications with a simple transmitter with its own power supply.

A cable-bound system can also be of practical significance for execution of interorbital and local maneuvers. The former are accomplished both by the continuous action of coupling reactions on each of the vehicles in the system, and by uncoupling the bundle with the vehicles transitioning to free flight. Local maneuvers are executed with a rigid coupling of the vehicles. By altering the length of the cable according to a specific principle, and selecting the parameters of this principle and the initial conditions of system motion, one can execute various interorbital and local maneuvers, such as loitering of cable-coupled vehicles in a certain circular region. In this instance each will travel in quasi-elliptical orbits confined between two concentric circles. Coupling reaction leads to a continuous change in the parameters of the vehicles' motion.

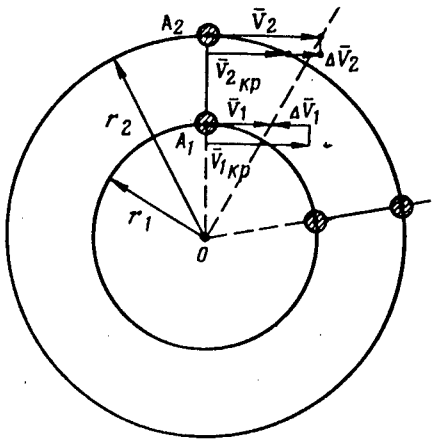

Figure 1.

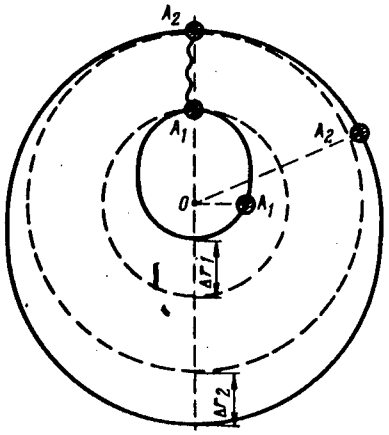

Figure 2.

Independently of the cable motion pattern, the trajectory of the center of mass remains Keplerian, that is, a free-flight trajectory. When one vehicle travels downward in relation to the system center of mass when the cable unwinds, the other must travel upward. The orbital angular velocities of the vehicles and the system center of mass are equal thereby. This signifies that one vehicle is traveling downward at a slower velocity than at the system center of mass, while the other vehicle is traveling upward at a greater velocity. Thus one of them is executing a maneuver of increasing altitude with increasing velocity, while the other is descending with a decreasing velocity.

The coupled system can be deployed in such a manner that its subsequent motion will take place in an equilibrium steady state. This signifies that the cable system is always oriented on the local vertical, while both vehicles are traveling in circular trajectories at an identical orbital angular velocity (Figure 1). Linear velocity V_1 of the lower vehicle is less than circular

orbital velocity V_{1ci} for the given altitude, while linear velocity V_2 of the upper vehicle is greater than circular velocity V_{2ci} for its flight altitude. If the vehicles have an identical mass and the cable length is 100 km, an equilibrium steady-state flight is possible. The radii of the vehicles' circular trajectories are equal to r_1=6,800 km and r_2=6,900 km respectively. The velocity of the lower vehicle proves to be less than circular orbital velocity by Delta V_1=83.1 m/s, while that of the upper vehicle is greater than circular orbital velocity by Delta V_2=84.1 m/s. If the vehicles are disconnected at a certain moment (Figure 2), each of them will transition to free flight in an elliptical orbit.

The position of the lower vehicle at the moment of disconnection will correspond to the apogee of its new orbit. The radius of the perigee will be 6,513 km. Thus the decrease in altitude in relation to the initial circular trajectory will be Delta r_1=287 km, and the altitude of perigee will be 142 km. Of course the satellite will very soon enter dense layers of atmosphere and transition to a descent trajectory. The position of the upper vehicle at moment of disconnection will correspond to the perigee of its new orbit. The radius of its apogee will be 7,214 km. Consequently the increase in flight altitude will be Delta r_2=314 km. Thus when the system is uncoupled, each of the vehicles executes an interorbital maneuver with a significant change in flight altitude.

One can employ similar interorbital maneuvers during deployment of a cable-coupled system with subsequent disconnection of the system's vehicles to adjust the flight trajectory of an orbital station. Upon each return to Earth, the transport vehicle initially descends from the orbital system on a cable, and subsequently separates. The orbital station shifts into a higher orbit. The possibilities are intriguing. They include first and foremost savings in fuel to compensate for station aerodynamic drag and transport craft descent from orbit. And since this is the case, by reducing the on-board fuel supply, it will be possible to increase orbital station payload.

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3024
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INTERNATIONAL SPACE SYMPOSIUM HELD IN DUSHANBE

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 5, May 84 (signed to press 4 Apr 84) pp 44-45

[Article, published under the heading "Space Program in the Socialist Countries," by V. Lyndin: "Space Serving Peace"]

[Text] There was a feeling of excitement in the passenger cabin of the aircraft in which we were flying to the capital of Tajikistan, for the grandeur of the Pamir Mountains, whitened by a mantle of eternal snow, could hardly leave anybody indifferent. Miroslaw Giermaszewski roused himself and pressed his face to the window. Bertalan Farkas and Georgiy Ivanov were engaged in spirited conversation, pointing toward the mountains. Sigmund Jaehn was explaining something in detail to his fellow countrymen. The imperturbable Maydarzhavyn Ganzorig, Mongolian backup cosmonaut, peered intently at each mountain range.... After all, they had gotten a good look at this region when they were training for a space mission. The crews of orbital stations train here, above the territory of the Tajik SSR, above the mountains and valleys of the Pamir, and it is here where they practice and rehearse methods of investigation of Earth resources from space. And the Pamirs contain many minerals. Oil and gas, coal and nonferrous metals are produced here, and mineral fertilizers are produced from local raw materials.

A diversity of natural conditions and an abundance of features to observe have made Tajikistan a convenient site not only for training cosmonauts. During orbital missions it is used as a test area, a unique reference standard in studying other regions of the planet. It is therefore not surprising that a branch of the Priroda State Scientific Research and Production Center has been established in the capital of the Tajik SSR. It was chosen as the site of an international symposium in November 1983, to discuss the results of studying Earth resources from the Salyut 6 orbital station as part of the Interkosmos program.

Our airplane landed at Dushanbe airport as dusk was falling. The warm southern evening seemed particularly pleasant after Moscow's snowdrifts and biting wind. But the reception organized by the hosts for the symposium participants was even warmer. Boys and girls dressed in colorful national costumes performed folk dances, drawing the space heroes into their circle. Pioneers presented bouquets of flowers to the visitors.

The symposium was opened by V. Novichkov, first deputy chairman of the Tajik SSR Council of Ministers.

A report was presented by Yu. Kiyenko, general director of the Priroda State Center. He discussed the principal results of the Earth resources investigations conducted on board the Salyut 6 station, noted the contribution by each country participating in the Interkosmos Program, and stressed the great economic significance of this research both for each country, performing its own national tasks, and for the entire socialist community.

Frequently subsequent international crews, on the basis of an agreement between countries, have continued research begun by their predecessors. Soviet cosmonauts have performed a large volume of work. As a result of carrying out the comprehensive Earth resources research program (in the mission documentation this program was called the "Biosphere" experiment), scientists and specialists from the nations of the socialist community have received for analysis 60,000 unique images taken from space, as well as a great many spectrograms, drawings, and mission log entries.

Cosmonauts undergo special training in order that they can work more efficiently in orbit, for when you know what you are supposed to be looking for, it is much easier to spot the target object. Cosmonauts Vladimir Kovalenok and Aleksandr Ivanchenkov, for example, were assigned the task of recording extended linear and ring structures. Preparation for the mission was correspondingly organized taking this task into account. They learned to recognize specific natural features from a high-altitude aircraft and compared their observations with photographs taken from orbit. The results of their work in space helped in preparing a map of the southern part of the USSR, on which 71 linear, 28 oval and ring structures appeared.

Of course one cannot directly see mineral deposits from an orbital station. But the structure of the Earth's crust, which a terrestrial observer cannot see, is visible from space. As an illustration, when we examine from close view a picture painted in large brush strokes, we see only brush marks; it is difficult to say anything definite about its content, while from a distance the entire composition is clearly visible.

Pilot-Cosmonaut USSR twice Hero of the Soviet Union A. Filipchenko discussed experience in training international crews to conduct Earth resources studies from the Salyut 6 orbital station.

On Salyut 6 experiments in Earth remote sensing were conducted with the Soviet KATE-140 topographic camera, the MKF-6M multiple-zone photographic unit, developed by specialists in the USSR and GDR, the Bulgarian Spektr-15 manual spectrophotometer, Praktika-EE2 and Pentakon-6M hand cameras, plus other equipment.

Since many branches and sectors of the economy are waiting for specific recommendations from the Earth remote sensing, the results of observations and measurements from space are periodically compared with counterpart studies made at different altitudes. Aircraft and ground or marine expeditions

furnished with the same equipment, working in the same spectral regions, obtain imagery of the same area simultaneously with the orbital station and unmanned satellites. Five such synchronous or quasisynchronous experiments were conducted during missions by international crews. This is making it possible to improve the methods of conducting investigations from orbit and to refine errors introduced by the Earth's atmosphere as well as the orbital station's interior atmosphere and viewing ports.

Reports presented by Bulgarian scientists dealt with taking into account the influence of the atmosphere in spectrometry of the Earth's surface, as well as future prospects for path-strip spectrometric studies with utilization of amassed experience.

Participation by Hungary in Earth resources investigations has sharply activated development of remote sensing methods in that country. Hungarian scientists have quickly succeeded in obtaining substantial results, which were reported at the symposium.

Equipment built in the GDR did a fine job on the Salyut 6 and Salyut 7 stations. Experts from the GDR discussed at the symposium a new fully automatic camera (the Praktika-B200, which holds a 400-frame film supply. It was designed and built to replace the well-known Praktika-EE2 camera. Although 35 mm hand-held cameras do not have the resolution of the large fixed-mount units, they are more effective in routine observations, since they do not require preliminary station orientation and do not need to be rigidly held in a specified position. These questions and the results of remote sensing of the GDR from space were examined in detail in papers submitted by scientists from the GDR.

One might wonder what modern space research can offer livestock raisers. Mongolian scientists have reached the conclusion that space hardware can be used to study the productivity of grazing land and to determine the content of biomass on grazing land.

Polish scientists presented at the symposium a comprehensive map of their country's natural resources, prepared with the aid of space imagery. Scientists in Poland have been working for a long time on Earth remote sensing from space, and it is therefore not surprising that practical utilization of space methods in the republic's economy has attained a high level.

Scientists from Bucharest presented a paper on results of studying Romania's natural resources from the Salyut 6 station.

Czechoslovakia is a small country with well-developed industry and agriculture. Every square inch of its territory has long since been studied. And Czechoslovak scientists selected as the main focal thrust of their efforts in the area of Earth remote sensing investigation of its deep-lying structure. Results have not been slow in coming; space methods have proven their effectiveness here as well.

A number of new oil and gas deposits have been discovered in our country with the aid of satellite imagery, including in such densely populated regions as

the Ukraine, Belorussia, and Bashkiria. Soviet scientists also reported on studies of the ocean, ocean currents, deep waves, and on observations of tropical cyclones and typhoons.

A paper presented by the Tajik SSR Academy of Sciences was listened to with great interest. In spite of the fact that mining in the Pamirs dates from deep antiquity and that attempts to provide a scientific substantiation for mineral prospecting can be found in the writings of Avicenna, the region's natural resources have not been adequately studied to date. Satellite imagery is rendering an inestimable service in this regard.

Comprehensive study of glaciers has been conducted for the first time in the Pamirs. Observations from space have indicated that there exist in actuality more glaciers than had been believed. And glaciers mean water, which means life in this arid region. On the other hand, however, they represent a source of natural disasters. The Medvezhiy Glacier, for example, periodically blocks meltwater. A lake forms, which eventually forces its way through the ice and heads in a torrent into the valley below. Glaciers live a complex life. Advancing rapidly, they demolish roads and power transmission lines. "Tongues" can separate from them, which subsequently grind to a halt and melt intensively. The glacier proper retreats after this. In the last 25 years, for example, the Sugran Glacier has retreated 5 kilometers.

Unquestioned interest is aroused by observations of volcanoes and seismically active regions of the Earth, as well as attempts being undertaken to predict earthquakes.

More than 30 papers were presented at the symposium on various aspects of utilization of satellite-obtained data in studying Earth resources and the environment.

While the symposium was in session, another crew of Earth investigators from space ended their orbital tour of duty. Vladimir Lyakhov and Aleksandr Aleksandrov returned to Earth following a 5-month mission in space. Investigation of our planet's natural resources occupied a significant place in the scientific work program carried out on board the Salyut 7 station. They photographed and took spectrometric measurements of an extensive area of the USSR at medium and southern latitudes, gathered up-to-date information on the status of farmlands, and photographed certain areas of the GDR, Poland, Czechoslovakia, Hungary, Bulgaria, Romania, Mongolia, and Cuba.

The symposium organizers not only created conditions for fruitful work by the participants but also acquainted them with sites of interest in Tajikistan and organized a tour of Dushanbe and a visit to the republic's Exhibit of Economic Achievements. A trip to the Nurek Hydroelectric Power Plant made an unforgettable impression.

We departed from Dushanbe in the morning, before the sun had risen from behind the mountains. The aircraft taxied out to the runway. Takeoff roll, liftoff, and the aircraft climbed out into a cloudless sky. Just as we had done several days previously, we turned to the windows, but this time to bid the mountains farewell.

The Pamirs are called the Roof of the World. Although its peaks are not the world's highest, nevertheless the Pamirs have proven to be closer to space than all other ranges, as a training area for cosmonauts and as an object of continuous observation from orbit. A peaceful base for peaceful work in space.

Academician S. P. Korolev, under whose supervision the world's first man-made satellites, spacecraft and boosters were designed and built, stated: "Space is for science, for peaceful purposes alone, for the benefit of man, who is tirelessly seeking to discover the innermost secrets of nature -- this is the path along which Soviet space research has been evolving and has been conducted." At that time the Interkosmos Program was not yet in existence, but today we are fully justified to add to his words: "...And the space research conducted by the other brother nations of the socialist community."

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U.S. ADVANCED NONNUCLEAR WEAPONRY DESCRIBED

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[Article, published under the heading "Imperialism -- Enemy of Peoples," by Doctor of Technical Sciences and Professor Engr-Maj Gen D. Gladkov: "For Aggression and Brigandage"; based on materials published in the foreign press]

[Text] U.S. military doctrine is grounded on postulates formulated by the U.S. founding fathers: military force is the principal and ultimate means of settling disputes in the area of foreign policy, the "final arbiter"; the United States is not an ordinary country but rather an exceptional nation, the likes of which has never before existed. "Only if we are strong will we be able to make the choice between peace and war," asserted one of the country's founders, A. Hamilton.

These imperial pretensions on the part of U.S. ruling circles continue today to be a point of departure for revising U.S. military strategy in the direction of giving it an even more militant and militaristic character.

Anticommunism and anti-Sovietism comprise today the political essence of the Pentagon's notions and doctrines. Since the Reagan Administration came into power, the White House has attached paramount importance to them and aggressively utilizes them throughout the entire spectrum of political, economic and international relations.

The present U.S. Adminisrtation conducts its policy under the slogan "crusade against communism." This policy is most vividly embodied in the new military strategy adopted by Washington, which the U.S. secretary of defense has characterized as a strategy of "direct confrontation" with the Soviet Union on a global and regional scale. It is of an openly aggressive character and presupposes the resolute utilization of military force as a principal means of achieving a worldwide dictate. Proceeding from this doctrine, the Pentagon has revised a number of previous points of doctrine in the area of conduct of war, utilization of armed forces in war, and future directional emphases in armed forces organizational development. This doctrine emphasizes preparation both for nuclear and conventional warfare.

U.S. military and political leaders are inclined to the notion that in present-day conditions the increased effectiveness of weapons systems will enable armed forces to accomplish their assigned missions by employment solely of conventional weaponry. Therefore current U.S. military doctrine, alongside accelerated development of strategic forces, specifies preparation of that country's armed forces to conduct combat operations without the employment of nuclear weapons. It is believed that a conventional war will be of a protracted nature and will require considerable manpower reserves and expenditure of resources.

In particular, the decisions of the NATO Eurogroup meeting held in Brussels at the end of last year are directed toward implementation of these planning points; under the pressure of U.S. representatives, the defense ministers of the majority of the NATO countries agreed to a substantial increase in conventional arms in the European zone already in 1984. For example, there will be a further increase in the number of aircraft fielded by the United States and the other NATO countries, by bringing on-line approximately 300 of the latest-model F-15, F-16, Tornado, A-10 and other aircraft and by equipping them with the most up-to-date weapon systems. We should note that the air forces of the NATO countries are currently armed with the most diversified weaponry, including guided and unguided bombs, missiles and rockets of various sizes and designation. These include Mk-series conventional aircraft bombs and cluster bombs ranging from 250 to 2,000 pounds, Walleye, GBU-series and other guided aircraft bombs (UAB), and Maverick, Shrike, Martel, AS-30L, Exocet, Harpoon and other air-to-surface guided missiles (UR), equipped with various types of guidance systems. The majority of these weapons have been put to the practical test in recent years in local conflicts in Southeast Asia, the Near East, and the Falkland (Malvinas) Islands.

In this connection we must note that local wars unleashed by imperialism, in addition to achieving political aims, are utilized in full measure by ruling circles in the imperialist countries, the United States in particular, as a proving ground on which specific weapon models are tested in a combat environment in various geographic conditions, and directions to be taken in their further improvement are determined.

In particular, for example, we might mention the development of what is called in the foreign press "vacuum"-type high explosive aircraft bombs. In place of the usual condensed explosive, they are filled with a high-energy readily-evaporating liquid or liquefied gas. The bomb consists of a case, filling, bursting charge, secondary igniter, parachute system, and fuze. At the moment of ground impact the filling is scattered with the aid of the bursting charge, evaporates and, mixing with air, forms a fuel-air mixture (TVS) cloud, the size of which depends on the size of the bomb. It may be as large as several tens of meters in diameter. At the moment the secondary igniter fires, high pressure in the order of 20-30 atm forms in the cloud. This pressure level is sufficient to demolish most targets. In addition, objects outside the boundaries of the blast zone may be damaged to a distance of several tens of meters by the effect of the blast wave formed from the overpressure in the cloud proper.

Fuel-air mixture can flow into trenches, emplacements, open entrances, chinks and cracks in buildings, shelters and combat equipment. Therefore the effectiveness of such munitions is significantly increased with a certain delay from the moment the cloud forms to its detonation, by spreading of the fuel-air mixture and its explosion inside the target structure. Such aircraft bombs were employed by the Americans in Vietnam and the Israeli aggressors in Lebanon in the summer of 1982.

Cluster munitions are another type of weapon. In the opinion of foreign experts, these munitions make it possible sharply to increase the effectiveness of aerial bombardment weapons. These weapons consist of small cluster munitions (submunitions), the canister in which they are contained, and a control device. There are a number of reasons for the widespread employment of these weapons abroad. Large-caliber munitions have a nonuniform lethal area, namely: at short distances the energy released when they burst is excessive, deliberately exceeding that required to demolish the target, but at relatively short distances this energy is insufficient. This attests to the fact that the blast energy of large-caliber munitions is expended inefficiently against the majority of targets. As munitions become smaller, the percentage share of blast-generated energy expended directly on demolishing the target increases. Therefore, by placing a large number of small munitions in a canister and ensuring suitable distribution over the terrain, foreign experts believe that the lethal area can be substantially increased.

According to reports in the foreign press, foreign countries, the United States in particular, have developed a large number of small cluster-type munitions capable of destroying a large range of targets -- from personnel to solidly-constructed fixed-site installations. BLU-26 ball-bearing cluster bombs gained considerable notoriety. Such a bomblet weighs only 0.5 kg, and when it explodes approximately 300 steel balls scatter at high velocity, with lethal effect. Placed in a cluster-bomb canister in large numbers (up to several hundred), these bomblets can create a lethal area of up to 40-50 hectares when dropped from a single aircraft. Plastic-case bombs fall within this same category of munitions. Their fragments are practically impossible to detect in a victim's body, even by X-ray examination. The civilian population of Vietnam, Laos, Kampuchea, Lebanon, and other countries suffered a great deal from these munitions during aggression conducted by the imperialist nations.

According to reports in the foreign press, in recent years, especially following the U.S. aggression in Southeast Asia, the United States has devoted considerable attention to development of airborne mine-dispensing systems. These systems are a variation of cluster munitions, in which mines of various function are dispensed as cluster munitions -- antipersonnel mines, antitank mines, trip flares, etc. In the opinion of military experts in the capitalist countries, in many instances they help accomplish various combat missions with less manpower and resources in comparison with other direct-effect munitions. More than 10 models of cluster-type mines were developed in the United States in the 1960's-1970's, for example. The most widely-used of these include the 30-gram BLU-43 antipersonnel blast-type mine (consisting of a soft plastic body filled with liquid explosive, attacking the victim's foot) and the 0.47

kg BLU-42/B and BLU-84/B antipersonnel fragmentation mines (they have several wires, contact with which triggers the mine; victims are struck by a large number of small fragments).

It is well known that the U.S. Air Force extensively employed airborne mine-dispensing systems in Vietnam, with the objective of canalizing troop actions in concentration areas and along routes of movement, as well as to disrupt the functioning of various installations. In view of the small size of the mines, especially antipersonnel mines, and the great difficulties involved in detecting and disarming them, their employment inflicted considerable casualties. They also claimed large numbers of victims among the civilian population.

Experience in combat operations in Vietnam, especially actions directed against such targets as bridges, hydroelectric power plant dams, levees, etc, brought U.S. military experts to the necessity of designing and building guided aerial bombs (UAB). They combine the characteristics of guided missiles (UR) and unguided aircraft bombs, which ensures a relatively high target accuracy and a high percentage of the total weight represented by the explosive charge.

As foreign experts have noted, the early models contained serious deficiencies: poor jamming resistance and weather limitations -- they could be employed only in daylight, with good visibility. For example, even the simplest techniques (producing a light haze by igniting bonfires) led to a significant decrease in the effectiveness of guided bombs in Vietnam. In addition, their employment was restricted to short release distances (in the order of 2-4 km), which compelled the aircraft to approach close to the target and sharply increased the possibility of destroying the delivering aircraft by air defense weapons sited around the target.

Improving and perfecting this type of weapon, its designers proceeded to develop new homing heads/seekers (GSN) and to extend weapon range. The GBU-17/B guided bomb is a graphic example. It has a selection of interchangeable target seekers of various types, which give the bomb bad-weather capability. The bomb's gliding distance varies in relation to release altitude and can be as much as 70 km.

Reconnaissance-strike systems are extensively employed for the purpose of increasing effectiveness of conventional weapons on the battlefield and at tactical defense depth, achieved by accurate measurement of coordinates determining the location of enemy targets and by reducing the time from moment of detection to strike. These systems include a ground control facility, one or two reconnaissance aircraft, and strike weapons. The latter can include conventional-warhead surface-to-surface missiles or tactical aircraft.

The principle of operation of the reconnaissance-strike system consists in the following. Reconnaissance aircraft, carrying the most advanced electronic and other intelligence-collecting gear, fly over friendly troop dispositions in the immediate vicinity of the line of contact, collect information on the situation on enemy-held territory to a depth of 200-300 km, and continuously transmit this intelligence to the ground control facility. It processes this

information and provides precision guidance of strike weapons to the discovered enemy targets.

The United States is counting to a certain extent on satellite hardware for increasing effectiveness of employment and expanding the combat capabilities of conventional weaponry. It is reported in the foreign press, for example, that plans are in the works to use signals from the NAVSTAR satellite navigation system to guide conventional-warhead glide bombs to fixed-site and previously-reconnoitered targets. U.S. strategists believe that this will make possible massive employment of guided bombs and ensure high accuracy of delivery to the target.

The above is a far from complete list of programs and projects in the area of conventional arms being conducted by the United States and its NATO bloc partners. Even the above brief list shows, however, that immense resources are required to carry them out, resources which in the budgets of the imperialist powers are in fact being allocated at the expense of reduced appropriations for social needs. More and more people are becoming aware of the increasing danger of the aggressive aspirations of the U.S. imperialists and their allies. Protest is swelling throughout the world against further escalation of the arms race, both in nuclear weapons, which threaten the very existence of life on our planet, and conventional weapons, the lethality of which is increasing significantly year by year.

The Soviet Union is consistently implementing the long-term Peace Program formulated at the most recent CPSU congresses. At the same time we are also forced to devote adequate attention toward increasing this country's defense capability, in order to guarantee not only our own security but that of our allies as well.

In these conditions the main task of USSR Armed Forces personnel, as formulated in the speech by USSR Minister of Defense MSU D. F. Ustinov, member of the CPSU Central Committee Politburo, at the unified political education day at the central offices of the USSR Ministry of Defense on 11 November 1983, is to maintain a high degree of vigilance and to improve training and combat readiness of the USSR Armed Forces.

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