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JPRS 81374

27 July 1982

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USSR Report

MILITARY AFFAIRS

No. 1691

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27 July 1982

USSR REPORT MILITARY AFFAIRS

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CONTENTS

MILITARY SCIENCE, THEORY, STRATEGY

Development of Soviet Armed Forces Discussed (A. Babakov; SOVIET MILITARY REVIEW, Jun 82).....	1
Importance of Massing Troops, Materiel for Battle Discussed (V. Yaremko; SOVIET MILITARY REVIEW, Jun 82).....	7

MINISTRY OF DEFENSE AND GENERAL STAFF

Yepishev Addresses Znaniye Congress (A. Yerishev; KRASNAYA ZVEZDA, 8 Jul 82).....	9
--	---

ARMED FORCES

Ideological Basis of Moral and Combat Qualities (G. Karneyev; SOVIET MILITARY REVIEW, Jun 82).....	15
Emulation: Principles of Organization (S. Nurullin; SOVIET MILITARY REVIEW, Jun 82).....	18
Defense of a Town (Z. Zotov; SOVIET MILITARY REVIEW, Jun 82).....	22

GROUND FORCES

Test of Company Team-Work (V. Popov; SOVIET MILITARY REVIEW, Jun 82).....	27
German Source on Tank Development, 1950-1980 (R. Hilmes; SOLDAT UND TECHNIK, May 82).....	30

AIR DEFENSE FORCES

Tactical Training Exercise for Air Defense Command Post Crew Discussed (V. Garnov; SOVIET MILITARY REVIEW, Jun 82).....	56
---	----

NAVAL FORCES

Commander of Large ASW Ship 'Skoryy' Profiled (V. Chupakhin; KRASNAYA ZVEZDA, 27 Mar 82).....	60
Admiral Tells of Need for Developing Boldness in New Ships' Captains (V. Selivanov; KRASNAYA ZVEZDA, 8 Apr 82).....	62
Desired Personal Characteristics of Ships' Captains Discussed (KRASNAYA ZVEZDA, 18 Apr 82).....	66
'Skoryy' Sails for Mediterranean Sea (K. Burkovskiy; KRASNAYA ZVEZDA, 29 Apr 82).....	69

PERCEPTIONS, VIEWS, COMMENTS

Commentary on Western Theories of Causes of War (N. Khmara; SOVIET MILITARY REVIEW, Jun 82).....	72
U.S., NATO Policies in Mediterranean Basin Criticized (V. Yefremov; SOVIET MILITARY REVIEW, Jun 82).....	77

MILITARY SCIENCE, THEORY, STRATEGY

DEVELOPMENT OF SOVIET ARMED FORCES DISCUSSED

Moscow SOVIET MILITARY REVIEW in English No 6, Jun 82 pp 11-13

[Article by Col A. Babakov, Cand. Sc. (History), under the rubric "Military Theory": "Leninist Principles of Development of the Soviet Armed Forces"]

[Text]

WHEN the Great October Socialist Revolution triumphed in 1917, the young Soviet Republic was confronted with the task of creating the military means to defend the people's achievements. V. I. Lenin, leader of the proletarian revolution, produced a doctrine on the armed defence of the Socialist Homeland in which he gave a scientific substantiation of the socio-political content and just character of wars in defence of working people's achievements and set forth the ways and forms of defending the new-born socialist state. Lenin's ideas were of fundamental importance in formulating the aims, tasks, and content of the Soviet Republic's army and the principles governing its development.

The Leninist principles of development of the Soviet Armed Forces are scientifically substantiated propositions and conclusions verified by practice, which determine the line pursued by the Communist Party of the Soviet Union in guidance of society, its defence and the relations between the army and the state authorities. They reflect processes that actually take place in objective historical reality. Their purpose is to ensure the unity of the Soviet Union's entire military establishment so that its development will conform to the laws governing the historical process and the character of modern warfare. The social and class essence, character and specific features of these principles are determined by the nature of the socialist system, its economic, scientific, technological and cultural basis.

The Leninist principles for the creation of a socialist army have successfully stood the test of time. The Soviet people's victories in the Civil War and against the foreign military intervention in 1918-20 and later in the Great Patriotic War against the Hitler bloc in 1941-45 convincingly proved that there is no force in the world that

could crush socialism and reverse the course of history.

Today, conditions inside the USSR no longer requiring the maintenance of armed forces, their existence and development are determined, to a decisive degree, by the balance of military-political forces in the world, by the character and acuteness of the threat of war from imperialism and by the USSR's international commitments.

The supreme principle of Soviet military development is **guidance of the Soviet Armed Forces by the Communist Party**. This follows from the leading role the CPSU plays in the life of Soviet society as the core of its political system, a role which is acquiring mounting importance, by the character and specific features of the USSR's defence measures and the historical purpose of a socialist state's army and by the advantages of the socialist system which should be effectively used for the preservation of peace. The Party deals with the military tasks in keeping with the Soviet people's basic interests. These have been formulated in the Party's key documents, such as the Programme of the CPSU, decisions of Party congresses and Central Committee plenary meetings. The status of the Armed Forces is legislatively consolidated in the Constitution of the USSR.

The role of the Communist Party Central Committee and its Politbureau in the development of the army and navy is of cardinal importance. Their decisions on military matters are executed through bodies of state power — the USSR Supreme Soviet and USSR Council of Ministers, and in the event of war through extraordinary Party-state bodies set up for the period of armed struggle. And it is the top state and military leadership that is immediately responsible for the execution of the tasks of developing the Soviet Armed Forces.

The principal task of the CPSU in this field is to coordinate all economic, socio-political, military-technical, educational and purely military measures in order to maintain the USSR's defence capacity and combat readiness of its Armed Forces at a level ruling out the possibility of an unrequited attack of an aggressor on the USSR or any other countries of the socialist community.

The **class and Party principle** reflects the socio-political nature of the Soviet state and its army, the leading and guiding role of the working class and its Party in society. All the measures for the country's defence, for the improvement of the army and navy are carried out in conformity with the CPSU's general line of communist construction, strengthening of the positions of the forces

of peace, democracy and socialism in the international arena and of fulfilling its internationalist duty to the peoples fighting for their national liberation and social emancipation.

This principle is implemented through political, organisational and educational work in the masses which enables the people and the personnel of the army and navy to realise the great humane mission of socialism in history, and the sacred duty to defend socialism against any possible aggression by imperialist powers. This ensures the avowed class character of the Armed Forces, unity of Party and military guidance, selection and appointment of leading personnel in the military establishment on the basis of their political qualities and general efficiency, and effective functioning of a ramified network of political organs and Party organisations in the Armed Forces.

The moral-political cohesion of Soviet society is manifest in the principle of **the unity of the army and the people**. V. I. Lenin wrote that a socialist army "is not divorced from the people, as was the old standing army, but very closely bound up with the people." With the building of advanced socialist society the Armed Forces of the USSR have become forces of the whole people. They rely on the Soviet people as a new historical international community.

The unity of the army and the people is expressed in the participation of army and navy personnel in the country's socio-political life, in the assistance servicemen render to the people in accomplishing many vital economic tasks. Army and navy units maintain very close and constantly developing contacts with local government and Party bodies and public organisations.

The Soviet Armed Forces are also built on the principle of **socialist internationalism**. Representatives of all nations and ethnic groups in the USSR serve in them, sharing equal rights and duties. V. I. Lenin wrote that all military forces should be rallied into "a mighty international Red Army." The supreme expression of internationalism is joint defence of socialist achievements by the working people of various countries.

The present military-political cooperation between the fraternal socialist countries within the framework of the Warsaw Treaty Organisation and bilateral treaties of friendship, cooperation and mutual assistance has enabled the CPSU and other Marxist-Leninist parties to work out joint measures for coordinating economic, political, diplomatic and defence efforts.

In developing the Armed Forces of the USSR the Party takes account of the country's economic level and potential, the condition of its transport

system, scientific and technological achievements, size and composition of the population, its geographical position, the equipment and weaponry of the armies of potential enemies and other factors.

Knowledge of these factors provides the basis for the organisational principles to be implemented in developing the Soviet Armed Forces. Proceeding from these principles the army and navy are supplied with the latest equipment and weaponry, their organisational structure and control system are improved, the fighting services, fighting arms, special forces and services are developed harmoniously. These principles serve as a guide in recruiting and stationing forces, in material and technical supply, in building up manpower reserves and mobilisation stores, in training and educating servicemen, and maintaining units and ships at the required level of combat readiness.

The organisational principles of the Soviet Armed Forces are implemented in keeping with the theory and methodology of Marxism-Leninism, the laws of natural, technological and social sciences, including the science of war, and also in keeping with practical requirements. These principles are based on the tremendous possibilities opened by the achievements of the scientific and technological revolution combined with the advantages of mature socialism. The CPSU closely coordinates its military-technical policy with economic strategy. In doing so the Party concentrates the main effort on economic development and improvement of the Soviet people's living standards. However, at the same time it develops and improves the material facilities for the USSR's defence potential, for providing the army and navy with the latest equipment and weaponry.

In conformity with Lenin's reminder that policy must be formulated taking into account the historical conditions, the Party and Government develop the Armed Forces on the principle of maintaining a **standing, regular army**. At present when there is a danger of imperialism unleashing general or local wars, the armed forces are supplied with highly sophisticated and costly equipment and weaponry. In these conditions the maintenance of standing, regular Armed Forces recruited on the basis of universal military service has acquired decisive importance.

The Soviet Army and Navy have been formed on the principle of **harmonious and balanced** development of all their elements. As a result, the best structure of the fighting services and arms has been worked out and is maintained to meet the requirements of modern warfare, the level of military technology, the quantity and quality of weapons and economic potential of the country.

The need for constant improvement of the army's and navy's structural elements, differentiation and specialisation developing within them are taken into account. This helps elaborate the most effective methods for strategic, operational-tactical employment of the Armed Forces, methods of coordination and cooperation and raises the proficiency of the personnel in the handling of new weaponry and combat equipment.

Another principle of the Armed Forces is **centralism and one-man command**, which ensure effective control of the forces. The top command echelon bears complete responsibility for the state of the armed forces and the effectiveness of measures for their development and combat training. Centralism is combined with the existence and strengthening of collective control bodies, such as military councils in the higher operational and strategic organisational elements of the army and navy. As V. I. Lenin put it, this system forms a very strong aspect in the organisational structure of the forces. It implies that all formations are subordinated to central military-political bodies, the supreme command and their respective commanders.

The emergence of new weapons has laid special emphasis on the principle of **constant combat readiness** of the Armed Forces. Its observance calls for a streamlined organisational structure of the forces, and planned, intensive combat training of servicemen, creative enrichment of Soviet military art, improvement of the level of field and air training and seamanship, the development of high morale in the servicemen, and their provision with political knowledge and development of the psychological qualities, intellectual abilities and physical fitness essential in battle.

In working out their policy in the military field and implementing the above principles the CPSU and Soviet state take into account the complicated international situation, the tensions existing between the two social systems and the aggressive ambitions of the USA and NATO. The Western powers have launched another round of the arms race to develop and produce newer weapons of mass destruction. The plans for deploying new medium-range nuclear missiles in the West-European countries constitute a grave threat to

peace. Imperialism is responsible for the emergence of centres of military conflicts in various parts of the world. Having circulated another myth about a "Soviet military threat" the aggressors have been building up the striking power of the armed forces of the countries in the imperialist military blocs.

The CPSU has carefully analysed the change in the balance of social class forces in the world and has duly appraised the trends and prospects in imperialist preparation for war. The Soviet Union does not seek to secure military superiority or to upset the balance of military forces that has taken shape in the world today. However, it cannot indifferently watch the efforts of the NATO militarists. It has been forced to take additional measures to develop the army and navy. The USSR's military policy consists essentially in ensuring effective defence and nothing more. The Soviet Union has never engaged in armament for the sake of armament, it never has and never will instigate the arms race.

Being an ardent advocate of reduction of armaments and armed forces the USSR has advanced, in the postwar period alone, over 100 constructive proposals to this effect. Its purpose has been to ensure peace. The Soviet Union has broached the historic task of preventing the outbreak of world war and ruling war out of the life of society as a practical undertaking. It is actively working to curb the strategic arms race and to establish the principles of peaceful coexistence. This effort has made it possible to break the tragic cycle of the past, when peace was only a respite between destructive global wars. This is one of the most impressive results of world development since the rout of fascism. It has confirmed the soundness of CPSU policy in developing the Armed Forces, its effectiveness and fruitfulness.

The implementation of Lenin's principles in building up the Soviet Armed Forces has paved the way for their expedient improvement. The experience the USSR has accumulated in military development is of outstanding importance. The fraternal socialist countries and the working people fighting for their national liberation and social emancipation study it and apply it to their practical needs.

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CSO: 1812/129

MILITARY SCIENCE, THEORY, STRATEGY

IMPORTANCE OF MASSING TROOPS, MATERIEL FOR BATTLE DISCUSSED

Moscow SOVIET MILITARY REVIEW in English No 6, Jun 82 pp 14-15

[Article by Col V. Yaremko under the rubric "Combat Training, Massing Men and Equipment"]

[Text]

THE PRINCIPLE of massing men and equipment still occupies a leading place in the defeat of the enemy. It consists essentially in the fact that in order to win one must not disperse one's men and equipment evenly along the entire frontage. Most of them are concentrated in the most important direction or sector and at the required time. In the secondary directions one can limit oneself to minimal forces. The direction in which massing is carried out is also the direction of the main blow. The issue of the battle depends to a decisive degree on how skilfully it has been chosen. The choice of direction is determined first of all by purposes of the battle and the situation. The most advantageous direction in the offensive, for example, is considered to be the one which allows the attacking subunits to reach the most vulnerable places in the enemy defences, whose capture would violate their stability. Such decisions are usually taken when combat actions are carried out with the use of conventional weapons only.

Terrain is the most important factor in selecting an objective for massing men and equipment. It must ensure massive use of the most diverse types of weapons and equipment and favour broad manoeuvre.

In a word, when choosing the direction on which concentrate the main effort, one must take into consideration the character of the terrain and its trafficability. Underestimation of this factor can lead to undesirable consequences. Here is a case in point.

A reinforced motorised infantry battalion, pressing home the attack, approached the key positions of the "enemy" FEBA, where it was stopped by organised fire. In order to penetrate the defences and exploit the success attained, the battalion commander Captain S. Ryabov decided to concentrate the main effort in the direction of the limiting point of two "enemy" strong points. However, the battalion's first attempt to break down the resistance of the subunits in defence failed. Some tanks and APCs were put out of action by antitank fire and the rest got stuck in a marsh.

In the practice of combat training one comes across quite a few cases when the direction of the main blow is chosen in almost inaccessible areas unfit for broad use of various combat equipment. But the commanders take chances for the sake of achieving surprise and success along with it. True, the massing of men and equipment under such conditions entails great difficulties.

Extremely indicative is the skillful choice of the direction of the main blow in almost inaccessible regions made by Lieutenant-General P. I. Batov, Commander of the 65th Army, in the Bobruisk offensive operation.

On the face of it the most advantageous direction in which it would have been expedient to deliver the main blow was the direction in which the terrain made it possible to use all arms of the service without exception and in great numbers at that. However deep analysis of the situation led the Army Command to the conclusion that here it was impossible to expect a rapid movement of the forces because all the dominating hills were held by the enemy, and the density of fire weapons was high. On the other hand an attack on marshy ground favoured achievement of surprise, though it involved great difficulties, particularly for the tanks and artillery. Nevertheless it was decided to deliver the main blow through swamps and marshes. This turned out to be the shortest way to achieve victory in the operation.

Not the least of the factors determining the choice of this or that direction for massing men and equipment is also its capacity and accessibility, i.e. that it should permit a constant increase in the power of blow and an advance at high speed throughout the entire depth of the mission.

In the defensive the massing of men and equipment is mainly carried out in areas where an enemy blow is expected. In this case it is important to reveal the enemy intentions in good time in order by a resolute manoeuvre to seize initiative, strike a telling blow at the enemy and finally achieve the set objective.

A certain time is needed to concentrate men and equipment in the chosen directions. This may last

from several minutes to several days. All depends on the situation, the character of enemy actions, the scale of massing and the mobility of the forces.

During World War II the build-up of forces and equipment took many days and even weeks. This was due to the necessity to bring up and disperse large masses of troops unnoticed in the immediate proximity to the front line. The speed of movement of infantry units and subunits did not exceed 4-6 km/h.

In present conditions, because of the greatly increased combat capabilities of the forces and their greater mobility, the massing of men and equipment is carried out considerably quicker.

During the war it was typical to concentrate great numbers of infantry, tanks and artillery and to achieve a manifold superiority in manpower. In the Berlin offensive operation, for example, up to 270 artillery pieces and mortars, over 80 tanks and 50 rocket launchers were used per one km of the breakthrough sector. In other words, the Command staked on numbers. Today the accent in the principle of massing has shifted from the quantitative to the qualitative side. This is based on the possibility to use new, extremely powerful and long-range means of struggle in battle, superiority over the enemy being achieved first of all by concentrating powerful fire.

Due regard for the combat situation and, first and foremost, the character of probable enemy actions plays an exceptionally important role in carrying out the principle of massing men and equipment. If, for example, the enemy concentrates the main effort within the limits of the forward edge and organises a powerful antitank defence there, it is obvious that the main link of his

defence is antitank weapons, without whose destruction one cannot count on success. Proceeding from this, the massing of men and equipment is carried out in such a way that it is possible, first of all, to reliably destroy the enemy antitank fire system and then, increasing the power of the blow, to press home the attack and to achieve victory.

The main content of the commander's decision is the intention, which defines the direction of the main blow and the battle order. In it the way of realising the principle of massing men and equipment first takes shape.

If during the breakthrough of the defences the attackers, instead of exploiting the success attained, let themselves be carried away and begin to destroy the remaining enemy groups (a matter of minor importance) and thus scatter their forces, they will not fulfil their mission.

At a tactical exercise a Mts Inf Bn advancing in the direction of the regiment's main attack was assigned the mission to break through the "enemy" defences and capture an important road junction. When the defences were broken through, the battalion instead of rapidly advancing into the depth, concentrated the main effort on destroying the "enemy" in a company strong point. As a result the specific mission was fulfilled, but the battalion did not achieve the purpose of the offensive by the set time.

On the battlefield the right to choose the place, time and method of concentrating the main effort of the forces belongs to the commander. To carry out successfully the principle of massing forces he must possess high tactical skill and perfect knowledge of the enemy's tactics and armament and the possibilities of own forces.

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MINISTRY OF DEFENSE AND GENERAL STAFF

YEPISHEV ADDRESSES ZNANIYE CONGRESS

PM141153 Moscow KRSNAYA ZVEZDA in Russian 8 Jul 82 p 2

[Unattributed report: "Training Steadfast, Devoted Defenders of the Motherland. Speech delivered by Army General A. A. Yerishev, chief of the Soviet Army and Navy main political directorate, at the Eighth Congress of the all-union Znaniye Society"]

[Text] Comrade Delegates!

The warm greeting of the CPSU Central Committee and the high appraisal of the Znaniye Society's noble activity raise to a new level the work of our congress, which is an important event in the life of scientists, of the multimillion-strong army of the Soviet Intelligentsia carrying the party's word to the working masses, of the large detachment of military lecturers and propaganda workers, and of the entire Agitprop Aktiv of the Soviet armed forces.

The entire work of the congress is cogent evidence of the increased influence of the Znaniye Society on the fashioning of a scientific world outlook, an active life position and the high ideological, political and moral qualities of Soviet people, including army and navy servicemen. While fulfilling the functions of enlightenment and education by the methods characteristic of it the society at the same time plays a considerable organizational and mobilizing role in the implementation by the Soviet people of the historic decisions of the 26th CPSU Congress and the party Central Committee May (1982) plenum.

While resolving the creative tasks in accordance with the programmatic guidelines of the 26th CPSU Congress, our country is at the same time having to wage an intense and difficult struggle to preserve peace in conditions of a complex international situation, growing confrontation [protivodeystviye; literally: opposition, counteraction] and overtly hostile actions on the part of imperialism's most aggressive forces.

The bellicose forces of imperialism, primarily the United States and the other NATO countries, are attempting a frontal attack on the world of socialism. They are trying to undermine the prevailing military-strategic equilibrium, to attain military superiority over the USSR and the Warsaw Pact countries and thereby to achieve the possibility of dictating their will to other states and peoples.

The anticommunism and anti-Sovietism of the reactionary circles of the imperialist states--primarily the United States--and also of their accomplices make the danger of war the grim reality of our time. In these conditions our party and state are making energetic efforts to curb the arms race and overcome international tension, and are persistently struggling to implement the peace program for the eighties advanced by the 26th CPSU Congress.

Convincing evidence of this was provided by the important new initiatives advanced by the Soviet Union at the UN General Assembly's second special session on disarmament. In his message to the session Comrade L. I. Brezhnev said, on behalf of the 269, million-strong Soviet people, that the USSR pledges not to be the first to use nuclear weapons. This truly historic step by our state has met with a broad response and ardent approval throughout the world.

But how was it met by the leaders of the imperialist states, possessing nuclear weapons, and primarily the United States? In his speech at the session the U.S. president not only did not respond to this initiative but crudely attacked the USSR's peace-loving foreign policy. Attempts are being made in the West to distort the essence of our proposals and to disorient public opinion. In other words, it is obvious that in words--and even more so in their practical deeds--the imperialists are not about to abandon their bellicose doctrines and plans. And this makes it incumbent on us to draw the appropriate conclusions in the interests of ensuring high vigilance and maintaining the country's defense capability at the required level.

It is well known that the modern Soviet armed forces are a complex organism replete with weapons and combat equipment, an organism which demands not only physical effort and increased psychological stresses but also the maximum coherence and high discipline of all categories of servicemen. For today it is usual for pilots to be in the air for many hours on end at the controls of a missile-carrying aircraft and for sailors to be at sea for months.

Our soldiers--missilemen, pilots, antiaircraft gunners--perform their combat duty around the clock, in constant readiness to repulse an aggressor's attack at any minute. Our soldiers and officers who are fulfilling their international duty demonstrate steadfastness, endurance [Vyderzhka; can also mean: self-control, self-restraint], self-possession and selflessness. The Soviet army and navy are a genuine school of courage, valor and heroism, fashioning in young people the high moral and combat qualities of the defender of the socialist fatherland.

As Comrade L. I. Brezhnev stressed at the 26th CPSU Congress, a social fusion of a high level of technical equipment, martial skill and indestructible morale--such is the combat potential of the Soviet armed forces. The sons and grandsons of the heroes of the great patriotic war already stand in the ranks of the motherland's defenders. They have not undergone the grim trials which fell to the lot of their fathers and grandfathers. But they are true to the heroic traditions of our army and our people, and whenever the interests of the country's security or the defense of peace require it, whenever the victims of aggression need help, the Soviet serviceman stands before the world as a selfless and courageous patriot and internationalist, ready to overcome any difficulties.

In fashioning the high moral and combat qualities of servicemen the army makes a great contribution to the general cause of the ideological-moral, military-patriotic and international education of the country's young generation. Not for nothing do Soviet people call our army a nationwide university through which the absolute majority of the country's male population passes.

Thus what we have is the increasingly active inclusion of army and navy service, as an important factor of education, in the overall system of the molding of the Soviet man, the patriot and internationalist. This is helped by the further improvement of ideological and political education work in the armed forces, and here the lecturers of local party committees and of Znaniye Society organizations provide great assistance for commanders and political workers.

Recent years have seen a considerable strengthening of the ties between the society's organizations and the life of units and ships. Znaniye Society lecturers are well known not only centrally but also by the servicemen of remote border district garrisons and by servicemen who are performing their difficult military service beyond the frontiers of our motherland. In its turn, there is increasingly active participation by military lecturers and propaganda workers in agitation and propaganda work with the population, in labor collectives at enterprises, on kolkhozes and sovkhozes and among youth audiences at vuzes and schools.

The years which have elapsed confirm that the Znaniye Society has carried out considerable work in the sphere of the propaganda of military knowledge and the heroic-patriotic education of young people. There has been an increase in the number of lectures given on this topic by all categories of lecturers, including those from Znaniye Society military sections, which unite in their ranks a great army of great patriotic war and Soviet armed forces veterans.

Allow me from this platform, on behalf of the USSR Defense Ministry and the Soviet Army and Navy main political directorate, to express heartfelt gratitude and good wishes for success in their honorable and noble work to strengthen our motherland's defense might to all lecturers and propaganda workers!

Forms of work with young people such as universities of military knowledge, clubs for the future serviceman, lecture bureaus of patriotic education and many others are becoming increasingly popular. Propaganda of the glorious revolutionary, combat and labor traditions of the Communist Party, the people and the armed forces has been stepped up in connection with preparations for the 60th anniversary of the USSR's formation.

Soviet people's increased level of education, culture and informedness is making increasingly high demands on the skill of the lecturer, on his knowledge, erudition and competence. The all-union Znaniye Society is working in conjunction with the Soviet army and navy main political directorate and the USSR Dosaaf Central Committee to train lecturers specializing in problems of military-patriotic education by organizing regularly with them representative meetings and seminars which enjoy acknowledged authority among the propaganda community.

The increase in the role and significance of military-patriotic education in our time is dictated by many factors, including the increased danger of war on the part of imperialism and the aggravation of the ideological struggle in the international arena. The need for unremitting attention to these problems is also conditioned by the presence of those unexploited opportunities and the omissions and shortcomings which exist in this sphere.

Over 37 years have elapsed since our victory in the great patriotic war. New generations have grown up in these years. They do not know what war is. And this is a great boon and good fortune, comrades! Peace is for them, the young people, the normal state of society. But some of them think that the preservation and consolidation of peace does not demand special efforts from them personally. Moreover, in lecture propaganda the struggle for peace is sometimes presented without any profound revelation of the class content of wars at the present stage and of the aggressive essence of imperialism. For this reason, elements of unconcern and indifference, of underestimation of the real danger of war and the threat of possible war can be found among a certain section of people.

But does not the everyday international reality, which is complex and contradictory, really provide us with more than sufficient grounds for inculcating in Soviet people, especially the rising generation, an intensified sense of vigilance and personal responsibility for the fate of socialism? Look at the facts of today: Persistent hotbeds of military conflagration in various parts of the globe, the outrages of the Israeli military in long-suffering Lebanon, Britain's colonialist ambitions in the south Atlantic, the overtly bellicose and anti-Soviet course of the current U.S. administration. All this makes it incumbent on us and on every Soviet person to be inconstant readiness to defend the motherland, readiness to fulfill with honor and dignity our patriotic and international duty.

Yet in the activity of some of our lecturers and propaganda workers the social, class content of patriotism is sometimes muffled, and the chief and determining factor--love for and devotion to our socialist motherland and the readiness to defend it--is examined inadequately. To love the motherland and concern oneself with its security means to strengthen its economic and defense might. Clearly there are still considerable opportunities and reserves for improving the work of military-patriotic education, primarily with young people.

In this connection it is expedient, in our view, to intensify propaganda of the Marxist-Leninist teaching on war and the army and the defense of the socialist fatherland and of the concrete steps of the CPSU and the Soviet state to defend peace and curb the champions of a new war. It must be noted as a positive example that much is being done in this direction by military philosophers together with the USSR philosophical society. The close ties between them and their collaboration makes for highly fruitful work. In our opinion there is a need to propagandize even more actively the social role of the Soviet armed forces as a factor of peace and the people's security, as the loyal guard over the gains of socialism.

In accordance with the CPSU Central Committee decision it is important to continue in the future to work on the heroic-patriotic education of young people and to make active use for this of the memorable historic dates of the great patriotic war. Quite recently it was the 40th anniversary of the defeat of the German fascist troops at Moscow. Znaniye Society lecturers who are veterans of the battle of Moscow and of the great patriotic war did much to propagandize the heroic feat of our party, people and Soviet servicemen in the defeat of the enemy at Moscow. And ahead are new memorable dates, such as the 40th anniversary of the battles of Stalingrad and Kursk, in which our valiant armed forces covered themselves with everlasting glory.

By referring to the heroism of Soviet people during the great patriotic war the lecturers and propaganda workers are seeking to help their audience, primarily the young people, to be the heirs of the splendid features such as courage, will for victory, inextinguishable love for the motherland and devotion to the party cause which were inherent in the older generation, their grandfathers and fathers.

"It is a great people," Comrade L. I. Brezhnev pointed out in his speech at the opening of the memorial complex in Kiev, "which constantly feels a living link with its history, can draw everything that is best from its historic traditions and make this the property of the present day. This remarkable quality is inherent in the Soviet people in full measure.

Military-patriotic and international education presupposes a resolute and uncompromising struggle against any manifestations of bourgeois ideology. Our class enemies, acting with ever-increasing sophistication and perfidy, are striving to oust from the consciousness of Soviet man, and primarily the young people, the heroic-patriotic ideas, the ideas of loyalty to the revolutionary duty. In this connection great significance is acquired by the fostering in Soviet people and Soviet youth of a class consciousness and a determined and active intolerance of class enemies as one of the main and vital guidelines of their world outlook.

We also cannot fail to take into consideration the fact that, if the imperialists succeed in unleashing a war, it will be of a clearly expressed class and uncompromising nature. Not just the armies but the whole population of the belligerent sides will be drawn into its orbit. In this situation the role of the moral and psychological state of the people and the army and their genuine mobilization readiness will be of special significance. The further elaboration of the problem of moral and mobilization readiness for the defense of the motherland and an understanding of the urgent need for it by every Soviet person require more energetic activity on the part of scientists and the broad circle of lectures and propaganda workers. A great consolidation of efforts is needed on the part of the social scientists of the armed forces and the scientists of related faculties and specialties of the country's vuzes and scientific establishments, and also for the Znaniye Society lecturers and army propaganda workers.

Allow me to wish the congress delegates and the entire Aktiv of the Znaniye and Society new successes in propagandizing the great revolutionary-transforming force of Marxism-Leninism and the growing role of the CPSU in the life of Soviet society--the society of developed socialism--and its constant concern to strengthen our motherland's economic and defense might.

CSO: 1801/290

ARMED FORCES

IDEOLOGICAL BASIS OF MORAL AND COMBAT QUALITIES

Moscow SOVIET MILITARY REVIEW in English No 6, Jun 82 pp 26-27

[Article by Colonel G. Karneyev]

[Text]

THE DEVELOPMENT of high moral and combat qualities in servicemen is a major aspect of strengthening the combat readiness and efficiency of a socialist army. This is because in spite of the rapidity with which modern armies are supplied with qualitatively new weapons, the man expertly handling the equipment was, is and will be the decisive element of an army's fighting strength.

Soviet servicemen's combat and moral qualities are developed by the entire tenor of life in the army and society and by purposeful work carried out by commanders, political bodies and Party and Komsomol organisations in the army and navy. Marxism-Leninism is the ideological basis of these qualities.

Marxism-Leninism is simultaneously the basis of the scientific world outlook and the universal methodology of thinking, cognition, actions and behaviour. As a world outlook, Marxism-Leninism is a streamlined system of knowledge of man and the world surrounding him, based on unity of the component parts: philosophy, political economy and scientific communism. As a methodology, Marxism-Leninism is an instrument of cognition, providing the possibility to obtain true knowledge of the most essential laws of nature and society, an instrument of thinking by the method of transforming reality in conformity with communist ideals, an ideological guide in everyday life. That is why Marxism-Leninism is the ideological basis for forming the moral and, ultimately, combat qualities of the personality.

Proficiency in Marxism-Leninism contributes to develop communist convictions, in which knowledge of the communist ideals becomes the individual's own position. Though these convictions

are also acquired by experience, Marxist-Leninist education completes and consolidates them. Thus, the conviction that communism, which the Soviet people are building, is the most perfect and just social system inspires them with lofty patriotic feeling and becomes a powerful moral factor. At the fronts of the Great Patriotic War (1941-45) it found its expression in mass heroism and unprecedented courage displayed by the fighting men, sons of the multinational Soviet people.

Communist convictions formed by studying Marxism-Leninism are a most effective stimulus for human conduct and actions, to be precise, an ideological stimulus. Once ideas have taken hold of a man's mind and feelings, they compel him to act purposefully in a certain manner, i. e. according to Marx, they become a material force. From thought to action, from assimilating Marxist-Leninist propositions to forming solid moral and combat qualities — such is the sequence in which Marxism-Leninism acts on the personality of a serviceman in a socialist army.

A serviceman's moral and combat qualities are a dialectical unity in which both components are interdependent, at the same time retaining their relative independence.

A serviceman cannot act successfully in conditions often involving risk to his life unless he possesses such moral qualities as fortitude (the ability to bear staunchly hardships and privations for a long time), courage (the ability to risk life in a dangerous situation) and a special spirit of discipline.

Experience shows that a man with firm ideological convictions quickly develops "immunity" against fear, i. e. the ability to overcome it. A serviceman convinced of the righteousness of his cause will not flinch in face of mortal danger.

The Great Patriotic War provided numerous examples confirming this. Here is but one of them. In February 1943, a counteroffensive was being prepared by the Soviet forces. In order to ensure accurate firing at vital targets, Sergeant L. Filippovich, a fire adjuster, was sent to the enemy lines. During the artillery bombardment he supplied the necessary signals enabling the Soviet forces to fire most effectively at the enemy targets. When the nazis detected and surrounded him, Sergeant Filippovich gave our artillery his position and called for fire on himself.

On the other hand, high combat qualities give servicemen confidence in their abilities, boost their morale and enable them to display loyalty to the Motherland with maximum effect and to practise acts of heroism. Socialist society holds in

high esteem people who are ready to sacrifice their lives for the sake of life on earth, for the sake of their near and dear ones. However, it has never approved of gambling with life, courage for the sake of courage, achieving victory at any cost, irrespective of the sacrifices.

To a certain degree high moral qualities can offset a lack of high combat qualities. V. I. Lenin stressed more than once that during the Civil War the Red Army defeated the armies of Kolchak and Denikin owing to Red Army men's self-sacrifices and heroism, though the combat training standard in the Red Army was somewhat inferior to that of the enemy armies. However, it would be a criminal attitude towards strengthening combat efficiency of a modern army to pay less attention to servicemen's combat training, hoping that high moral qualities alone are sufficient for victory in war. All aspects of servicemen's training and education presuppose maximum effort to improve their moral and combat qualities in all their inseparable aspects.

Servicemen's high moral and combat qualities are developed in combat training and political education, and in the everyday discharge of their service duties. It is noteworthy that political knowledge, the Marxist-Leninist theoretical legacy and the decisions of the Communist Party are of great importance for deepening servicemen's scientific outlook, their understanding of their place in society and of their role in defence of socialism and for strengthening their will. This is natural, for the army is a part of the political superstructure and fulfils political functions. It is useless to talk about strengthening the Armed Forces' combat readiness and combat efficiency unless the servicemen understand perfectly the policy pursued by the Communist Party and the Soviet Government, unless they are convinced that this policy is the only correct one and unless they take a class approach to social phenomena.

Servicemen's moral and combat qualities are stable only on condition that the entire wealth of Marxism-Leninism becomes their own spiritual wealth. The Soviet Armed Forces have developed a tried and tested streamlined system of political education, taking into account the degree of preparation of each category of servicemen for studying Marxism-Leninism, its component parts and their individual problems. This system includes Marxist-Leninist studies, Party education and political classes. Certain links in this chain make a thorough study of Marxism-Leninism's constituents (e. g. universities of Marxism-Leninism), others study individual aspects and problems (e. g. groups of Marxist-Leninist studies for officers and political classes). This system is supplemented by active propaganda work in units and

subunits. At present servicemen's ideological education is concentrated on the theoretical problems advanced by the 26th CPSU Congress.

Self-education and the need for constantly consulting the works of the founders of scientific communism play an exceptional role in studying Marxism-Leninism. Independent study of Marxism-Leninism enables students to understand the methodology of scientific approach to the most complicated aspects of social life and scientific criteria in evaluating the various phenomena (e. g. the criterium of class approach to social problems). Firm communist convictions and high moral and combat qualities cannot be developed without independent study of Marxism-Leninism.

Naturally, servicemen's high moral and combat qualities are formed not only in the process of political studies and self-education, but also in everyday life, in contact with other people, which adds to the men's experience and enables them to generalise it.

High moral and combat qualities are formed under the influence of the entire tenor of military service. Unquestioning execution of the requirements of commanders, orders and instructions, the spirit of military subordination, strict discipline and efficiency are an important factor in developing and strengthening servicemen's ideological convictions.

Combat training conducted in conditions closely approximating real battle, a high level of all tactical, special and other training, absence of indulgence and simplification, constant raising of servicemen's field, naval and air training level contribute to develop the necessary combat and moral qualities. Proceeding from the experience acquired during their military service, servicemen become convinced of the correctness of the theoretical propositions and the requirements of the regulations.

To provide conditions contributing to the men's deep understanding of the lofty meaning of service of the Motherland and developing their willpower and courage is a major aspect in instilling in servicemen high combat and moral qualities. Exercises, flights, cruises and special classes not only provide servicemen with knowledge and skills for waging armed struggle, but also help in improving their moral qualities, primarily courage, collectivism and discipline. Active participation of Soviet servicemen in socialist emulation also helps them to develop and improve the qualities essential in modern battle.

Purposeful and persistent mastering of the wealth of Marxism-Leninism and development of high moral and combat qualities on this basis serve the noble purpose of defending the Socialist Motherland.

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CSO: 1812/129

ARMED FORCES

EMULATION: PRINCIPLES OF ORGANIZATION

Moscow SOVIET MILITARY REVIEW in English No 6, Jun 82 pp 28-29

[Article by Colonel Sh. Nurullin]

[Text]

Socialist emulation is a powerful means of educating Soviet people and achieving high labour indicators.

Correct organisation of emulation is possible when account is taken of the socio-psychological laws governing the appearance in people of a conscientious striving to compete in solving everyday tasks, a desire to help one another achieve better results and readiness to share their experience with comrades.

The rules of emulation in conditions of socialism were worked out by V. I. Lenin and outlined in the form of the following principles: publicity, comparability of results and possibility of repetition of advanced experience.

PUBLICITY

Before leaving for the field the missilemen undertook concrete commitments for the period of the exercises. And now the subunit is on the march. At exactly the fixed time the missilemen arrived in the area indicated by the superior commander.

The first successes in socialist emulation became known to the entire personnel immediately. Commanders, political workers, Party and Komsomol activists took care of that. Even during short halts they had time to tell the men about the drivers who had performed their duties well and called on them to follow suit.

The example of the foremost missilemen inspired the rest and gave them a new impetus. The next task in the field exercises — the norm in deploying a subunit — was likewise carried out successfully. The actions of Sergeant A. Borodnin's team, which exceeded the norm by 30 per cent, were especially precise and skilful.

It has become a rule with this subunit, as with others, to make public the results of emulation after every lesson and day of training. The missile-men always know who won in the emulation and who must catch up with the rest in order to fulfil their commitments in time.

Thus, publicity has the function of informing on the course and results of emulation. Due to publicity men assess their achievements and shortcomings and have the possibility to adjust their activities in the necessary direction. Publicity can take any form. It can be verbal announcement of results, broadcasts through local radio facilities, publication of combat leaflets, wall newspapers,

meetings and get-togethers, stands and boards of honour, visual demonstration of real actions, etc.

Units and subunits strive to make the information thematic, that is, not expressed in general terms but objectively measured indicators. Commanders prefer to speak of the men's concrete actions rather than of their marks. It is better for the competitors to orient themselves on actions rather than on marks. Take for example training in firing. If the results of firing were made public by just allotting marks according to a five-point system then a man would know only that he got, say, "4" for carrying out an exercise but not that this "4" was dangerously near to "3" or, vice versa, on the verge of "5."

In the tank battalion commanded by Captain A. Voronenko, during firing exercises a special stand is put up on which mock-up targets are hung, showing visually the number of holes. Gun layers and tank commanders can at once see how closely grouped the hits were or how great the scattering was. In other words it is clear how a man stands in comparison with others who received the same or better marks.

Great significance is attached to criticism of shortcomings and bringing to light slackers parallel with more advanced soldiers. General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet L. I. Brezhnev said that socialist emulation, being creative work of the masses, requires not only active support and encouragement of advanced workers but also exposure of slackers or those who are not sufficiently conscientious. This, he said, must be done publicly and openly.

COMPARABILITY OF RESULTS

The principle of comparability of results is closely linked with publicity. Experience shows that the more often the emulating sides' (men's or military collectives') achievements are compared, the more actively they strive to achieve better results.

In order to carry out this principle indicators for comparing the results of men's activities have been worked out. In one case these indicators characterise the results from the viewpoint of quality (precision of fulfilment, completeness of operation, correct order, confidence and exactitude of actions, etc.) and in another case — from the viewpoint of quantity (volume of work in unit time, rapidity of fulfilment, etc.).

Comparison is more often conducted not by means of marks but by the quantitative and qualitative showings of the activity itself.

...At an exercise in fulfilling the norm for putting on a gas mask the commander gave excellent marks (this mark is awarded for carrying out the exercise in 8 seconds) to four soldiers. But one of them spent 5, the second — 6, the third and fourth — 7 seconds each in putting on a gas mask. Summing up the results of the competition the commander held up the soldier, who had achieved the highest result, as an example and called on the others to catch up with him.

Often organisers of emulation have to solve a rather difficult task: how to compare, for instance, a gun layer with a driver-mechanic, a radio operator with a topographer-geodesist or a driver with a cook, if they are occupied in absolutely different types of activities whose showings cannot be compared?

In many units a system of marks in points for every type of activity is used. For instance, 100 points may be given for excellent fulfilment of combat norms, for good performance — 80 and for satisfactory — 50.

Commanders take into account also moral factors: whether the warrior exerts all his energy in his service, whether he observes the principle of communist morality, what motives guide him when rendering help to his comrades, etc.

...In a cross-country race, emulators A. Sharov and Sh. Mansuradze, finished first chalking at the same time. But the platoon commander, comparing their results, noted the achievement of only one of them, namely Private A. Sharov.

"As you know," he said to the men drawn up in formation, "Comrade Sharov showed poor results in cross-country training. But he trained a lot and displayed persistence. Last month he received "good" in the three-kilometre race and today — "excellent." His emulator Comrade Mansuradze, having achieved a certain success, stopped

in his progress and today only repeated his previous result. If Mansuradze works with the persistence of Private Sharov he will, I am sure, achieve higher results."

REPETITION OF EXPERIENCE

In socialist emulation it is important to note advanced experience and place it at the disposal of all the personnel.

What is advanced experience of combat and political training? It consists of ways and means of mastering weapons and combat equipment, training and education and everything else that ensures high results. Introduction of progressive experience gives the opportunity to advance with greater confidence and to achieve better results in a shorter period of time. In the army and navy great attention is paid to using progressive experience and spreading it in every possible way. Commanders, political workers and Party and Komsomol organisations thoroughly study anything new that appears in the practice of training and education and do all they can to spread and consolidate it.

Discussion of advance experience born in emulation is conducted at official, Party and Komsomol meetings, conferences, political classes, political instructions, etc. Of course it is not always possible to show fully all sources of experience, very often attention is drawn only to the positive and from whom it comes.

Technical conferences on firing and evenings dedicated to exchange of experience contribute to introducing new elements into practice. Foremost soldiers in emulation — accurate shots, best drivers of combat vehicles and experts in equipment and weapons speak at these conferences. Councils on generalising progressive experience function in units and on ships. Staff officers, engineers, technicians and others are drawn into their work.

Platoon agitators dedicate their talks to foremost soldiers and their experience. Wall newspapers and combat leaflets are used extensively.

Meetings of experienced and young servicemen directly at the place where combat equipment is kept is the order of the day. This form is effective because it gives an opportunity to back (on the spot) theoretical calculations with practical demonstration.

Of great benefit are mutual visits of soldiers to units and subunits. This helps them to see with their own eyes ways and methods of work of their emulators and compare achievements.

Thus, publicity, comparability of results and repetition of advance experience contribute to raising effectiveness of socialist emulation and the men's activity in studies and service.

Colonel Sh. NURULLIN

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CSO: 1812/129

ARMED FORCES

DEFENSE OF A TOWN

Moscow SOVIET MILITARY REVIEW in English No 6, Jun 82 pp 48-50

[Article by Colonel Z. Zotov, Cand. Sc. (History)]

[Text]

DURING the Great Patriotic War the Soviet Army gained all kinds of experience in defending towns. Let us examine the main questions connected with this type of combat action.

Organising defences. On the approaches to towns defences were organised as positional ones, while inside towns they were organised on the principles of fortress defence. Leningrad, for example, was surrounded by three defensive lines. The forces holding the first line were in close contact with the enemy. The second defensive line was organised along the railway ring. The third line followed the city's outskirts. The lines were connected by switch positions. The city itself was turned into a fortress and divided in seven defensive sectors.

Defences were organised approximately in the same way in a number of other cities and towns including Odessa, Sevastopol, Kiev and Stalingrad.

In the defensive lines battalion defence areas and company and platoon strong points were organised. They had trenches, communication trenches, log pillboxes, concrete bunkers and armour-protected fire emplacements. Besides, antitank ditches were dug and scarps, concrete blocks, wire entanglements and mine fields installed.

Towns had all-round defences. All blocks and large strong buildings were turned into strong points connected with each other by communication trenches. The walls of houses in which embrasures were pierced were reinforced with sandbags and additional brick-work. Sewer system and communication shafts were equipped as concealed fire emplacements, underground lines as communication trenches and basements as command and medical posts and depots.

Battle formations of units and large units. Divisions and regiments holding defence on the line of the enemy main blow were reinforced with men and equipment and given narrower sectors and defence areas than on the line of a secondary attack.

The battle formations of subunits, units and formations depended on many factors such as composition and numerical strength of own and enemy forces, the length of the front line, character of the terrain, etc. Thus, when defending Odesa in field conditions the defence zone of a division was 20-25 km. It had one- or two-echelon battle formation with all-arms (an infantry battalion) and antitank (an antitank battalion) reserves and an artillery group. Defence areas of regiments were 5-10 km and battalion defence sectors 2-2.5 km in frontage. As a rule, regiments assumed one-echelon battle formation with a reserve (one infantry company). Each regiment was reinforced with an artillery battalion. Infantry battalions assumed one-echelon battle formation. They were reinforced with several antitank guns. Infantry companies defended strong points.

The battle formations of the forces defending Leningrad were different. For example, the 42nd Army, holding defences in the 21-km zone, had four infantry divisions, two of them in the first echelon and two in the second. The divisions held defences in a 10-km zone and had one-echelon battle formation, while infantry regiments had defensive areas with 3-3.5 km frontage and assumed two-echelon battle formation. Quite different was the picture in the 55th Army, which held defences in a 28-km zone and had five infantry divisions. It had a one-echelon operational formation which made it possible for divisions to have relatively narrow zones, on the average 5-6 km. They assumed two-echelon battle formation with two regiments in the first echelon and one regiment in the second echelon. Regiments' defence sectors had 2.5-3 km frontage. The enemy could not break through the deeply-echeloned, strong defences or gain a foothold in the city's outskirts.

Organising a fire system. Experience shows that this depended on the quantity of armament, frontage of the defensive zone, the forces' battle formations and terrain conditions. The characteristic feature of the fire system was that its basis was machine-gun and artillery fire. This was due to the fact that the core of the infantry divisions' defences at Kiev, Leningrad, Sevastopol and other cities were separate machine-gun and artillery battalions occupying solid engineer constructions.

The second peculiarity in organising a fire system was its being prepared in advance not only before the FEBA, but also in the depth of the defences along the most important lines. Fire weapons of the second echelons, reserves, artillery and tanks were used to fulfil this mission. It should be pointed out that the fire system, as a rule, was tied in with engineer obstacles.

The third peculiarity was a tier siting of fire weapons. For this purpose use was made of multistorey buildings and hills, as was the case at Sevastopol. The multi-tier fire made for increased density.

Defence inside towns required constant and high readiness of the fire system. Frequently the sides were divided by a street or a space between houses amounting to a few dozen yards. The slightest delay in opening fire allowed the enemy to rush into a defended objective. The existence of permanent emplacements, log pillboxes, reliable shelters, including some for guns of all calibres and ammunition, made the defences and the fire system more stable.

All these made it possible to create zones of continuous fire of high density before the FEBA and in the depth of the defences.

Organising antitank defences. The Soviet Command always strove to organise deep antitank defences. A characteristic feature in organising antitank defences was a complex use of all available weapons and their massing in tank-threatened directions.

Antitank gun fire was the basis of the antitank defences. In defending a number of cities and towns antitank strong points were organised with the artillery intended for fighting tanks. They were sited within the battalion defence areas as a result of which they were able to cooperate closely with the infantry, tanks and supporting artillery. In a number of cases the strong points were united into a tank-proof area. Experience testified that it was important to have antitank reserves. They were disposed in tank-threatened directions and formed, as a rule, by three lines of deployment in the probable directions of a tank advance, and by strong points in the concentration area.

A system of engineer obstacles including antitank mine fields, fougasses, ditches, dragon teeth, road blocks and barricades played an important role in antitank defence. It was also characterised by great density and depth of engineer obstacles.

Activity of forces. High activity of the forces determines to a great extent the stability of defences. If the battle tactics of units and formations on defensive lines outside a town differed only slightly from those of field defences, in the town itself the differences were considerable. As a rule, fighting in a town was split up into clashes bet-

ween small subunits and separate groups of different composition. Such groups formed the basic tactical unit. The appearance of such groups was quite natural. By no means every organic subunit with its armament, organisation and equipment was suited to defend town installations. Besides, there was no sharply marked forward edge and subunits often had to defend buildings in the enemy rear.

The tenseness of the fighting led to considerable losses in men. The command had to unite the depleted subunits and sometimes even regiments and divisions into independent groups (detachments). Active defence demanded organisation of frequent counterattacks and this led to the creation of assault groups, which subsequently assumed defence of captured objectives.

In Stalingrad, for example, groups numbering from 5-10 to 20-30 men armed with machine guns, antitank rifles, mortars and sniper rifles were detailed to defend buildings.

Close combat was an important peculiarity of the fighting tactics in a town.

When fighting in a building the sides were frequently divided only by a wall, staircase, floor or ceiling. In such conditions close combat was the only way to achieve success. Often it took place in ruins. Such was the case in Stalingrad, where practically all the city buildings were destroyed.

Activity of the defence found its expression in counterattacks, massed artillery blows, constant aimed fire of small arms, and sniper activity. Counterattacks were carried out not only for the purpose of capturing big objectives, but even separate buildings, floors and staircases. Operations of engineer subunits were of paramount importance for the activity of defence. During battles for separate objectives combat engineers dug saps to them and blew them up to clear the way for attacking assault groups.

Wide use was made of manoeuvre with men and equipment. In Stalingrad, when carrying out counterattacks, the Soviet Command massed forces to capture a specific objective. Very often fighting took place at night-time when the enemy did not undertake extensive offensive operations and one need not fear for weakened sectors. Undoubtedly this demanded a concealed concentration of forces.

Experience of organising defences in a town showed that **troop control** here had certain peculiarities. It is rather difficult to exercise control over a great number of separate small subunits and groups (garrisons) and also too complicated to provide communication and organise observation. In these conditions command and observation posts of formations, units and subunits were sited nearer to the forces. The network of observation posts was considerably increased.

It should be underlined that when fighting in a town commanders and men had to display not only courage and resolve but also the ability to act independently in any situation. Of great importance here was Party-political work. Even in the most difficult moments, commanders and political workers, rank and file Communists tried to have talks with the soldiers, to give them the latest news, to explain to them the combat mission and to recommend how to act in particular combat conditions.

The experience of organising defences in a town acquired during the war is still of considerable significance today.

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CSO: 1812/129

GROUND FORCES

TEST OF COMPANY TEAM-WORK

Moscow SOVIET MILITARY REVIEW in English No 6, Jun 82 pp 24-25

[Article by Major V. Popov]

[Text]

UNIT team-work is an indicator of the troops' combat training. Success in battle depends to a great extent on coordination of the personnel when carrying out combat missions.

The most effective ways of testing a subunit's team-work are tactical exercises with field firing. Usually they are preceded by tactical exercises and a tactical and marching drill exercise. The article deals with one such exercise.

Exercises were carried out according to the main topic of tactical training. The training questions were worked up in complex with other subjects of instruction. Naturally, for this purpose the men studied the major sections of tactical, fire, reconnaissance and engineer training and fulfilled the necessary exercises in driving combat vehicles. After such training one can judge how correctly each serviceman carries out the various movements and fulfils training standards. One can also judge the unit's team-work and ability to carry out the assigned mission.

It is recommended to carry out such exercises before tactical exercises in order to determine the subunit's readiness for working up various missions and in a number of cases to organise additional training for eliminating the shortcomings revealed.

Let us examine the organisation and method of carrying out an exercise on the topic: "Tk Coy on the move attacks enemy in defence." The following missions were assigned: to define the unit's team-work when operating in march, pre-battle and battle formations, skills of the personnel in carrying out reconnaissance, detecting targets, pursuing a withdrawing enemy, driving combat vehicles under fire and also the commanders' ability to control their subordinates.

The exercise was carried out in a tactical training field. The training targets for working up the planned questions (over 60 various targets were set out) were laid out in advance. The company operated on a closed circuit route (see Sketch).

The exercise director (the battalion CO) worked out a plan of the exercise graphically on the map. He enlisted two officers as his assistants. He held lessons with them during which they examined in detail how to work up all the training questions and normatives.

The men prepared for the exercise too. During their independent study periods the company commander organised lessons with the personnel on the prescriptions of the manuals, trained them in carrying out the most complicated methods and normatives.

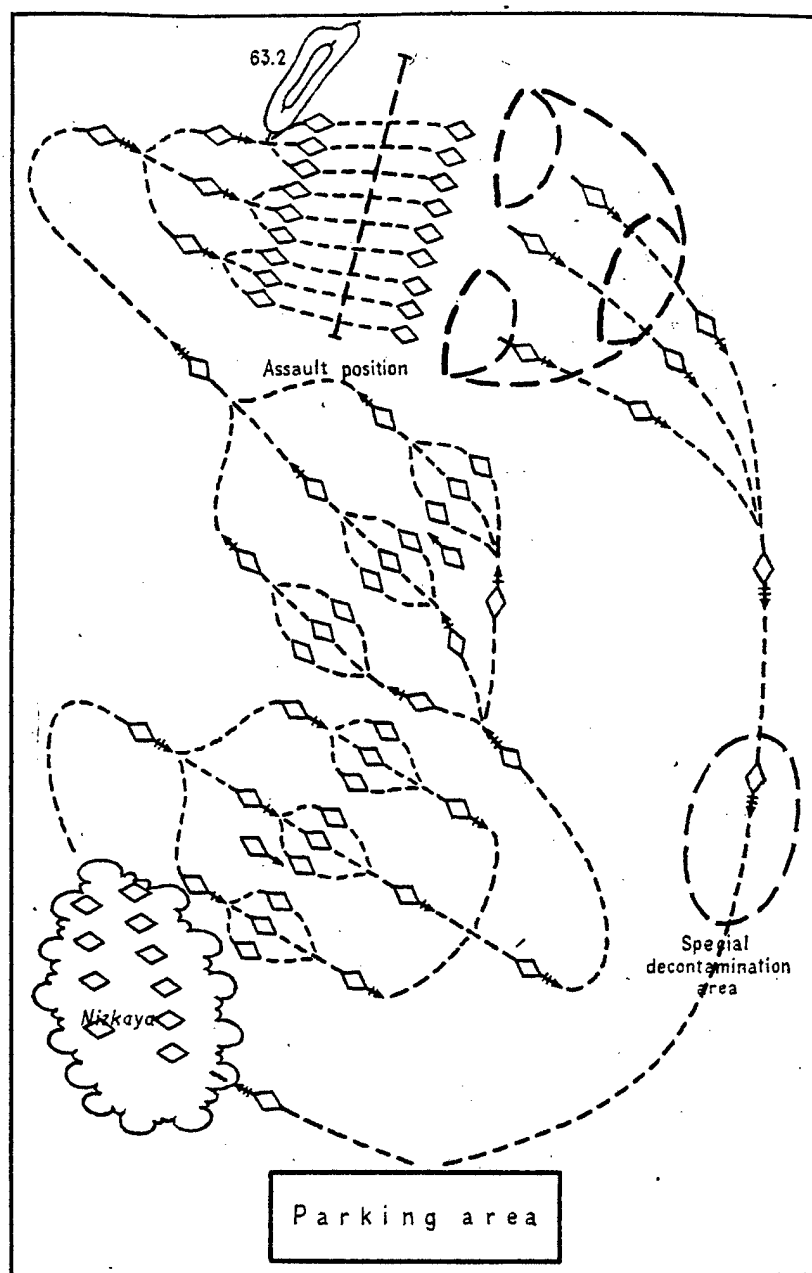
Exercises began in Nizkaya Wood. Here the exercise director checked the actions of the men at the fighting vehicles, the preparation of communication means, the ability of the commanders to carry out a topographic and tactical orientation.

Then the company began to advance to the line of launching the attack. On commands from the exercise director the subunit redeployed from march formation into pre-battle, battle formation and vice versa. Besides, when carrying out these narratives, the crews performed turns to the right and to the left, i.e. the manoeuvres which are necessary when repulsing surprise counterattacks. Watching the company's actions the exercise director appraised the skill of crew commanders in controlling their subordinates, checked accuracy and simultaneity of redeployment taking into account the time spent on the fulfilment of the various orders.

Linear formation has become the most wide-spread battle formation of a company. At the same time, depending on the situation and terrain conditions, the company platoons can also act in wedge, vee, echelon right or echelon left formation. That is why the exercise director gave from time to time narratives whose fulfilment depended on such changes in battle formation.

The exercise director and his assistants also closely watched the coordination of actions of crews and platoons, registered the time, ensured elimination of the shortcomings revealed. When necessary the exercise was interrupted, a partial critique was carried out and then the personnel started again to work up training questions. The platoons, whose crews executed the given commands and orders simultaneously and irreproachably and efficiently oriented themselves on the terrain got a high mark.

All-round organisation of battle on the spot and coordination of efforts according to missions, directions, lines and time as well as mu-



was ordered to assess it, do the timing, take a decision and plan how to organise preparation for "battle." The actions of the company commander were checked by the exercise director. Meanwhile his assistants checked preparation of the crews. Particular attention was paid to the ability of tankmen to

tual help in the interests of the general mission considerably influence team-work in an offensive. Therefore, great attention was paid to working up precise and continuous cooperation. At first the company commander was summoned to Hill 65.2, where he was assigned the mission for the offensive. Then he

camouflage their vehicles, prepare weapons and ammunition for firing and to eliminate malfunctions. Simultaneously problems of repulsing attacks by "enemy" helicopters with fire of AA machine guns were solved.

At the appointed time the company passed over to the offensive. The crews deployed for battle and attacked the "enemy" FEBA. During fulfilment of the assigned mission they skilfully performed a manoeuvre to destroy the men and fire weapons in a strong point located in the depth of the "enemy" defences. Taking into consideration the dynamic character of the situation, the exercise director and his assistants took care not to miss the main moments. The exercise director, cutting into the radio net of the company commander listened to all his commands and orders. It was by them that he evaluated the decisions taken in each concrete case, pointed out the strong and weak points. One of the assistants calculated the time spent by the company in deploying from pre-battle to battle formation, determined the speed of the attack, appraised how skilfully a manoeuvre with men and equipment was carried out. The second assistant examined how competently the platoon detailed to act as a fighting reconnaissance patrol operated.

During pursuit various narratives

were given and the exercise director and his assistants observed how they were fulfilled.

At the end of the exercises the company formed into march column for a test of tank commanders' skill as reserve driver-mechanics.

At that stage the check on the company's team-work ended. On arrival at the unit lines the exercise director heard the reports of his assistants, thoroughly studied the marks received by the personnel and determined the preparedness of each platoon and of the company as a whole. On the basis of these data he conducted a critique of the exercise. The tactical training standard was assessed on the results of actions of the commanders and the personnel when performing various redeployments, during the attack and the "fighting" in the depth of the "enemy" defences. In appraising the reconnaissance training standard the main attention was paid to the actions of the platoon detailed as a fighting reconnaissance patrol.

The method of checking a company's team-work shown above is not the only one. Other methods are possible. However, in all cases the main requirement is persistent improvement of the quality of training, and raising of the field training standard as the core of high combat readiness.

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CSO: 1812/129

GROUND FORCES

GERMAN SOURCE ON TANK DEVELOPMENT, 1950-1980

Frankfurt/Main SOLDAT UND TECHNIK in German No 5, May 82 pp 256-265

[Article by Rolf Hilmes: "Thirty Years of Battle Tank Development 1950-1980. Part II: Development of Component Technology (Continuation)"]

2. Mobility-Determining Components

[Text] Although the system characteristic of firepower has always been given a dominant role by all tank-building countries in the 1950-1980 development period under examination here, the mutual influence of the criteria of mobility and armor protection has, in part, resulted in very differing design philosophies.

Since World War II Great Britain has always given protection a higher priority in tank development than increased mobility. Solid tank protection was considered the prerequisite for maintaining any mobility on the battlefield. This applied in part in regard to the artillery threat. Because of improved weapons and munitions effects, France and Germany considered increasing tank mobility to be more logical than strengthening its protection — particularly since the tank technology then existing did not allow satisfactory protection against direct hits by tank guns.

The highpoint of this development came in Germany, for example, in the 1970's with the construction of highly mobile test vehicles having specific power outputs of up to 60 kilowatts per ton [kW/t] (82 hp/t) (Figure 49) [not reproduced] that could effectively avoid hits from some guided missile types. The decrease in hit probability by fin-stabilized projectiles from modern tank guns was, however, apparently so low as compared with the considerable technical effort and expected driving problems that no consideration was given to introducing such a highly mobile tank in the near future. Similar test trials were made in the United States in the late 1970's with the HIMAG (18-37 kW/t) and the HSTV(L) (25-30 kW/t) components test vehicles.

Events of the last Mideast wars (1967 and 1973), however, made the combat value deciding influence of ballistic protection clear with the result, for example, that in the mid-1970's the British and German philosophies converged and today in Germany the system characteristics of mobility and protection are given equal value. A consequence of this changed outlook was that a weight increase of almost 10 percent was accepted during Leopard 2 development in order to increase protection.

The effective and interacting system characteristics of tank land mobility are summarized in Table 7. Henceforth the distinction will be made between powerplant-dependent and running gear-dependent mobility. The former treats the typical performance characteristics of these components: engine, transmission, brake and cross shaft. Running gear-dependent mobility, on the other hand, refers to the components of suspension, damping and tracks as well as considering the geometric conditions of the running gear or the hull.

It should be noted here that the desirable balance between powerplant- and running gear-dependent mobility has not been achieved in many tanks since frequently the available powerplant performance cannot be used or vehicle speed must be reduced when driving through terrain because of limited vision or excessively high vibration stress on the crew.

Elements of Powerplant-Dependent Mobility

What development have tank powerplant-dependent mobility elements undergone in the last 30 years?

Tank Engines:

In the West (less Japan) only Otto engines were available for the first postwar generation of tanks. Only in the Soviet Union was the V2 diesel engine from the T-34 tank further developed and used in the T-54. Considering the then existing engine technology, Otto engines had the following advantages:

- low construction volume, favorable performance weight (kg/kW),
- low manufacturing costs,
- satisfactory cold start properties.

But these had the following negative factors for tank powerplants:

- high specific fuel consumption (g/kWh) resulting in a relatively small radius of action given a limited fuel supply,
- a relatively expensive ignition system was required in order to achieve the reliability needed for operational conditions unique to tanks,
- the ignition systems caused electromagnetic compatibility problems (interference with radio communications),
- there was an unfavorable torque-to-revolutions flow (no Bueffel [meaning unknown] characteristic),
- the Otto engine presented a high degree of danger of fire and explosion.

As may be seen from Figure 50, the engine performance of first postwar generation tanks ranged from 426 to 510 kW (527-692 hp), resulting in a specific power output of 8.8 to 11.7 kW/t (12-16 hp/t). As compared with the Panther tank (11 kW/t) of the German Wehrmacht, the Centurion tank was still underpowered (9.4 kW/t) but other first postwar generation vehicles had values similar to that of the Panther. The main problem — and one caused by use of the Otto engine — of Western tanks of this period was the radius of action achievable with one fuel loading (see Figure 51). The Centurion Mk.3 tank initially showed the extremes of low tank volume (545 liters) and high fuel consumption (circa 1,050 l/100 km in terrain) which decreased the radius of action for operation in terrain to about 50

kilometers! Since trials with a towed single-axle fuel trailer (900 liters) did not have the desired success, the Mk.7 version introduced in 1953 finally had a stretched hull and an auxiliary tank (432 liters) in the stern area. Likely because of the relatively low fire and explosion tendency of diesel fuel, the T-54 carried only about 530 liters inside the hull and another 280 liters in three tanks on the track cover as well as 400 liters in two auxiliary barrels on the vehicle stern. This concept allowed a relatively compact chassis (resulted in decreased vehicle weight) and gave, for the time, an outstanding driving range (about 670 kilometers on roads, see Figure 51).

In addition to the already mentioned solution of carrying only 44 percent of the fuel under armor protection, the transverse installation of engines in the T-54/55 tanks (Figure 52a) also contributed to a compact hull construction. Comparison with other tanks shows that the T-54/55 engine compartment length constituting 33 percent of overall length represents a minimum. It would amount to around 40 to 45 percent for a longitudinal engine installation. But further consideration indicates that the concept of transversely installed engines is of advantage only if most of the fuel reserves are shifted to outside the hull. Tanks with longitudinally installed engines have room left over on the sides for fuel or an auxiliary engine. The specific "length performance" of 220 kW/meter achieved by the T-54/55 tanks was, moreover, surpassed as a result of the higher construction space performance of more modern tanks (Leopard 2: 334 kW/m).

Because of the special climatic conditions in the operational areas of the T-54/55 tanks, these types are equipped (in addition to the electric starters) for starting the engine with compressed air. But these vehicles for some inconsequent reason do not have compressors and thus the compressed air bottles must always be removed for filling.

Second postwar generation tanks have exclusively diesel engines as a power source. Almost all engines were supercharged — about half by mechanical chargers and the rest by exhaust gas turbine chargers. The first postwar tank diesel in the West (except for Japan) after World War II was an 8-cylinder, V-90, 463 kW engine developed from 1953 by Daimler-Benz under a Swiss contract for the Swiss 57/61 tank. This engine was the foundation of the subsequent 837 series engines (Figure 53) [not reproduced]. The mb837 series uses 6- to 10-cylinder engines to span the performance spectrum from 368 to 612 kW (500-833 hp). In line with progressing engine technology, the mb837A was manufactured as a suction engine (12.5 kW/l), the mb837Ba with a mechanical blower (16.5 kW/l) and finally the mb833Ea with two exhaust gas turbine blowers.

In the United States the AVI-1790-8 Otto engine from the M48A2 tank was developed, while retaining the bore and displacement but increasing compression ratio from 6.5 to 16:1, into the AVDS-1790-A2 diesel engine of the M60 tank. Fuel consumption of American tanks thus decreased from around 700 liters (M47) to 490 liters (M48A2) and to about 285 liters for the M60 (all data for 100 kilometers road travel).

A very independent path was taken in Great Britain. Here from 1958 the Leyland company developed for the Chieftain tank a two-cycle, six-cylinder opposed-piston multifuel engine with mechanical supercharging using a Roots blower. The Leyland L60 incidentally represented a modernized version of the 1930's Junkers six-cylinder opposed-piston (aircraft) engine. But this engine principle resulted in high thermal stress on the piston bases and combustion chambers with the result that engine damages (housing and cylinder liner cracks) were frequently noted during use. The V-belt drive of the fan wheels is also said to have been unreliable.

In contrast to the opposed-piston design, a 12-cylinder Boxer engine was developed in France for the AMX30. At the beginning of development, however, only an Otto engine version was available. A diesel engine with two exhaust gas blowers could be used only for the seven preseries (1963) and the series vehicles. The engine configurations used in second postwar generation tanks are shown in Figure 54.

As compared with first postwar generation vehicles, the powerplant performance of second postwar generation tanks could — despite the transition to the diesel principle — be increased by an average of 70 kW (100 hp). These vehicles used engines with an output of 425 to 612 kW (580-833 hp), the specific motive power reaching values of 9.7 to 15.4 kW/t (13-21 hp/t). In terms of motorization, the Leopard 1 took a leading position, with the specific motive power being increased over that of the Centurion by about 60 percent.

With the exception of the T-62 and Chieftain, the specific fuel supply of second postwar generation vehicles was between 25 and 30 l/t so that, in combination with the installation of diesel engines, the action radius could be increased over that of first postwar generation tanks by about 250 kilometers (road travel) (Figure 51).

Significant progress in the area of tank powerplants was also noted with the introduction of the third postwar generation. Because of development achieved in the meantime with tank engines (diesel engine and gas turbine) with outputs of between 880 and 1,100 kW (1,200-1,500 hp), the powerplant output of these vehicles was doubled on the average as compared with that of second postwar generation tanks and even tripled as compared with certain (such as Centurion) first postwar generation tanks.

However, the higher powerplant weight and the larger powerplant volume (see Figure 52) as well as the relatively high level of protection have not permitted the specific motive power of third postwar generation tanks to be increased to the same degree. This is particularly clear when examining the Leopard 1 (second generation) and the Leopard 2 (third generation). The power output of the Leopard 2 tank was increased by 80 percent as compared with the predecessor model but the specific motive power could be increased by only 30 percent.

The average driving range of 500 kilometers achieved by third postwar generation tanks also required an increase of the fuel reserve because of the increased powerplant output. The American M1 tank represents an extreme case. In order to achieve a radius of action of slightly less than 450 kilometers at an average consumption of 450 l/100 km (road), a fuel reserve of almost 2,000 liters (=37.5

liters per ton [l/t]) had to be provided (see also the summary of consumption patterns of various tank engines in Table 8).

Table 9 gives a selection of performance data of previous tank engines. It may be seen that volume output (kw/m^3) tripled in the course of development from 1950 to 1980 and that performance weight (kg/kw) was approximately doubled.

Since in general in integrating an engine in an armored vehicle, the armoring of the engine compartment has a higher weight than that of the engine itself, reduction of engine volume is more effective than decreasing engine weight.

The power of a piston engine is determined by the following values:

$$P \approx M_d \cdot \omega = V_h \cdot n \cdot P_{me} \text{ where}$$

M_d : torque

ω : angular velocity of the crankshaft

V_h : displacement

n : number of revolutions

P_{me} : effective medium pressure.

If specific environmental conditions peculiar to tanks are considered, future performance increases are basically limited to increasing medium pressure, since an increase in displacement would result in an undesirable increase in engine size and a further increase in the number of revolutions would be limited due to anticipated problems with lubrication and the combustion process. As hitherto practiced, an increase in medium pressure can be done by increasing boost through mechanical or exhaust gas superchargers. But experience has shown that, from certain boost pressures upward, the use of exhaust gas superchargers has an unfavorable effect on the load assumption behavior of the engine and thus on acceleration behavior. For this reason the engine of the series Leopard 2 tank has an approximately 20 percent lesser displacement with a corresponding decrease in boost pressure as compared with the prototype version. Future diesel engine performance increases will be achieved only at considerable technical expense, as shown by the example of the mt880 series with combustion chamber system and variable control for the exhaust gas supercharger as well as electronic engine control.

The interest in alternative tank powerplants is thus understandable. In the United States as early as 1967 the AGT 1500 gas turbine (Avco-Lycoming) was available in a test vehicle (M48). Since then this powerplant (Figure 55) [not reproduced] has in intensive tests (driven distance: over 250,000 kilometers, operating time: over 40,000 hours) and, in part, under extreme climatic conditions (-57 to +54 degrees C) demonstrated in principle its acceptability for powering a tank. But numerous weak points were uncovered and removed in the course of the testing.

A critical comparison of M1 and Leopard 2 powerplant data summarized in Figure 56, however, shows that the present "first generation gas turbines" do not yet represent a convincing alternative to present high-performance diesel engines. The /weight advantage/ of the gas turbine as compared with the diesel engine shrinks

to 11 percent when one considers the entire powerplant including fuel reserves for 450 kilometers of road travel. If the total powerplant including fuel reserves is considered, the /volume advantage/ of the gas turbine is reversed. The anticipated advantage of the gas turbine powerplant (including simplified servicing and maintenance, decreased cooling requirement) is opposed by disadvantages such as higher fuel consumption and the tripled air throughput through the air filter.

Figure 57 shows a comparison of consumption behavior of these two powerplants under different operational conditions. The high fuel consumption of the gas turbine to be expected in tactical operation in particular (with high periods of idling or partial load phases) will result in additional burdens on supply units and, considering the oil shortage, makes a breakthrough of the gas turbine as a tank powerplant in the future appear doubtful.

Air Filter/Cooling System

As a conclusion to the examination of the development of tank powerplants, a brief look should be taken at the risk components of the air filter and cooling system.

The combustion air filter used in a tank is subject to special environmental conditions. The filter function must, for example, be guaranteed also under extreme slant conditions (gradients up to 60 percent). The longest possible filter operating times must also be achieved under high dust conditions (up to 3 g/cm³). The filter should be as resistant as possible to flame munitions (such as napalm). The position of the intake is of great significance to air filter stress. First postwar generation tanks which were not configured for operation under ABC conditions had an intake for combustion air over the fighting compartment. This solution was no longer possible with second and third postwar generation tanks. Here the air intake opening for engine combustion air had to be placed separately from the fighting compartment in the hull in a zone with the lowest possible dust concentration. Figure 58 [not reproduced] shows the clever solution on the Leopard 1 tank.

Whereas some first postwar generation tanks still used single-stage air filters (such as the M47/48 oil-bath air filter), using this approach on the more powerful powerplants of the second and third postwar generations would have resulted in relatively short filter operating times. In Table 10 the amount of dust to be trapped in air filters over a stretch of 100 kilometers has been calculated for various tanks. In the course of the Leopard 1 tests, the optimum filter concept proved to be a cyclone prefilter with continuous dust removal followed by a main filter with felt pockets, these subsequently being replaced with filter paper. In integrating the air filter in the chassis (hull), the connections to the engine must be so configured that no unfiltered surrounding air is ingested. As the most recent example, the M1 tank has shown that this requirement can no longer be met in troop use after several engine removals. Thus the more logical [approach] is the direct attachment of the air filter to the powerplant module — as was done, for example, with the Leopard 2.

The contradictory requirements on the air filter — such as a high degree of separation, lower forward resistance and long filter operating times on the one hand and a small size on the other — have made filter configurations particularly difficult for the high-performance tank powerplants of the third postwar generation. The M1 powerplant presents particularly difficult conditions since the gas turbine (at nominal power) requires a filter throughput of 285 m³/minute (see Table 10).

It may be possible in the future to solve this problem for diesel engines at least with pressurized stream filters (installed behind the exhaust gas supercharger).

As concerns the type of cooling, the use of air cooling has not — despite basic advantages for its use in military vehicles — expanded in tank engines. Its employment remained (traditionally) limited to American and Japanese tanks. The greater use of liquid cooling is due largely to technical advantages to the engine such as precision cooling or transmission of heat from places under high heat stress and the better ability to cope with a brief heat increase under full load conditions. Because of the relatively high heat capacity of the cooling liquid, it is even conceivable that in certain tactical situations (such as jumping from cover) the ventilation system can be switched off for a brief period so as to improve the acceleration behavior of the tank.

The continually increased degree of motorization of tanks in the periods of development under examination resulted, as might be expected, in an increase in cooling systems configuration problems. Due to the increased cooling requirement of other or additional components and media — such as transmission, torque converter, retarders, boost air and fuel — the amount of heat to be transmitted did not increase in a linear fashion with engine output (about 32 percent of the output of a diesel engine goes to the cooling medium in the form of heat) but rather in a superproportional fashion. A complicating factor is that neither radiator or grating area can be increased to cope with the increased amount of heat to be transmitted because of construction space and weight restrictions. Despite the raising of the maximum permissible coolant temperature (Leopard 1: 93 degrees C, Leopard 2: 110 degrees C) and optimization of air conduits and radiator core structure, the necessary ventilation system output increased approximately as the square of engine output (see Table 11).

In this regard the gas turbine shows clear advantages. As may be seen from Table 11, given the same powerplant nominal output, the M1 tank as compared with the Leopard 2 requires only 50 percent as much ventilation system output. In considering the above noted environmental conditions for a tank with a gas turbine powerplant, the configuration of the cooling system is determined not so much by the gas turbine but rather much more by the transmission and the brakes (such as disc brakes running in an oil bath or retarders).

A concluding volume comparison of powerplant components of actual tanks in Figure 59 clearly shows the development trend. Increased requirements in regard to performance and functionality (driving/servicing comfort) have allowed the volume share of engine and transmission to increase while a reduction of the volume share

of air filter and cooling system could be achieved by optimized design and integration form. The corresponding values of the gas turbine powerplant show, as might be expected, the relatively large volume share of the air filter and the relatively small space requirement for the cooling system.

Power Transmission

In the United States the advantages of using torque converters in tracked vehicles were recognized at an early date. As a result, since 1945 — beginning with the M26 — all tanks were equipped with torque converters and, since 1949 — beginning with the M46 —, all tanks were additionally equipped with a transmission shiftable under load (CD-850) in a "cross-drive" configuration. The installation of the torque converter resulted in the following advantages:

- problem-free combustion start, choking the engine is not possible;
- by using revolutions and torque conversion, a number of gears in the gearshift can be saved (for comparison: M47/48: 2 gears, Centurion: 5 gears, Tiger I: 8 gears);
- avoiding shifting shocks and torque peaks result in sparing all power-transmitting elements down to the tracks;
- the torque converter represents protection against careless servicing mistakes.

Overall, because of the increased servicing comfort, the torque converter results in a reduction of tank driver work load and allows him to concentrate more on tactically skilled driving. But the M47/48 tank torque converters had no bypass clutch with the result being a relatively high fuel consumption also during road travel.

As may be seen from Table 12, other first postwar generation tanks (T-54, Centurion, Type 61) did not use any such progressive solutions. The driving behavior of these tanks with multiple disc clutches and tractive power interruption to the connected, partially synchronized dog transmission depended to a very great extent, particularly in difficult terrain and on inclines, on the skill or state of training of the driver.

In addition to the engine and gearshift transmission, the mobility of a tracked vehicle is significantly influenced by the configuration of the steering mechanism. An optimum steering mechanism should offer in all radii of turns:

- a continuous, smooth and precise, that is, speed-controlled, steering;
- a high overall degree of effectiveness, that is, low steering losses and thus a low speed decrease;
- use of the (negative) output induced by the inside curve track.

The numerous World War II tracked vehicles using clutch-brake driving mechanisms did not have these properties while those with differential steering mechanisms had them only partially. With these transmission types, driving between straight ahead and turning had to be on a track with abrasive steering brakes or clutches. The Cletrac steering mechanism known since 1916 represented a certain improvement with which a certain radius of turn could be driven without steering loss by using a locked steering brake. Despite the still rather large steering losses between the minimum radius and straight ahead, this steering mechanism principle was selected for the AMX30 tank.

But a decisive breakthrough was first achieved with the so-called superimposed mechanisms which have been known since 1940. The significant characteristic of this type of steering is the division of the output stream beyond the engine to the gearshift and steering mechanism and combining both output branches through so-called integrating gearboxes in front of both cross shafts (Figure 60). The significant factor for steering and loss behavior here is the design configuration of the steering mechanism to produce the turn revolutions n_w . Achieved configuration forms are presented in Figure 61.

Such superimposed steering mechanisms are particularly necessary for heavy tracked vehicles or for tracked vehicles with a high steering output requirement. For this reason the Panther tank was equipped with a single-radius and Tiger I and II tanks with a double-radius superimposed steering mechanism. Among first postwar generation tanks, only the M47/48 types and the Centurion had a single-radius superimposed steering mechanism (Figure 61a).

In terms of power-transmitting elements among second postwar generation tanks, in the Soviet Union no progress was made while only limited steps were taken in the United States and Great Britain. Many tanks were still equipped with multiple disc dry clutches or centrifugal clutches (AMX30, Chieftain) with only the M60 and Leopard 1 having torque converters. The last of these was the first to use a torque converter with bypass clutch in which, at an output and input shaft revolutions ratio of 0.8 to 1.0, the converter mechanically bypasses (slip=0). Overall the Leopard 1 4 HP 250 ZF transmission with a 4-gear planetary gearshift shiftable under load and a double-radius superimposed steering mechanism (Figure 61b) represented one of the most progressive solutions to this problem for this tank generation. The Leopard 1 is astonishingly easy to drive and also the transmission permits an economical consumption pattern. But this comfort had to be achieved at the cost of considerable technical expense.

None of the tanks mentioned had a steering mechanism which permitted continuous steering over the entire range of radii. The Swiss Panzer 61 of 1964 was the first series-produced tank that could be continually steered. Because of its fixed weapon installation, the Swedish "S" tank also had to be continually and precisely steerable. Both vehicles used a hydrostatic superimposed steering mechanism (Figure 61c) in which one or two adjustable pump(s) controlled from the steering wheel via a servosystem deliver the oil volume required to drive one (or more) constant oil motor(s). Varying the drive volume results in the desired revolutions change of the hydraulic motors or neutral shaft.

It should be mentioned that some work was done in Germany with hydrostatic steering systems in the early 1960's within the framework of the standard tank development. Although the Company Group A prototypes equipped with a hydrostatic superimposed steering mechanism were not selected for series production, the development of the gun-armed tank destroyer with a hydrostatic steering mechanism begun in 1960 was finally concluded with series production in 1966. The hydrostatic elements used in this vehicle are shown in Figure 63 [not reproduced]. Considering the installed powerplant output of 368kW, the hydrostatic elements had to be configured for a working pressure of 350 to 400 bar. A further increase in powerplant output would have thus lead to even larger hydrostatic elements or higher working

pressures. A practical solution of the late 1960's was the hydrostatic-hydrodynamic superimposed steering mechanism (Figure 61d) designed for the MBT 70. The hydrostatic part could transmit up to about 30 percent of the maximum steering output with movement-scaled support through hydrodynamic clutches following in cases of increased steering performance demand. The hydrostatic part permitted continuous and precise (revolutions-controlled) steering. Despite the high powerplant output of 1,100 kW, the hydrodynamic elements overall permitted a system configuration favorable in terms of both weight and volume. This mechanism was used with minor modifications (HSWL 354/3) for the Leopard 2 tank. The Marder armored personnel carrier also has a hydrostatic-hydrodynamic superimposed steering mechanism.

Other third postwar generation tanks such as the M1 and Shir 2 also have hydrostatic superimposed steering mechanisms. Whereas the Leopard 2 and Shir 2 steering mechanisms use axial piston units, the X-1100-3 mechanism of the American M1 uses so-called ball piston units. Because of the lack of hydrodynamic support, the hydrostatic element working pressure in the TN 37 mechanism of the Shir 2 is up to 700 bar. Experience is lacking on the reliability of this mechanism in practical prolonged operation.

In order to achieve the highest possible availability of tanks, powerplants (engines, gearboxes and cooling system) are predominantly built in modular fashion. In addition to shortening exchange times (Table 13), modular construction also permits a more compact powerplant configuration. Also functional tests can be done without problems on a test stand outside the vehicle. Quick-change capability for powerplant modules is, in any case, extremely necessary since compact construction and high packing density (Figure 64) [not reproduced] have resulted in much more limited accessibility to individual components. High displacement loads have also proven to be a disadvantage of the modular system. Whereas the weight of the Leopard 1 complete powerplant module was 4,720 kg, this increased to 6,050 kg for the Leopard 2. By way of contrast, the weight of the separately removable T-54 tank engine is only 900 kg and the gearshift transmission can even be removed with the help of a simple 0.5-ton hoist with pulley (Figure 65) [not reproduced]. In principle brief exchange times must be purchased at the cost of considerable expense for the required hoist equipment. Prominent examples in this regard are the Leopard 1 and 2 for which minimum exchange times were achieved on the basis of design procedures. Under competitive conditions, for example, the Leopard 1 powerplant can be changed in only seven minutes (Figure 66) [not reproduced].

Brakes:

The brake system is often neglected in many treatments of tank technology but here also the increased performance requirements have resulted in an intensification of design problems. The critical areas of the brake system have proven to be:

- the limited installation area,
- the poor heat removal,
- the drastically increased brake work: for example, Leopard 1: 6.32 million Nm, Leopard 2: 10.39 million Nm.

In Germany in particular the mechanical brake has reached its limit of development for high mobility of tracked vehicles. The absolutely necessary result was the complete transition to frictionless retarder brakes for the first time in the framework of MBT 70 development. Today normal retarders yield a braking output of up to (for brief periods) 4,500 kW = 6,120 hp and a revolutions-dependent braking moment of up to 19,600 Nm (for comparison: the maximum torque moment of the mb873 engine is 4,400 Nm). Figure 67 [not reproduced] shows the effects of the retarder integrated in the HSWL 354 transmission during a maximum braking. Configuration limits for a retarder come, among other things, from the slip limit of the track and from the heat load of the transmission oil circulation. (To be continued).

Table 7. Tank mobility-determining system characteristics

<u>Land Mobility</u>			
<u>Powerplant-Dependent Mobility</u>			
<u>Engine</u>	<u>Transmission</u>	<u>Cross Bars</u>	<u>Brakes</u>
Controllability	Moment conversion	Degree of effectiveness	Brake performance (brief/prolonged)
Torque moment process	Number of gears	Load capability	Maximum brake hesitation
Load acceptance behavior	Degree of effectiveness	-mechanical	
	Operating effort (shift under load and the like)	-thermal (brief/prolonged)	Metering ability
Displacement: vehicle weight			
Specific motive performance (gross/net)	Steering principle (steerable radii, loss output and the like)		
Specific fuel consumption			
Operability under different environmental conditions (gradient run behavior, amount of heat extracted and the like)			
<u>Crew</u>			

[Table continued on following page]

Table 7 (continued)

<u>Land Mobility</u>	
<u>Running Gear-Dependent Mobility</u>	
<u>Suspension/Damping</u>	<u>Tracks</u>
Spring characteristic	Power terminal behavior
Spring travel	-propelling force
Load acceptance capability	-lateral load force
Damping characteristic	Operational reliability
Damper exponent	Load capacity (propulsion/ground conditions)
Damping factor	
Thermal load capability	
	<u>Geometry</u>
	Steering conditions
	Chain length
	Track roller load/ground pressure
	Overhang angle
	Track rise angle
	Driving sprocket height
	Guide wheel height
	Center of gravity
	Mass moment of inertia at lateral axis
	<u>Crew</u>

[Table continued on following page]

Table 7 (continued)

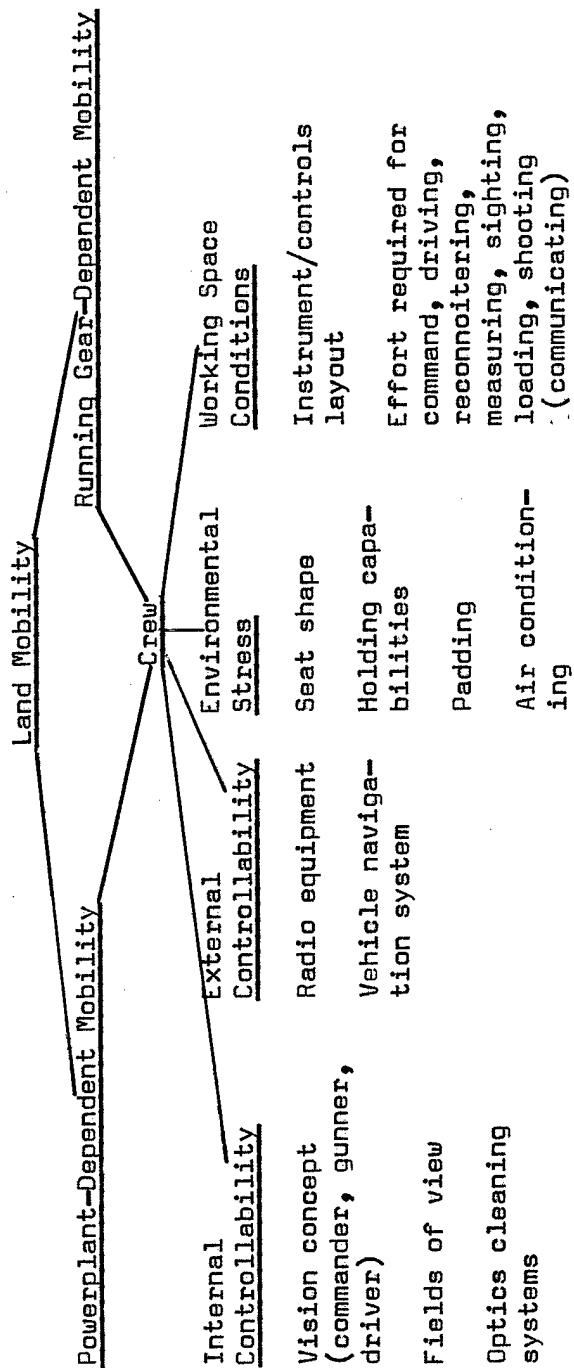


Table 8. Summary of consumption behavior of certain tank engines. Shown is the consumption (general values) in liters/100 km.t.

1st postwar generation tanks	Otto engine	carburetor	10-16
	Otto engine	injector	6-10
	diesel engine	suction	ca. 6
2nd postwar generation tanks	diesel engine	mechanical supercharging	ca. 5
	diesel engine	exhaust gas turbosuper- charging	ca. 4
3rd postwar generation tanks	diesel engine	exhaust gas turbosuper- charging	ca. 4
	gas turbine	twin-shaft with heat	
	(1st genera- tion)	exchanger	8-11

Table 9. Selected performance data of various tank engines from three postwar generation tanks

Generation Number	Vehicle	Engine Model	Engine Type	l/t	Liter ¹ Performance	Volume ² Performance	Output ³ Weight
1.	T-54	V2	diesel	1.10	9.9/13.5	-	2.27/1.67
1.	M48A2	AVI-1790	Otto inject	0.62	17.3/22.6	193/262	2.65/1.95
2.	M60	AVDS-1790-2A	diesel/ATL	0.61	19.1/26.0	198/269	3.67/2.70
2.	Chieftain	L60	diesel/ML	0.35	29.0/39.5	353/480	3.50/2.57
2.	AMX30	HS110	diesel/ATL	0.80	18.5/25.1	329/448	2.62/1.93
2.	Leopard 1	mb838	diesel/ML	0.93	16.3/22.2	375/510	3.15/2.31
3.	Leopard 2	mb873	diesel/ATL	0.46	23.2/31.5	670/910	2.48/1.83
3.	Shir 2	CV12TA	diesel/ATL	0.42	33.8/46.0	768/1,043	2.31/1.70
3.	M1	AGT1500	gas turbine	-	-	797/1,087	1.01/0.74
Future	German	mt883	diesel/ATL	-	43.7/59.5	1,132/1,538	1.17/0.86
Future	French	V8X	diesel/ATL	-	67.0/91.9	788/1,071	1.54/1.13

-
1. Read as kilowatts per liter/horsepower per liter
 2. Read as kilowatts per cubic meter/horsepower per cubic meter
 3. Read as kilowatts per kilowatt/kilograms per horsepower

Table 10. Dust amounts separated by air filters on various tanks over a driven distance of 100 kilometers

Environmental conditions:

- dust content 3 g/m³
- average speed 35 km/h
- average engine load 50 percent

	Leopard 1	Leopard 2	M1
Air throughput at nominal power (m ³ /min)	52.2	105	285
Air throughput at nominal power (m ³ /h)	3,132.0	6,300	17,100
Dust separation (kg) over 100 km under above conditions	13.4	27.0	73.3

Table 11. Maximum cooling requirements and ventilation system demand on motor output for various tracked vehicles

Vehicle	Engine output (hp/kW)	Maximum cooling system demand (hp/kW)	Cooling system demand as percentage of motor output
Marder	600/441	66/48.5	11
Leopard 1	833/612	92/67.6	11
Leopard 2	1,500/1,100	220/162	14.6
M1	1,500/1,100	100/73.5	6.6
Future design	2,400/1,765	440/324	18.3

Table 12. Overview of power transmission elements used in certain tanks during the 1950-1980 period

Generation and vehicle	Clutch type	Gearshift type (forward/reserve gears)	Steering system
1. M47/48	torque converter	planetary, load-shifttable (2/1)	1-radius, superimposed
1. T-54/55	multiple dry disc	dog, partially synchronized (5/1)	epicyclic
1. Centurion	multiple dry disc	dog, not synchronized (5/2)	1-radius, superimposed
2. M60	torque converter	planetary, load-shifttable (2/1)	1-radius, superimposed
2. Chieftain	centrifugal	planetary, load-shifttable (6/2)	1-radius, superimposed
2. T-62	multiple dry disc	dog, partially synchronized (5/1)	epicyclic
2. AMX30	centrifugal	dog, synchronized (5/1)	Cletrac
2. Leopard 1	torque converter	planetary, load-shifttable (4/2)	2-radii, superimposed
2. Pz61	steel spring	planetary, load-shifttable (6/2)	hydrostatic, superimposed
3. Leopard 2	torque converter	planetary, load-shifttable (4/2)	hydrostatic-hydrodynamic superimposed
3. M1	torque converter	planetary, load-shifttable (4/2)	hydrostatic, superimposed
3. Shir 2	torque converter	planetary, load-shifttable (4/3)	hydrostatic, superimposed

Table 13. Comparison of powerplant or engine change times for various tanks

Vehicle	Required change time (hours)	Remarks
Centurion	20.0	Engine change
T-54/55	10.0+	Engine change
M48	5.0	Powerplant module change
M60	4.0	Powerplant module change
Pz61/68	1.0	Powerplant module change
Chieftain	1.0	Engine change
AMX30	0.75	Powerplant module change
Leopard 1	0.25	Powerplant module change
M1	1.0	Turbine change
Leopard 2	0.25	Powerplant module change

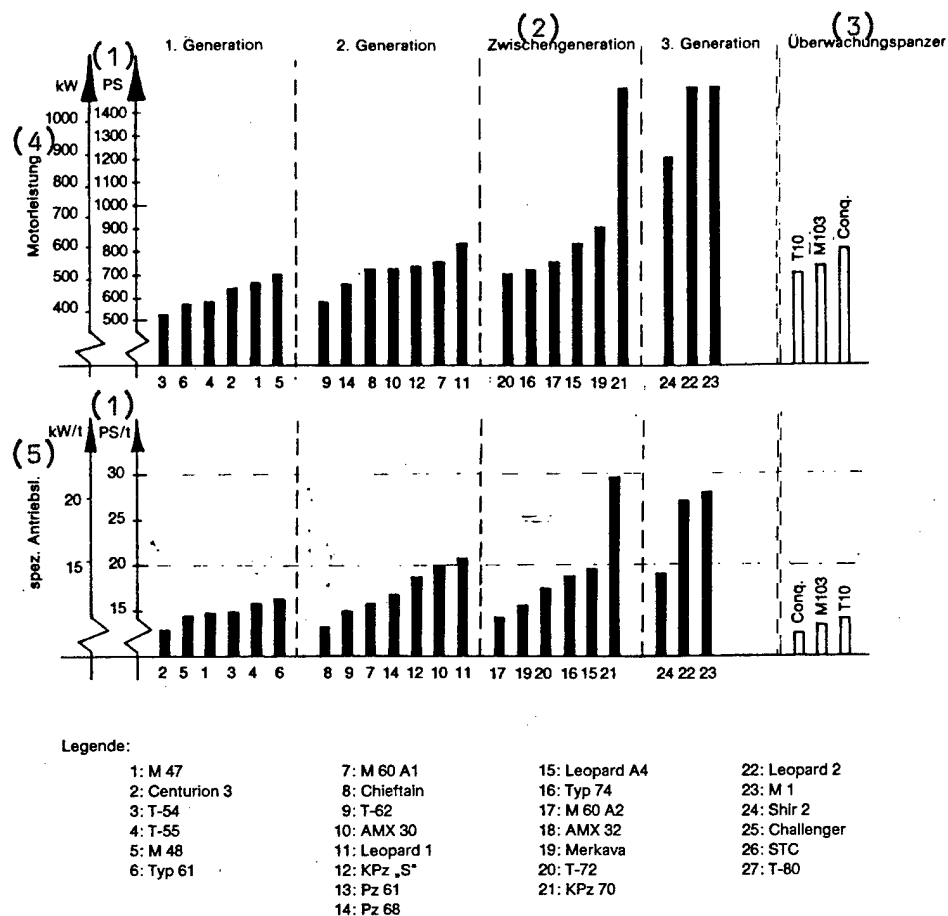


Figure 50. Motorization and specific motive power of tanks from the period 1950 to 1980

Key:

- | | |
|----------------------------|--------------------------|
| 1. Horsepower | 4. Motorization |
| 2. Intermediate generation | 5. Specific motive power |
| 3. Surveillance tanks | |

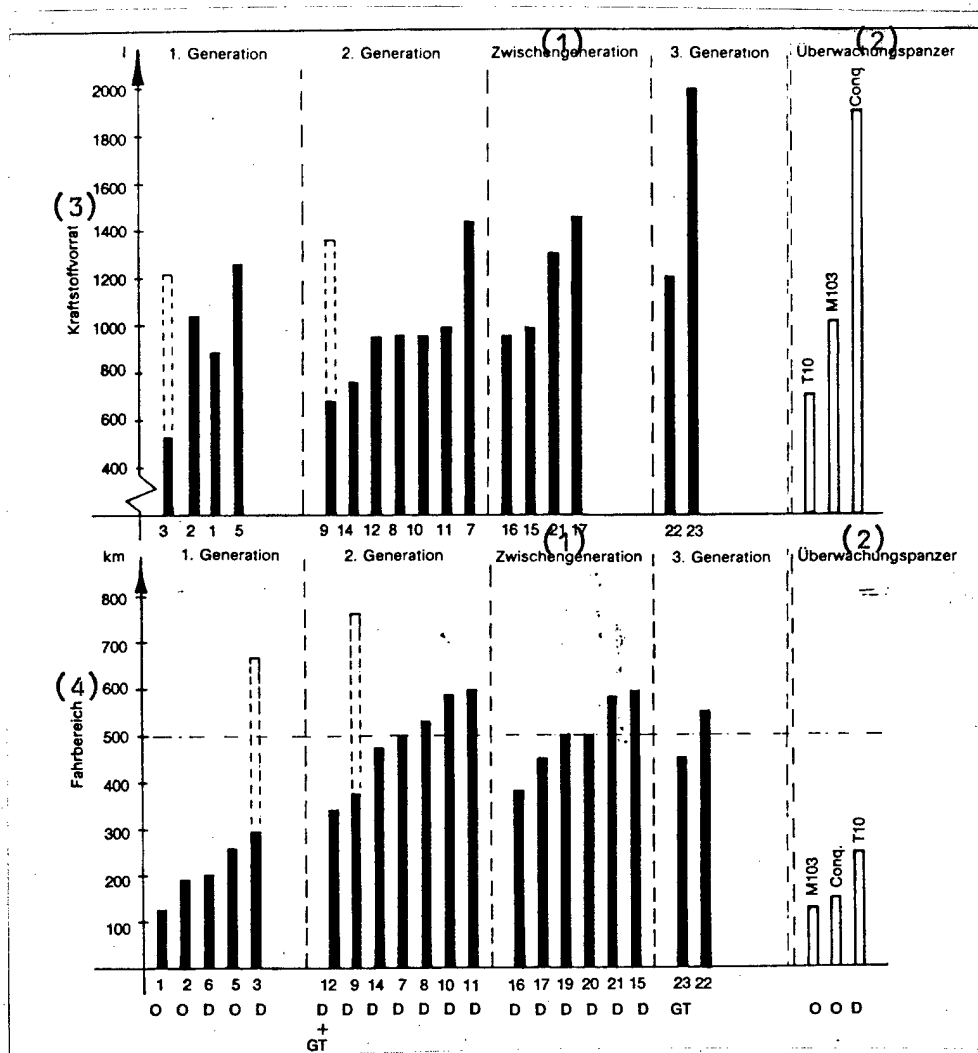


Figure 51. Fuel reserve and range of tanks from the period 1950 to 1980
[types keyed by numbers used in Figure 50]

Key:

- | | |
|----------------------------|-----------------|
| 1. Intermediate generation | 3. Fuel reserve |
| 2. Surveillance tanks | 4. Range |

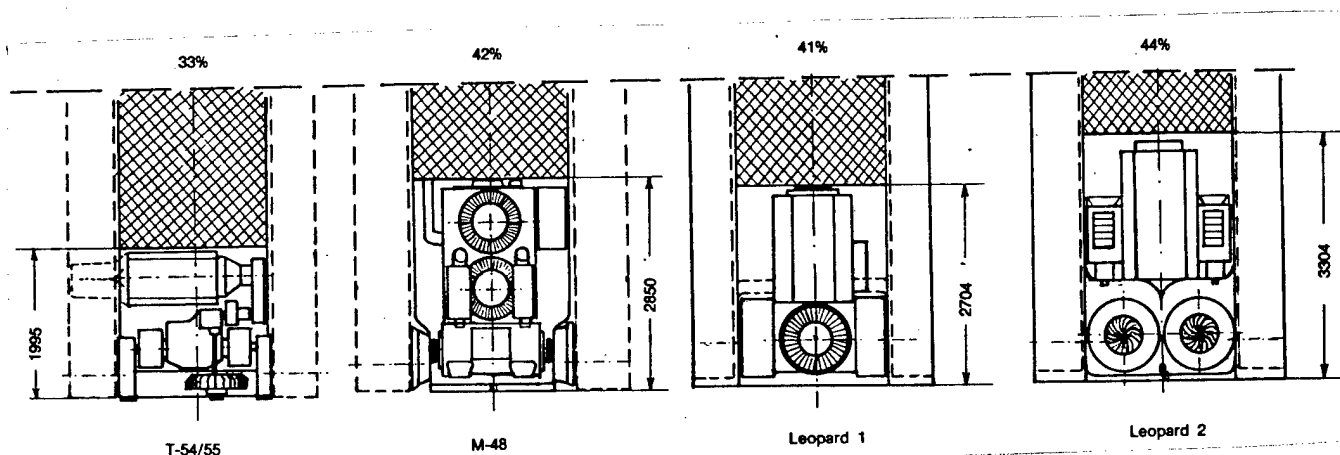


Figure 52a. Schematic representation of powerplant arrangement in various tanks including powerplant compartment length and powerplant volume as percentage of overall chassis length

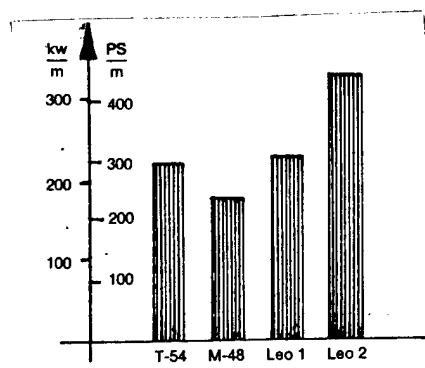


Figure 52b. Installed engine output [in kW and hp] per meter of powerplant compartment. The figures shows the increasing power density of tank powerplants in the period from 1950 to 1980

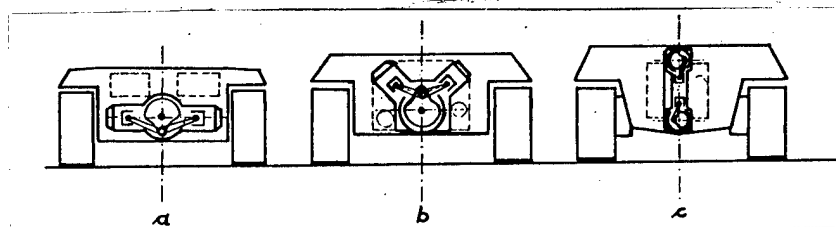


Figure 54. Typical tank engine configurations: (a) Boxer (AMX-30), (b) V (Leopard, M60 and others), (c) opposed-piston (Chieftain, "S" tank).

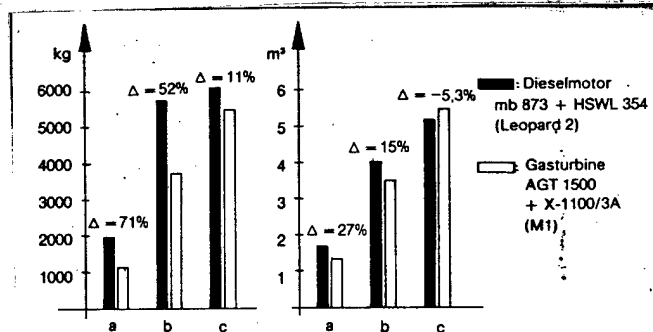


Figure 56. Comparison of Leopard 2 and M1 engine weight and volume: (a) engine or gas turbine separately, (b) complete powerplant, and fuel reserve for circa 450 km road travel

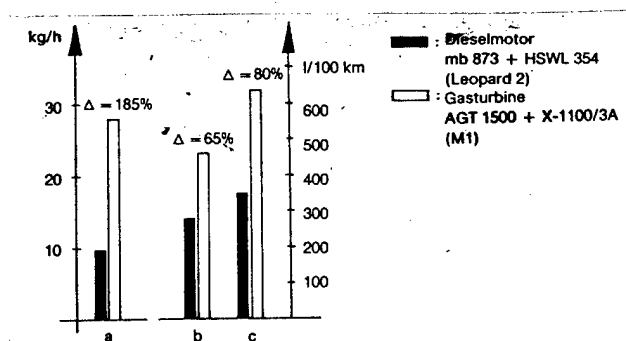


Figure 57. Comparison of Leopard 2 and M1 fuel consumption behavior at various operating or driving conditions: (a) idle, (b) road travel at 40 km/h, (c) terrain travel at 25 km/h

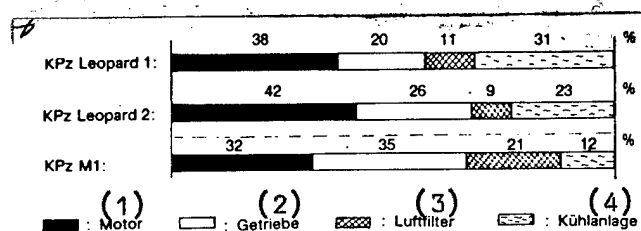


Figure 59. Volume share of subcomponents of various tank powerplants

Key:

- | | |
|-----------------|-------------------|
| 1. Engine | 3. Air filter |
| 2. Transmission | 4. Cooling system |

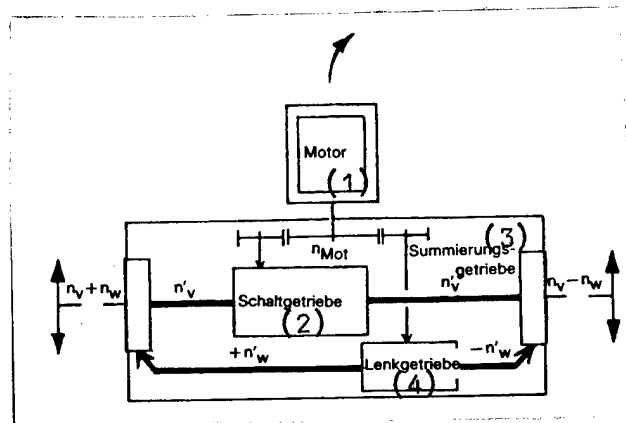


Figure 60. Diagram of superimposed steering gear

Key:

- 1. Engine
- 2. Gear shift

- 3. Summation gear
- 4. Steering gear

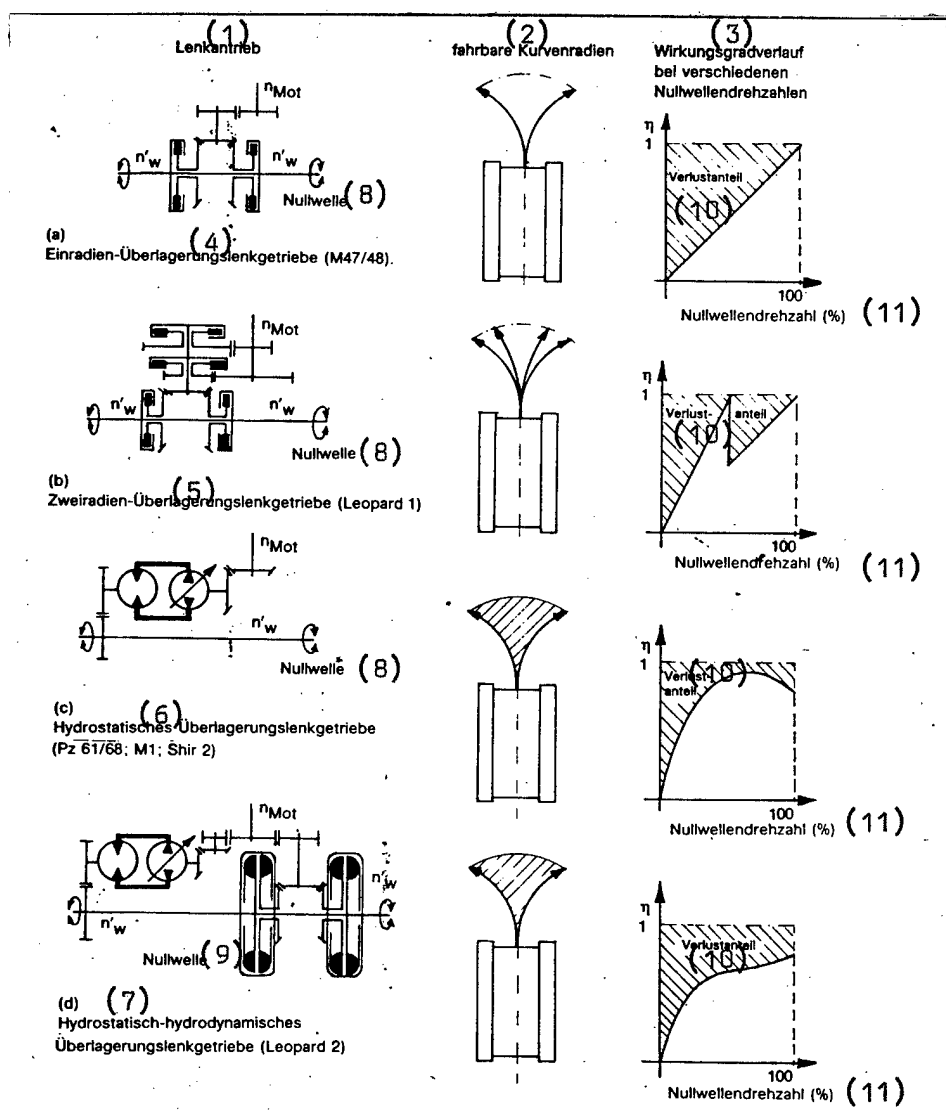


Figure 61. Superimposed steering gear system configurations and diagrams of drivable radii and effectiveness curves as a function of neutral shaft revolutions

Key:

- | | |
|---|---|
| 1. Steering system | 6. Hydrostatic superimposed system (Pz61/68, M1, Shir 2) |
| 2. Drivable curve radii | 7. Hydrostatic-hydrodynamic superimposed system (Leopard 2) |
| 3. Effectiveness curve at various neutral shaft revolutions | 8. Neutral shaft |
| 4. One-radius superimposed system (M47/48) | 9. Neutral shaft |
| 5. Two-radii superimposed system (Leopard 1) | |

[Key continued on following page]

PHOTO CAPTIONS

49. p 256. RVT 2 highly mobile test vehicle. A 12-cylinder diesel engine with an output of 1,324 kW (1,800 hp) was installed in a modified M41 armored vehicle chassis, resulting in a specific motive force of 60 kW/t (82 hp/t) for the vehicle weight of 22 tons.
53. p 259. mb837Ba - first Western (except for Japan) postwar series-built tank engine. The engine had an output of 463 kW and was built for the Swiss Pz61.
55. p 261. M1 tank powerplant with AGT 1500 gas turbine (1,100 kW) and X-1100/3A transmission.
58. p 261. The position of the inlet for engine combustion air is critical to air filter dust stress. The photo shows the clever arrangement (arrow) on the Leopard 1. Subsequent fitting of track skirts on the vehicles likewise contributed to decreased dust stress.
62. p 264. View of partially opened Pz61 transmission. Shown are the hydrostatic units of the steering gear and both summation gears.
63. p 264. Constant-speed engine (left) and regulator pump of the steering gear of the cannon-armed tank destroyer. The elements are designed for a brief steering output of up to 368 kW. Maximum operating pressure is 400 bar.
64. p 264. View of installed Leopard 1 powerplant module. Modular construction allows a high packing density of powerplant elements but, once installed, there is practically no access to individual powerplant elements.
65. p 265. Removing T-54 gearshift with a block-and-tackle mounted on a truck bumper.
66. p 265. Proof of the rapid exchangeability of Leopard 1 powerplant module by soldiers of the Tank Training Battalion, Munster. Exchange times of between 7 and 10 minutes have been achieved here!
67. p 265. Full-power braking of an MBT 70 test vehicle. The vehicle is equipped with retarders integrated in the transmission.

8373

CSO: 1826/40

AIR DEFENSE FORCES

TACTICAL TRAINING EXERCISE FOR AIR DEFENSE COMMAND POST CREW DISCUSSED

Moscow SOVIET MILITARY REVIEW in English No 6, Jun 82 pp 18-19

[Article by Col V. Garnov: "CP Crew's Tactical Training"]

[Text]

TACTICAL training is the main component of combat training for air defence subunits, in particular their CP crews. The purpose of missilemen's training is to teach them to be highly active in any combat situation in order to cope with the missions assigned.

All the threads of battle control, so to speak, in repulsing enemy air raids are concentrated in the missile battalion CP and especially in the hands of the firing officer. After the CP commander has estimated the situation and taken a decision, the CP crewmen proceed to fulfil their combat mission. The success of their actions will naturally depend on their tactical proficiency, the criterion of their mastery.

The CP personnel are considered tactically ready for action if they have a sound knowledge of the weapons and equipment and can handle them without a hitch according to the requirements of the situation. To gain the necessary skills, the missilemen undergo regular training by means of tactical tasks and practice. In the course of training they enhance their self-confidence and will-power, becoming more resolute and skilful enough to operate successfully in a complicated situation.

This article deals with the practical activity of an air defence missile battalion commander and his officers for improving their subordinates' tactical training standard.

The commander strives, in the first place, to organise combat training so as to achieve the best results. All must be prepared for training in advance, including working places, to avoid any waste of time. CP crew training is usually supervised by officers proficient in method and by experienced specialists.

Tactical drills and briefings, very important for improving crewmen's professional knowledge and skills, are carried out regularly according to the relevant schedule. The commander, acting usually as an instructor, makes sure that the trainees meet the specified time standards and strictly observe the sequence of operations. This kind of training is important when a crew is to begin its tour of duty and especially to prepare for firing practice on the firing range.

When training to prepare the guidance station for operation the CP officers work up detection and interception skills on the actual equipment. The work usually begins with a check of the condition of the control systems. When the missile battalion commander has made sure that both men and equipment are ready for operation, he announces the training theme.

If, for instance, a CP crew has to operate in conditions of "enemy" jamming, the instructor briefly acquaints the trainees once again with the characteristics of air attack weapons and the methods of their destruction. At a critical moment of the "battle" the firing officer is given a narrative informing him that the "enemy" is using jamming. Depending on the situation, he takes the decision

to use this or that tactical manoeuvre with men and equipment and does all he can to put it completely into effect.

Field firing and tours of duty are the most important stages of missilemen's training for improving their professional and tactical skills. Modern battle is fluid and dynamic, the situation sometimes changing radically in seconds. Crewmen's successful operation depends on their teamwork. In these circumstances the commander cannot rely on experienced specialists' replacing young ones or on the use of stereotyped decisions. The most essential thing is high tactical skill of every crewman and his ability to fulfil his mission in any situation.

The exercise director may also give a narrative implying that some crewmen have been "disabled," the purpose being to increase the trainees' fighting efficiency. There are also cases when, in a critical situation, an experienced specialist is replaced by a novice. Incidentally, during a recent field firing exercise held in the subunit the exercise director introduced a narrative according to which a control system technician confidently replaced a guidance officer.

It should be noted that by setting his officers the task to master a related speciality the missile battalion commander tries to improve their tacti-

cal training standard along with their professional qualities. In doing so he proceeds from modern requirements. The plans for individual training are renewed regularly to meet the demands connected with the study of enemy attack weapons, their capabilities and the methods of fighting them. This raises the crewmen's combat readiness, makes them tactically competent and enables them to operate with initiative and resolutely and thus to cope with the assigned missions.

Each time an exercise or a briefing is held the crewmen have to deal with various narratives which substantially improve their tactical skill. When working out the plan for repulsing an air attack the missile battalion commander first sets the trainees a limited number of tasks. The main purpose of narratives is to check the crew's readiness to fulfil their combat mission and the ability of every crew member to detect the first target in good time and to "destroy" it.

The exercise director sometimes gives narratives to check the trainees' vigilance: they may involve a "failure" of the equipment or "enemy" jamming or tactical manoeuvres. When preparing a narrative the commander takes into account all the mistakes made by the specialists and all the inaccuracies in information processing or in taking a decision. This helps the crewmen to eliminate their defects and improve their qualification.

When the training is more complicated (double-purpose), the narratives introduced involve both checking the missilemen's combat readiness and their ability to handle air defence weapons in a quickly changing situation. The trainees have to deal with different narratives combining several themes. Some of them require interception of a great number of targets in conditions of active and passive jamming while others deal with targets flying at different altitudes and in different directions.

The unit HQ attaches great importance to improvement of CP crew's tactical training skill.

Every day HQ personnel develop a new training theme which is brought to the subunit commanders' notice. Target route, speed and altitude, and manoeuvre including jamming conditions change every time. This helps the missilemen cope with the tasks envisaged by their combat training programme and, at the same time, polish up their skill in handling weapons and combat equipment. Such training is very instructive since it arouses high combat activity excluding stereotyped actions and simplification. It develops in the trainees a broad tactical outlook and the ability to see what is essential in estimating the situation and taking a decision.

Mobile simulators are widely used in the missile battalion to train the specialists in tactics. This makes it possible for the CP crew to train with the use of various narratives and to avoid wasting the combat equipment service life. In particular, every crewman can work up his methods of independent actions. Thanks to the use of recording equipment critiques are more concrete and visual.

Simulators are also of great help for developing a CP crew's teamwork in operation. During this training the crewmen acquire skill in timely estimation of the situation and in understanding a great deal of information — which is especially important for training budding specialists—and also in taking a decision when time is short. For instance, it may happen that a firing officer concentrates on primary targets thus losing sight of secondary ones. To avoid this, the crewmen master the technique of informing each other about every target appearing. They also use simulators to work up reporting, target tracking, coordinate plotting and so on.

All these measures aimed at improving the CP crew's tactical training standard will be much more effective if the collective is animated by the desire to carry out its missions in the best possible way. A decisive role in achieving this goal is played by socialist emulation, popularisation of advanced experience and immediate use in combat training of all that is new and progressive.

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CSO: 1812/129

NAVAL FORCES

COMMANDER OF LARGE ASW SHIP 'SKORYY' PROFILED

Moscow KRSNAYA ZVEZDA in Russian 27 Mar 82 p 1

[Article by Capt-Lt V. Chupakhin: "The Commander of the 'Skoryy'"]

[Text] The regular underway night for the crew of the large ASW ship "Skoryy" was restless. Bells striking loudly more than once called the sailors to their battle stations. The fighting men were learning to repel airborne "enemy" overflights and patrol-boat attacks and to deal with damage control. Everyone worked with maximum effort. But the fact that Gunner Seaman V. Fedorov worked painstakingly at his battle station pleased ship commander Capt-3d Rank Aleksandr Kovshar' especially greatly. This sailor had come to the "Skoryy" with a poor reputation. Some people had considered him incorrigible. But he did have, as Kovshar' had managed to notice, an attraction toward naval service and its stern romance.

In the morning, when tensions had fallen off, the commander invited Fedorov to the bridge and thanked him for the service, and he suddenly proposed:

"Do you want to visit here, on the bridge? For indeed, you certainly have not been able to see before how beautiful the 'Skoryy' is from here, from a height."

The sight that opened up from the wing of the bridge was really impressive. The ship was traveling at full speed. A heavy spray rose upward, above the stempost, which thrashed through the steep waves. And the sun painted a bright rainbow on each new cloud of salty spray that flew up on deck. Fedorov simply froze in delight. And Kovshar' stood alongside and told him what an honor it is to serve on this beauty of a ship, how nice it is to be here on the "Skoryy," and the crew....

I happened to be on the "Skoryy" at the time of that cruise and witnessed this apparently ordinary episode from the educational practice of Capt 3d-Rank Kovshar'. And several months later I found out: Fedorov, that same "incorrigible," Fedorov himself, had become an advanced sailor, a PO 2d Class, and chief of a compartment. And I thought: indeed, perhaps these changes for the sailor began on that morning when the commander showed him the rainbow above the deck.

The striving to educate subordinates in the spirit of a love for the sea is a characteristic trait of Aleksandr Vasil'yevich Kovshar'. Let's take, for example, this case. On some ships of the chast' [unit] to which "Skoryy" belongs, the selection and making of michmans [seagoing warrant officers] was a weak link. Some commanders racked their brains at times over where they could get good michmans for the various berths. But this problem never arose for Koshvar'. He looks for michman

candidates primarily from within his own crew. In the last 2 years alone, 8 of the best sailors have decided to stay aboard, to serve as michmans on their own ship. Obviously, it was necessary to have a heart-to-heart talk with each of them not just once, or even just twice, to attract them to the naval service and to convince them that their place was precisely on the "Skoryy."

Koshvar' knows how to persuade with a word, knows how to attract by example. It is sufficient to see, for example, how exacting he is on his daily round of the ship, how he takes everything to heart--from the tint of the sides to the cleanliness of the flag panel that flutters above "Skoryy" before raising it--this man is not indifferent but is a man to whom the honor of his own crew is dear.

But here is what I would like to emphasize especially: concern about the good name of the ship is, for Kovshar', inseparable from concern about the main thing--about its combat readiness. The communist officer never chases after the easy, fleeting success, he does not resort to oversimplification of drills for the sake of it. This example is indicative. Once "Skoryy" was carrying out an ASW mission. Kovshar', thanks to his having thought out his own actions and the options of the "enemy's" underwater maneuvers, was able to bring the ship into a position very favorable for searching for the target. In literally a few minutes after start of the search, the report of the sonar mate, Warrant Officer N. Grankov, was heard: "There is a contact!" The "enemy" made several attempts to break away, but they were not successful--the ASW forces had the initiative. The exercise mission did not call for an attack, and so, it seemed, there was one thing left for Kovshar' to do: reducing risk to the minimum, to gain the necessary time for observing the target, without taking special pains. But the officer did something else: he consciously increased the distance to the target and devised the work with the submarine in such a way that the sonarmen would get practice in maintaining contact under difficult conditions, and he tested various tactical measures, including restoring contact in accordance with the data of another ship. In sum, the sailors both fulfilled the assigned mission excellently and created a good reserve of skill for the future.

To take the difficult heights of combat readiness, to lead his subordinates in storming them--these are what Knight of the Order "For Service to the Motherland in the USSR Armed Forces," 3d Degree, and commander of an "excellent" ship, Capt-3d Rank Aleksandr Kovshar', sees as his party duty and vital mission.

11409

CSO: 1801/212

NAVAL FORCES

ADMIRAL TELLS OF NEED FOR DEVELOPING BOLDNESS IN NEW SHIPS' CAPTAINS

Moscow KRASNAYA ZVEZDA in Russian 8 Apr 82 p 2

[Article by Rear Admiral V. Selivanov: "Boldness of Decision"]

[Text] The Making of a Commander.

The commander of a soyedineniye [force] in which I served once said: "I had a good staff officer who would work the whole day and, at the end of the day, fall into bed and sleep peacefully. But I would make one decision during the day, and I couldn't get to sleep at night."

With these words, the admiral was, in passing, half joking, but he expressed fairly precisely a feature of a commander's work, the main item of which is the adoption of decisions. This characteristic requires the very highest exertion of one's efforts. For indeed, decisions have to be made daily, sometimes hourly. What is more, no two decisions are alike. One is a matter where the fate of an operation or a battle depends upon it, another is the fulfillment of a particular problem, or some maneuver or other, or everyday shipboard matter. It goes without saying that different decisions impose different workloads. But nevertheless, for commanders who are on long-range cruises, deciding even ordinary questions is associated with great stress.

A rescue ship was at an anchorage in the open sea. Its commander decided to take advantage of the stay there of a tanker to replenish certain reserves. The principle of thriftiness is an extremely necessary quality for sailors, but foresight is still more important. And neither the commander of the rescue ship, Capt-3d Rank Yu. Anisimov, nor Capt-1st Rank I. Vinnik, who gave the "OK" for securing the ship to the tanker, which was standing at anchor, grasped this. The rescue ship had not managed to do everything planned when the wind suddenly struck. Its force grew rapidly. Capt-3d Rank Yu. Anisimov understood that the close proximity of the tanker's side was extremely dangerous. However, to leave now was extraordinarily complicated. He suggested to Capt 1st-Rank I. Vinnik that he lift anchor. Then both ships would swing about to the wind, and the rescue ship, first releasing the bow mooring line, would, by means of the wind, easily go away from the tanker. But Vinnik did not approve of this suggestion, considering that the maneuver was too complicated and risky. He ordered the rescue ship to leave independently. Anisimov began this maneuver without due confidence and he could not perform it irreproachably.

It has happened that ships have been compelled to approach each other for refueling, for delivery of a towing line, and for landing people, under all weather conditions, even stormy weather. Great risk is incurred in these situations as an inevitability. But nevertheless, commanders strive to find a solution that will enable the complicated task to be fulfilled with the greatest reliability. In the given situation, the officers, without first considering adequately the possibility of change in the weather, acted without due forethought, even precipitately, which again led to unjustified risk. It turns out that excessive self-assurance and excessive carefulness can involve identically negative results.

We are talking here about ordinary cruise situations. One cannot, however, forget that the ship was created for battle. This means that the commander's skill in making decisions also should be checked against the standard for battle. Sailors are well acquainted with the well-known words of Admiral S. Makarov to the effect that if you meet the weakest enemy--attack, if you meet your equal--attack, and if you meet the strongest enemy--attack. In these words, there is, strictly speaking, no boastful confidence of an easy victory, but there is a deep assurance that in any situation there is a chance for victory. It is necessary only to find it and to be able to use it.

Frontline experience abounds in examples of an astonishing boldness of commanders' decisions based upon precise calculations. In the most complicated situation Soviet officers have managed to perceive the chance for victory and persistently achieve its realization. The experience of such submarine commanders as, let's say, I. Kolyshkin, G. Shchedrin and A. Marinesko have become models of boldness of decision, of innovation, of tactical thought, and of sharpened battle mastery.

I have happened more than once to see in commanders' affairs those who, in following the traditions of the frontliners, persistently worked out, for their own part, a fighting nature, and prepared themselves for each training battle as if it were a real one, and they invariably gained victory.

For example, a commander of a small rocket ship, Capt-3d Rank A. Bobrakov, had a reputation in the chast' [unit] for exceptional reliability. He was entrusted unquestioningly with carrying out the most complicated tasks, and not once did he slip. In so doing, each time the officer sought a new approach, a new method of acting that corresponded most completely with the most complicated situation. The ship's crew was distinguished by such training and it understood the commander so well that it never let him down in his bold innovations.

The crew of the escort ship "Druzhnyy," during all the years that Capt-3d Rank Yu. Albuzov commanded it, knew no evaluations for antiaircraft rocket firing but "excellent." If several ships participated in a training battle with an airborne "enemy," everyone was sure that, if necessary, "Druzhnyy" would correct even the error of others. Capt-3d Rank Albuzov was in command of the situation so well that the decisions he adopted always turned out to be absolutely precise.

Truly bold commanders act without ostentatious dash, without haste. They do not think about their tactical skill without a correspondingly high degree of training of the crew. For, while displaying a high class of personal preparedness at tactical skull sessions is one thing, putting one's schemes into practice with one's subordinates at sea is something else. What is required here is initiative, independence and firm confidence, based upon a realistic and integrated evaluation of all the factors that influence the course and the outcome of battle.

I once worked with one extremely competent officer who was given to original thought and was destined, it would seem, to become a ship's captain in good time. But this officer customarily had to get someone to confirm or approve his decisions, which were interesting and even bold, before he could implement them calmly and assuredly. And, most likely, the man's thirst to test himself for authentic independence, at the commander's pinnacle, one-on-one with an "enemy," had been dampened. When circumstances required this complete personal independence of him, the officer could not reshape himself. He had not been liberated himself, he had not fought for faith in himself, for boldness and initiative, without which one cannot be a real commander.

My own experience and years of work with commanders have led me to the conviction that active boldness in decisions comes as a result of improvement of many qualities and is unthinkable without an energetic attitude on the part of the senior chief. He should know well the strong and weak points of commanders and purposefully influence and guide their independent work into the required channel.

At one time, a system of special cards that reflected the dynamics of the professional growth of each officer was of no little help to me. Of course, a senior chief should also know his subordinates well by memory, but the cards, on which changes were constantly being made, enabled me to follow the growth of the person systematically.

Perhaps the most important thing is to teach the officer to think boldly and creatively. And for this purpose tactics and weaponry must be deeply assimilated. Boldness is, primarily, innovation. However, the introduction of what is new and one's own proceeds on the basis of someone else's deeply and creatively studied experience.

Again, I would like to return to the war years, when the development of tactics went on especially precipitately. He who knew how to go to the crest of this development won. The mechanical use of even the newest methods did not yield results. Let's take the experience of Capt-2d Rank M. Gadzhiyev, who audaciously engaged his submarine in an artillery duel with three enemy surface ships, whose actions some submariners began to repeat blindly. And unsuccessfully, more often than not, because Gadzhiyev's battle was of an exceptional, unrepeatable nature, and it was taught primarily because of the bold approach to the solution of a suddenly existing, most complicated problem.

It is necessary to develop a commanding and, I would say, attacking nature, by persistent and precisely guided work. And, in this sense, any decisions made by a commander--wide or narrow in scope--should be an expression of all his power and potential. Even in little things the commander should strive for perfection, for this is the true method for always maintaining oneself in a status of creative concern and constant search.

I recall serving together with Capt-1st Rank V. Kolondyrets, who was then commander of the cruiser "Sverdlov." As our flag officer said, Capt-1st Rank Kolondyrets, in acting inventively and confidently at sea and in training battles, gave him many happy moments. As a commander-tactician he was a bold one, and he was like that in everything; even in trifles, he could not be different. For example, his moorings were always models of skill. Once, under a strong wind, the cruiser called at a base whose body of water even in calm weather constrained extremely the

maneuvering of such a ship. On board the "Sverdlov" was the Navy CinC. The dialog between him and the ship's captain was extremely brief:

"You have moored somewhere under such conditions?"

"I have not."

"But you can?"

"I can."

And the CinC, knowing this man, was completely satisfied with the answer. Capt-1st Rank V. Kolondyrets moored in a squally wind, as though he had done it dozens of times. He had actually run through this maneuver tens of times mentally. And that is why it turned out that he was ready for it.

The exercise conditions to which commanders are supposed to react realistically are, even with maximum complication, significantly different from combat. For indeed, modern fast-flowing battle will scarcely give much time for adaptation, for psychological restructuring. That means that it is necessary to be ready for this internally, ahead of time, to develop within oneself the habit of thinking in categories of real battle. Yes, boldness on the map, boldness during exercises--these still are not boldness in real battle. But without boldness in thought and in approach to the solution of the assigned mission, it is difficult to expect authentic battle activity from a commander. For this activity is begun with thought, with the level of the commander's mentality, with the habit of seeking a new and unexpected path to victory that will confuse the enemy.

The path to what is new is extraordinarily complex, otherwise new tactical methods would be borne every day. And, at times, officers with little experience get the impression that the commander's enlightenment is, to a great extent, a matter of chance, the result of innate--how does one put it?--intuition. Yes, accidental successes do happen, but persistent, reliable success is always the result of painstaking, purposeful work.

Sometimes a commander is at a loss or even takes offense: his decision, worked out on the spot, at sea, is not approved by the senior chief, who is located in an entirely different area, or at times is even ashore. So, he says, you speak about boldness of decisions here when the initiative is incomprehensibly cut short. No, it is not initiative that is cut short in such cases, but more often than not precipitateness and haste. And the sooner the commander is freed of these deficiencies, the more rigorously and attentively will he be concerned about his actions. For true boldness is always monitorable with precision.

11409

CSO: 1081/213

NAVAL FORCES

DESIRED PERSONAL CHARACTERISTICS OF SHIPS' CAPTAINS DISCUSSED

Moscow KRASNAYA ZVEZDA in Russian 18 Apr 82 p 1

[Article: "The Ship's Captain"]

[Text] It has been said correctly: the sword gets its strength from the shoulder, the ship from the crew and the commander.

So it is that the fate of ships and their commanders are inseparable. Everyone who stops at Guards Red Banner submarine S-56, which has been put up on a pedestal, recalls first of all its daring and quick-witted commander, Hero of the Soviet Union Capt-2d Rank Grigoriy Shchedrin. We think about the record precision with which a Soviet nuclear-powered submarine surfaced in the ice hummocks of the North Pole and there rises up before us the figure of its manly, trail-blazing commander, Hero of the Soviet Union Capt-2d Rank Yuriy Sysoyev. We admire the formidable nuclear-powered missile cruiser "Kirov"--and we are aware of the craftsmanship and responsibility of its commander, Capt-1st Rank Aleksandr Koval'chuk.

Belonging to the cohort of officers who have proved worthy to command a crew, to command a ship--the fleet's basic combat unit, an inviolable particle of the territory of the Soviet state that is outside our waters, is a high honor.

The ships go on training cruises for long weeks and months. In distant latitudes they encounter the tropic zone and severe arctic cold, cruel storms and the silence of the depths below the ice. Watches alternate at battle stations, but it does not change for one person--the ship's captain.

His responsibilities are multifaceted and complicated. He is the first upholder of high military discipline, which cements the crew, a strict chief, whose order is law for each sailor. He is also the first navigator of the crew, who knows irreproachably the rules of the road and answers exclusively for the reliability of shiphandling. He also is an expert on marine law, a diplomat, a full-fledged representative of the state, who, it has been said, "in cases not stipulated by regulations and orders,...considering the circumstances, acts according to his own discretion, observing the interests and values of the Union of Soviet Socialist Republics." He is also a skilled tactician, who can control the ship's maneuvers and the application of the ship's weaponry in battle. He is also a skillful political educator of his subordinates in the spirit of communist ideals and in selfless devotion to the affairs of Lenin's party and to the motherland. He is a first keeper of glorious fleet traditions, and he is ready, in observing his oath, to fight to

the last for the sake of victory, and he is ready to perish in unequal battle, but not to lower the flag before the enemy.

The crew of the missile cruiser "Vladivostok" is distinguished for high stability in training and in service. A routine multimonth cruise which took place under complicated conditions was evaluated with the highest number of points. During the voyage the number of officers authorized to conduct watch independently was doubled. The cruiser's multiple-nationality crew is known for strong unity, a high state of organization and disciplined combat coordination. To a great extent all this is a result of the tireless work of the cruiser's commander, Communist Capt-2d Rank G. Il'in, who combines in his style of work thoroughness with bold initiative, practicality, and a businesslike attitude in striving for great goals and personal activeness in the collective's life with skill in relying in everything on party and Komsomol organizations.

On the ship the crew's eye sees everything. Everything that the commander does quickly becomes known to the crew. And if the sailors see him as bold and skillful on the bridge during a complicated maneuver or a difficult attack, as firm and a follower of the requirements of regulation procedure, open and accessible in his relations with people, sensitive and attentive to their concerns and needs, uncompromisingly correct in evaluations, and direct and honest in reports, such a commander also enjoys deep respect and sincere liking. Ideological maturity, comprehensive competency, moral purity and the fascination of the commander's personality itself emerge as an attractive moral example and will serve unconditionally as an important educational factor.

Official and party duties and an active and vital attitude will prompt the ship's captain to purposefully and persistently develop a high combat-morale quality on the part of the sailors, primarily the officers--his assistants, the chiefs of the ship's departments and the chiefs of the services. Their joint efforts create a healthy moral climate in the collective, sustain strictly the prescribed relations among the sailors, and achieves high effectiveness in martial work. This work must be conducted intensively during long-range voyages, which have now become the basic type of combat training activity of the fleet. It is during sailing that habits acquired at the base are reinforced and the crew's training is polished.

The revolution in military affairs has transfigured decisively the appearance of ships and expanded their combat capabilities. In order to assure control at sea and in battle of a ship that is equipped, for example, with nuclear missiles, nuclear power, aircraft and electronic computers, it is necessary to know much and to be able to do much. The situations in which a ship can find itself during a training cruise are endless, and even more so during actual battle. Therefore, it is especially important that the commander have an acute feeling for what is new, a striving for continuous enrichment of his knowledge and habits, and be a tireless seeker of tactics and developer of effective methods and ways for combat actions. And it is worthy of regret that some commanders who have crossed the sea frontiers many times and have become skilled in exercises and cruises gradually become susceptible to a false sense of omniscience. This often leads to intolerable stagnation and inertness, and at times it is manifested in a dangerous neglect of the norms for naval and technical sophistication.

Such things, even if they are extremely rare cases, too often confirm that indisputable truth, that it is necessary to work constantly, even with experienced commanders and not just with the novices.

The fleets have a precise system for choosing candidates for command posts, for allowing officers to take independent control of a ship, and for developing young commanders. The attention of commanders-in-chief, military councils, and political organs and staffs, who proceed from the instructions of the 26th CPSU Congress about further improvement of the qualitative makeup and assignment of supervisory personnel and improvement of their style of work, have been riveted on this most important matter. As a result, from year to year the fleets are strengthening the backbone of command personnel. The fact that in recent years alone tens of ship captains have been awarded orders and officers A. Gusev, V. Kozlov and V. Lishin and others have been awarded the title "Hero of the Socialist Union" testifies to their valiant service.

The experience of commanders who have shown themselves to be expert tacticians and seafarers, bold organizers of training and education of sailors, are an invaluable asset of ours, and they must be used thriftily. At the same time, it is important to be concerned constantly about creating a promising reserve of command personnel. In order to develop officers who are worthy of rising to the ship captain's bridge, years and years are necessary. And a waste of this work is intolerable.

Developing the commander is a special concern of the flag officer. It is his paramount service duty. Much depends here upon his work style. And the flag officer is seen not as a guardian or guide but as a wise but strict teacher, any of whose instructions make a memorable lesson. Tasks are becoming more complicated, requirements are rising, tactics are being developed, and methodology is being improved. But the flag officer has to concentrate the efforts of ship captains on the main thing that the fleet lives on. For example, right now, at the end of the winter training, at a time of intensive cruises, exercises and firings, it is especially important to achieve maximum effectiveness for each mile of sailing, to evaluate exactly from the standpoint of actual battle the final results of martial work, and to provide for the complete execution of socialist commitments that were adopted by the ships' crews in the competition for a worthy greeting to the 60th anniversary of the founding of the USSR under the motto, "The Soviet people's peaceful work needs a reliable shield!" Whatever field of training and service is discussed, it cannot be forgotten that strong military discipline and strict regulation procedure are a strong foundation for steady successes.

In the solution of these tasks, achievements will be more significant the better the ship's captain relies on party and Komsomol organizations and participates more actively in their life. In their turn, the activity of party and Komsomol organizations will be more fruitful when they work purposefully to fulfill the tasks set for the crew, support the commander's exactingness, and strengthen his authority. Party and political work on the ship, especially during a long-range cruise, is called upon to create and sustain in the crew that combat elan that multiplies the spiritual forces of the sailors, their manhood and firmness, and their readiness to carry out any order of the commander.

The ship is a sort of home for the sailor, his fort, his glory and his honor. The commander who has been called upon, under the shelter of the flag of the socialist mother country, to keep order in this home, to raise the combat readiness of this fort, and to multiply the honor and glory of one's own ship, and, together with it, the honor and glory of our heroic Navy and of our valiant Armed Forces, is truly honorable and noble.

NAVAL FORCES

'SKORYY' SAILS FOR MEDITERRANEAN SEA

Moscow KRSNAYA ZVEZDA in Russian 29 Apr 82 p 2

[Article by Capt 1st Rank K. Burkovskiy (Red Banner Black Sea Fleet): "Recommended for Introduction"]

[Text] The fleet command established direct communications with the commander of the large ASW ship "Skoryy," Capt 3d-Rank Kovshar'.

"How much time do you need to prepare to go the Mediterranean?"

"The equipment is in order and the ship and crew are ready to sail," reported Kovshar'.

The ship soon went to sea. The cruise occurred under complicated conditions. The plan for combat training was intense: during the search for "enemy" submarines, the sailors carried out practice attacks against a complicated tactical background, in unison with the perfecting of measures for ship and equipment survivability and for back-up methods for controlling the ship.

During the cruise the training of the sailors increased, and the organization of services and of military discipline was improved. The "Skoryy's" commander, political worker and party organization managed to close the crew's ranks even more strongly. There was much that was new that appeared here in the organization of socialist competition and in the drive for model upkeep and maintenance of the equipment. The skillful use of such forms as a competition for the best battle station deserves attention. Through high professional preparation, training, and excellent quality of work on guidance for the sailors, time between repairs is constantly being increased.

In brief, the ship has managed to accumulate much that is valuable and useful. In accordance with the results of the cruise, a fleet commander's order was issued that required the experience of the advanced crew--one of the leaders in the competition for a worthy greeting to the 60th anniversary of the founding of the USSR--to be deeply studied and introduced.

The staff officers of our chast' [unit] undertook this work vigorously. During the winter training period, they regularly visited "Skoryy," studied how training, competition and military education had been arranged there, and then they brought the grains of what was advanced to the other ships. Today, at the conclusion of the

winter combat training, it can be said that everything has had its effect. We already perceive on the job how that experience is working and what results it is producing.

The escort ship "Razitel'nyy" went to sea the other day. It went, though little time had been allocated to preparation for the cruise. Much was observed in the work of the commander, Capt-3d Rank A. Il'in, that at one time had brought success in a similar situation to Capt-3d Rank A. Kovshar'. And this was not accidental. During the winter period the officers had met many times and exchanged experience. Their ships jointly solved combat-training tasks in the Mediterranean Sea. Il'in used every opportunity to obtain from his comrade information on organizing training and competition, and he copied his tactical measures. And now this stood him in good stead. "Razitel'nyy" went to sea on time and solved its assigned mission with good quality.

The example confirms that the making of young commanders is going on at an accelerated pace when they actively and creatively copy the advanced experience of their colleagues. Those who take an indifferent attitude toward this experience attain command maturity more slowly and commit errors and oversights.

This case is indicative. The minelaying destroyer "Blagorodnyy" was being readied to go to sea for an artillery firing. On the eve of the sailing, the staff of the unit checked the ship and discovered a number of deficiencies. The decision to go to sea was set aside in order to create an opportunity for the crew to eliminate them. In so doing, the desirability of using the experience in high quality preparation for firings built up on other ships of the unit was called to the special attention of the commander of "Blagorodnyy," Capt-3d Rank B. Shevchenko. Unfortunately, the commander did not follow this recommendation but displayed self-confidence. As a result, despite the fact that the crew of the "Blagorodnyy" had spent no little effort preparing the weaponry and equipment and had completely eliminated deficiencies, it was not able to get a high evaluation for the firing.

To constantly develop in oneself a feeling for what is new, a need to compete with those who are in the lead--these should become the law for each of us.

Of course, the desire alone to study and introduce advanced experience is not enough. One must also possess the skill to do this and to engage in it concretely. For indeed this also happens: a ship achieves some kind of a success and everyone speaks about advanced experience and about the need to disseminate it, but no one clearly defines just what this experience consists of.

In my view, if the commander or the staff recommends that something be introduced, then it should be presented in specific terms. That is how we should strive to undertake it. Let's say that during the winter training period the staff has generalized and analyzed the experience of the best artillery firings. Definite consistencies and ways for raising the quality of firing training were found. All this was reflected in the tables, whose use cuts the time needed for analyzing the situation and adopting a decision.

Unfortunately, some commanders of ships and subunits take a disdainful attitude toward what is persistently recommended by the staff for use. Some people consider that the generalization and introduction of advanced experience on ships is a matter only for officers of the staff. They are actually its active bearers and

propagators. But, as is said, water does not flow under a recumbent rock. Those who should use the experience directly--the commanders of ships and subunits--should also show initiative.

In analyzing the course of combat training during the winter training period, we pay special attention today to the reserves that are available in that important matter. It would seem that, in order to introduce advanced experience, better use must be made of commander training, demonstration exercises and drills. Meanwhile, this is still happening: there is advanced experience, but exercises and tactical meetings are being conducted in accordance with a fixed pattern.

Long ago it became the rule that, after each long-range cruise, commanders would make reports in which there undoubtedly were kernels of experience. But the staffs do not always analyze them, and meanwhile they are stored as deadweight in safes.

Everything that is advanced that has been gained in combat training and in competition and in the drive for high military discipline and a closing of ranks in collectives should be noted in good time and recommended for introduction. In its turn, everything that is recommended should be introduced unconditionally. This will help us to take new heights of combat readiness in the summer training period and achieve new successes in the competition for a worthy greeting to the 60th anniversary of the founding of the USSR.

11409

CSO: 1801/212

PERCEPTIONS, VIEWS, COMMENTS

COMMENTARY ON WESTERN THEORIES OF CAUSES OF WAR

Moscow SOVIET MILITARY REVIEW in English No 6, Jun 82 pp 42-44

[Article by Col N. Khmara, D. Sc. (Philosophy): "War Theories to Order (Bourgeois Theories on the Essence, Origin and Role of Wars in History)]

[Text]

The bitter ideological struggle on the key issue of war and peace in the world today embraces such important problems as the origin, essence and role of wars in human history.

Marxism-Leninism defines war as a historical class phenomenon. All wars are a consequence of the profound socio-political developments of an antagonistic society. The germ of war is present in any social order based on private property, exploitation of man by man and oppression of the working people.*

Bourgeois analysts, obedient to their masters in the ruling circles of the imperialist states, seek to fake a theoretical foundation for the imperialist aggressive policies in order to mislead the world public concerning the true origin and nature of wars.

Numerous concepts have been developed for this purpose. Socio-political theories on war occupy a prominent place among them. They affirm that the causes of wars should be sought among the social and political features of public life. Many Western theories insist that wars are caused by "communist policy," by "the policy of the Kremlin," etc. Especially eager pedlars of such fictions are the leaders of NATO and the US Administration.

Of course, these and similar slanderous theories have no material foundation whatever. Speaking to the 26th CPSU Congress L. I. Brezhnev said: "A war danger does exist for the United States, as it does for all the other countries of the world.

* For more detailed information see "Causes and Sources of Wars," Soviet Military Review, No. 10, 1981.

But the source of the danger is not the Soviet Union, nor any mythical Soviet superiority, but is the arms race and the tension that still prevails in the world."

This is confirmed in particular by recent events. The US Administration arrogantly uses the neutron bomb to blackmail the world, escalates preparations for deploying medium-range missiles in Western Europe and advertises so-called limited nuclear war.

Imperialist ideologists, in an effort to whitewash imperialism, misinterpret and misrepresent the Marxist-Leninist theory of violence and the theory of class struggle. They assert that according to Marx and Lenin the victory of socialism in the world can only be attained by war against capitalism. But Marxism-Leninism never said that the class struggle in the capitalist countries must develop into world war. The Programme of the CPSU states: "Socialist revolution is not necessarily connected with war... The great objectives of the working class can be realised without world war." These ideas permeate the decisions of the 25th and 26th Party congresses.

Another group of theories to explain the origin of wars is what they call in the West "theories of international anarchy." This professes that national sovereignty is the principle cause of all international conflicts. R. Aron, a French sociologist, states outright that wars are caused not by that "all-powerful evil-doer, capitalism," as Marxists would assert, but by the division of the world into sovereign states. The theory makes particularly bitter attacks on nations which struggle for their liberation, independence and sovereignty. These theories call for abandoning national sovereignty in favour of a political union of states under the tutelage of the major imperialist powers, such as the USA, Britain, France. This is in fact no more than a way for the big great imperialist powers to swallow up the small nations. The concept passes over in silence the fact that imperialism is the primary source of wars, it justifies expansion and aggression by imperialist powers against small nations, and tries to prove the necessity for imperialist military blocs.

The sociological approach has given birth to a number of naturalistic theories of war: psychological, neo-Malthusian, geopolitical. Psychological theory, represented mainly by the Freudist school, suggests that the cause of war lies in "a man's inherent aggressiveness." A. Meherlo of the USA states in his book "That Difficult World" that there is a deeply rooted instinct of aggressiveness in every man which pushes him towards war. Another psychological school insists that wars are caused by the human reaction to danger from outside.

From this it would follow that the ones responsible for wars are psychically unbalanced state leaders, whereas the monopolists whose interests they represent have nothing to do with it.

Among the most reactionary theories are neo-Malthusian explanations of the causes of war. They attribute wars to overpopulation, which embitters the struggle for survival to the extent of war. Professor H. Bouthoul of France has even advanced a theory which he called "polemology — a new science of war" (from the Greek "polemos" — war, and "logos" — science). The polemologists reduce all causes of war to man's individual aggressiveness allegedly due to overpopulation.

These misanthropic theories stubbornly overlook the fact that the low living standard of people in different parts of the world, especially in the former colonies, is caused by imperialist exploitation. Such theories advocate neo-colonialism and expansionist wars against the developing countries.

At present the imperialists are once again resorting to geopolitics to justify their expansionist policies. Especially outspoken in this respect is the "concept of expanding frontiers." It states that with industrial and technological advance of a country its territory must be expanded by force. This predatory, jungle-law theory is specially intended to justify the expansionist policy of imperialism.

Some modernistic theories try to associate wars with technological progress. The book "The Breakthrough to Peace" published in the USA warns that modern sophisticated weapons systems are being gradually automated to the point where they get out of man's control and turn into a demonic force looming over the humanity. Once again, the authors overlook the essential fact that militarisation of countries and the arms build-up do not occur of themselves but are encouraged by the military industrial complex magnates. Idolisation of technology and attribution of supernatural features to it are in the final analysis intended to cover up those really responsible for wars.

There are numerous other theories to explain the causes of war. However, that is not a proof of the fertility of the bourgeois military science. The truth about the origin of wars is one, but the lies are multiple. Bourgeois analysts carefully conceal the truth and do everything to make war look like an eternal and intrinsic feature of human society. H. Berbera says: "As long as the basic causes and motives of wars remain the same there can be neither a first, nor a last war." If that is true, there is no practical purpose in looking for

or exposing the culprits and the anti-war struggle is therefore useless. This is the final conclusion to which these theories lead.

With no less zeal do the bourgeois ideologists misinterpret the essence of war. They took special advantage of the 200th anniversary of K. von Clausewitz, a prominent German military theoretician. Bourgeois sociology widely refers to Clausewitz's maxim that "war is a continuation of state policy by different means."

V. I. Lenin accepted this formula too, and he actually highly appreciated K. von Clausewitz as a military theoretician and gave him credit for his discovery of the relationship between war and politics. But Clausewitz failed to see the dependence of a state's external policy on its internal policy, he did not realise that the policy of a state is, in V. I. Lenin's words, "a concentrated expression of the economy." Clausewitz believed that the foreign policy pursued by a state in war expressed the interests of the whole nation. Accordingly modern bourgeois analysts assert that wars are waged by state leaders on behalf of the whole country. Developing the true, not imaginary essence of war V. I. Lenin stated that war is a continuation of the policy of the ruling class by violent means. Bourgeois theoreticians go out of their way to conceal the class essence of wars in order to call any imperialist military intervention an expression of the national will. But imperialism pursues only the interests of monopoly capital and its policy runs counter to the interests of the working people.

Bourgeois sociologists attribute different roles to wars in history. Let us consider the most dangerous theories and concepts. Some of them praise wars in the history of mankind. These theories belong to the most rabid proponents of the imperialist system. They praise militarisation of society, minimise the hazards of nuclear war. These war advocates seek to convince people that there are issues which are far more important in life than peace. Statements to that effect can often be heard from US political spokesmen. In the book "War and Civilisation from Early History to Nuclear and Space Era" (1980) polemologists suggest that peace may be sacrificed to things of greater value, for instance, the survival of the state.

This subjectivist approach permits imperialism to justify military aggression against socialism under the pretext that it cannot survive peaceful competition with the socialist world. Imperialism is ready to commit any crime, to sacrifice anything for the sole purpose of survival. Zbigniew Brzezinski, former Assistant to the US President for Na-

tional Security Affairs, once cynically said that a nuclear world war was nothing to be afraid of, for it would cost no more than 10 per cent of the world population.

The 26th CPSU Congress brought to the attention of the world the fact that some Western spokesmen are trying to present a limited nuclear war as a possible option and to adapt the public to such a possibility.

The director of the so-called US research centre for the USSR and countries of Eastern Europe, tried to prove that a limited nuclear conflict was not bound to grow into a total nuclear war.

Exposing such phony tranquilising bunkum L. I. Brezhnev warns that "this is sheer deception of the peoples! A limited nuclear war as conceived by the Americans in, say, Europe would from the outset mean the certain destruction of European civilisation. And of course the United States, too, would not be able to escape the flames of war."

There are numerous other theories of war circulated in the West. Some of them approach wars more cautiously, while the pacifist concept condemns any and every war, including war for freedom against oppressors and invaders. Pacifists hope in vain to restrain the imperialists by describing the horrible effects of a future nuclear war.

Distorting the essence, causes and role of wars in history, bourgeois ideologists comply with the orders of the imperialist reactionaries and the will of the ruling class in an effort to mislead the popular masses concerning the aggressive nature of imperialism's military policy.

Exposure of the false concepts of wars is a vital necessity for all those who cherish peace, democracy and socialism.

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CSO: 1812/129

PERCEPTIONS, VIEWS, COMMENTS

U.S., NATO POLICIES IN MEDITERRANEAN BASIN CRITICIZED

Moscow SOVIET MILITARY REVIEW in English No 6, Jun 82 pp 45-47

[Article by V. Yefremov, under the rubric "International Affairs": "For Peace and Security in the Mediterranean"]

[Text]

THE AREA of the Mediterranean Sea, its eastern part above all, has become one of the most volatile "hot points" on the globe. Under the false pretext of a "Soviet military threat," the "strategic center of gravity" is being shifted there and US might in the Mediterranean, which is expected to be beefed up by naval formations from Britain, the FRG and Holland, is being bolstered. All this is being done to reinforce a southern springboard for delivering strikes at socialist countries as well as for armed interference in the affairs of any Mediterranean state.

The independent states of the Arab East and Northern Africa are constantly being subjected to political pressure on the part of the United States, to blackmail and outright military threats. There are more than enough examples of this. Thus, last August US warships led by the aircraft carrier Nimitz made an incursion into the Bay of Sidra. Fighter planes from this carrier shot down two Libyan aircraft which had been patrolling their own territorial waters, while bombers made "training" raids on the Libyan cities of Tripoli and Bengasi.

Last November the Pentagon conducted in this area the most massive manoeuvres since the war, code-named Bright Star-2, during which American troops practised landings on the territory of an Arab country. Dozens of ships of the US Sixth Fleet took part in them; 4,000 US Marines from the rapid deployment forces disembarked on Egyptian soil, and American strategic bombers carried out bombing "exercises" on the territory

along the Lybian border. American AWACS airplanes were quickly dispatched to Egypt to monitor Lybian air space. Washington simultaneously prodded the Sudan into a "preventive strike" against Lybia. Sudanese President Nimeiri declared his country to be in a "state of war with Lybia," while Washington officials announced that they would support the Sudan's aggression against Lybia.

One of the principal means of suppressing national liberation movements in the Mediterranean area is the US Sixth Fleet, which is NATO's "strike force" in the South European theatre of operations. Depending on the situation, it is composed of as many as 50 ships of various designation, including aircraft carriers and submarines, as well as some 200 carrier-based planes. Furthermore, in the event of interventionist actions against states of the Middle and Near East, the 1st Amphibious Group with Marine subunits is permanently stationed in the Mediterranean.

Under the NATO structure, the South European theatre of operations includes the territories of Italy, Greece, Turkey, the Mediterranean Sea and the Sea of Marmora, and even the southern part of the Black Sea. The Apennine Peninsula, so Italian journalists claim, is as full of American military installations as a watermelon is full of seeds. Some 12,000 American servicemen are stationed there on military bases and strongholds of various designation (naval, air, communication, supply, etc.). The Commander-in-Chief of the South European theatre of operations is located in Naples. The headquarters of the US Sixth Fleet is also there, in the city's port.

Washington views the territory of Italy as a springboard for the conduct of military operations by American armed forces far beyond the confines of NATO's sphere of activity — the Middle East, Persian Gulf and the Indian Ocean. There exists a plan for the creation of the so-called "arc of defence" which is supposed to reach into Pakistan in the East and Portugal in the West, and to include Israel, Egypt, Turkey, Greece, Italy and Spain. With the aid of this "arc" Washington, as people in that region see it, wants to protect the "vulnerable underbelly" of Western Europe. In reality, however, what is at issue is the application of NATO's zone of action to Northern Africa and the Near and Middle East, right up to the Persian Gulf and the provision of "optimal conditions" for the actions of the American rapid deployment forces in the Mediterranean and "east of Suez."

In this connection Washington is concentrating on restoring its military ties with Turkey in full measure. Washington became particularly interested in military bases in this country after Iran categorically demanded that American military bases be dismantled on its territory. Here account is taken not only of Turkey's direct proximity to the USSR, which has always been a strong calling card with the USA and the other NATO countries, but also its role as the "northern guard of the Middle East and Africa." The US Department of Defence took great pains to have Congress lift the embargo on US weapons deliveries to Turkey, owing to which the latter closed down American military bases on its territory in 1975. The Pentagon also got Congress to consent to give military aid to Turkey. After the embargo was lifted in the summer of 1978 the Turkish government announced the resumption of the activity of US military bases. According to the Western press, functioning on Turkish territory today are some 40 American military installations, including 26 military bases on which as many as 5,000 US armed forces personnel are stationed.

Israel and Egypt are the United States' most energetic accomplices in the Eastern Mediterranean. Following the conclusion of the Camp David agreement Israeli Prime Minister Menahem Begin proposed to Washington to set up a naval base in Haifa and an air base in Ezion. Washington, of course, will take advantage of Tel Aviv's and Cairo's good graces. An agreement has been reached on the Pentagon's using two air and one naval base which Israel handed over to Egypt, as well as on the setting up of two American air bases in Israel's Negev Desert. The bases which the Pentagon has received or is building in these countries will become transfer points for the rapid deployment forces, which are one of the chief instruments through which the course for international terrorism proclaimed by US President Ronald Reagan and Secretary of State Alexander Haig is to be pursued.

Washington's Mediterranean policy ignores the interests and aspirations of the peoples of this region. "Today, just as many years ago, the warships of the US Sixth Fleet in the Mediterranean are an active means for bringing pressure to bear on the African nations," stated M. Qaddafi, leader of the Libyan revolution. "This fleet is a link in the chain of conspiracies against the Arab countries, Mozambique, Angola, Ethiopia and other independent countries. It supports reactionary forces, including Israel and racist minority governments."

Washington ignores not only the interests of the Arab and African peoples, but also the national interests of the NATO member countries. For example, in a bid to woo Greece and Turkey, Washington is trying to resolve their conflict over Cyprus within the NATO framework. This solution is being rejected by the people of Cyprus, who want an international conference on Cyprus, as was once proposed by the Soviet Union.

Unlike the United States, which is located thousands of miles away from the Mediterranean, the Soviet Union, while being a Black Sea power, is also a Mediterranean one. It cannot but show an interest in the situation in this region, inasmuch as the USA and the other NATO countries have for many years now been concentrating large forces in the direct proximity of Soviet borders. For this reason the Soviet Union's introduction of a naval squadron into the Mediterranean was quite understandable and justified.

The Soviet Union supports all the initiatives of the Mediterranean countries aimed at demilitarising the basin. It itself has advanced many such initiatives. The progressive public of the region called the proposals made by Leonid Brezhnev in June 1981 at a reception in honour of Algerian President Chadli Bendjedid a programme of peace and security for the Mediterranean peoples. These proposals are so extensive, topical and constructive that they should be implemented in their entirety.

The Soviet Union believes that the Mediterranean should and can be transformed from a region of military and political confrontation into a zone of peace and cooperation, stated the head of the Soviet state. These aims could be served by the reaching of international agreements on the following issues:

- the application to the area of the Mediterranean of confidence-building measures in the military field, which have already proved to be effective in international practice;
- a coordinated reduction of armed forces in that area;
- withdrawal from the Mediterranean of ships carrying nuclear weapons;
- desisting from deploying nuclear weapons on the territory of Mediterranean non-nuclear countries;
- the adoption of a commitment by the nuclear powers not to use nuclear weapons against any Mediterranean country which does not permit the deployment of such weapons on its territory.

These proposals by the USSR have been enthusiastically endorsed and supported by the peace-loving public in the region and the world over. Thus, during the official visit to Malta of Deputy Chairman of the USSR Council of Ministers N. V. Talyzin last autumn the necessity was underscored to turn the Mediterranean into a zone of stable peace and fruitful and equitable cooperation. Both sides came out in favour of reaching international agreements in the spirit of the above-mentioned principles.

It is telling, however, that the official press of the United States and several other NATO countries have tried to play down and even distort the all-encompassing Soviet initiatives on the Mediterranean Sea. American envoys continue to pressure the Mediterranean countries into taking part in Washington's military preparations in the Middle East and the Persian Gulf. The United States continues to beef up its military presence in these regions. Here, too, it is playing power politics, a practice which has brought it many shameful military and political failures.

Washington's Mediterranean gamble will not pay off, since it runs counter to the vital interests of three neighbouring continents.

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CSO: 1812/129

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